User Guide - Oracle *i*DataAgent

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Overview - Oracle *i*DataAgent

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WHERE TO GO NEXT

Install the Oracle *i*DataAgent
Walks you through the process of installing the Oracle *i*DataAgent.

INTRODUCTION

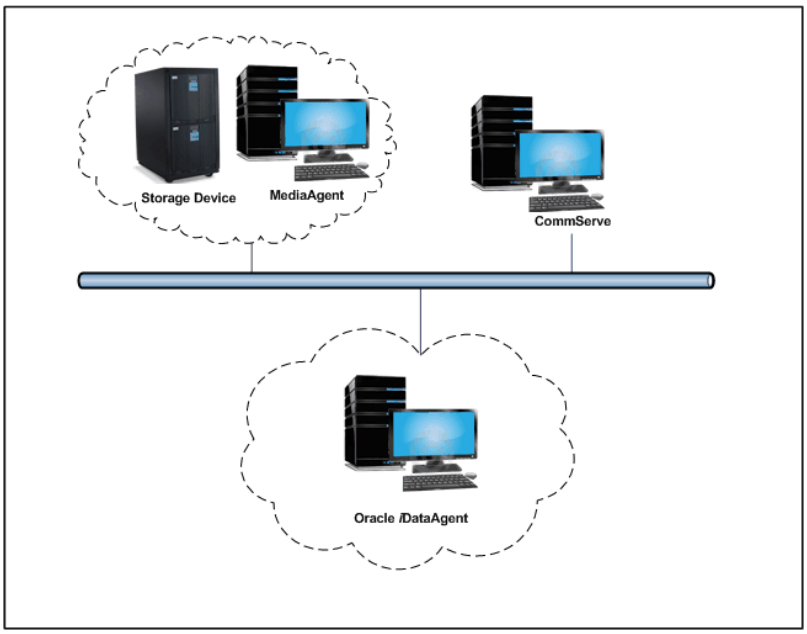
The Oracle *i*DataAgent provides an unique, simplified end-to-end backup and recovery solution for Oracle data in your enterprise. In addition to complete protection of the entire Oracle database, it provides more granular backup and recovery of specific data files and logs. The product can be used to perform both full system rebuilds and granular recovery of the data.

KEY FEATURES

FULL RANGE OF BACKUP AND RECOVERY OPTIONS

The Oracle *i*DataAgent provides the flexibility to backup the Oracle database in different environments. This is very essential since the Oracle database is always subject to constant changes.

You can perform a full or incremental backup of the entire database or individual datafiles/ tablespaces, or archive logs at any point of time. The following section describes the backups that can be performed in different environments.



OFFLINE BACKUP

When the database is shutdown and not available for use, you can perform a full backup of the database without the logs. This is especially used when the data is consistent and there are no transactions in the database.

ONLINE BACKUP

In cases, when you cannot bring down the database to perform an offline backup, you can use the online backup method. Here, you can perform full or incremental backups when the database is online and in ARCHIVELOG mode. This is very useful when you want to perform a point-in-time restore of the database.

You also have the facility the backup only the archive logs when the database is online. These logs can be applied to an online backup to recover the database to the current point-in-time.

You can also protect the non-database files and profiles using the appropriate File System *i*DataAgent.

SELECTIVE ONLINE FULL BACKUP

This *i*DataAgent allows you to backup and store copies of valid data from a source copy of a specific storage policy to all or one active secondary copy within a storage policy providing for a better tape rotation. An online full backup job is copied to a selective copy, if the full backup job cycle completes successfully thereby allowing you to select, store and protect your valuable data on a secondary copy for future restores in a more viable and economic mode.

BACKUP AND RECOVERY FAILOVERS

In the event that a MediaAgent used for the backup or recovery operation fails, it is automatically resumed on alternate MediaAgents. In such cases, the backup or restore job will not restart from the beginning, but will resume from the point of failure. This is especially useful for backups and restores of large amount of file system data.

In the event, that a network goes down, the backup and recovery jobs are resumed on alternate data paths. Similarly, in the event of a device failure, the jobs are automatically switched to alternate disk and tape drives.

EFFICIENT JOB MANAGEMENT AND REPORTING

You can view and verify the status of backup and recovery operations from the Job Controller and Event Viewer windows within the CommCell Console. You can also track the status of the jobs using Reports, which can be saved and easily distributed. Reports can be generated for different aspects of data management. You also have the flexibility to customize the reports to display only the required data and save them to any specified location in different formats. For example, you can create a backup job summary report to view at-a-glance the completed backup jobs.

In addition, you can also schedule these reports to be generated and send them on email without user intervention.

BLOCK LEVEL DEDUPLICATION

Deduplication provides a smarter way of storing data by identifying and eliminating the duplicate items in a data protection operation.

Deduplication at the data block level compares blocks of data against each other. If an object (file, database, etc.) contains blocks of data that are identical to each other, then block level deduplication eliminates storing the redundant data and reduces the size of the object in storage. This way dramatically reduces the backup data copies on both the disk and tapes.

ADD-ON COMPONENTS

SNAPPROTECT BACKUP

SnapProtect backup enables you to create a point-in-time snapshot by temporarily quiescing the data, taking a snapshot, and then resuming live operations. SnapProtect backup works in conjunction with hardware snapshot engines.

TERMINOLOGY

The Oracle *i*DataAgent documentation uses the following terminology:

CLIENT	The computer in which the *i*DataAgent is installed and contains the data to be secured.
INSTANCE	The Oracle database to be used for the backup and restore operations.
SUBCLIENT	The Oracle data to be backed up.

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New Features - Oracle *i*DataAgent

NEW FEATURES FOR ORACLE *I*DATAAGENT

SUPPORT FOR BACK UP AND RESTORE OF ORACLE 12C, INCLUDING CONTAINER AND PLUGGABLE DATABASES

Oracle 12c is now supported, including backing up and restoring container databases (CDB) and pluggable databases (PDB).

DATA PROTECTION OPERATIONS

- For Oracle and Oracle RAC *i*DataAgents, you can now assign tags to a specific backup operation in order to facilitate restore based on the assigned tag. For more information, Learn more...
- Oracle RMAN scripts for backup and restore operations can now be viewed and edited from the CommCell Console. Learn more...
- For archive log backups, you now have the facility to disable the log switch of current log files.

  Learn more...
- Oracle instances can now be automatically or manually discovered for backups. Learn more....
- Multiple copies of data or log backups are now supported from the CommCell Console.

  Learn more...

DATA RECOVERY OPERATIONS

- You can now restore the control file and SP file from a specific backup piece from the CommCell Console. Learn more...
- Oracle archive log files can be restored based on tags from the CommCell Console. Learn more...
- Oracle RMAN scripts for backup and restore operations can now be viewed and edited from the CommCell Console. Learn more...
- When performing table level restore, you now have the facility to select the dependent and referenced tables of the selected tables for the restore operation. You can also choose to include triggers, constraints, indexes, grants, stored procedures, or other external parameters (such as COMPRESSION or PARALLEL) on the selected tables for the restore operation. Learn more...
- You can resubmit Oracle restore jobs from the Job History window without the need to reconfigure the job with the same options. If required, you can also modify the existing configuration and resubmit the job. Learn more...
- During Oracle restore operations, the restore and recover processes are run as separate RMAN run blocks and hence when resumed, the job is restarted from the last failed RMAN run block. Learn more...

SNAPPROTECT

ADDITIONAL SNAPPROTECT SUPPORT FOR THE ORACLE *I*DATAAGENT

- SnapProtect can now be utilized to perform ASM (Automatic Storage Management) and RMAN backups.

  In addition, SnapProtect now supports RMAN based Movement to Tape allowing you to use Recovery Manager (RMAN) for the movement to media operation.
- Table Level restores of SnapProtect data is now supported.

Learn more...

ADDITIONAL SNAP ENGINE SUPPORT FOR SNAPPROTECT

The following Snapshot Engines are now supported for SnapProtect:

- Data Replicator
- Dell EqualLogic
- HP StorageWorks EVA
- IBM XIV
- EMC Celerra

SNAP TEST TOOL

Snap Test tool is now available to test basic snap engine operations. See SnapProtect - Snaptest Tool, for more information.

MULTI-STREAMING FOR SNAPPROTECT

Multi-stream backups are now supported for SnapProtect. You can now use multi-stream when moving data to media.

VOLUME MANAGER SUPPORT

SnapProtect Volume Manager support has been extended to support more configurations for e.g., Multiple Physical Volumes containing one Logical Volume. See Supported Volume Managers, for a complete list of volume managers supported for SnapProtect.

ADDITIONAL SNAPPROTECT SUPPORT FOR UNIX

SnapProtect support on Unix has been extended to include the following platforms, file system, and volume manager types:

- HP-UX
- Sun Volume Manager
- Solaris Local Zones
- Zettabyte File System (ZFS)

COMMAND LINE INTERFACE

Oracle third party command line operations can now be executed from the Oracle Enterprise Manager application.

NEW COMMCELL FEATURES SUPPORTED FOR ORACLE IDATAAGENT

DEPLOYMENT

CUSTOM PACKAGE

The Custom Package feature is now extended to almost all products in the Calypso suite. Using Custom Packages, you no longer have to push the entire software DVD through a network, which is especially useful for reducing WAN/LAN payload while installing remote clients.

It is also possible to create Custom Packages using a customized `.xml` file.

When used in conjunction with the Install Software from the CommCell Console and Automatic Updates features, WAN bandwidth can be drastically reduced during remote site installations. Learn more...

INSTALL FROM THE COMMCELL CONSOLE

The software installation for this component can be initiated and managed from the CommCell Console, which facilitates the building of your CommCell and eliminates the need to manually install the software. Additionally, the installation of this component can be scheduled to occur at a time suitable for your environment. For more information, see Install Software from the CommCell Console.

UNINSTALL FROM THE COMMCELL CONSOLE

This component can be uninstalled using the CommCell Console. The Uninstall Software utility allows you to quickly see a list of the software packages installed on the selected computer, from which you can then select the components to uninstall. With this, you can easily manage removing software components from client computers and MediaAgents in your CommCell without having to directly access each computer. For more information, see Uninstall Components using the CommCell Console.

SCHEDULE POLICY

A data protection schedule policy can now be created for this specific agent. For more information, see Agent-Specific Data Protection Schedule Policy.

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System Requirements - Oracle *i*DataAgent

System Requirements | Supported Features

The following requirements are for the Oracle *i*DataAgent:

APPLICATION/OPERATING SYSTEM		PROCESSOR
ORACLE 12C DATABASE (ENTERPRISE OR STANDARD EDITION) ON:		
LINUX	**ORACLE LINUX**	
	Oracle Linux 6.x with glibc 2.12.x	x64
	Oracle Linux 5.x with glibc 2.5.x	x64
	RED HAT ENTERPRISE LINUX/CENTOS	
	Red Hat Enterprise Linux/CentOS 6.x with glibc 2.12.x	x64, Power PC or compatible processors
	Red Hat Enterprise Linux/CentOS 5.x with glibc 2.5.x	x64, Power PC or compatible processors
SOLARIS	Solaris 11.x	x64, Sparc5 (or higher recommended)
	Solaris 10.x	x64, Sparc5 (or higher recommended)
WINDOWS	**WINDOWS 2008**	
	Microsoft Windows Server 2008 Editions with a minimum of Service Pack 1* *Core Editions not supported	
ORACLE 10G/11G (R1, R2 OR HIGHER) DATABASES (ENTERPRISE OR STANDARD EDITION) ON:		
AIX	AIX 7.1	Power PC (Includes IBM System p)
	AIX 6.1	Power PC (Includes IBM System p)
	AIX 5.3	Power PC (Includes IBM System p)
HP-UX	HP-UX 11i v3 (11.31)	Itanium
	HP-UX 11i v3 (11.31)	PA-RISC
	HP-UX 11i v2 (11.23)	PA-RISC
	HP-UX 11i v2 (11.23)	Itanium
LINUX	**ORACLE LINUX**	
	Oracle Linux 6.x with glibc 2.12.x	Intel Pentium, x64 or compatible processors
	Oracle Linux 5.x with glibc 2.5.x	Intel Pentium, x64 or compatible processors
	Oracle Linux 4.x with a minimum of glibc 2.3.4	Intel Pentium, x64 or compatible processors
	RED FLAG LINUX	
	Red Flag Linux 4.x with a minimum of glibc 2.3.4	Intel Pentium or compatible processors
	RED HAT ENTERPRISE LINUX/CENTOS	
	Red Hat Enterprise Linux/CentOS 6.x with glibc 2.12.x	Intel Pentium, Itanium, x64, Power PC (Includes IBM System p) or compatible processors
	Red Hat Enterprise Linux/CentOS 5.x with glibc 2.5.x	Intel Pentium, Itanium, x64, Power PC (Includes IBM System p) or compatible processors
	Red Hat Enterprise Linux/CentOS 4.x with a minimum of glibc 2.3.4	Intel Pentium, Itanium, x64, Power PC (Includes IBM System p) or compatible processors
	SUSE LINUX (SLES)	
	SuSE Linux 11.x with glibc 2.9.x and above	Intel Pentium, Itanium, x64, Power PC (Includes IBM System

		p) or compatible processors
	SuSE Linux 10.x with glibc 2.4.x	Intel Pentium, Itanium, x64, Power PC (Includes IBM System p) or compatible processors
Z-LINUX	**RED HAT ENTERPRISE LINUX**	
	Red Hat Enterprise Linux 6.x	s390x 64-bit
	Red Hat Enterprise Linux 5.x	s390x 64-bit
	Red Hat Enterprise Linux 4.x	s390x 64-bit
	SUSE LINUX (SLES)	
	SuSE Linux 11.x Enterprise Server	s390x 64-bit
	SuSE Linux 10.x Enterprise Server	s390x 64-bit
SOLARIS	Solaris 11.x	x64, Sparc5 (or higher recommended)
	Solaris 10.x	x64, Sparc5 (or higher recommended)
WINDOWS	**WINDOWS 2008**	
	Microsoft Windows Server 2008 Editions with a minimum of Service Pack 1* *Core Editions not supported	All Windows-compatible processors supported
	Microsoft Windows Server 2008 Editions with a minimum of Service Pack 1* *Core Editions not supported	
	WINDOWS 2003	
	Microsoft Windows Server 2003 Editions with a minimum of Service Pack 1	All Windows-compatible processors supported

CLUSTER - SUPPORT

The software can be installed on a Cluster if clustering is supported by the above-mentioned operating systems.

For information on supported cluster types, see Clustering - Support.

HARD DRIVE

1 GB of minimum disk space is required for installing the software.

256 MB of free disk space is required for job result directory.

256 MB of free disk space is required for log directory.

MEMORY

WINDOWS

32 MB RAM per stream/drive minimum required beyond the requirements of the operating system and running applications

AIX, HP-UX, LINUX, SOLARIS AND TRU64

64 MB RAM per stream/drive minimum required beyond the requirements of the operating system and running applications

Swap space = 2*RAM size

EXPRESS DATABASE EDITION SUPPORT

Express Editions of Oracle 10g/11g (R2) Databases are supported on all operating systems supported by the Oracle application server.

ORACLE EXADATA DATABASE MACHINE SUPPORT

Oracle Exadata Database Machine is supported on the following Oracle Database versions:

- Oracle 11g (11.1.0.7)
- Oracle 11g R2 (11.2.0.1 or higher)

SOLARIS ZONES/CONTAINERS SUPPORT

Data Protection of data residing on global and non-global zones is supported.

For a comprehensive list of supported components, see Unix Virtualization.

AIX LPAR/WPAR SUPPORT

Data protection on Logical Partitioning (LPAR) and Workload Partitioning (WPAR) is supported.

PERIPHERALS

DVD-ROM drive

Network Interface Card

MISCELLANEOUS

The File System *i*DataAgent will be automatically installed during installation of this software, if it is not already installed. For System Requirements and install information specific to the File System *i*DataAgents, refer to:

- System Requirements - Microsoft Windows File System *i*DataAgent
- System Requirements - AIX File System *i*DataAgent
- System Requirements - HP-UX File System *i*DataAgent
- System Requirements - Linux File System *i*DataAgent
- System Requirements - Solaris File System *i*DataAgent
- System Requirements - Tru64 File System *i*DataAgent

The operating system must have been installed with at least the `user level software` option selected.

NETWORK

TCP/IP Services configured on the computer.

SELINUX

If you have SELinux enabled on the client computer, create the SELinux policy module as a root user before performing a backup. The SELinux Development package must be installed on the client.

To create an SELinux policy module, perform the following steps as user "root":

1. Create the following files in the `/usr/share/selinux/devel` directory:

File Name	Content of the File
`<directory>/<file_name>.te` where: `<directory>` is `/usr/share/selinux/devel` `<file_name>` is the name of the Unix file, created to save the policy module statement. It is a good idea to use the same name for policy module and the file. For example: When you are creating a policy module for backup_IDA application, you can use the following file name: `backup_IDA.te`	The content of the file should be as follows: policy_module(<name>,<version>) `##############################` where: `<name>` is the name of the policy module. You can give any unique name to the policy module, such as a process or application name. `<version>` is the version of the policy module. It can be any number, such as 1.0.0. For Example: While creating a policy module for the backup_IDA application, you can use the following content. `policy_module(backup_IDA,1.0.0)`
`<directory>/<file_name>.fc` where: `<directory>` is `/usr/share/selinux/devel` `<file_name>` is the name of the Unix file, created to save the policy module statement. It is a good idea to use the same name for policy module and the file. For example: When you are creating a policy module for backup_IDA application, you can use the following file name: `backup_IDA.fc`	The content of the file should be as follows: Note that the following list of files is not exhaustive. If the process fails to launch, check `/var/log/messages`. Also, if required, add it to the following list of files. `/opt/<software installation directory>/Base/libCTreeWrapper.so -- gen_context (system_u:object_r:texrel_shlib_t,s0)` `/opt/<software installation directory>/Base/libCVMAGuiImplgso -- gen_context (system_u:object_r:texrel_shlib_t,s0)` `/opt/<software installation directory>/Base/libdb2locale.so.1 -- gen_context (system_u:object_r:texrel_shlib_t,s0)` `/opt/<software installation directory>/Base/libdb2osse.so.1 -- gen_context (system_u:object_r:texrel_shlib_t,s0)` `/opt/<software installation directory>/Base/libDb2Sbt.so -- gen_context (system_u:object_r:texrel_shlib_t,s0)`

	/opt/<software installation directory>/Base/libdb2trcapi.so.1 -- gen_context (system_u:object_r:texrel_shlib_t,s0) /opt/<software installation directory>/Base/libDrDatabase.so -- gen_context (system_u:object_r:texrel_shlib_t,s0) /opt/<software installation directory>/Base/libIndexing.so -- gen_context (system_u:object_r:texrel_shlib_t,s0) /opt/<software installation directory>/Base/libSnooper.so -- gen_context (system_u:object_r:texrel_shlib_t,s0)

2. Create the policy file from command line. Use the following command. Ensure that you give the following commands in the `/usr/share/selinux/devel` directory.

```
[root]# make backup_IDA.pp
Compiling targeted backup_IDA module
/usr/bin/checkmodule: loading policy configuration from tmp/backup_IDA.tmp
/usr/bin/checkmodule: policy configuration loaded
/usr/bin/checkmodule: writing binary representation (version 6) to tmp/backup_IDA.mod
Creating targeted backup_IDA.pp policy package
rm tmp/backup_IDA.mod tmp/backup_IDA.mod.fc
[root]# semodule -i backup_IDA.pp
[root]#
```

3. Execute the policy module. Use the following command:

```
[root]# restorecon -R /opt/<software installation directory>
```

SELinux is now configured to work with this application.

DISCLAIMER

Minor revisions and/or service packs that are released by application and operating system vendors are supported by our software but may not be individually listed in our System Requirements. We will provide information on any known caveat for the revisions and/or service packs. In some cases, these revisions and/or service packs affect the working of our software. Changes to the behavior of our software resulting from an application or operating system revision/service pack may be beyond our control. The older releases of our software may not support the platforms supported in the current release. However, we will make every effort to correct the behavior in the current or future releases when necessary. Please contact your Software Provider for any problem with a specific application or operating system.

Additional considerations regarding minimum requirements and End of Life policies from application and operating system vendors are also applicable

Supported Features - Oracle *i*DataAgent

System Requirements | Supported Features

The following table lists the features that are supported by this Agent.

FEATURE	SUB-FEATURE	SUPPORT	COMMENTS
ADVANCED BACKUP/ARCHIVE OPTIONS	Data tab - Catalog	✓	
	Data tab - Create New Index		
	Data tab - Verify Synthetic Full		
	Job Retry tab	✓	
	Media tab - Allow other Schedule to use Media Set	✓	
	Media tab - Mark Media Full on Success	✓	
	Media tab - Reserve Resources Before Scan		
	Media tab - Start New Media	✓	
	Startup tab	✓	
	VaultTracking tab	✓	
	Comments	✓	Includes several additional options in the **Backup Archive Logs**, **Delete Archive Logs**, **Custom RMAN Script**, and **Oracle Options** tabs.
ADVANCED FILE SYSTEM IDATAAGENT OPTIONS	Automatic File System Multi-Streaming		
	On Demand Data Protection Operation	✓	
	Restore by Jobs		
	Restore Data Using a Map File		
	Comments	✓	For **On Demand Data Protection Operations**, see On Demand Instances.
ALERTS AND MONITORING	Global Alerts	✓	
	Job-Based Alerts*	✓	
	Comments		
AUTOMATIC UPDATES	Automatic Updates	✓	
	Comments		
BACKUP/ARCHIVE OPTIONS	Differential Backup		
	Full Backup	✓	
	Incremental Backup	✓	
	Other Backup Types		
	Synthetic Full Backup		
	Comments		
BACKWARD COMPATIBILITY	Version 7	✓	
	Version 8	✓	
	Version 9		
	Comments		
BROWSE	Browse from Copy Precedence	✓	
	Browse the Latest Data	✓	
	Exclude Data Before		
	Find		
	Full Backup Transparent Browse		
	Image Browse	✓	
	No Image Browse	✓	
	Page Size	✓	
	Specify Browse Path		
	Specify Browse Time	✓	
	Subclient Browse	✓	
	Use MediaAgent	✓	
	View All Versions		

	Comments	✓	Additionally, Browse Database Tables is supported.
CLUSTERING	Netware cluster		
	Unix Cluster	✓	
	Windows - Microsoft Cluster (MSCS)	✓	
	Windows - Non-Microsoft Cluster		
	Comments		
COMMAND LINE INTERFACE	Command Line Interface	✓	
	Comments		
COMMAND LINE INTERFACE - SPECIFIC COMMANDS	Qcreate - Backup set/SubClient	✓	
	Qcreate - Instance	✓	
	Qdelete - Backup set/Subclient	✓	
	Qdelete - Client/Agent	✓	
	Qlist globalfilter		
	Qmodify - instance	✓	
	Qoperation - Backup	✓	
	Qoperation - move	✓	
	Qoperation - Restore	✓	
	Comments		b>Qcreate backupset and **Qdelete backupset** are not supported.
COMMCELL MIGRATION	CommCell Migration	✓	
	Comments	✓	CommCell Migration is not supported with SnapProtect backup when using Data Replicator snapshot engine.
CONTENT INDEXING	Offline Content Indexing		
	Comments		
DATA AGING	Basic Retention Rules	✓	
	Extended Retention Rules	✓	
	Unique Data Aging Rules	✓	
	Comments	✓	**Extended Retention Rules** are supported for offline/selective online fulls.
DATA CLASSIFICATION ENABLER	Data Classification Enabler		
	Comments		
DATA COMPRESSION	Client Compression	✓	
	Hardware Compression	✓	
	MediaAgent Compression	✓	
	Comments		
DATA ENCRYPTION	Data Encryption Support	✓	
	Third-party Command Line Encryption Support	✓	
	Comments		
DATA MULTIPLEXING	Multiplexing	✓	
	Comments		
DEDUPLICATION	MediaAgent Deduplication	✓	
	Source Deduplication	✓	
	Comments		
ERASE BACKUP/ARCHIVED DATA	Erase Data by Browsing		
	Erase Stubs		
	Comments		
GLOBAL FILTERS	Global Filters		
	Comments		
INSTALLATION	Custom Package	✓	
	Decoupled Install	✓	
	Remote Install	✓	
	Restore Only Agents	✓	
	Silent Install	✓	
	Comments	✓	Decoupled Install is supported on Unix; not supported on Windows.

			To install this agent as restore only, see Restoring Oracle, SAP for Oracle, SAP for MaxDB as Restore Only
INSTALLING 32-BIT COMPONENTS ON A MICROSOFT WINDOWS X64 PLATFORM	Install 32-bit On x64		
	Comments		
JOB RESTART - DATA PROTECTION	Not Restartable		
	Restarts from the Beginning		
	Restarts from the Beginning of the Database		
	Restarts from the Point-of-Failure	✓	
	Comments	✓	Third-party command line operations and selective online full backup jobs are **Not Restartable**. Offline backup jobs **Restart from the Beginning**.
JOB RESTART - DATA RECOVERY	Not Restartable		
	Restarts from the Beginning		
	Restarts from the Beginning of the Database		
	Restarts from the Point-of-Failure	✓	
	Comments	✓	Third-party command line operations are **Not Restartable**.
LIST MEDIA	List Media Associated with a Specific Backup Set or Instance	✓	
	List Media Associated with Index		
	List Media Associated with Specific Files and/or Folders		
	List Media Associated with Specific Jobs		
	Comments		
MULTI INSTANCING	Multi Instance	✓	
	Comments	✓	Supported on Unix; not supported on Windows. Multi Instancing is not supported for SnapProtect Backup.
PRE/POST PROCESSES	Pre/Post Process with Data Protection and Recovery	✓	
	Comments		
RESTORE/RECOVER/RETRIEVE DESTINATIONS	Cross-Application Restores (Different Application version)		
	Cross-Platform Restores - Different Operating System		
	Cross-Platform Restores - Same Operating System - Different Version	✓	
	In-place Restore - Same path/ destination - Same Client	✓	
	Out-of-place Restore - Different path/ destination	✓	
	Out-of-place Restore - Same path/ destination - Different Client	✓	
	Restore Data Using a Map File		
	Restore to Network Drive /NFS-Mounted File System		
	Comments	✓	See Advanced Restore - Oracle iDataAgent for this *i*DataAgent.
RESTORE/RECOVER/RETRIEVE OPTIONS	Automatic Detection of Regular Expressions		
	Filter Data From Recover Operations		
	Rename/ Redirect Files on Restore	✓	
	Restore Data Using Wildcard Expressions		
	Restore Data with Pre/Post Processes	✓	
	Restore from Copies	✓	
	Skip Errors and Continue		
	Use Exact Index		
	Use MediaAgent	✓	
	Comments		

RESTORE/RECOVER/RETRIEVE OVERWRITE OPTIONS	Overwrite Files		
	Overwrite if file on media is newer		
	Restore only if target exists		
	Unconditional Overwrite		
	Unconditionally overwrite only if target is a DataArchiver stub		
	Comments		
SCHEDULE POLICY	Agent Specific Data Protection Schedule Policy	✓	
	All Agent Types Schedule Policy	✓	
	Comments		
STORAGE POLICIES	Incremental Storage Policy*	✓	
	Standard Storage Policies	✓	
	Comments	✓	**Incremental Storage Policy** does not support Transaction Log backups for this agent.
STORAGE POLICY COPIES	Data Verification	✓	
	Job Based Pruning	✓	
	Manual Retention	✓	
	Mark Job Disabled	✓	
	Selective Copy	✓	
	Comments	✓	**Selective Copy** is supported for Selective Online and Offline Fulls.
SUBCLIENT POLICIES	SubClient Policy		
	Comments		
UPGRADE	Netware - Local		
	Unix - Remote (Push)		
	Unix/Linux/Macintosh - Local	✓	
	Unix/Linux/Macintosh - Silent		
	Upgrade from CommCell Console	✓	
	Windows - Local	✓	
	Windows - Remote (Push)	✓	
	Windows - Silent	✓	
	Comments		
USER ADMINISTRATION AND SECURITY	Backup Set/Archive Set		
	Subclient		
	Comments		

Additional features are listed below:

Activity Control	Auxiliary Copy
CommCell Console	Deconfiguring Agents
GridStor	Languages
Log Files	MediaAgent
Operation window	QR Volume Creation Options
Robust Network Layer	Scheduling
SnapProtect Backup	Snapshot Engines
VaultTracker Enterprise	VaultTracker
Report Output Options	Restore/Recover/Retrieve - Other Options
Cloud Storage	Job Restart - Data Collection

Getting Started Deployment on Windows - Oracle *i*DataAgent

Previous Next

WHERE TO INSTALL

Install the Oracle *i*DataAgent on the Oracle server. This computer should satisfy the minimum requirements specified in the System Requirements.

PLANNING YOUR INSTALLATION

The Oracle *i*DataAgent installation may require a system reboot if a pending rename operation from a previously installed application is found in the operating system, hence, plan your installation at a convenient time.

INSTALLATION

The software can be installed using one of the following methods:

METHOD 1: INTERACTIVE INSTALL

Use this procedure to directly install the software from the installation package or a network drive.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

Use this procedure to install remotely on a client computer.

BEFORE YOU BEGIN

Download Software Packages
Download the latest software package to perform the install.

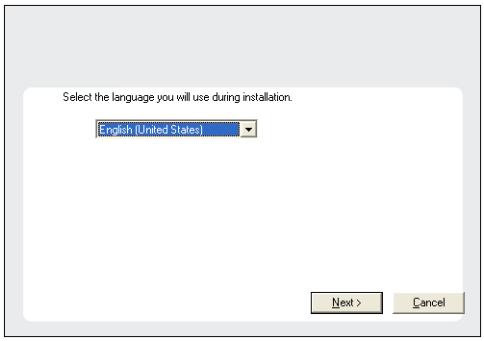
Verify System Requirements
Make sure that the computer in which you wish to install the software satisfies the System Requirements.

METHOD 1: INTERACTIVE INSTALL

1. Log on to the client computer as Administrator or as a member of the Administrator group on that computer.
2. Run **Setup.exe** from the **Software Installation Package**.

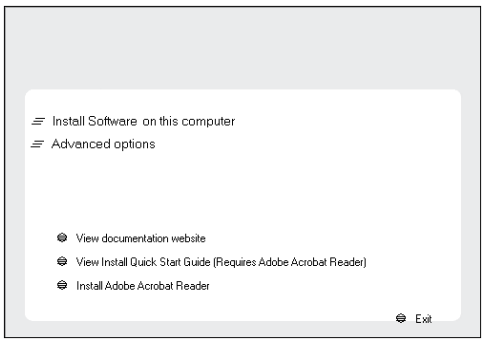
   If you are installing on Windows Server Core editions, navigate to Software Installation Package through command line, and then run **Setup.exe**.
3. Select the required language.

   Click **Next**.



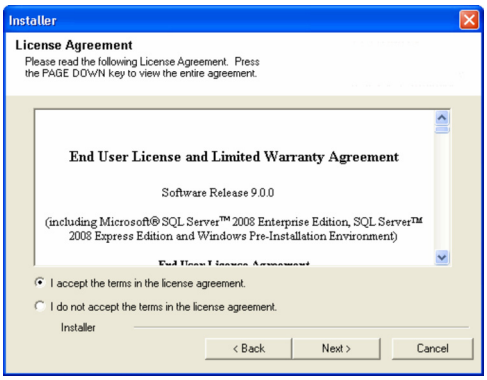
4. Select the option to install software on this computer.

   The options that appear on this screen depend on the computer in which the software is being installed.



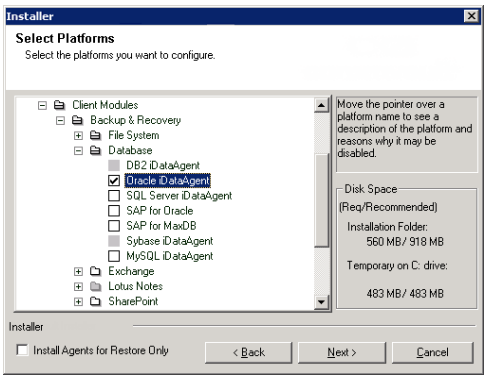
5. Select **I accept the terms in the license agreement**.

   Click **Next**.



6. Expand **Client Modules** | **Backup and Recovery** | **Database** and then click **Oracle *i*DataAgent**.

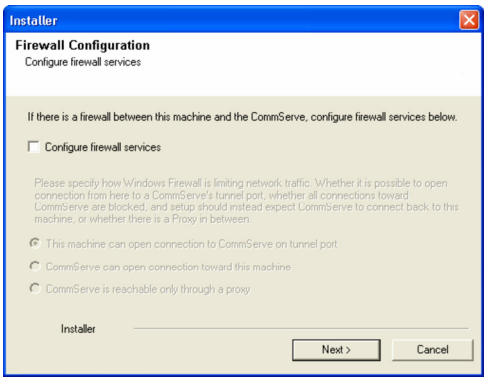
   Click **Next**.



7. If this computer and the CommServe is separated by a firewall, select the **Configure firewall services** option and then click **Next**.

   For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.

   If firewall configuration is not required, click **Next**.

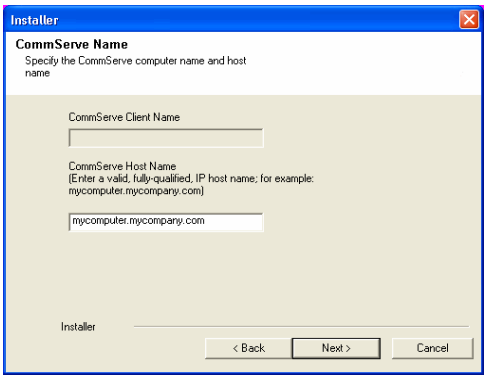


8. Enter the fully qualified domain name of the **CommServe Host Name**.

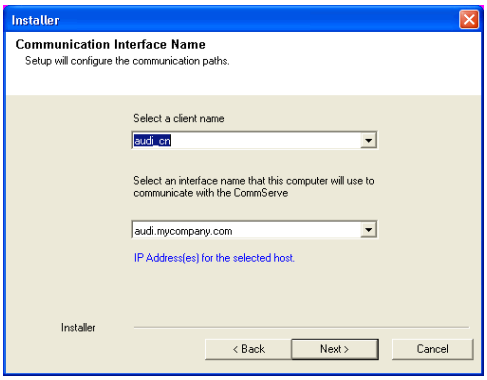
   Click **Next**.

   Do not use space and the following characters when specifying a new name for the CommServe Host Name:

   \|`~!@#$%^&*()+=<>/?,[]{}:;'"



9. Click **Next**.

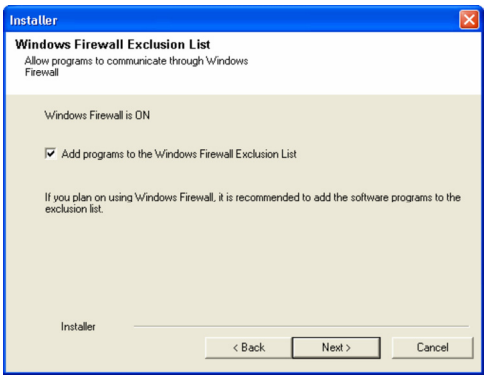


10. Select **Add programs to the Windows Firewall Exclusion List**, to add CommCell programs and services to the Windows Firewall Exclusion List.

    Click **Next**.

    This option enables CommCell operations across Windows firewall by adding CommCell programs and services to Windows firewall exclusion list.

    It is recommended to select this option even if Windows firewall is disabled. This will allow the CommCell programs and services to function if the Windows firewall is enabled at a later time.



11. Verify the default location for software installation.

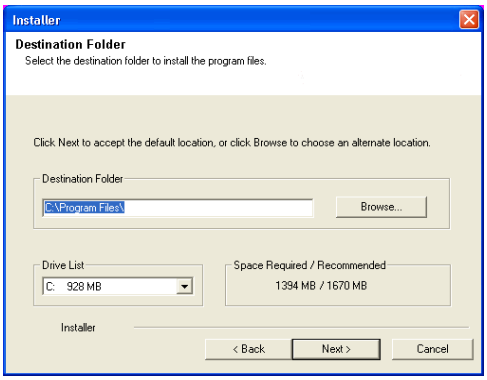
    Click **Browse** to change the default location.

    Click **Next**.

    - Do not install the software to a mapped network drive.
    - Do not use the following characters when specifying the destination path:

      / : * ? " < > | #

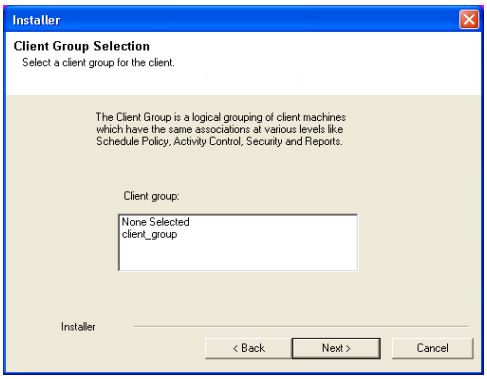
      It is recommended that you use alphanumeric characters only.



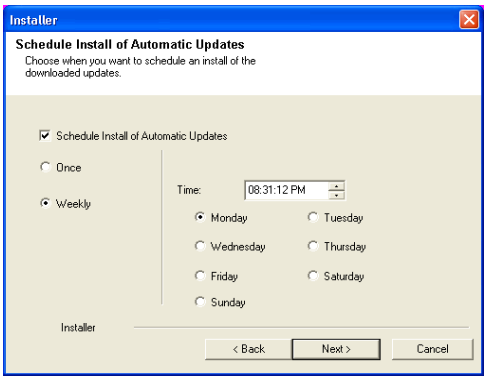
12. Select a Client Group from the list.

    Click **Next**.

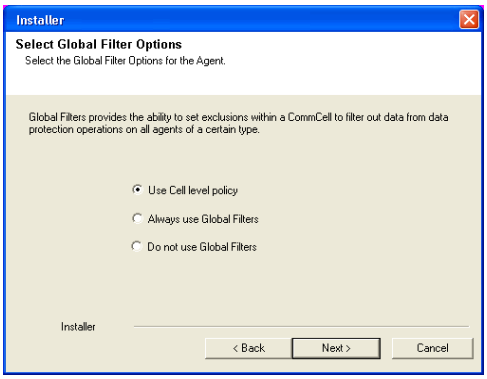
    This screen will be displayed if Client Groups are configured in the CommCell Console.



13. Click **Next**.

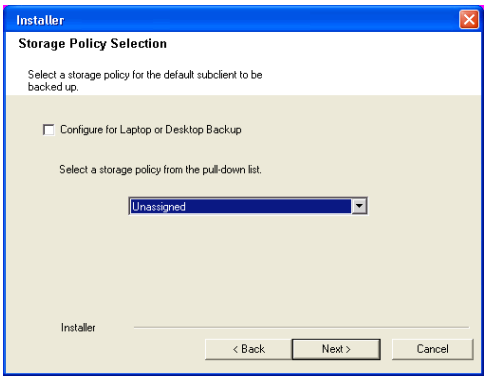


14. Click **Next**.



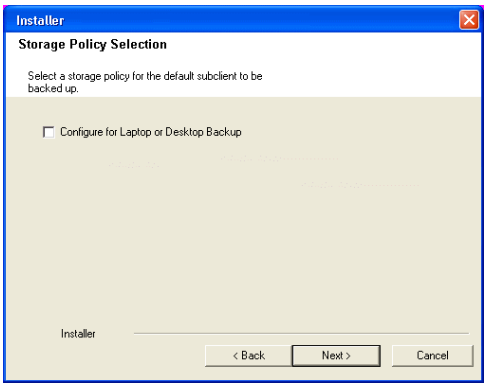
15. Select a **Storage Policy** from the drop-down list.

    Click **Next**.



    If you do not have Storage Policy created, this message will be displayed.

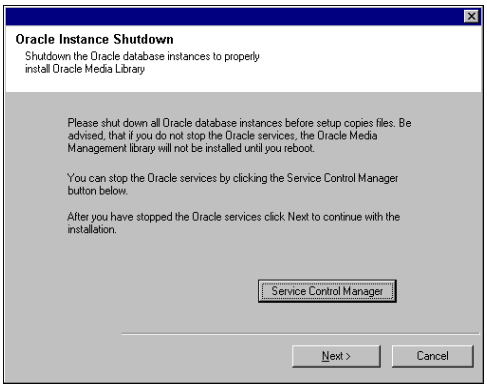
    Click **Next**.



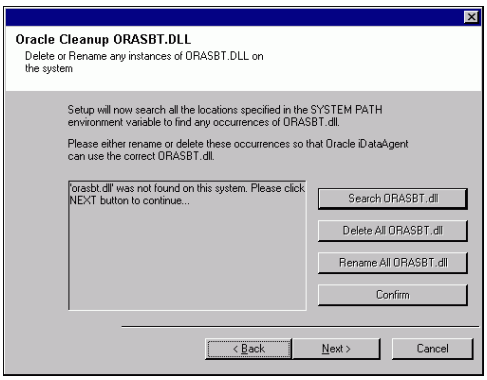
    You can create the Storage Policy later in step 22.

16. Click **Next**.

    Stop the Oracle services by clicking the **Service Control Manager** button.

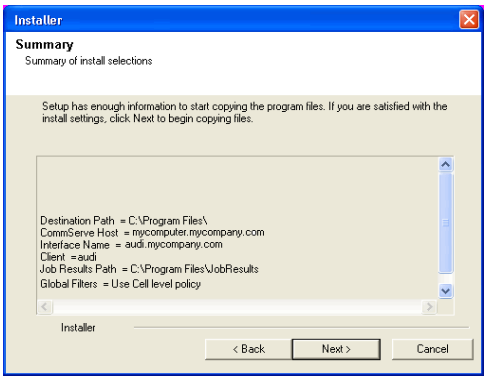


17. Click **Next**.

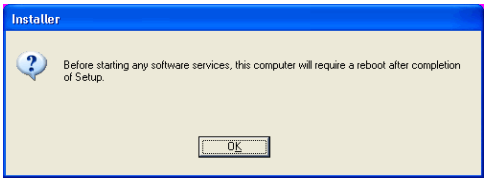


Click **Search ORASBT.dll** button to search for any existing ORASBT.dll file. If found, rename or delete the ORASBT.dll file.

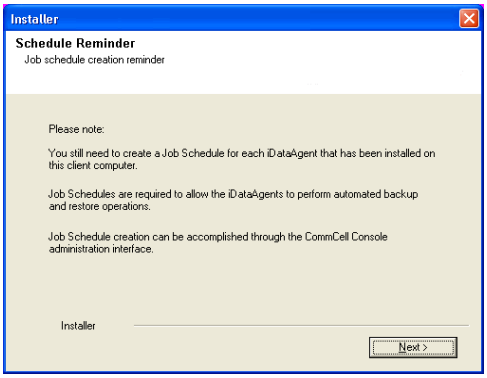
18. Click **Next**.



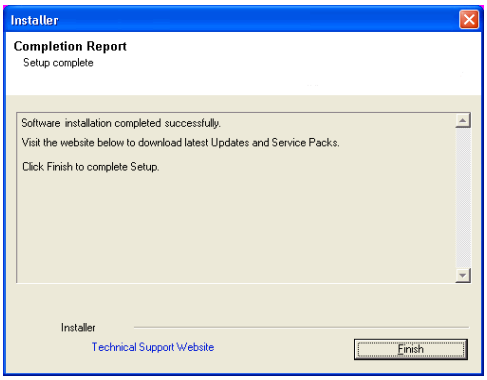
19. Click **OK**.



20. Click **Next**.



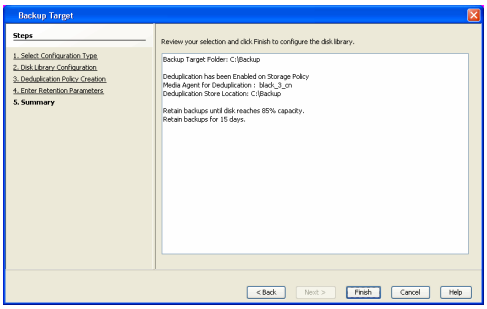
21. Click **Finish**.



CHOICE If you already have a storage policy selected in step 15, proceed to the **Configuration** section.

If you do not have Storage Policy created, continue with the following step.

22. To create a storage policy, you must have configured a library in the CommCell.
    - If you do not already have a library configured, go to Disk Library Creation.
    - If you have a library configured, go to Storage Policy Creation.



DISK LIBRARY CREATION:

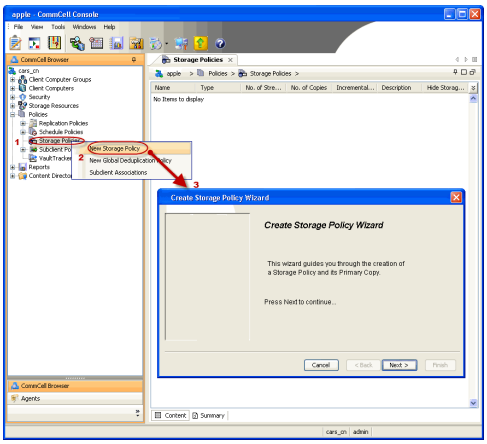
1. From the CommCell Console, click the **Backup Target** button on **EZ Operations Wizard**.
2. Click **Disc Library (For backup to disc)** and click **Next**.
3. Click **Use Local Disk**.

   Type the name of the folder in which the disc library must be located in the **Enter backup destination folder** box or click the **Browse** button to select the folder.

   Click **Next**.

   If you click the **Use Network Share** option you will be prompted for the credentials (user name and password) to access the share.
4. Click **Next**.
5. Click **Finish**.

This will create a library and Storage Policy. Click the Next ➤ button available at the bottom of the page to continue.



STORAGE POLICY CREATION:

1. From the CommCell Browser, navigate to **Policies**.
2. Right-click the **Storage Policies** and then click **New Storage Policy**.
3. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
   - Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
   - Enter the name in the **Storage Policy Name** box and click **Next**.
   - From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.

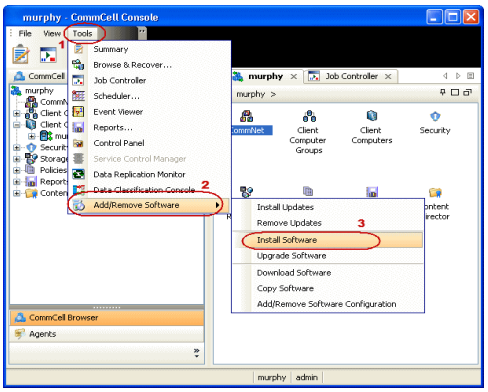
     Ensure that you select a library attached to a MediaAgent operating in the current release.
   - From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
   - For the device streams and the retention criteria information, click **Next** to accept default values.
   - Select **Yes** to enable deduplication for the primary copy.
   - From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.

     Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.
   - Review the details and click **Finish** to create the Storage Policy.

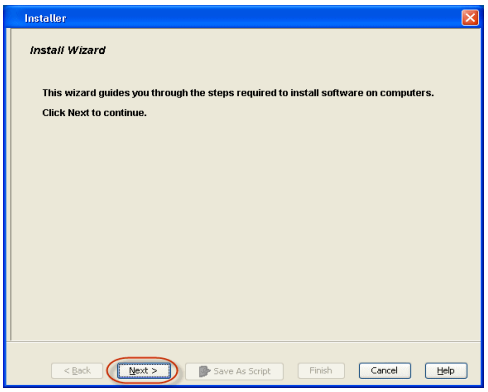
This will create a storage policy. Click the Next ➤ button available at the bottom of the page to continue.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

1. From the CommCell Browser, select **Tools | Add/Remove Software | Install Software**.

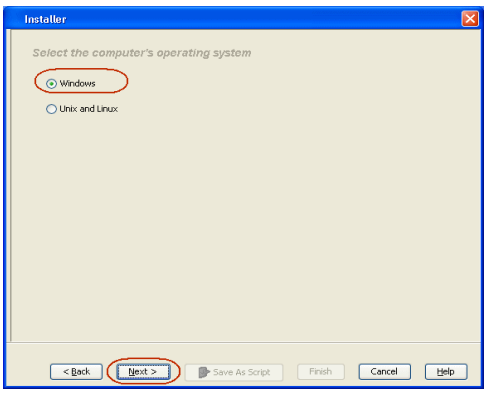


2. Click **Next**.



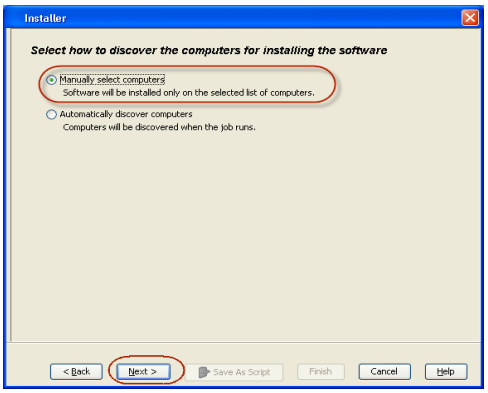
3. Select **Windows**.

   Click **Next**.



4. Select **Manually Select Computers**.

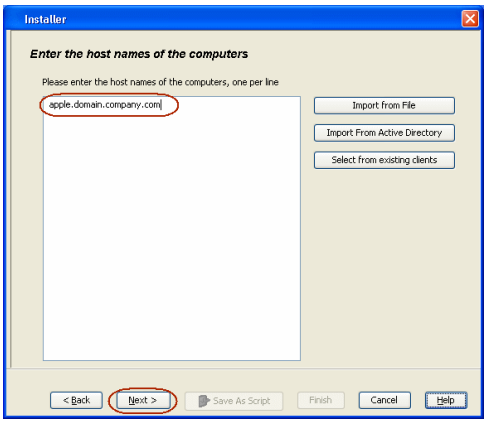
   Click **Next**.



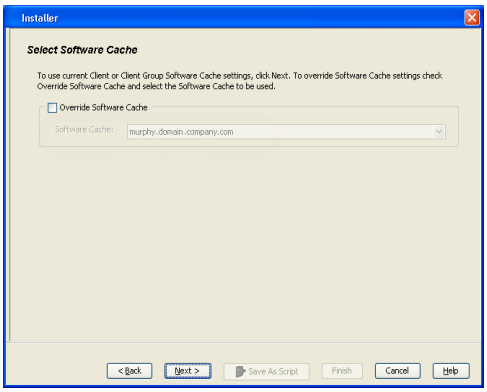
5. Enter the fully qualified domain name of the computer on which SQL Server resides.

   For example: `apple.domain.company.com`

   Click **Next**.



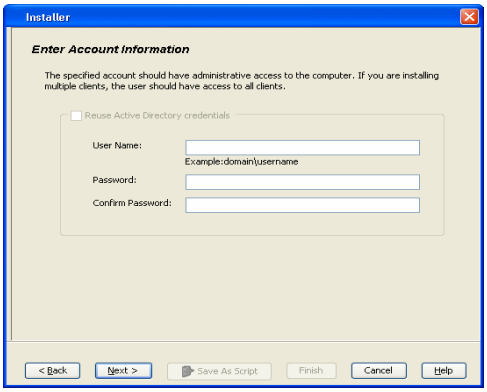
6. Click **Next**.



7. Specify **User Name** and **Password** that must be used to access the client computer.

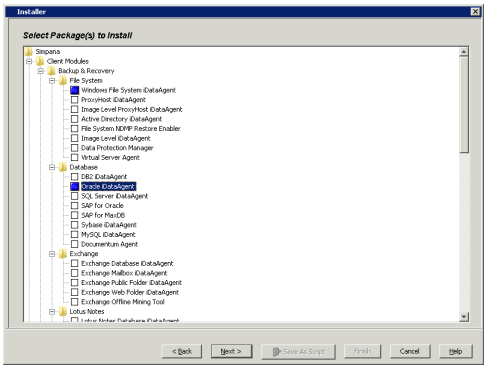
   Click **Next**.

   The user must be an Administrator or a member of the Administrator group on that computer.



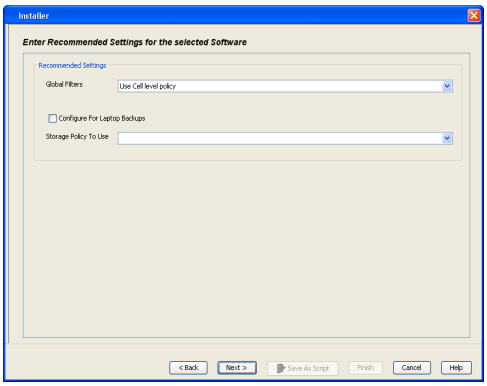
8. Select **Oracle *i*DataAgent**.

   Click **Next**.



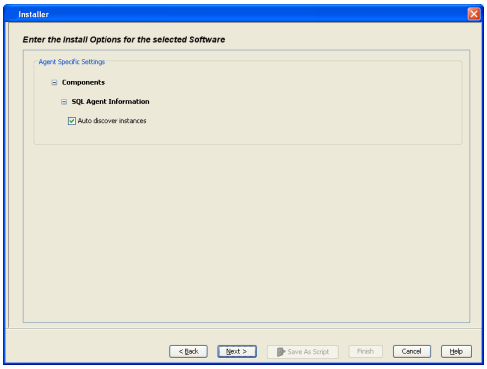
9. From **Storage Policy to use** list, click storage policy.

   Click **Next**.



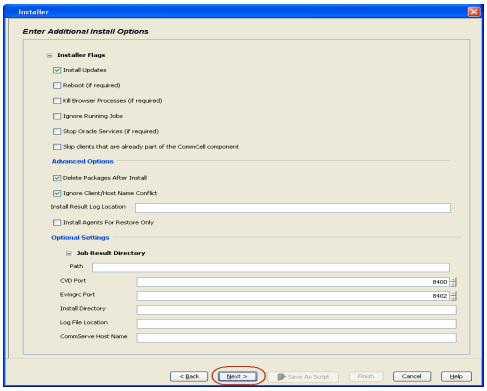
10. Click **Next**.

    When **Auto Discover Instances** is enabled, new instances are automatically discovered every 24 hours.



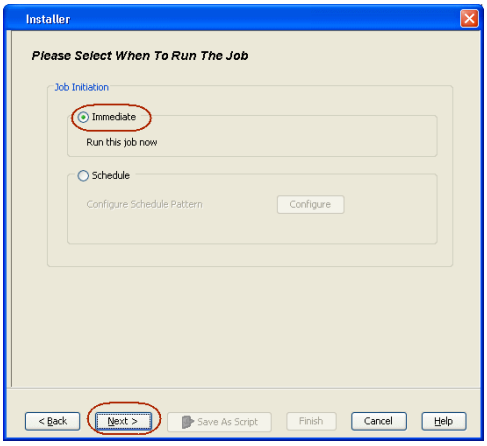
11. Click **Reboot (if required)** and then click **Next**.

    When **Reboot (if required)** is selected, the install program will automatically reboot the client computer and resume the installation.

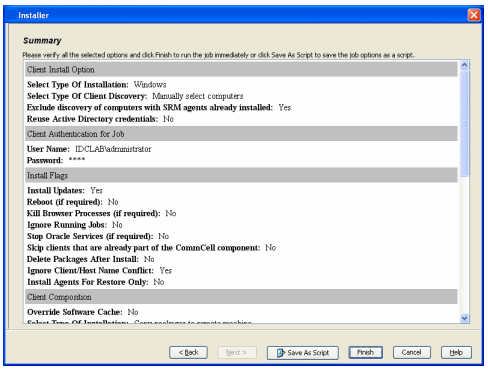


12. Click **Immediate**.

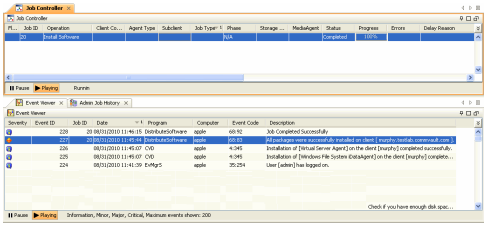
    Click **Next**.



13. Click **Finish**.



14. You can track the progress of the job from the **Job Controller** or **Event Viewer** window.



Previous Next

ADDITIONAL INSTALLATION METHODS

Custom Package
Create a compact software package for quick deployment to multiple clients

Remote Install
Deploy the software from CommCell Console on multiple clients.

Installing Restore only Agents
Setup a client in the CommCell for restore purposes

Silent Install
Deploy the software silently on multiple clients.

Getting Started Deployment on a Windows Cluster - Oracle *i*DataAgent

Previous Next

SKIP THIS PAGE IF YOU ARE NOT INSTALLING THIS AGENT ON A WINDOWS CLUSTER.

Click Next to continue with the deployment.

WHERE TO INSTALL

Install the Oracle *i*DataAgent on the Oracle server that you want to protect and is part of a Cluster which satisfies the minimum requirements specified in the System Requirements.

BEFORE YOU BEGIN

Download Software Packages
Download the latest software package to perform the install.

Verify System Requirements
Make sure that the computer in which you wish to install the software satisfies the System Requirements.

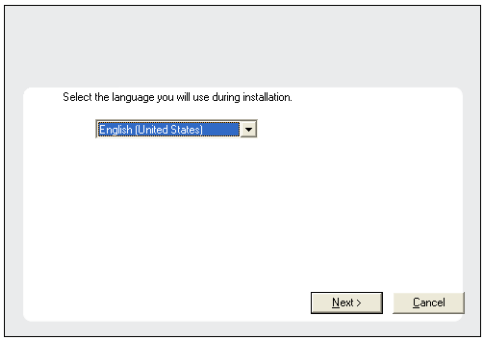
PLANNING YOUR INSTALLATION

The Oracle *i*DataAgent installation may require a system reboot if a pending rename operation from a previously installed application is found in the operating system, hence, plan your installation at a convenient time.

INSTALLING THE ORACLE IDATAAGENT IN WINDOWS CLUSTERED ENVIRONMENT

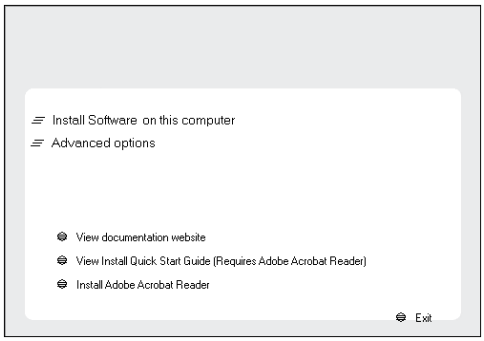
1. Log on to the active node as the Domain User with administrative privileges to all nodes on the cluster.
2. Run **Setup.exe** from the **Software Installation Package**.
3. Select the required language.

   Click **Next**.



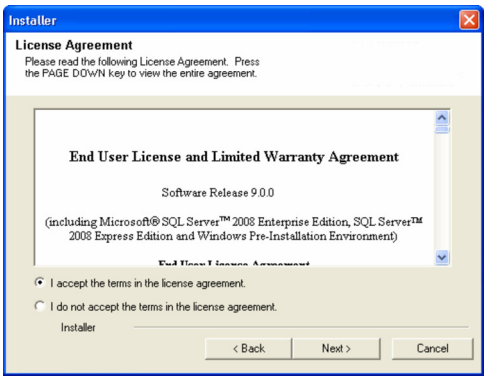
4. Select the option to install software on this computer.

   The options that appear on this screen depend on the computer in which the software is being installed.



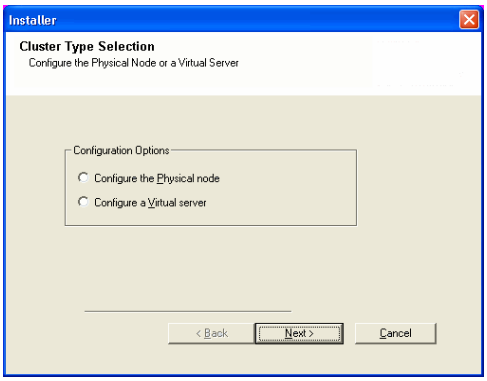
5. Select **I accept the terms in the license agreement**.

   Click **Next**.



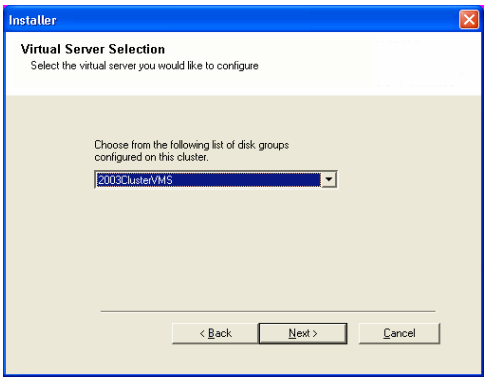
6. Select **Configure a Virtual Server**.

   Click **Next**.



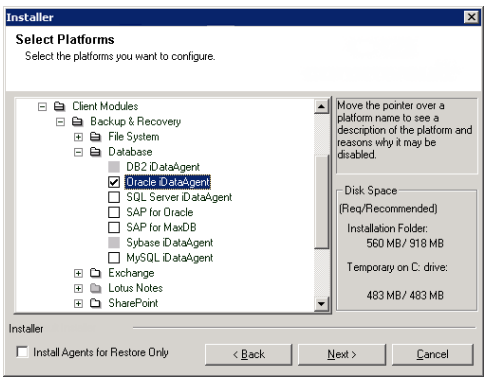
7. Select the disk group in which the virtual server resides.

   Click **Next**.



8. Expand **Client Modules | Backup and Recovery | Database** and select **Oracle *i*DataAgent**.

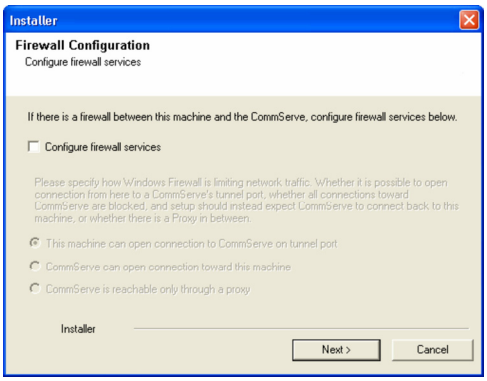
   Click **Next**.



9. If this computer and the CommServe is separated by a firewall, select the **Configure firewall services** option and then click **Next**.

   For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.

   If firewall configuration is not required, click **Next**.

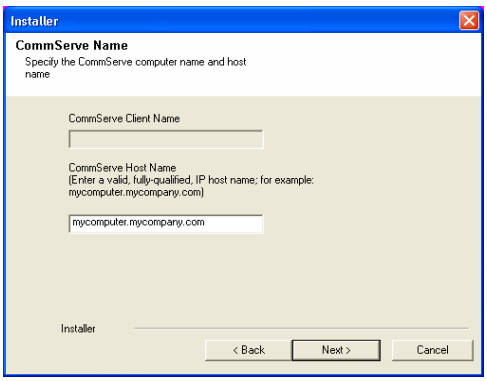


10. Enter the fully qualified domain name of the **CommServe Host Name**.

    Click **Next**.

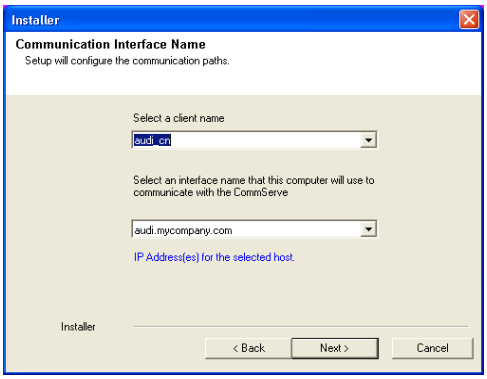
    Do not use space and the following characters when specifying a new name for the CommServe Host Name:

    \|`~!@#$%^&*()+=<>/?,[]{}:;'"



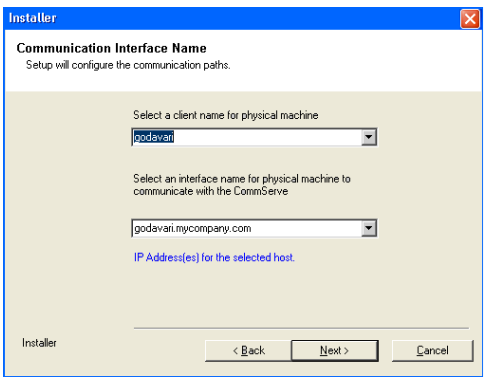
11. Specify the name of the **Cluster Group Client**.

    Click **Next**.



12. Select the name of the **Physical Machine** from drop-down list.

    Click **Next**.

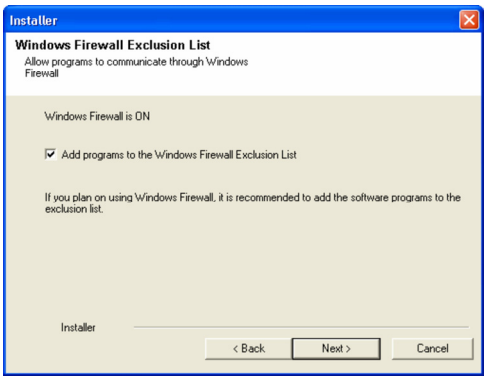


13. Select **Add programs to the Windows Firewall Exclusion List**, to add CommCell programs and services to the Windows Firewall Exclusion List.

    Click **Next**.

    This option enables CommCell operations across Windows firewall by adding CommCell programs and services to Windows firewall exclusion list.

    It is recommended to select this option even if Windows firewall is disabled. This will allow the CommCell programs and services to function if the Windows firewall is enabled at a later time.



14. Verify the default location for software installation.

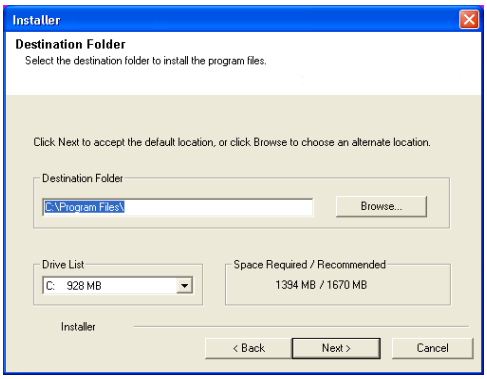
    Click **Browse** to change the default location.

    Click **Next**.

    - Do not install the software to a mapped network drive.
    - Do not use the following characters when specifying the destination path:

      / : * ? " < > | #

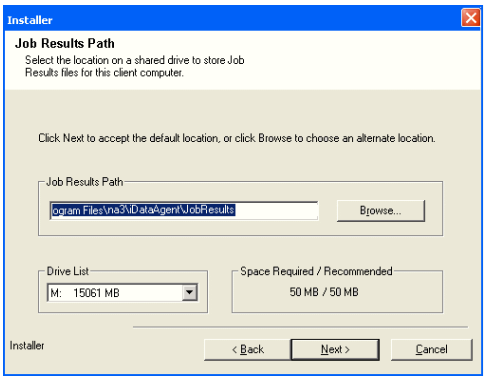
      It is recommended that you use alphanumeric characters only.



15. Verify the default location for Job Results Path.

    Click **Browse** to change the default location.

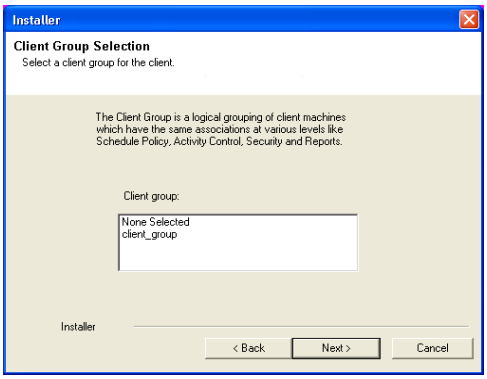
    Click **Next**.



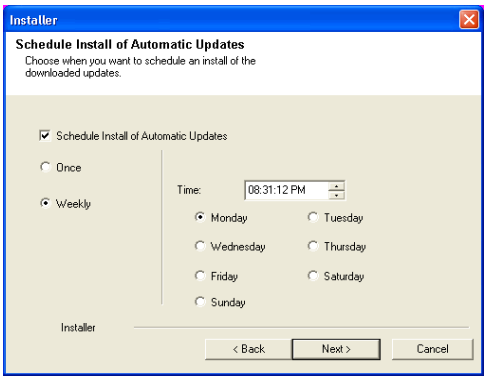
16. Select a Client Group from the list.

    Click **Next**.

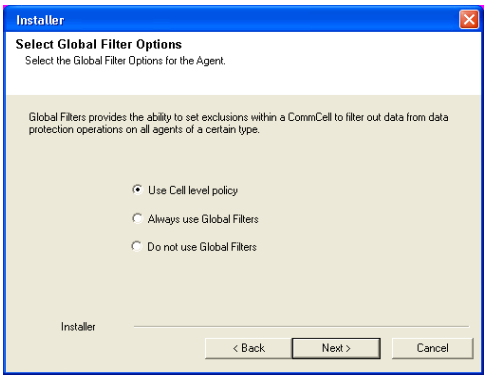
    This screen will be displayed if Client Groups are configured in the CommCell Console.



17. Click **Next**.

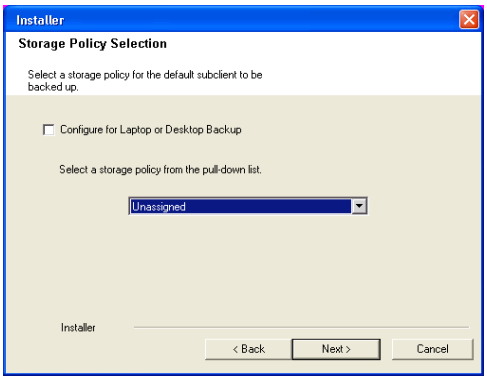


18. Click **Next**.



19. Select a **Storage Policy** from the drop-down list.

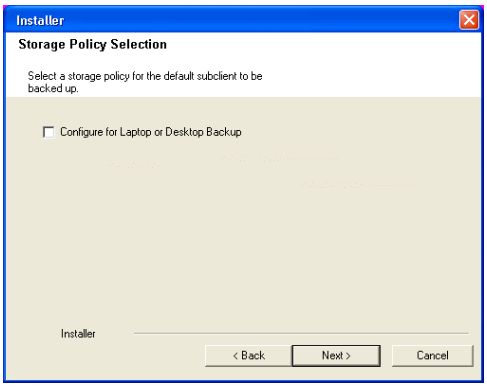
    Click **Next**.



    If you do not have Storage Policy created, this message will be displayed.

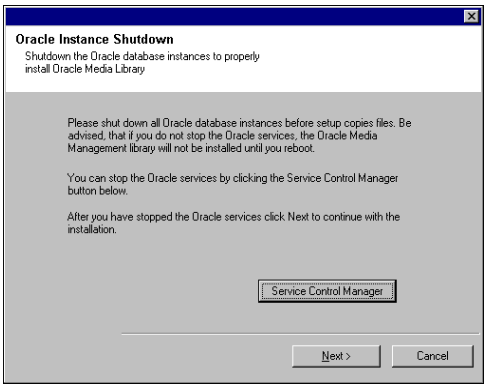
    Click **Next**.

    You can create the Storage Policy later in step 31.

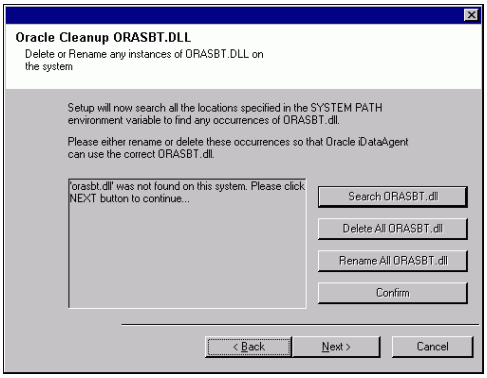


20. Click **Next**.

    Stop the Oracle services by clicking the **Service Control Manager** button.

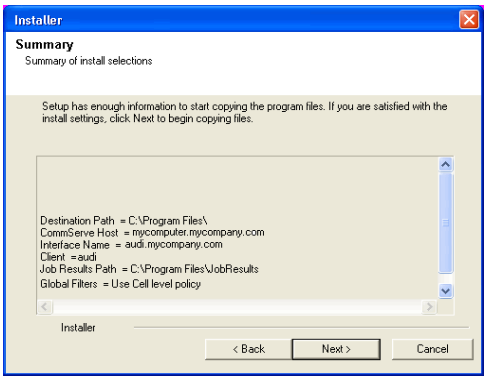


21. Click **Next**.

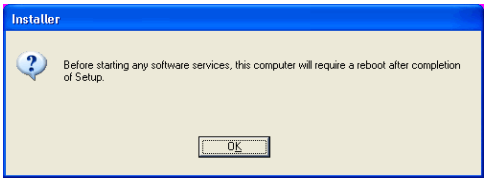


Click **Search ORASBT.dll** button to search for any existing ORASBT.dll file. If found, rename or delete the ORASBT.dll file.

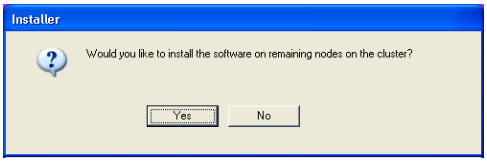
22. Click **Next**.



23. Click **OK**.



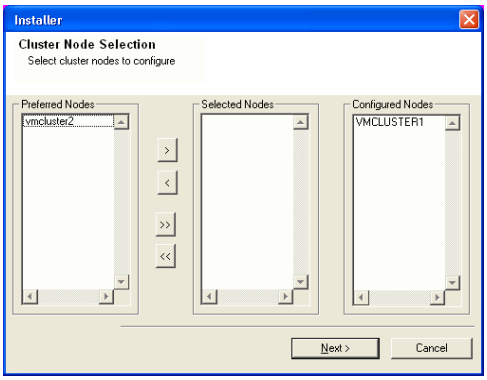
24. Click **Yes**.



25. Select cluster nodes from the **Preferred Nodes** list and click the arrow button to move them to the **Selected Nodes** list.

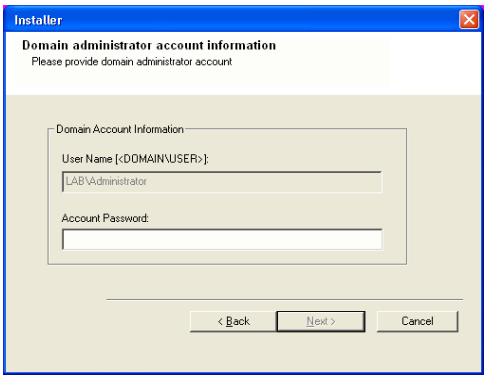
    Once you complete your selections, click **Next**.

    - The list of **Preferred Nodes** displays all the nodes found in the cluster; from this list you should only select cluster nodes configured to host this cluster group server.
    - Do not select nodes that already have multiple instances installed.



26. Specify **User Name** and **Password** for the **Domain Administrator account Information** to perform the remote install on the cluster nodes you selected in the previous step.

Click **Next**.



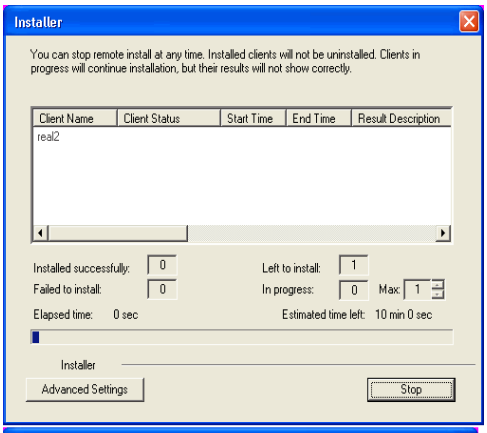
27. The progress of the remote install for the cluster nodes is displayed; the install can be interrupted if necessary.

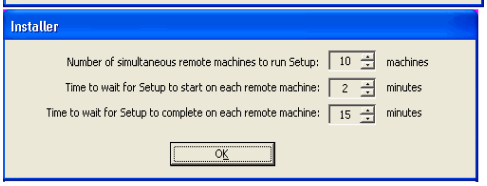
Click **Stop** to prevent installation to any nodes after the current ones complete.

Click **Advanced Settings** to specify any of the following:

- Maximum number of nodes on which Setup can run simultaneously.
- Time allocated for Setup to begin executing on each node, after which the install attempt will fail.
- Time allocated for Setup to complete on each node, after which the install attempt will fail.

If, during the remote install of a cluster node, setup fails to complete or is interrupted, you must perform a local install on that node. When you do, the install begins from where it left off, or from the beginning if necessary. For procedures, see Manually Installing the Software on a Passive Node.

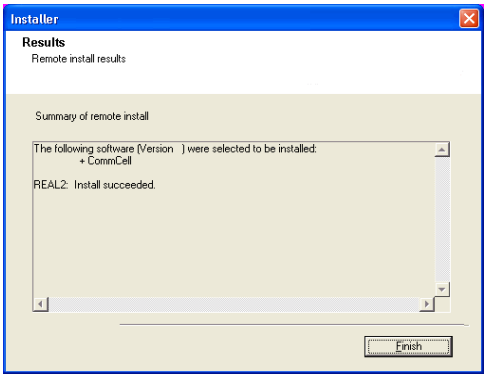




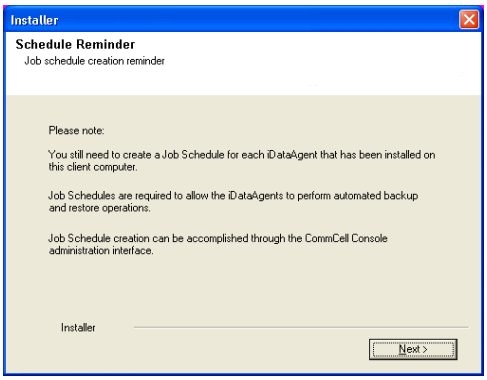
28. Read the summary for remote installation to verify that all selected nodes were installed successfully.

Click **Next**.

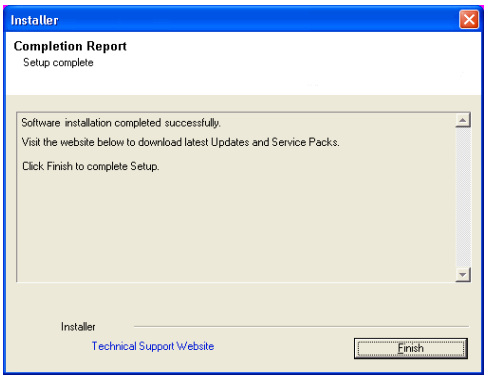
- If any node installation fails, you must manually install the software on that node once the current installation is complete. See Manually Installing the Software on a Passive Node for step-by-step instructions.
- The message displayed on your screen will reflect the status of the selected nodes, and may look different from the example.



29. Click **Next**.



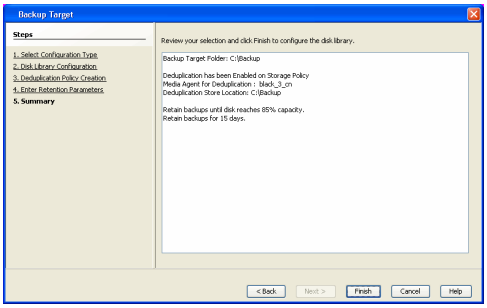
30. Click **Finish**.



CHOICE If you already have a storage policy selected in step 19, proceed to the **Configuration** section.

If you do not have Storage Policy created, continue with the following step.

31. To create a storage policy, you must have configured a library in the CommCell.
- If you do not already have a library configured, go to Disk Library Creation.
- If you have a library configured, go to Storage Policy Creation.



DISK LIBRARY CREATION:

1. From the CommCell Console, click the **Backup Target** button on **EZ Operations Wizard**.
2. Click **Disc Library (For backup to disc)** and click **Next**.
3. Click **Use Local Disk**.

   Type the name of the folder in which the disc library must be located in the **Enter backup destination folder** box or click the **Browse** button to select the folder.

   Click **Next**.

   If you click the **Use Network Share** option you will be prompted for the credentials (user name and password) to access the share.
4. Click **Next**.
5. Click **Finish**.

This will create a library and Storage Policy. Click the Next button available at the bottom of the page to continue.

STORAGE POLICY CREATION:

1. From the CommCell Browser, navigate to **Policies**.
2. Right-click the **Storage Policies** and then click **New Storage Policy**.
3. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
   - Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
   - Enter the name in the **Storage Policy Name** box and click **Next**.
   - From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.

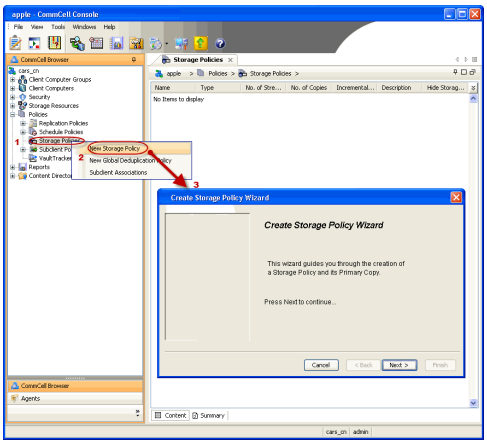
     Ensure that you select a library attached to a MediaAgent operating in the

current release.

- From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
- For the device streams and the retention criteria information, click **Next** to accept default values.
- Select **Yes** to enable deduplication for the primary copy.
- From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.

  Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.
- Review the details and click **Finish** to create the Storage Policy.

This will create a storage policy. Click the Next ➤ button available at the bottom of the page to continue.



◀ Previous Next ➤

Getting Started Deployment on a UNIX Computer - Oracle *i*DataAgent

Previous Next

SKIP THIS PAGE IF YOU ARE NOT INSTALLING THIS AGENT ON A UNIX COMPUTER.

Click Next to continue with the deployment.

WHERE TO INSTALL

Install the software on a UNIX computer on which Oracle Database application resides, and satisfies the minimum requirements specified in the System Requirements.

For Solaris, software can be installed on one of the following:

- Unix computer hosting the global zone on which Oracle Database application resides, and satisfies the minimum requirements specified in the System Requirements.
- Unix computer in a non global zone on which Oracle Database application resides, and satisfies the minimum requirements specified in the system requirements.

INSTALLATION

The software can be installed using one of the following methods:

METHOD 1: INTERACTIVE INSTALL

Use this procedure to directly install the software from the installation package or a network drive.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

Use this procedure to remotely install the software on a client computer.

BEFORE YOU BEGIN

Download Software Packages
Download the latest software package to perform the install.

Verify System Requirements
Verify that the computer in which you wish to install the software satisfies the System Requirements.

METHOD 1: INTERACTIVE INSTALL

1. Logon to the client computer as **root** or as a sudo user.

   If you are installing the software using a sudo user account, make sure that sudo user account is configured on this computer. For more information, see FAQ - Install.

2. Use the following options depending upon on your environment:

   - On Global Zone or Unix machine, run the following command to mount the cd:

     mount -t iso9660,udf /dev/cdrom /mnt/cdrom

     Run the following command from the Software Installation Package or mount point:

     ./cvpkgadd

   - On a Non-Global Zone, run the following commands to mount the cd:

     mkdir <Non-Global Zone root location>/<Non-Global Zone local directory>

     mount -F lofs <Global zone software Install package mount point> <Non-Global Zone root location>/<Non-Global Zone local directory>

     Connect to Non-Global Zone terminal

     Run the following command from the Software Installation Package or mount point:

     ./cvpkgadd

3. The product banner and other information is displayed.

   Press **Enter**.

4. Read the license agreement. Type **y** and press **Enter**.

5. Press **Enter**.

```
Please select a setup task you want to perform from the
list below:

Advance options provide extra setup features such as
creating custom package, recording/replaying user
selections and installing External Data Connector
software.
```

```
1) Install data protection agents on this computer

2) Advance options

3) Exit this menu

Your choice: [1]
```

6.
   - If your computer is 32-bit, or if you want to install 32-bit binaries on 64-bit computer, press **Enter**.
   - If your computer is 64-bit, and want to install 64-bit binaries, type **2**, and then press **Enter**.
     - This prompt is displayed only when you are installing on AIX, HP-UX, or Solaris computers.
     - You can determine this by verifying whether all the components that you wish to install in this computer are supported in 64-bit in System Requirements
     - Note that when the first component is installed using 64-bit binaries, you cannot subsequently install another component using 32-bit. (Or vice-versa.)

```
32 or 64?

This machine supports both 32 bit and 64 bit binaries. By
default, we will install 32 bit binary set that has full
support for all the modules included in this package.
Please note that 64 bit binary set currently only support
limited modules.

1) All platforms(32 bit)

2) FS and MS only(64 bit)

Your choice: [1]
```

7. Press **Enter**.

```
Certain Calypso packages can be associated with a virtual
IP, or in other words, installed on a "virtual machine"
belonging to some cluster. At any given time the virtual
machine's services and IP address are active on only one
of the cluster's servers. The virtual machine can "fail-
over" from one server to another, which includes stopping
services and deactivating IP address on the first server
and activating the IP address/services on the other
server.

You now have a choice of performing a regular Calypso
install on the physical host or installing Calypso on a
virtual machine for operation within a cluster.

Most users should select "Install on a physical machine"
here.

1) Install on a physical machine

2) Install on a virtual machine

3) Exit

Your choice: [1]
```

8. If you have only one network interface, press **Enter** to accept the default network interface name and continue.

   If you have multiple network interfaces, enter the interface name that you wish to use as default, and then press **Enter**.

   The interface names and IP addresses depend on the computer in which the software is installed and may be different from the example shown.

```
We found one network interface available on your machine.
We will associate it with the physical machine being
installed, and it will also be used by the CommServe to
connect to the physical machine. Note that you will be
able to additionally customize Datapipe Interface Pairs
used for the backup data traffic later in the Calypso Java
GUI.

Please check the interface name below, and make
connections if necessary:

Physical Machine Host Name: [angel.company.com]
```

9. Press **Enter**.

```
Please specify the client name for this machine.

It does not have to be the network host name: you can
enter any word here without spaces. The only requirement
is that it must be unique on the CommServe.

Physical Machine Client name: [angel]
```

10. Type the number associated with the **Oracle *i*DataAgent** and press **Enter**.

```
Install Calypso on physical machine 172.19.99.62

Please select the Calypso module(s) that you would like to
install.

[ ] 1) MediaAgent [1301] [CVGxMA]

[ ] 2) UNIX File System iDataAgent [1101] [CVGxIDA]

[ ] 3) Oracle iDataAgent [1204] [CVGxOrIDA]

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here:3
```

11. A confirmation screen will mark your choice with an "**X**".

    Type **d** for **Done**, and press **Enter**.

```
Install Calypso on physical machine 172.19.99.62

Please select the Calypso module(s) that you would like to
install.

[ ]  1) MediaAgent [1301] [CVGxMA]

[ ] 2) UNIX File System iDataAgent [1101] [CVGxIDA]

[X] 3) Oracle iDataAgent [1204] [CVGxOrIDA]

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]
```

```
Enter number(s)/one of "a,n,r,q,d,>,<,?" here:d
```

12. Press **Enter**.

```
Do you want to use the agents for restore only without
consuming licenses? [no]
```

13. Type the appropriate number to install the latest software scripts and press **Enter**.

    - Select **Download from the software provider website** to download the latest software scripts. Make sure you have internet access.
    - Select **Use the one in the installation media** to install the software scripts from the package or share from which the installation is currently being performed.
    - Select **Use the copy I already have by entering its unix path**, to specify the path if you have the software script in an alternate location.

```
Installation Scripts Pack provides extra functions and
latest support and fix performed during setup time. Please
specify how you want to get this pack.

If you choose to download it from the website now, please
make sure you have internet connectivity at this time.
This process may take some time depending on the internet
connectivity.

1) Download from the software provider website.

2) Use the one in the installation media

3) Use the copy I already have by entering its unix path

Your choice: [1] 2
```

14. Press **Enter**.

```
Keep Your Install Up to Date - Latest Service Pack

Latest Service Pack provides extra functions and latest
support and fix for the packages you are going to install.
You can download the latest service pack from software
provider website.

If you decide to download it from the website now, please
make sure you have internet connectivity at this time.
This process may take some time depending on the internet
connectivity.

Do you want to download the latest service pack now? [no]
```

15. Press **Enter** to accept the default path.

    - If you want to specify a different path, type the path and then press **Enter**.
    - If you want to install the software binaries to an NFS shared drive, specify the directory on which you have mounted the NFS file system and then press **Enter**.

      In order to make sure that the client computer has `read/write` access to NFS shared drive, review the steps described in Installing Software Binaries to an NFS Shared Drive.

      Do not use the following characters when specifying the path:

      !@#$%^&*():/?\

```
Please specify where you want us to install Calypso
binaries.

It must be a local directory and there should be at least
176MB of free space available. All files will be installed
in a "calypso" subdirectory, so if you enter "/opt", the
files will actually be placed into "/opt/calypso".

Installation Directory: [/opt]
```

16. Press **Enter** to accept the default location.

    - Enter a path to modify the default location and press **Enter**.
    - All the modules installed on the computer will store the log files in this directory.

```
Please specify where you want to keep Calypso log files.

It must be a local directory and there should be at least
100MB of free space available. All log files will be
created in a "calypso/Log_Files" subdirectory, so if you
enter "/var/log", the logs will actually be placed into
"/var/log/calypso/Log_Files".

Log Directory: [/var/log]
```

17. Type **Yes** and press **Enter**.

    If you do not want to assign a group to software, type **no**, press **Enter** and proceed to step 19.

```
Most of Software processes run with root privileges, but
some are launched by databases and inherit database access
rights. To make sure that registry and log files can be
written to by both kinds of processes we can either make
such files world-writeable or we can grant write access
only to processes belonging to a particular group, e.g. a
"calypso" or a "oinstall" group.

We highly recommend now that you create a new user group
and enter its name in the next setup screen. If you choose
not to assign a dedicated group to Software processes, you
will need to specify the access permissions later.

If you're planning to backup Oracle DB you should use
"oinstall" group.

Would you like to assign a specific group to Software?
[yes]
```

18. Type the **Group name** and then press **Enter.**

```
Please enter the name of the group which will be assigned
to all Software files and on behalf of which all Software
processes will run.

In most of the cases it's a good idea to create a
dedicated "calypso" group. However, if you're planning to
use Oracle iDataAgent or SAP Agent, you should enter
Oracle's "oinstall" group here.

Group name: oinstall

REMINDER

If you are planning to install Calypso Informix, DB2,
PostgreSQL, Sybase or Lotus Notes iDataAgent, please make
sure to include Informix, DB2, etc. users into group
"oinstall".
```

19. Type **d** for done with the selection and press **Enter**.

```
Access Permissions for Other Users.Installer will assign
```

This screen is displayed if you do not assign any group to the software and type **no** in step 17.

```
full access rights to root user and its belonging group
for all installed Calypso files and its processes.For any
other users, you can specify the access permissions now.
However, since you chose not to assign a dedicated group
in previous step, make sure you specify sufficient access
rights for other users if you are also planning to install
Calypso agents involving third party software protection.

[X] 1) Allow read permission to other users
[X] 2) Allow write permission to other users
[X] 3) Allow execute permission to other users

a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here: d
```

20. This prompt is relevant only when you install on Solaris. Press **Enter** to accept the default value for **Number of Streams**.

You can type the **Number of Streams** that you plan to run at the same time and then press **Enter**.

```
Number of Streams

IMPORTANT : Please read install document "Configure Kernel
Parameters - Unix/Macintosh" from "Books Online" before
you start configuring kernel parameters. Please enter the
total number of streams that you plan to run at the same
time. We need to make sure that you have enough semaphores
and shared memory segments configured in /etc/system.

Number of streams [10]
```

21. Press **Enter** if you do not want the changes to be updated automatically.

- If you want the changes to be made automatically, type **Yes** and then press **Enter**.
- You will come across this prompt when you install the software on the earlier versions of Solaris.

```
We now need to modify the /etc/system configuration file
on this computer. It is done to make sure that there will
be enough shared memory and semaphores available for
Calypso programs. Please review the changes below and
answer "yes" if you want us to apply them to
the /etc/system file. Otherwise, the installation will
proceed, the changes will be saved to some other file, and
you will have to apply them manually.

set shmsys:shminfo_shmmni=8570 (was 7930)
set shmsys:shminfo_shmseg=8420 (was 7780)
set semsys:seminfo_semmns=10320 (was 9680)
set semsys:seminfo_semmni=8570 (was 7930)
set semsys:seminfo_semmsl=8570(was 7930)
Do you want us to apply these changes now? [no]
```

22. Press **Enter**.

```
Changes saved into /etc/system.gal.1744

Press <ENTER> to continue.
```

23. Press **Enter**.

You will see this prompt if you have accepted the default **no** and pressed **Enter** in step 21.

```
Although a 'no' answer can be selected to this question
during install, the user should make sure the min
requirements (below) for shared memory are met, otherwise
the backups may fail (the message in logs is 'could not
start the pipeline').

set shmsys:shminfo_shmmax=4199304
set shmsys:shminfo_shmmin=1
set semsys:shminfo_shmmni=640
set semsys:shminfo_shmseg=640
set semsys:seminfo_semmns=640
set semsys:seminfo_semmni=640
set semsys:seminfo_semmsl=640
set maxusers=256
Press <ENTER> to continue.
```

24. Type a network TCP port number for the Communications Service (CVD) and press **Enter**.

Type a network TCP port number for the Client Event Manager Service (EvMgrC) and press **Enter**.

```
Every instance of Calypso should use a unique set of
network ports to avoid interfering with other instances
running on the same machine.

The port numbers selected must be from the reserved port
number range and have not been registered by another
application on this machine.

Please enter the port numbers.

Port Number for CVD : [8400]

Port Number for EvMgrC: [8402]
```

25. If you do not wish to configure the firewall services, press **Enter**.

If this computer is separated from the CommServe by firewall(s), type **Yes** and then press **Enter**.

For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.

```
Is there a firewall between this client and the CommServe?
[no]
```

26. Type the fully qualified CommServe host name and press **Enter**.

Ensure that the CommServe is accessible before typing the name; otherwise the installation will fail.

```
Please specify hostname of the CommServe below. Make sure
the hostname is fully qualified, resolvable by the name
services configured on this machine.

CommServe Host Name: mycommserve.company.com
```

27. Press **Enter**.

```
Commcell Level Global Filters are set through Calypso
GUI's Control Panel in order to filter out certain
directories or files from backup Commcell-widely. If you
turn on the Global filters, they will be effective to the
default subclient. There are three options you can choose
```

```
to set the filters.

1) Use Cell level policy

2) Always use Global filters

3) Do not use Global filters

Please select how to set the Global Filters for the
default subclient? [1]
```

28. Type the number associated with the Client Group and press **Enter**.

This screen will be displayed only if Client Groups are configured for the CommCell.

```
Client Group(s) is currently configured on CommServe
cs.company.com. Please choose the group(s) that you want
to add this client client.company.com to.

[ ] 1) Unix

[ ] 2) DR

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here: 1
```

29. A confirmation screen will mark your choice with an "**X**".

Type **d** for done with the selection, and press **Enter** to continue.

```
Client Group(s) is currently configured on CommServe
cs.company.com. Please choose the group(s) that you want
to add this client client.company.com to.

[X ] 1) Unix

[ ] 2) DR

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here: d
```

30. Enter the number associated with the storage policy you want use and press **Enter**.

```
Please select one storage policy for this IDA from the
list below:

1) SP_StandAloneLibrary2_2

2) SP_Library3_3

3) SP_MagLibrary4_4

Storage Policy: [1]
```

If you do not have Storage Policy created, this message will be displayed.

You may not be prompted for user input.

You can create the Storage Policy later in step 31.

```
There seem to be no Storage Policies configured on the
CommServe. Before you can run any backups of this IDA, you
will need to install a MediaAgent, create a Storage Policy
and assign it to all subclients..

Adjusting modes and permissions of files

Successfully installed Calypso
```

31. Type **3** to the **Exit** option and press **Enter**.

The installation is now complete.

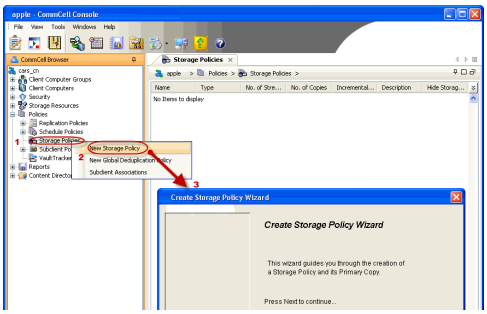
```
Certain Calypso packages can be associated with a virtual
IP, or in other words, installed on a "virtual machine"
belonging to some cluster. At any given time the virtual
machine's services and IP address are active on only one
of the cluster's servers. The virtual machine can "fail-
over" from one server to another, which includes stopping
services and deactivating IP address on the first server
and activating the IP address/services on the other
server.

Currently you have Calypso installed on physical node
angel.company.com.

Now you have a choice of either adding another package to
the existing installation or configure Calypso on a
virtual machine for use in a cluster.

1) Add another package to angel.company.com

2) Install Calypso on a virtual machine

3) Exit

Your choice: [1] 3
```

CHOICE If you already have a storage policy selected in step 30, proceed to the Configuration section.

If you do not have Storage Policy created, follow the procedure given below.

32.

1. From the CommCell Browser, navigate to **Policies**.
2. Right-click the **Storage Policies** and then click **New Storage Policy**.
3. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
   - Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
   - Enter the name in the **Storage Policy Name** box and click **Next**.
   - From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.



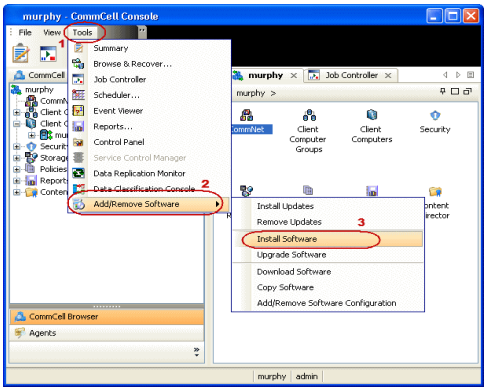
Ensure that you select a library attached to a MediaAgent operating in the current release.

- From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
- For the device streams and the retention criteria information, click **Next** to accept default values.
- Select **Yes** to enable deduplication for the primary copy.
- From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.

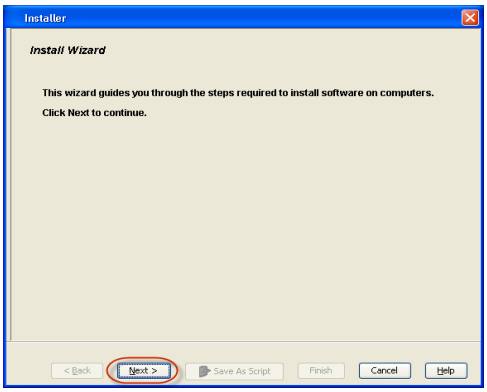
  Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.
- Review the details and click **Finish** to create the Storage Policy.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

1. From the CommCell Browser, select **Tools** | **Add/Remove Software** | **Install Software.**

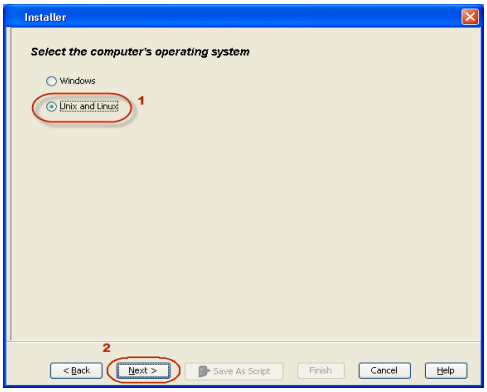


2. Click **Next**.



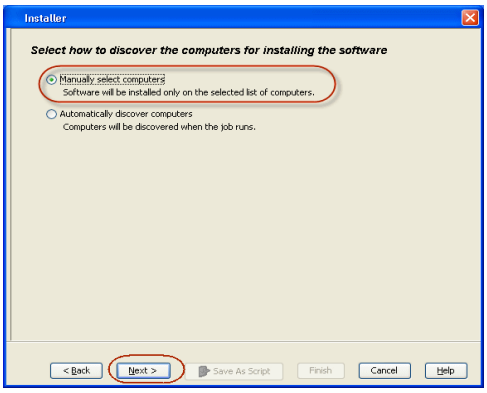
3. Select **Unix and Linux**.

   Click **Next**.

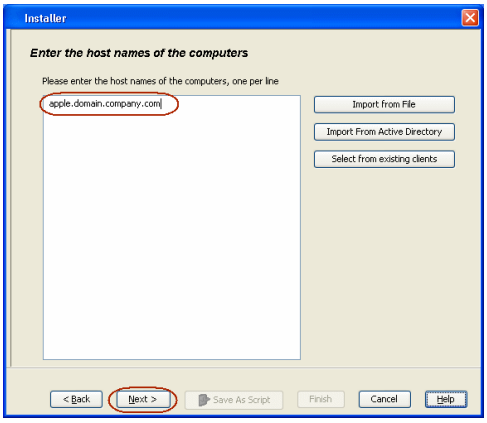


4. Select **Manually Select Computers**.

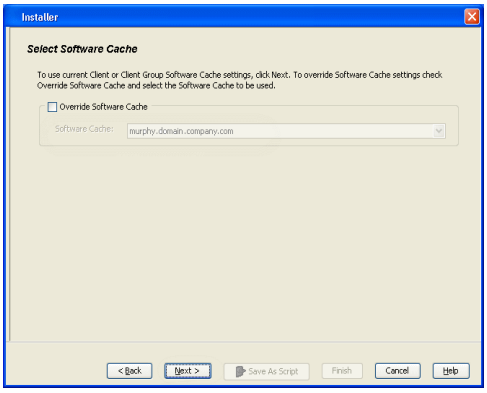
   Click **Next**.



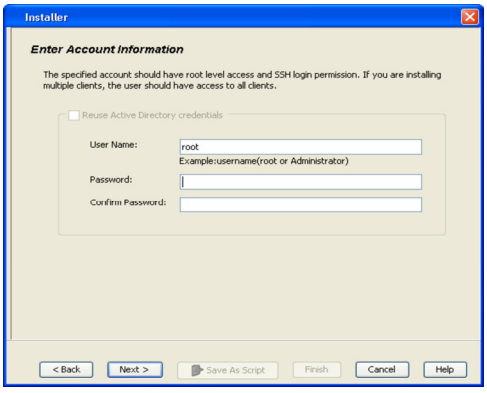
5. Enter the fully qualified domain name of the computer in which you wish to install.
   For example: `apple.domain.company.com`
   The **Oracle *i*DataAgent** will be installed on this client computer.
   Click **Next**.



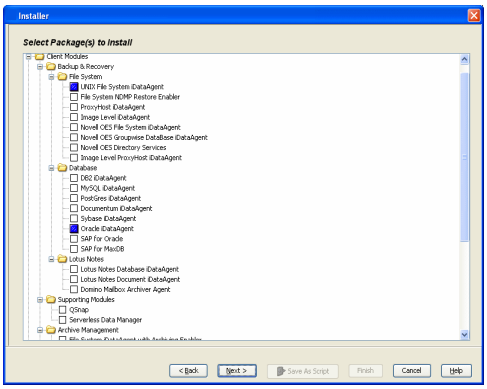
6. Click **Next**.



7. Specify **User Name** and **Password** that must be used to access the client computer.
   Click **Next**.



8. Select **Oracle *i*DataAgent**.
   Click **Next**.



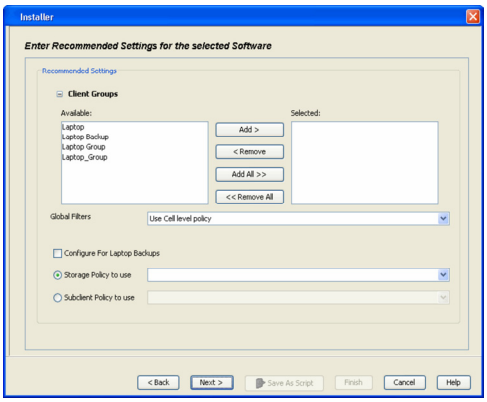
9.

- Select **Client Group** from **Available** and click **Add**.

  Do not add more than one Client Group.

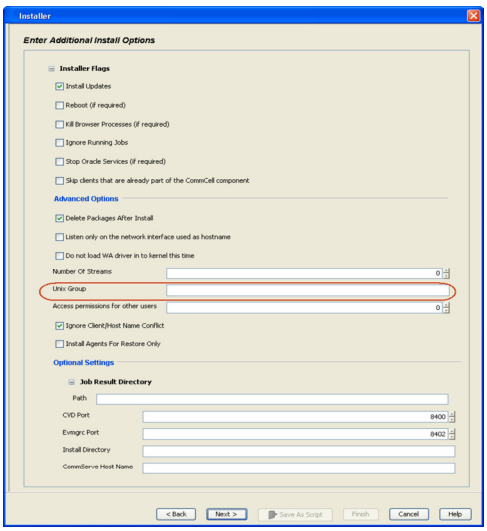
- Select a **Storage Policy** from the drop-down list. Click **Next**.

  Select the **Configure for Laptop or Desktop Backup** option to install **Backup Monitor** utility. This utility allows you to view the backup job summary from the client computer without opening the CommCell Console. See Monitor - Laptop User for more information.



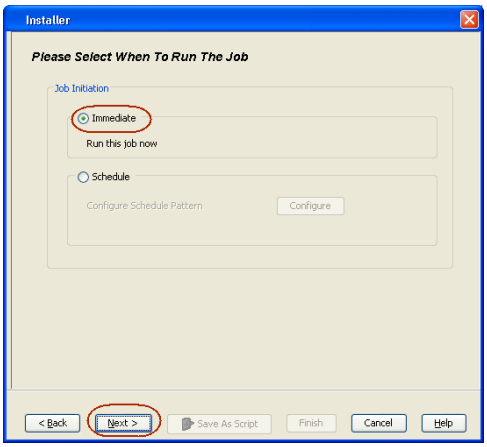
10.

- In the **Unix Group** box, type the Unix group name to which the oracle user belongs to.
- Click **Next**.

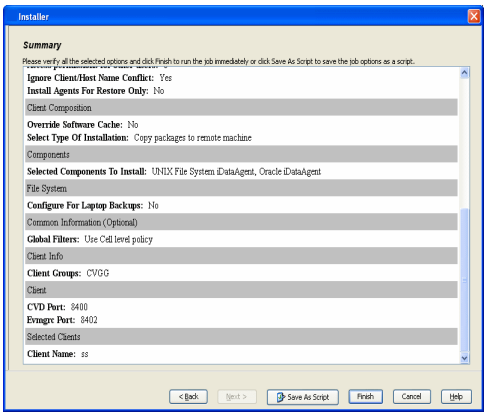


11. Select **Immediate**.

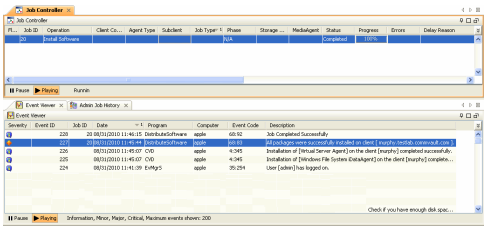
Click **Next**.



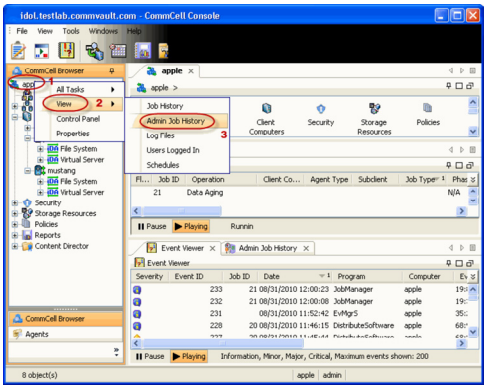
12. Click **Finish**.



13. You can track the progress of the job from the **Job Controller** or **Event Viewer** window.

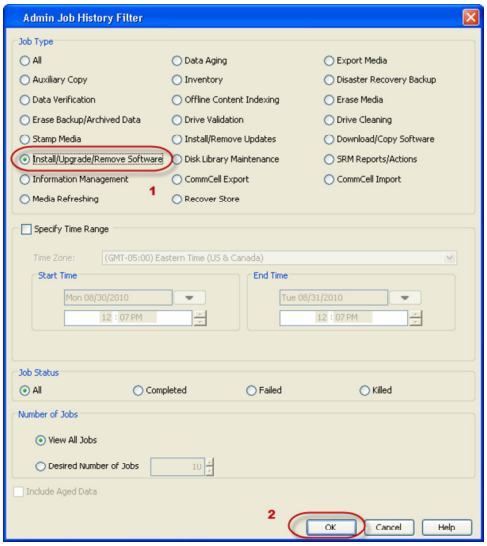


14. Once the job is complete, right-click the **CommServe** computer, click **View** and then click **Admin Job History**.

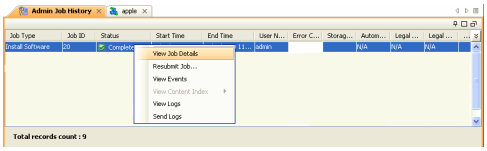


15. Select **Install/Upgrade/Remove Software**.

    Click **OK**.



16. You can view the following details about the job by right-clicking the job:
    - Items that succeeded during the job
    - Items that failed during the job
    - Details of the job
    - Events of the job
    - Log files of the job



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ADDITIONAL INSTALLATION METHODS

Custom Package
Create a compact software package for quick deployment to multiple clients

Decoupled Install
Install the software first and later register the client in the CommCell.

Remote Install
Deploy the software from CommCell Console on multiple clients.

Installing Restore only Agents
Setup a client in the CommCell for restore purposes

Silent Install
Deploy the software silently on multiple clients.

Getting Started Deployment on a UNIX Cluster - Oracle *i*DataAgent

Previous Next

SKIP THIS PAGE IF YOU ARE NOT INSTALLING THIS AGENT ON A UNIX CLUSTER.

Click Next to begin Configuration.

WHERE TO INSTALL

Install the software on a client computer that you want to protect and is part of a Cluster which satisfies the minimum requirements specified in the System Requirements.

BEFORE YOU BEGIN

Download Software Packages
Download the latest software package to perform the install.

Verify System Requirements
Make sure that the computer in which you wish to install the software satisfies the System Requirements.

INSTALLING THE ORACLE IDATAAGENT IN UNIX CLUSTERED ENVIRONMENT

1. Logon to the active node as **root**.
2. If your are installing the software from CD, run the following command to mount the CD:

   ```
   mount -t iso9660,udf /dev/cdrom /mnt/cdrom
   ```

   Run the following command from the Software Installation Package or mount point:

   ```
   ./cvpkgadd
   ```
3. The product banner and other information is displayed.

   Press **Enter**.
4. Read the license agreement. Type **y** and press **Enter**.
5. Press **Enter**.

   ```
   Please select a setup task you want to perform from the
   list below:

   Advance options provide extra setup features such as
   creating custom package, recording/replaying user
   selections and installing External Data Connector
   software.

   1) Install data protection agents on this computer

   2) Advance options

   3) Exit this menu

   Your choice: [1]
   ```
6. - If your computer is 32-bit, or if you want to install 32-bit binaries on 64-bit computer, press **Enter**.
   - If your computer is 64-bit, and want to install 64-bit binaries, type **2**, and then press **Enter**.
     - This prompt is displayed only when you are installing on AIX, HP-UX, or Solaris computers.
     - You can determine this by verifying whether all the components that you wish to install in this computer are supported in 64-bit in System Requirements
     - Note that when the first component is installed using 64-bit binaries, you cannot subsequently install another component using 32-bit. (Or vice-versa.)

   ```
   32 or 64?

   This machine supports both 32 bit and 64 bit binaries. By
   default, we will install 32 bit binary set that has full
   support for all the modules included in this package.
   Please note that 64 bit binary set currently only support
   limited modules.

   1) All platforms(32 bit)

   2) FS and MS only(64 bit)

   Your choice: [1]
   ```
7. Type **2**, and press **Enter** to install on a computer which is part of a Cluster.

   ```
   Certain Calypso packages can be associated with a virtual
   IP, or in other words, installed on a "virtual machine"
   belonging to some cluster. At any given time the virtual
   machine's services and IP address are active on only one
   of the cluster's servers. The virtual machine can "fail-
   over" from one server to another, which includes stopping
   services and deactivating IP address on the first server
   and activating the IP address/services on the other
   server.

   You now have a choice of performing a regular Calypso
   install on the physical host or installing Calypso on a
   virtual machine for operation within a cluster.

   Most users should select "Install on a physical machine"
   here.

   1) Install on a physical machine
   ```

```
2) Install on a virtual machine

3) Exit

Your choice: [2]
```

8. Type the name of the computer that you want to configure or its corresponding IP address and press **Enter**.

```
Please enter the hostname or IP address of the virtual
machine being installed. It can be either short or long;
the only requirement is that it must be resolvable by the
name services configured on this machine

WARNING: You should follow this path ONLY if this host
participates in a cluster and you really want to install
Calypso on the virtual machine. This is NOT how most
people will use Calypso.

If you got into this screen by mistake, hit ^C and restart
cvpkgadd.

Virtual Machine Host Name:devm.mycompany.com
```

9. Press **Enter**.

```
Virtual Machine Client Name

Please specify the client name for this machine.

It does not have to be the network host name: you can
enter any word here without spaces. The only requirement
is that it must be unique on the CommServe.

Virtual Machine Client Name: [devm]
```

10. Specify the network interface that you want to associate with the physical machine and press **Enter**.

This prompt appears only when the Unix File System *i*DataAgent is not installed on the physical node.

```
Even though it is a virtual machine that you are
installing now, we still have to ask you to provide
hostname and client name for the physical node.

Network interfaces with the following IPs are available on
your system. Please select the one that you want to be
associated with Calypso physical machine. The interface
should be static, and should not get disabled in case of
cluster failover.

1) mackrel71
2) mackrel
3) mackrel1

Interface number: [1] 2
```

11. Verify the name of the physical interface and make any required changes. Then press **Enter**.

```
Please verify the physical interface name below. Make it
as complete (with fully qualified domain name) as
possible.

Physical Hostname: [mackrel]
```

12. Enter a node name for the physical machine and press **Enter**.

```
Even though you are installing Calypso on a machine, we
still need to ask you to provide a node name for the
physical machine.

It does not have to be the network host name: you can
enter any word here without spaces. The only requirement
is that it must be unique on the CommServe.

Physical Machine Node Name: [mackrel]
```

13. Type the number associated with the **Oracle *i*DataAgent** and press **Enter**.

```
Install Calypso on physical machine 172.19.99.62

Please select the Calypso module(s) that you would like to
install.

[ ] 1) MediaAgent [1301] [CVGxMA]

[ ] 2) UNIX File System iDataAgent [1101] [CVGxIDA]

[ ] 3) Oracle iDataAgent [1204] [CVGxOrIDA]

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here:3
```

14. A confirmation screen will mark your choice with an "**X**".

Type **d** for **Done**, and press **Enter**.

```
Install Calypso on physical machine 172.19.99.62

Please select the Calypso module(s) that you would like to
install.

[ ]  1) MediaAgent [1301] [CVGxMA]

[ ] 2) UNIX File System iDataAgent [1101] [CVGxIDA]

[X] 3) Oracle iDataAgent [1204] [CVGxOrIDA]

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here:d
```

15. Press **Enter**.

```
Do you want to use the agents for restore only without
consuming licenses? [no]
```

16. Type the appropriate number to install the latest software scripts and press **Enter**.

- Select **Download from the software provider website** to download the latest software scripts. Make sure you have internet access.

```
Installation Scripts Pack provides extra functions and
latest support and fix performed during setup time. Please
specify how you want to get this pack.

If you choose to download it from the website now, please
```

- Select **Use the one in the installation media** to install the software scripts from the package or share from which the installation is currently being performed.
- Select **Use the copy I already have by entering its unix path**, to specify the path if you have the software script in an alternate location.

Enter a node name for the physical machine and press **Enter**.

```
make sure you have internet connectivity at this time.
This process may take some time depending on the internet
connectivity.

1) Download from the software provider website.

2) Use the one in the installation media

3) Use the copy I already have by entering its unix path

Your choice: [1] 2
```

17. Press **Enter**.

```
Keep Your Install Up to Date - Latest Service Pack

Latest Service Pack provides extra functions and latest
support and fix for the packages you are going to install.
You can download the latest service pack from software
provider website.

If you decide to download it from the website now, please
make sure you have internet connectivity at this time.
This process may take some time depending on the internet
connectivity.

Do you want to download the latest service pack now? [no]
```

18. Press **Enter** to accept the default path.

- If you want to specify a different path, type the path and then press **Enter**.
- If you want to install the software binaries to an NFS shared drive, specify the directory on which you have mounted the NFS file system and then press **Enter**.

  In order to make sure that the client computer has `read/write` access to NFS shared drive, review the steps described in Installing Software Binaries to an NFS Shared Drive.

  Do not use the following characters when specifying the path:

  !@#$%^&*():/?\

```
Please specify where you want us to install Calypso
binaries.

It must be a local directory and there should be at least
176MB of free space available. All files will be installed
in a "calypso" subdirectory, so if you enter "/opt", the
files will actually be placed into "/opt/calypso".

Installation Directory: [/opt]
```

19. Press **Enter** to accept the default location.

- Enter a path to modify the default location and press **Enter**.
- All the modules installed on the computer will store the log files in this directory.

```
Please specify where you want to keep Calypso log files.

It must be a local directory and there should be at least
100MB of free space available. All log files will be
created in a "calypso/Log_Files" subdirectory, so if you
enter "/var/log", the logs will actually be placed into
"/var/log/calypso/Log_Files".

Log Directory: [/var/log]
```

20. Type **Yes** and press **Enter.**

If you do not want to assign a group to software, type **no**, press **Enter** and proceed to step 22.

```
Most of Software processes run with root privileges, but
some are launched by databases and inherit database access
rights. To make sure that registry and log files can be
written to by both kinds of processes we can either make
such files world-writeable or we can grant write access
only to processes belonging to a particular group, e.g. a
"calypso" or a "oinstall" group.

We highly recommend now that you create a new user group
and enter its name in the next setup screen. If you choose
not to assign a dedicated group to Software processes, you
will need to specify the access permissions later.

If you're planning to backup Oracle DB you should use
"oinstall" group.

Would you like to assign a specific group to Software?
[yes]
```

21. Type the **Group name** and then press **Enter.**

```
Please enter the name of the group which will be assigned
to all Software files and on behalf of which all Software
processes will run.

In most of the cases it's a good idea to create a
dedicated "calypso" group. However, if you're planning to
use Oracle iDataAgent or SAP Agent, you should enter
Oracle's "oinstall" group here.

Group name: oinstall

REMINDER

If you are planning to install Calypso Informix, DB2,
PostgreSQL, Sybase or Lotus Notes iDataAgent, please make
sure to include Informix, DB2, etc. users into group
"oinstall".
```

22. Type **d** for done with the selection and press **Enter**.

This screen is displayed if you do not assign any group to software and type **no** in step 20.

```
Access Permissions for Other Users
Installer will assign full access rights to root user and
its belonging group
for all installed Calypso files and its processes.
For any other users, you can specify the access
permissions now. However, since you chose not to assign a
dedicated group in previous step, make sure you specify
sufficient access rights for other users if you are also
planning to install Calypso agents involving third party
software protection.
```

```
[X] 1) Allow read permission to other users
[X] 2) Allow write permission to other users
[X] 3) Allow execute permission to other users

a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]
Enter number(s)/one of "a,n,r,q,d,>,<,?" here: d
```

23. This prompt is relevant only when you install on Solaris. Press **Enter** to accept the default value for **Number of Streams**.

You can type the **Number of Streams** that you plan to run at the same time and then press **Enter**.

```
Number of Streams

IMPORTANT : Please read install document "Configure Kernel
Parameters - Unix/Macintosh" from "Books Online" before
you start configuring kernel parameters. Please enter the
total number of streams that you plan to run at the same
time. We need to make sure that you have enough semaphores
and shared memory segments configured in /etc/system.

Number of streams [10]
```

24. Press **Enter** if you do not want the changes to be updated automatically.

- If you want the changes to be made automatically, type **Yes** and then press **Enter**.
- You will come across this prompt when you install the software on the earlier versions of Solaris.

```
We now need to modify the /etc/system configuration file
on this computer. It is done to make sure that there will
be enough shared memory and semaphores available for
Calypso programs. Please review the changes below and
answer "yes" if you want us to apply them to
the /etc/system file. Otherwise, the installation will
proceed, the changes will be saved to some other file, and
you will have to apply them manually.

set shmsys:shminfo_shmmni=8570 (was 7930)
set shmsys:shminfo_shmseg=8420 (was 7780)
set semsys:seminfo_semmns=10320 (was 9680)
set semsys:seminfo_semmni=8570 (was 7930)
set semsys:seminfo_semmsl=8570(was 7930)
Do you want us to apply these changes now? [no]
```

25. Press **Enter**.

```
Changes saved into /etc/system.gal.1744

Press <ENTER> to continue.
```

26. Press **Enter**.

You will see this prompt if you have accepted the default **no** and pressed **Enter** in step 24.

```
Although a 'no' answer can be selected to this question
during install, the user should make sure the min
requirements (below) for shared memory are met, otherwise
the backups may fail (the message in logs is 'could not
start the pipeline').

set shmsys:shminfo_shmmax=4199304
set shmsys:shminfo_shmmin=1
set semsys:shminfo_shmmni=640
set semsys:shminfo_shmseg=640
set semsys:seminfo_semmns=640
set semsys:seminfo_semmni=640
set semsys:seminfo_semmsl=640
set maxusers=256
Press <ENTER> to continue.
```

27. Type a network TCP port number for the Communications Service (CVD) and press **Enter**.

Type a network TCP port number for the Client Event Manager Service (EvMgrC) and press **Enter**.

```
Every instance of Calypso should use a unique set of
network ports to avoid interfering with other instances
running on the same machine.

The port numbers selected must be from the reserved port
number range and have not been registered by another
application on this machine.

Please enter the port numbers.

Port Number for CVD : [8400]

Port Number for EvMgrC: [8402]
```

28. If you do not wish to configure the firewall services, press **Enter**.

If this computer is separated from the CommServe by firewall(s), type **Yes** and then press **Enter**.

For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.

```
Is there a firewall between this client and the CommServe?
[no]
```

29. Type the fully qualified CommServe host name and press **Enter**.

Ensure that the CommServe is accessible before typing the name; otherwise the installation will fail.

```
Please specify hostname of the CommServe below. Make sure
the hostname is fully qualified, resolvable by the name
services configured on this machine.

CommServe Host Name: mycommserve.company.com
```

30. Press **Enter**.

```
Commcell Level Global Filters are set through Calypso
GUI's Control Panel in order to filter out certain
directories or files from backup Commcell-widely. If you
turn on the Global filters, they will be effective to the
default subclient. There are three options you can choose
to set the filters.

1) Use Cell level policy

2) Always use Global filters

3) Do not use Global filters

Please select how to set the Global Filters for the
```

31. Type the number associated with the **Unix File System *i*DataAgent** and press **Enter**.

32. A confirmation screen will mark your choice with an "**X**".

Type **d** for **Done**, and press **Enter**.

33. Enter the number associated with the storage policy you want use and press **Enter**.

If you do not have Storage Policy created, this message will be displayed.

You may not be prompted for user input.

You can create the Storage Policy later in step 35.

34. Type **4** to the **Exit** option and press **Enter**.

The installation is now complete.

```
default subclient? [1]

Client Group(s) is currently configured on CommServe
cs.company.com. Please choose the group(s) that you want
to add this client client.company.com to.

[ ] 1) Unix

[ ] 2) DR

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here: 1

Client Group(s) is currently configured on CommServe
cs.company.com. Please choose the group(s) that you want
to add this client client.company.com to.

[X ] 1) Unix

[ ] 2) DR

[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]

Enter number(s)/one of "a,n,r,q,d,>,<,?" here: d

Please select one storage policy for this IDA from the
list below:

1) SP_StandAloneLibrary2_2

2) SP_Library3_3

3) SP_MagLibrary4_4

Storage Policy: [1]

There seem to be no Storage Policies configured on the
CommServe. Before you can run any backups of this IDA, you
will need to install a MediaAgent, create a Storage Policy
and assign it to all subclients..

Adjusting modes and permissions of files

Successfully installed Calypso

Calypso is currently configured on virtual machine
devmc.company.com.

Now you have an option of installing Calypso on physical
machine, another virtual machine or you can add a new
package to devmc.company.com.

1) Add a new package to hpuxmc1.company.com
2) Install Calypso on the physical machine
3) Install Calypso on another virtual machine
4) Exit

Your choice: [4]
```

CHOICE

If you already have a storage policy selected in step 33, proceed to the Configuration section.

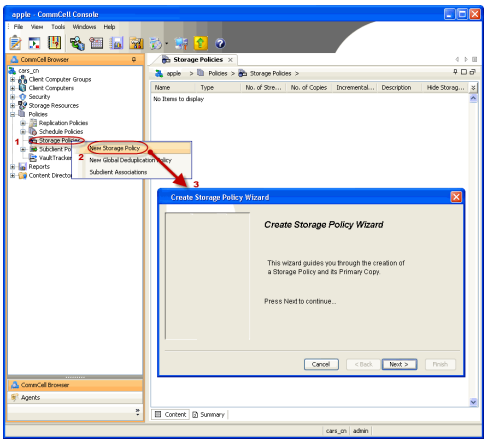
If you do not have Storage Policy created, follow the procedure given below.

35.

1. From the CommCell Browser, navigate to **Policies**.
2. Right-click the **Storage Policies** and then click **New Storage Policy**.
3. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
   - Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
   - Enter the name in the **Storage Policy Name** box and click **Next**.
   - From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.

     Ensure that you select a library attached to a MediaAgent operating in the current release.
   - From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
   - For the device streams and the retention criteria information, click **Next** to accept default values.
   - Select **Yes** to enable deduplication for the primary copy.
   - From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.

     Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.



- Review the details and click **Finish** to create the Storage Policy.

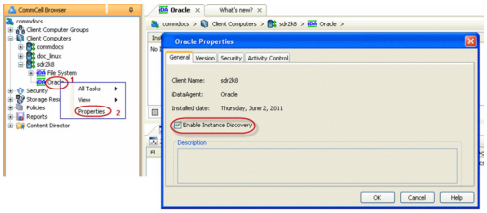
Previous Next

Getting Started Configuration - Oracle *i*DataAgent

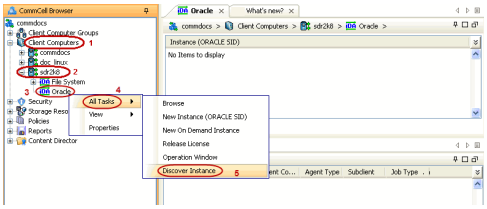
Previous Next

Once the Oracle *i*DataAgent is installed, configure the instance and subclient as follows:

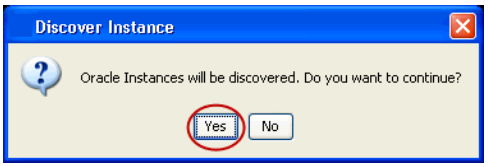
1.
   - From the CommCell Browser, navigate to **Client Computers | *<Client>***.
   - Right-click **Oracle** and then click **Properties**.
   - Select the **Enable Instance Discovery** check box.



2.
   - From the CommCell Browser, navigate to **Client Computers | *<Client>***.
   - Right-click **Oracle**, point to **All Tasks** and then click **Discover Instance**.



3. Click **Yes**.

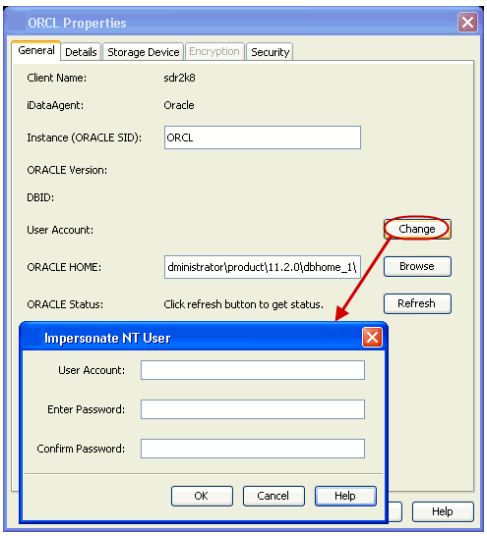


4.
   - From the CommCell Browser, navigate to **Client Computers | *<Client>*|Oracle**.
   - Right-click the ***<Instance>*** and then click **Properties**.

   Automatic instance discovery will not detect the manually created databases. If Instances are not discovered, create an instance manually. See Enabling Automatic Instance Discovery and Manually Adding an Instance for more information.

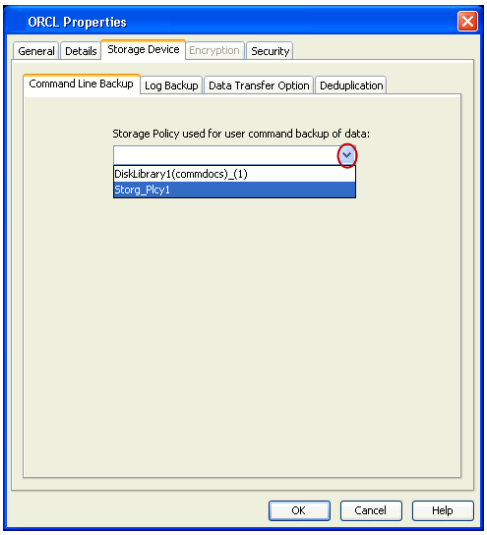
5. On Windows clients:
   - Click **Change**.
   - In the **User Account** box, enter the user name to access the Oracle application.
   - In the Password box, enter the password for the user account.
   - In the Confirm Password box, re-confirm the password.
   - Click **OK.**

   Skip this step if you have a Unix client.



6.
   - Click the **Storage Device** tab.
   - In the **Storage Policy used for user command backup of data** box, select a storage policy name.

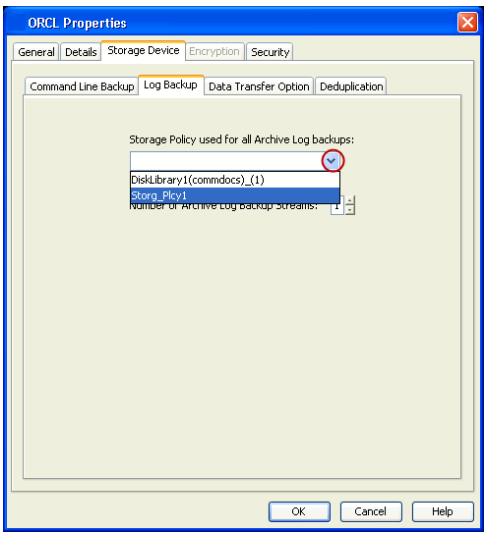
   If you do not have a storage policy created, go to step 10 to create a storage policy.



7.

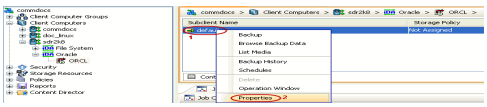
- Click the **Logs Backup** tab.
- In the **Storage Policy used for all Archive Log backups** box, select a storage policy name.
- Click **OK**.

If you do not have a storage policy created, go to step 10 to create a storage policy.



8.

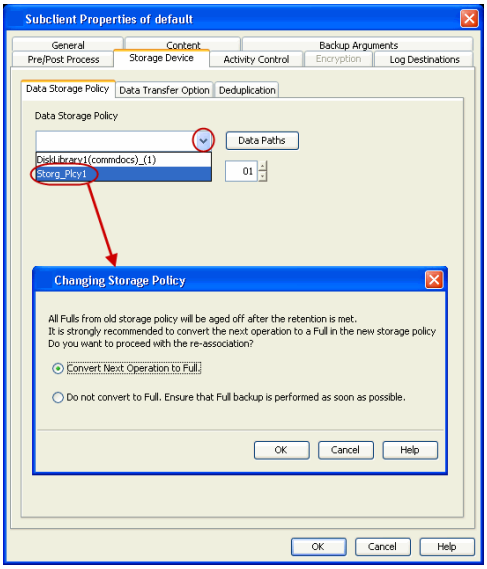
- From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | <Instance>.**
- Right-click the default subclient and then click **Properties**.



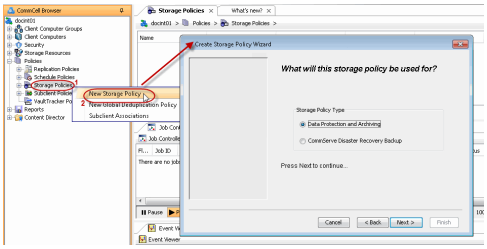
9.

- Click the **Storage Device** tab.
- In the **Data Storage Policy** list, select a Storage Policy name.
- Click **OK** to convert the next backup as a full backup.
- Click **OK**.

Click Next ➤ to continue. If you do not have Storage Policy created, follow the step given below to create a storage policy.



10. Create a Storage Policy:



1. Click **Create Storage Policy**.
2. Follow the prompts displayed in the Storage Policy Wizard. The required options are mentioned below:
   - Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
   - Enter the name in the **Storage Policy Name** box and click **Next**.
   - From the **Library** list, click the name of a disk library to which the primary copy should be associated and then click **Next**.

     Ensure that you select a library attached to a MediaAgent operating in the current release.
   - From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
   - For the device streams and the retention criteria information, click **Next** to accept default values.
   - Select **Yes** to enable deduplication for the primary copy.
   - From the **MediaAgent** list, click the name of the MediaAgent that will be used to store the Deduplication store.

     Type the name of the folder in which the deduplication database must be located in the Deduplication Store Location or click the Browse button to select the folder and then click **Next**.
   - Review the details and click **Finish** to create the Storage Policy.

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Getting Started Backup - Oracle *i*DataAgent

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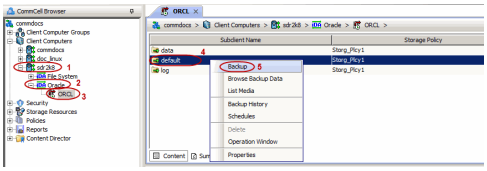
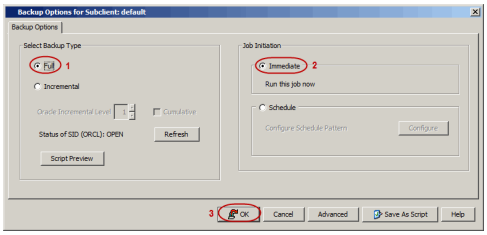
WHAT GETS BACKED UP	WHAT DOES NOT GET BACKED UP
Oracle database files that include datafiles (*.dbf) and control files (*.ctl) Archived redo logs Oracle Managed Files (OMF) Parameter files (SP File)	Oracle application files associated with the Oracle installation. Use the File System *i*DataAgent to back up the above mentioned components.

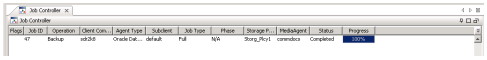
1.
   - From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <Instance>**.
   - Right-click the default subclient and click **Backup**.



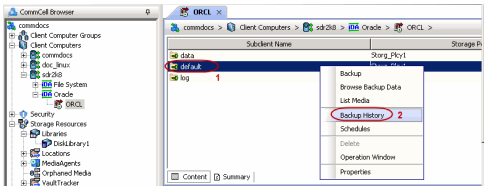
2.
   - Click **Full** as backup type and then click **Immediate**.
   - Click **OK**.



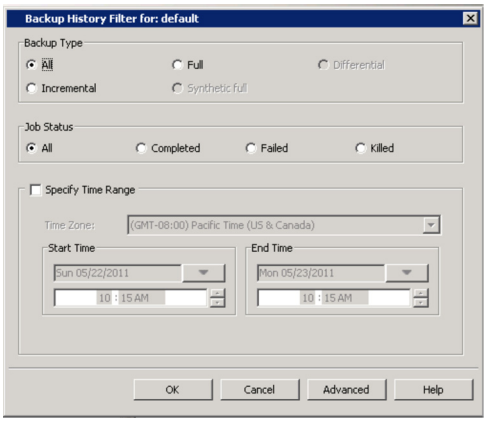
3. You can track the progress of the job from the **Job Controller** window of the CommCell console.



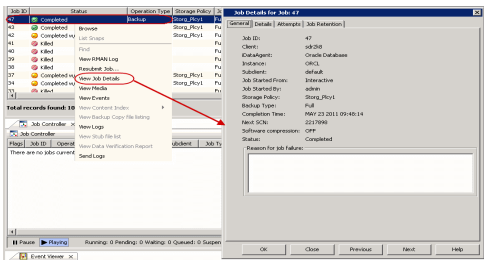
4. Once the job is complete, view the job details from the **Backup History**. Right-click the **Subclient** and select **Backup History**.



5. Click **OK**.



6. Right-click the job to:
   - Browse the database that was backed up.
   - View RMAN Logs.
   - Resubmit the job.
   - View job details.
   - View media associated with the job.
   - View events associated with the job.
   - View or send the log file that is associated with the job.



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Getting Started Restore - Oracle *i*DataAgent

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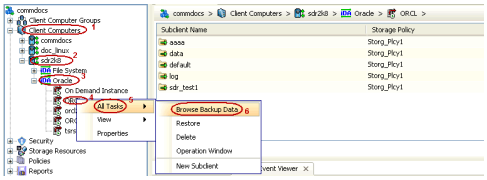
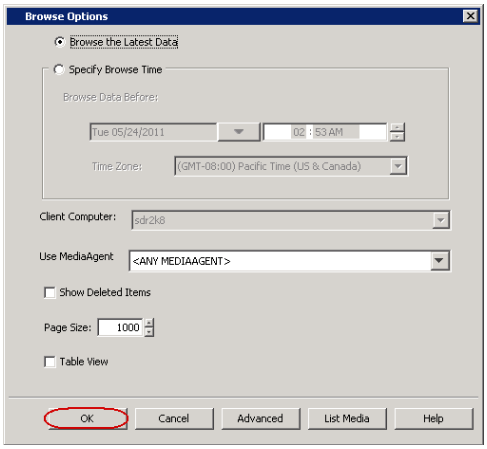
As restoring your backup data is very crucial, it is recommended that you perform a restore operation immediately after your first full backup to understand the process. The following section explain the steps for restoring a database.

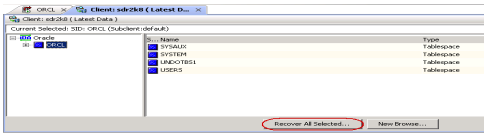
1.
   - From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
   - Right-click the **<*Instance*>**, point to **All Tasks**, and then click **Browse Backup Data**.



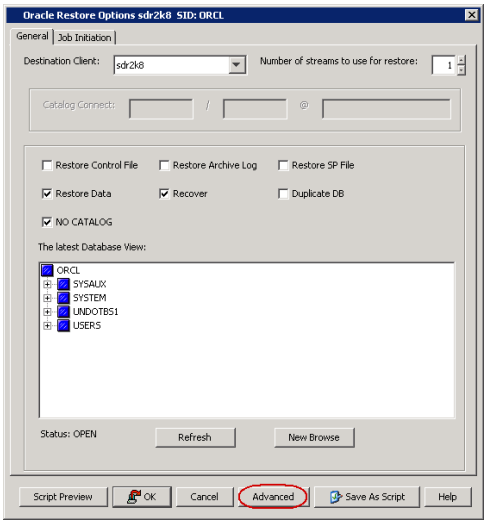
2. Click **OK**.



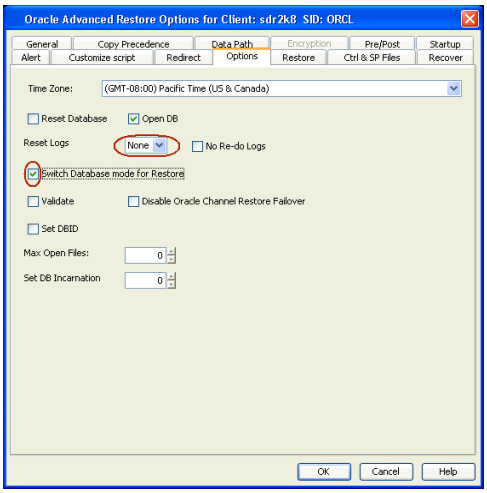
3.
   - In the right pane of the Browse window, click the <***Instance***> and select all the entities.
   - Click **Recover All Selected**.



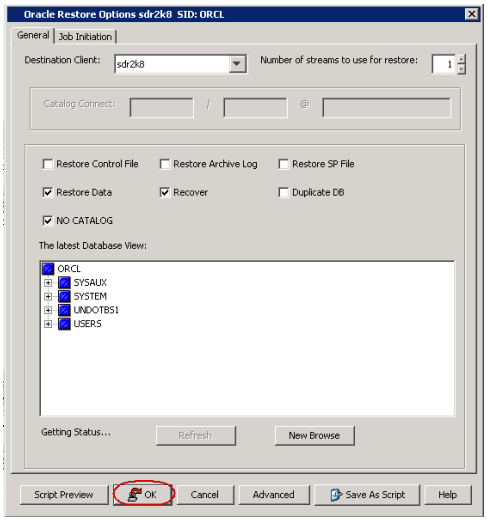
4. Click **Advanced**.



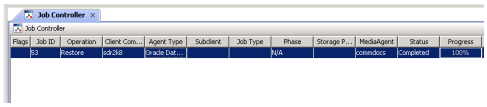
5.
   - Click the **Options** tab.
   - In the **Reset Logs** box, select **None**.
   - Select the **Switch Database mode for Restore** checkbox.
   - Click **OK**.



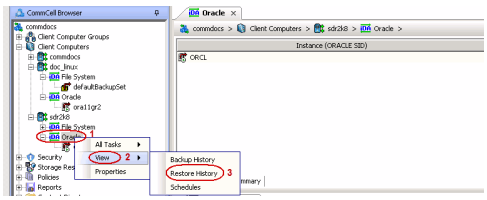
6. Click **OK**.



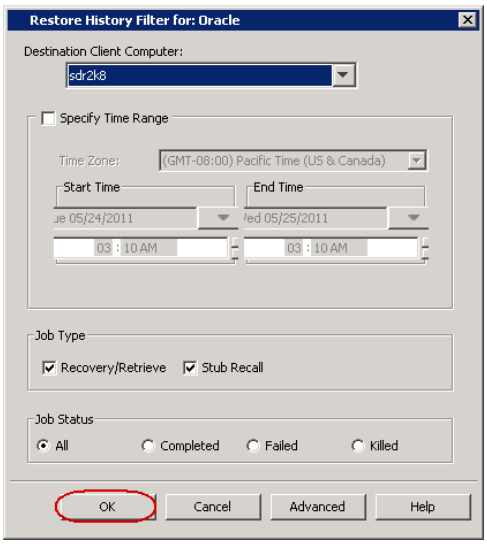
7. You can monitor the progress of the restore job in the **Job Controller**.



8. Once the restore job has completed, right-click the agent and click **View** | **Restore History**.



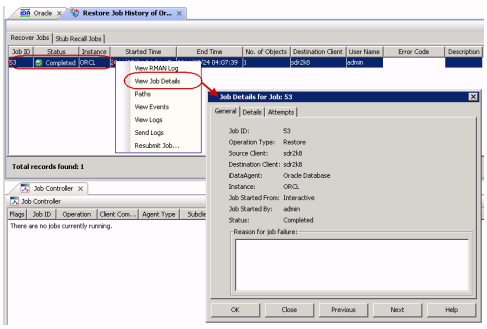
9. Click **OK**.



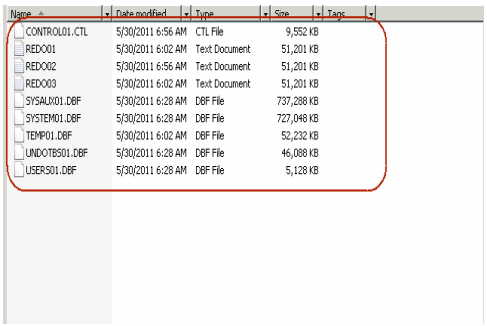
10. You can view the following details about the job by right-clicking the job:

- View Restore Items

  You can view them as **Successful**, **Failed**, **Skipped** or **All**.
- View Job Details
- View Events of the restore job.
- View Log files of the restore job
- View number of objects
- View Rman Logs



11. Once the database is restored, verify that the restored database and log files are available in the original location.



CONGRATULATIONS - YOU HAVE SUCCESSFULLY COMPLETED YOUR FIRST BACKUP AND RESTORE.

If you want to further explore this Agent's features read the **Advanced** sections of this documentation.

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Advanced Configuration - Oracle *i*DataAgent

TABLE OF CONTENTS

UNDERSTANDING THE COMMCELL CONSOLE

The Oracle *i*DataAgent uses the following logical entities to manage backup and restore operations from the CommCell Console.

AGENT

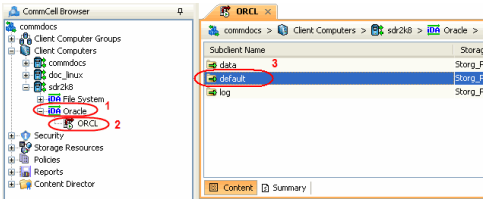
Facilitates Oracle instance discovery.

INSTANCE

Defines the Oracle database to be backed up.

SUBCLIENT

Defines the Oracle database objects to be backed up.



MANAGING INSTANCES

In the CommCell Console each instance references an Oracle database. Hence it is necessary to discover the instances which can then be used to backup data. You can discover or add an instance as described in the following sections:

ENABLING AUTOMATIC INSTANCE DISCOVERY

When automatic instance discovery is enabled, the existing Oracle database instances are discovered as follows:

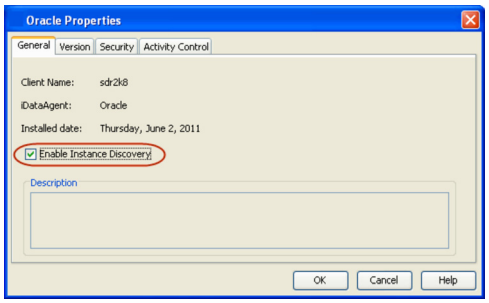
- Every 168 hours.
- Whenever the Communications Service (GxCVD) is restarted (such as after a computer reboot).

This capability ensures that all instances are accounted for on a regular basis for backups.

Automatic instance discovery will not detect the manually created databases in an instance. Make sure that there is an entry in /etc/oratab for manually created oracle instance which contains manually created databases. Then, this instance is automatically discovered when you enable instance discovery.

Use the following steps to enable automatic instance discovery:

1. From the CommCell Browser, navigate to **Client Computers |<*Client*>**.
2. Right-click **Oracle**, and then click **Properties**.
3. Select the **Enable Instance Discovery** check box.
4. Click **OK**.



SETTING THE AUTOMATIC DISCOVERY FREQUENCY

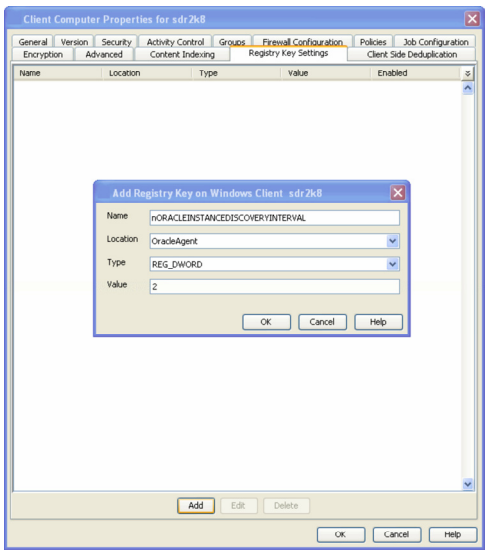
When instance discovery is enabled, Oracle instances are automatically discovered every 168 hours or whenever the Communications Service (GxCVD) is restarted. Use the following steps to modify the default discovery time interval.

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click the <***Client***>, and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type `nORACLEINSTANCEDISCOVERYINTERVAL`
6. In the **Location** box, select or type OracleAgent.
7. In the **Type** box:
   - On Windows client

   Select **REG_DWORD**.
   - On Unix client

   Select **Value**.
8. In the **Value** box, type the time interval to discover instances.

   For example, to discover instances every two hours, type `2`.
9. Click **OK**.

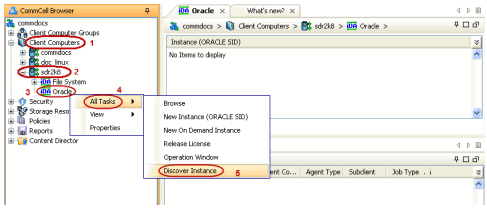


MANUALLY DISCOVERING INSTANCES

If you have manually created an Oracle database, then you must manually discover the corresponding instance. Automatic instance discovery will not detect the manually created databases.

In addition, you can also use the manual discovery process to discover the Oracle databases at any point in time. Use the following steps to manually discover instances:

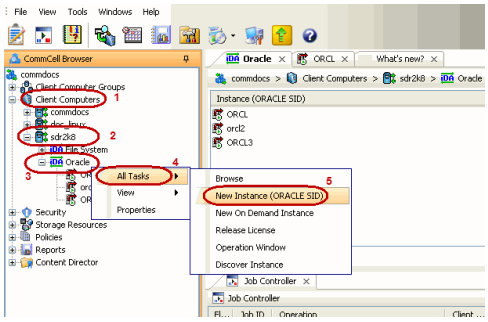
1. From the CommCell Browser, navigate to **Client Computers | <*Client*>**.
2. Right-click **Oracle**, point to **All Tasks**, and then click **Discover Instance**.
3. Click **Yes** to confirm discovery of instances.



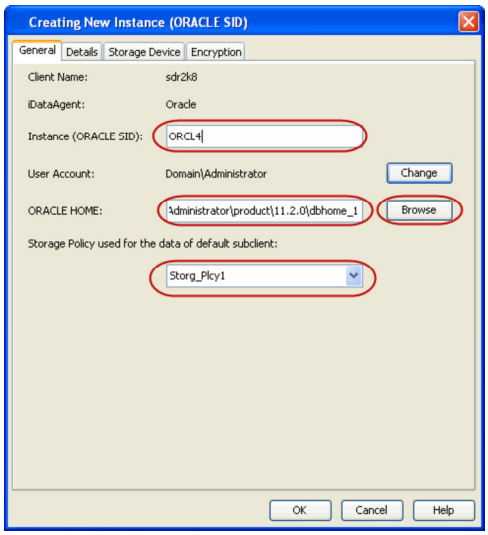
MANUALLY ADDING AN INSTANCE

During automatic instance discovery, options such as oracle home path and user account, connect string are preset. When instances are manually added, these options can be customized. Use the following steps to manually add an instance:

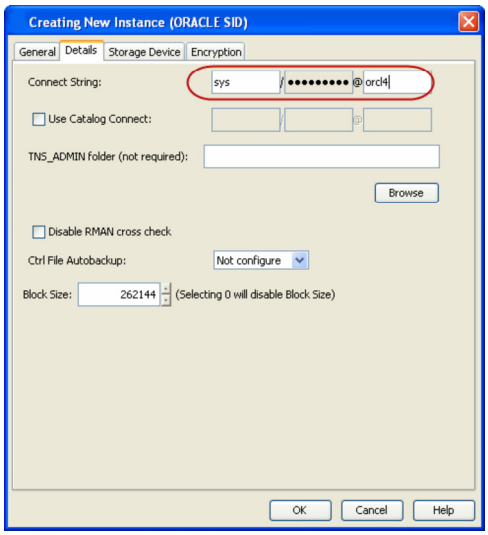
1. From the CommCell Browser, navigate to **Client Computers |< *Client* >**.
2. Right-click **Oracle**, point to **All Tasks**, and then click **New Instance** (**ORACLE SID**).



3. In the **Instance** (**ORACLE SID**) box, type the Instance name.
4. In the **User Account** box, type the login credentials to access the Oracle client.
5. In the **ORACLE HOME** box, type the Oracle application install path.
6. In the **Storage Policy used for the data of default subclient** box, select a storage policy name.



7. Click the **Details** tab.
8. In the **Connect String** box, type the credentials to access the Oracle database**.** For example, `sys/pwd12@orcl4`.
9. Click the **Storage Device** tab.
10. In the **Storage Policy used for user command backup of data** box, select a storage policy.
11. In the **Storage Policy used for all Archive Log backups** box, select a storage policy name.
12. Click **OK**.



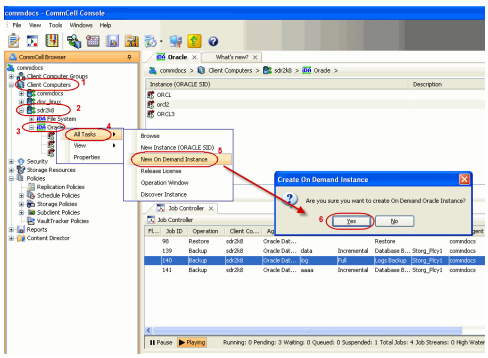
CREATING AN ON DEMAND INSTANCE

You need to create an On Demand instance to perform on demand backup operations. When creating an On demand instance, a default subclient is automatically created for the instance. The content for the default subclient will be specified in the RMAN script that is run through the Command Line Interface.

> Once an On Demand Instance is created, it cannot be changed into a traditional instance.

Use the following steps to create an On Demand instance:

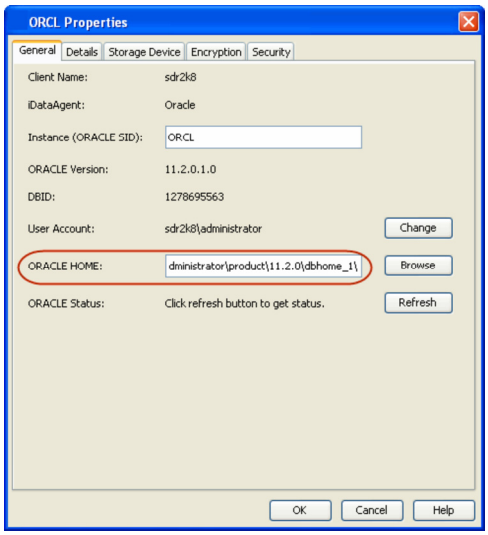
1. From the CommCell Browser, navigate to **Client Computers | *<Client>***.
2. Right-click **Oracle**, point to **All Tasks**, and then click **New On Demand Instance**.
3. Click **Yes** to confirm the creation of an On Demand Instance.



CONFIGURING THE ORACLE HOME DIRECTORY

Oracle HOME directory refers to the location where the Oracle application resides. When instances are discovered, the home path is automatically assigned to the instance. However, you can modify the home path location for an instance at any point of time. Use the following steps to configure the Oracle HOME directory:

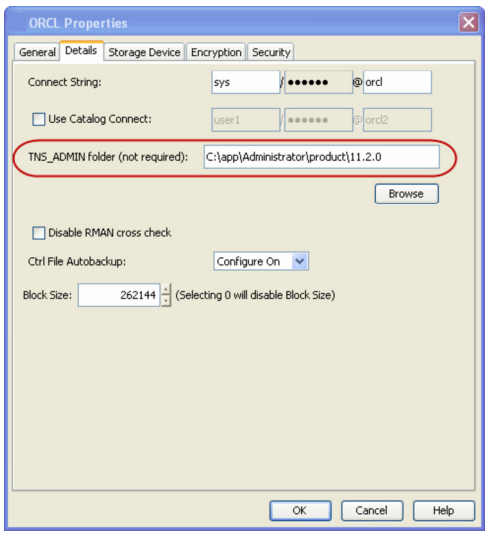
1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle|**.
2. Right-click the ***<Instance>***, and then click **Properties**.
3. In the **ORACLE HOME** box, type the path to Oracle Home directory. Alternatively, you can use **Browse** to locate the path.
4. Click **OK**.



CONFIGURING THE TNS ADMIN DIRECTORY

When an instance is configured, by default, the TNS_Admin directory is created in the `Oracle HOME\network\admin path`. Use the following steps to change the path for the TNS_ADMIN directory:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle|**.
2. Right-click the ***<Instance>***, and then click **Properties**.
3. Click the **Details** tab.
4. In the **TNS_ADMIN** folder box, type the location for the TNS Admin directory. Alternatively, you can use **Browse** to locate the path.
5. Click **OK**.

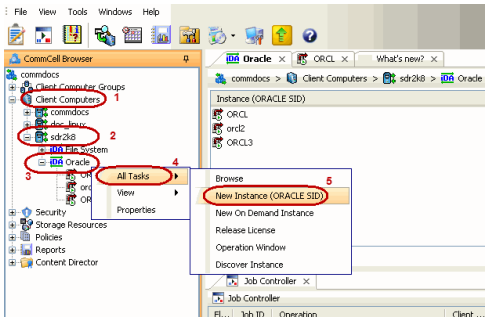


MANAGING CONTAINER DATABASES (CDB)

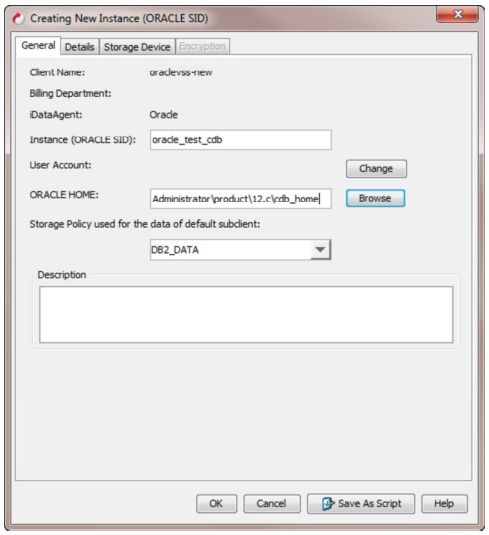
In the CommCell Console each Oracle 12c container database (CDB) maps to an instance. Once you have added an instance for the container database, you can create subclients and backup sets as you would for any Oracle database instance.

ADDING A CONTAINER DATABASE

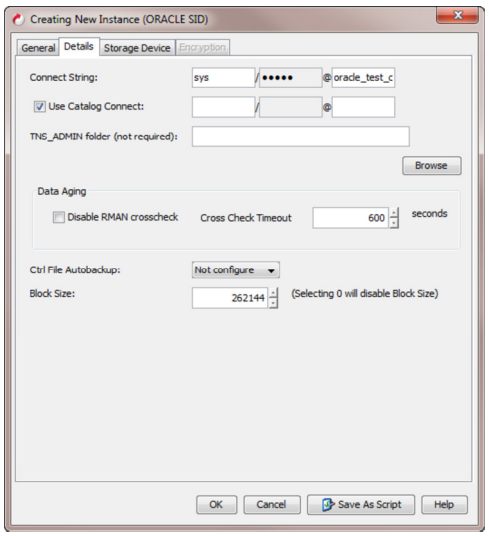
1. From the CommCell Browser, navigate to **Client Computers |< *Client* >**.
2. Right-click **Oracle**, point to **All Tasks**, and then click **New Instance** (**ORACLE SID**).



3. In the **Instance** (**ORACLE SID**) box, type the container database name.
4. In the **User Account** box, type the login credentials to access the Oracle container database.
5. In the **ORACLE HOME** box, type the Oracle container database application install path.
6. In the **Storage Policy used for the data of default subclient** box, select a storage policy name.



7. Click the **Details** tab.
8. In the **Connect String** box, type the credentials to access the Oracle container database**.** For example, `sys/pwd12@orcl4`.
9. Click the **Storage Device** tab.
10. In the **Storage Policy used for user command backup of data** box, select a storage policy.
11. In the **Storage Policy used for all Archive Log backups** box, select a storage policy name.
12. Click **OK**.



CONFIGURING USER ACCOUNTS FOR BACKUPS

In order to perform backup and restore operations, you need to create and configure the following user accounts on the Oracle client:

- User Account with administrative privileges to access the Oracle application.

  On Unix clients, the user should be part of the user group assigned during the *i*DataAgent install. You can also use the operating system user account to verify the rights to perform all backup and restore operations for the associated Oracle instance.

  On Windows clients, the user should be part of local administrator group and also part of the ora_dba group with read/write permissions on Calypso folder. You can use the Impersonate user account to verify the rights to perform all backup and restore operations for the associated Oracle instance.

- User account to access the Oracle database. You can use separate accounts to access the standard database and the Recovery Catalog database. The account information is provided as a connect string with the following information:
  - Database user ID.
  - Password for the user ID.
  - Oracle Service name.

  The user account for standard database should have the following privileges:

  - Administration privileges (default) or Oracle database administration privileges.
  - SYSDBA and ALTER SYSTEM system privileges.

  Alternatively, instead of using administrator user account with SELECT ANY TABLE privilege, you can also create user accounts with lesser privileges for accessing specific objects:

  For example:

- SELECT ON "SYS"."V_$DATABASE"
- SELECT ON "SYS"."V_$DATAFILE"
- SELECT ON "SYS"."DBA_TABLESPACES"
- GRANT SELECT ON "SYS"."V_$ARCHIVE_DEST" TO "USER_NAME

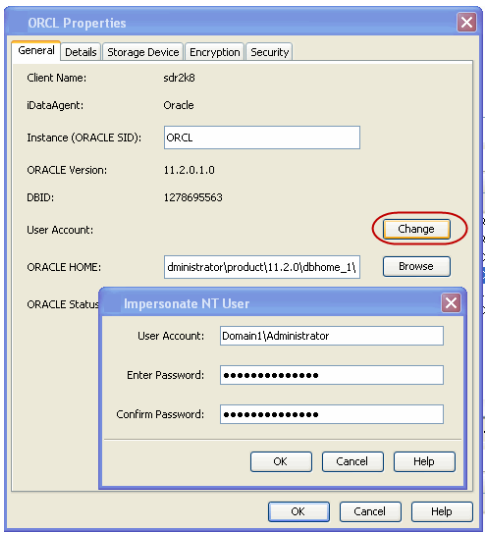
The Recovery Catalog database user account must have recovery catalog owner privileges.

Additional accounts (except Impersonate User) should be established by Oracle database administrator.

CONFIGURING USER ACCOUNT TO ACCESS THE ORACLE APPLICATION

Use the following steps to configure the user account to access the Oracle application:

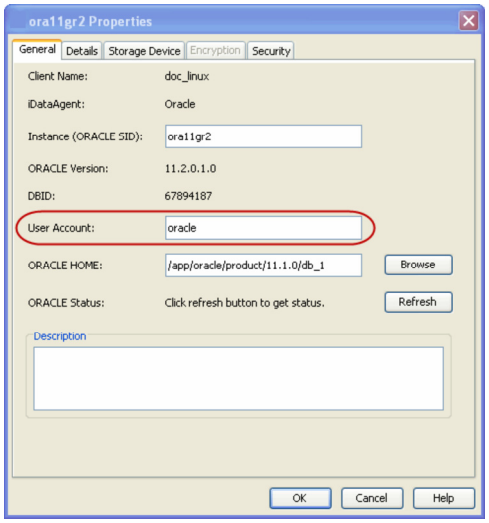
1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
2. Right-click the **<*Instance*>**, and then click **Properties**.
3. On Windows client:
   - Click **Change**.
   - In the **User Account** box, type the user account name.
   - In the **Enter Password** box, type the password for the user account.
   - In the **Confirm Password** box, retype the password, and then click **OK**.



On Unix clients:

In the **User Accoun**t box, type the user account to access the Oracle application.

4. Click **OK**.



CONFIGURING USER ACCOUNT TO ACCESS THE ORACLE DATABASE

Use the following steps to configure the user account privileges to access the Oracle database:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
2. Right-click the **<*Instance*>**, and then click **Properties**.
3. Click the **Details** tab.
4. In the **Connect String** box, type the connect string to connect to the Oracle database as following:

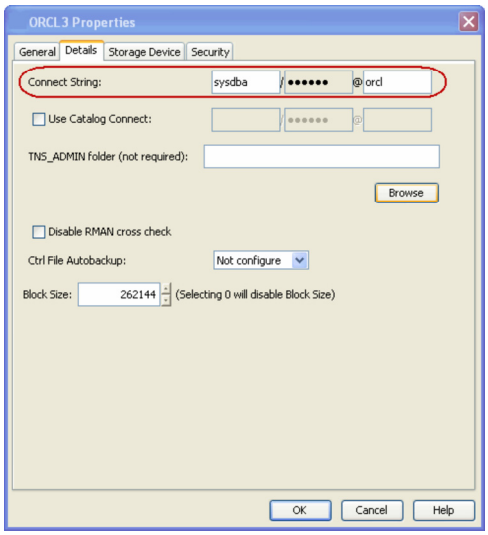
- Type the Database user ID.
- Click the Password box, in the **Enter Password** box, type the password for the user ID.
- In the **Confirm Password** box, retype the password, and then click **OK**.
- Type the Oracle service name.

For example:

```
sysdba/<password>@<orcl
```

where, `sysdba` is the Database User ID, `<password>` is the password of the Database User ID, and `orcl` is the Oracle service name.

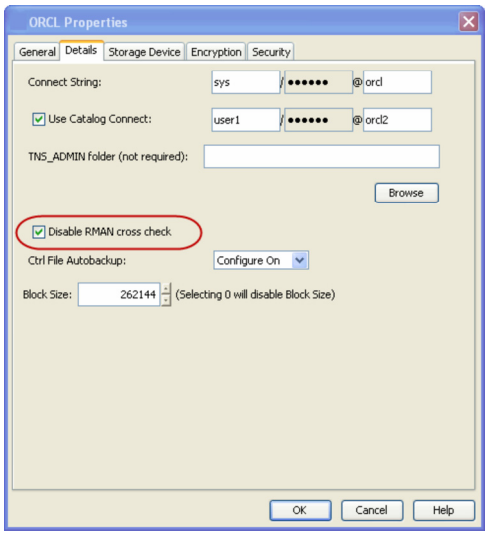
5. Click **OK**.



DISABLING THE RMAN CROSSCHECK

By default, during a data aging operation, an Oracle CROSSCHECK is performed by the system to synchronize the entries in the CommServe database with the RMAN catalog. Use the following steps to disable the cross check operation:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle** .
2. Right-click the ***<Instance>***, and then click **Properties**.
3. Click the **Details** tab.
4. Select the **Disable RMAN cross check** check box.
5. Click **OK** to close the warning message.
6. Click **OK**.



MANAGING SUBCLIENTS

When you create an instance, a default subclient is automatically created. The default subclient includes the entire database associated with that instance, which includes all components, such as the log files and control files. However, you can create user-defined subclients to backup the specific components or conditions, such as the following:

- Whether a backup will be offline or online.
- Whether the entire database will be backed up, or only a subset of objects within the database should be backed up.
- Whether the archive logs need to be backed up separately
- Manage your archive log and control file backups.

If a new database object is added to the database, and if none of the subclients contain that database object , then that object is automatically assigned to the content of the default subclient.

CREATING A SUBCLIENT FOR OFFLINE BACKUPS

During an offline backup, the database is shutdown and is not available for use. Since incremental backups require access to various tablespaces and datafiles, it is always recommended that you perform a full backup of the database when it is offline. The full backup includes all the datafiles, tablespaces, and control file of the Oracle database. Note that, offline backups do not include the archived log files.

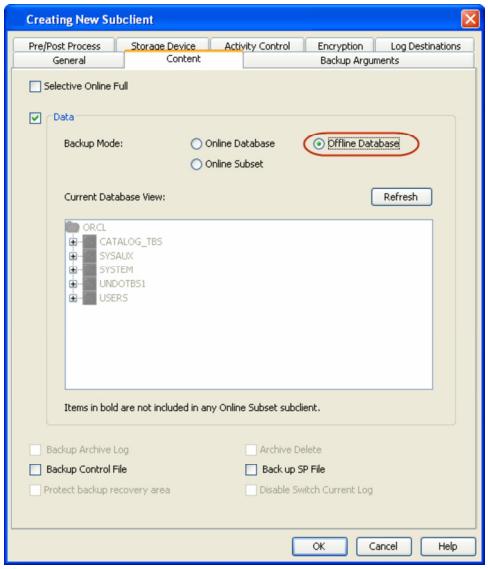
Offline backups can be performed when the database is in offline or online mode. If the database is online, it shuts down the database, performs the backup and then brings up the database back.

In order to backup the Oracle database when it is offline, you need to create a separate user-defined subclient for offline backup. Make sure that the database is in the MOUNT mode during the backup.

A static listener must be configured for offline backups with lights out script when the Oracle database is in open mode. See When do we configure a static listener for additional information.

Use the following steps to create a subclient for offline backups:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
2. Right-click the **<*Instance*>**, point to **All Tasks**, and then click **New Subclient**.
3. In the **Subclient name** box, type the subclient name.
4. Click the **Content** tab.
5. Click **Offline Database.**
6. Click the **Storage Device** tab.
7. In the **Data Storage Policy** box, select the storage policy name.
8. Click **OK**.



CREATING A SUBCLIENT FOR ONLINE BACKUPS

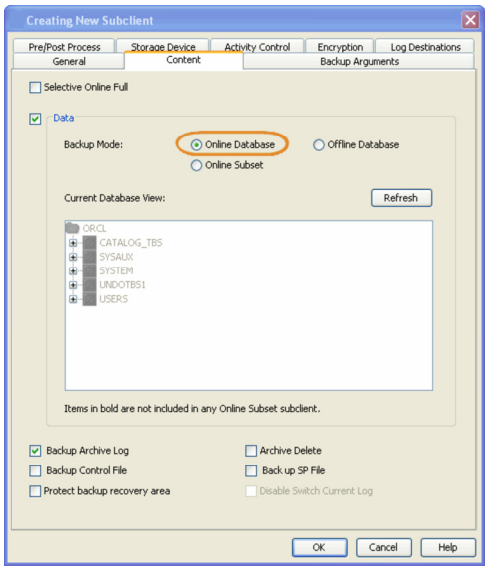
In some environments, it may not be possible to bring down the entire database to perform an offline backup. In such situations, you can choose online backups, where the database will be up and running during the backup.

You can perform either a full backup or incremental backup of the Oracle database when it is online. Since full backups includes all the datafiles, tablespaces and logs, it is very time consuming, hence you can plan for a full online backup less frequently (say, on weekly basis). On the other hand, incremental backups includes the data and logs that have been changed after the last full backup, they are faster and can be performed more frequently (say, on a daily basis).

If a new database object is added to the database, and if none of the subclients contain that database object , then that object is assigned to the content of the default subclient

Use the following steps to create a subclient for online backups:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
2. Right-click the **<*Instance*>**, point to **All Tasks**, and then click **New Subclient**.
3. In the **Subclient name** box, type the subclient name.
4. Click the **Content** tab.
5. Click **Online Database.**
6. Click the **Storage Device** tab.
7. In the **Data Storage Policy** box, select the Storage policy.
8. Click **OK**.

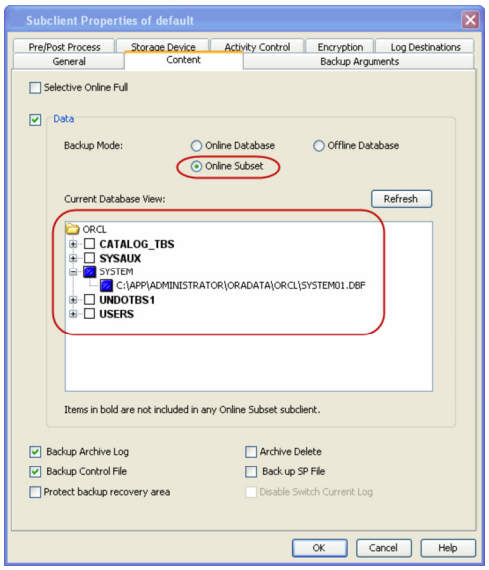


CREATING A SUBCLIENT TO BACKUP INDIVIDUAL DATAFILES/TABLESPACES

You can also create subclients to backup specific datafiles and tablespaces, which undergo frequent changes in the Oracle database.

Use the following steps to create a subclient to backup individual datafiles and tablespaces:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle**.
2. Right-click the ***<Instance>***, point to **All Tasks**, and then click **New Subclient**.
3. In the **Subclient name** box, type the subclient name.
4. Click the **Content** tab.
5. Click **Online Subset**.
6. Select the database objects to be included in the backup.
7. Click the **Storage Device** tab.
8. In the **Data Storage Policy** box, select the storage policy name.
9. Click **OK**.



CREATING A SUBCLIENT FOR SELECTIVE ONLINE FULL BACKUPS

Selective Online Full backup is a full backup performed when an Oracle database is online and is copied to a selective copy (during an auxiliary copy operation) from which it can be restored.
The advantage of this type of backup is that both the data and logs use the same storage policy, which means that they reside together on the same media. They are completely self-contained for restore and long term archiving purposes. This is especially useful in disaster recovery situations by alleviating the need to locate different offsite media from various jobs to gather the necessary data and logs to recover the database. Also, the data aging rules for selective online full backups are different from regular full backups, as both data and logs are aged together under the same storage policy.

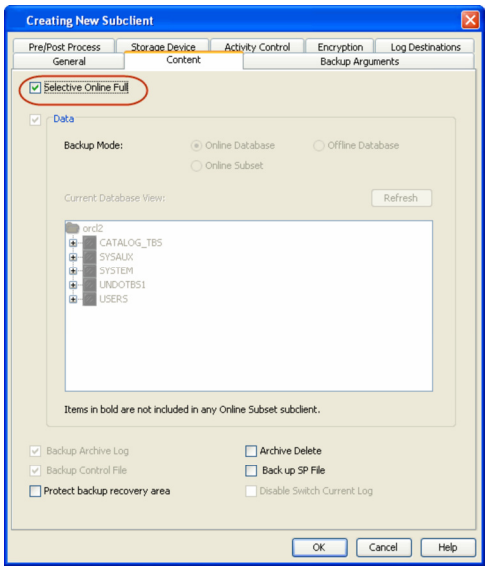
When performing the selective online full backup, note the following:

- A selective online full backup job will wait for other Oracle backup jobs currently running on the same instance to complete before it begins.
- For this type of backup, both data and archive logs will use the same storage policy as defined for data in the subclient, and will ignore the storage policy setting for archive logs (which is defined at the instance level).
- During selective online full backups, if the data streams (defined at the subclient level) is less than the archive log streams (defined at the instance level), then both the data phase and the archive log phase will use the same number of streams defined for the data in the subclient, and will ignore the number of streams set for the archive logs.
- Selective online full backup jobs are not preemptable nor restartable. Similarly, oracle log backup jobs that are submitted during selective online full backups (data phase) also cannot be preempted nor restarted.
- While the data backup phase of a selective online full backup is running, the only other Oracle backup jobs that are allowed to run on the same instance are archive log backups. During the log backup phase of a selective online full backup, no other Oracle backups are allowed to run (neither logs nor data) on the same instance.
- If other Oracle archive log backup jobs are running at the same time as the selective online full backup, they will be forced to use the same storage policy used by the selective online full backup during the time-frame in which the selective online full backup job is running, and will be included in the same auxiliary copy operation.
- Selective Copy is supported only for Selective Online Full job and offline jobs for Oracle.
- Extended Retention Rules are applicable for only Selective Online Full and Offline jobs.

Use the following steps to create a subclient for performing selective online full backups:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle**.
2. Right-click the ***<Instance>***, point to **All Tasks**, and then click **New Subclient**.
3. In the **Subclient name** box, type the subclient name.
4. Click the **Content** tab.
5. Select the **Selective Online Full** check box.

6. Click the **Storage Device** tab.
7. In the **Data Storage Policy** box, select the storage policy name.
8. Click **OK**.



See Data Aging Rules for Selective Online Full Backups for more data aging rules for selective online full backups.

If you want to create a subclient for selective online full backup on multiple instances or clients instead of navigating to each client and creating the subclients, then, use this `qscript`.

Use the following steps to create a subclient for selective online full backups from the command line using `qscript`:

1.	From the command prompt, logon to the CommServe using the `qlogin` command.	Example: To log on to CommServe `leonard64.devemc.com` with user name *user1*: `qlogin -cs leonard64.devemc.com -u user1` `Password:`
2.	Run the command to create a subclient for Oracle Selective Online Full backup.	`D:\>qcreate sub client -cs leonard64.devemc.com -c dbserve4 -a Q_ORACLE -i auto -n "NEWSUB" -sp "ying_data" -f "auto`
3.	Run the command to execute the `qscript`.	`D:\>qoperation execscript -sn SetSubClientProperty.sql -si 'c=dbserve4' -si 'a=Q_ORACLE' -si 'i=auto' -si 'b=default' -si 's=NEWSUB' -si 'Oracle Online Selective Full' -si '1' -si '2'`

For more information about the parameters and arguments, see `qscript`.

ENABLING SELECTIVE ONLINE INCREMENTAL BACKUP

When performing selective online incremental backups, note the following:

- Selective online incremental backup jobs can be suspended in the Job controller and restarted from the point of failure like regular backups.
- Selective online incremental backups are not copied to Selective copy.
- Selective online incremental backup will use the storage policies specified for both data and logs.

You can enable and disable selective online incremental backup using sql scripts.

Enable selective online incremental backup:

```
qoperation execscript -sn SetKeyIntoGlobalParamTbl.sql -si JMSOFIncrSupport -si y -si 1
```

Disable selective online incremental backup:

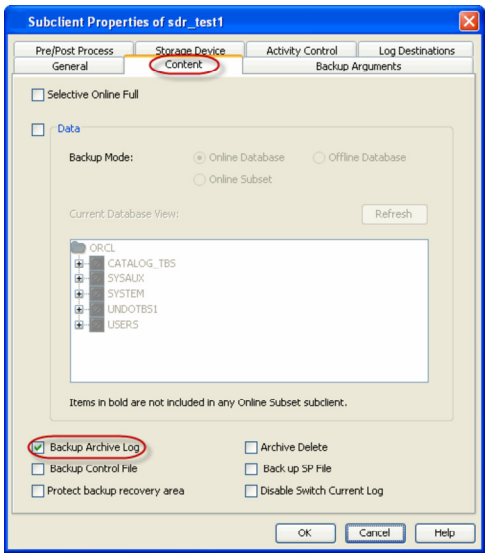
```
qoperation execscript -sn SetKeyIntoGlobalParamTbl.sql -si JMSOFIncrSupport -si n
```

CREATING A SUBCLIENT FOR LOG BACKUPS

Archive logs are required to recover database transactions that have been lost due to an operating system or disk failure. You can apply these archive logs to an online backup in order to recover a database.

Though online full backups can include both data and logs, because of their importance in recovering data, it is recommended that you create separate subclients to backup archive log files.

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the **<*Instance*>**, point to **All Tasks**, and then click **New Subclient**.
3. In the **Subclient name** box, type the subclient name.
4. Click the **Content** tab.
5. Clear the **Data** checkbox.
6. Select the **Backup Archive Log** check box.
7. Click the **Storage Device** tab.
8. In the **Data Storage Policy** box, select the storage policy name.
9. Click **OK**.



If you want to create a subclient for Log backups on multiple instances or clients instead of navigating to each client and creating the subclients, then, use this `qscript`.

Use the following steps to create a subclient for Log backups from the command line using `qscript`:

1. From the command prompt, logon to the CommServe using the `qlogin` command.

   Example: To log on to CommServe `leonard64.devemc.com` with user name *user1*:

   ```
   qlogin -cs leonard64.devemc.com -u user1

   Password:
   ```

2. Run the command to create a subclient.

   ```
   D:\>qcreate sub client -cs
   leonard64.devemc.commvault.com -c dbserve4 -a
   Q_ORACLE -i auto -n "NEWlog" -sp "ying_data" -f
   "auto"
   ```

3. Run the command to disable Data option.

   ```
   D:\>qoperation execscript -sn
   SetSubClientProperty.sql -si 'c=dbserve4' -si
   'a=Q_ORACLE' -si 'i=auto' -si 'b=default' -si
   's=NEWlog' -si 'Oracle Backup Mode' -si '1' -si '2'
   ```

4. Run the command to disable Backup Control File option.

   ```
   D:\>qoperation execscript -sn
   SetSubClientProperty.sql -si 'c=dbserve4' -si
   'a=Q_ORACLE' -si 'i=auto' -si 'b=default' -si
   's=NEWlog' -si 'Backup Control Files' -si '0' -si
   '2'
   ```

5. Run the command to disable Delete Archive log option.

   ```
   D:\>qoperation execscript -sn
   SetSubClientProperty.sql -si 'c=dbserve4' -si
   'a=Q_ORACLE' -si 'i=auto' -si 'b=default' -si
   's=NEWlog' -si 'Archive Log Deleting' -si '0' -si
   '2'
   ```

For more information about the parameters and arguments, see `qscript`.

CONFIGURING BACKUPS FOR STANDBY DATABASE

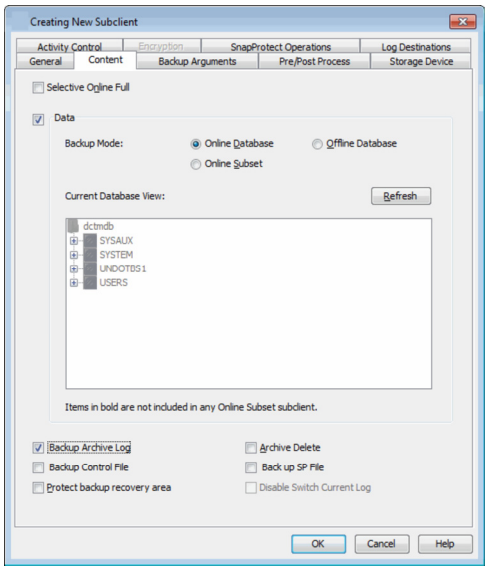
Standby databases can be backed up when they are in offline or online state. If the database is online, the iDataAgent detects the standby database mode by checking the database role and automatically disables the log switch operation.

Use the following steps to configure backups for standby database:

1. Add an instance for the Standby database. Alternative, you can auto discover the database.
2. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
3. Right-click the **<*Instance*>**, point to **All Tasks**, and then click **New Subclient**.
4. In the **Subclient name** box, type the subclient name.
5. Click the **Content** tab.
6. Select the backup mode. Choose one of the following;
   - Offline Database - if the backup is performed when database is offline.

- Online Database - if the backup needs to be performed on the online database

7. Click the **Storage Device** tab.
8. In the **Data Storage Policy** box, select the storage policy name.
9. Click **OK**.

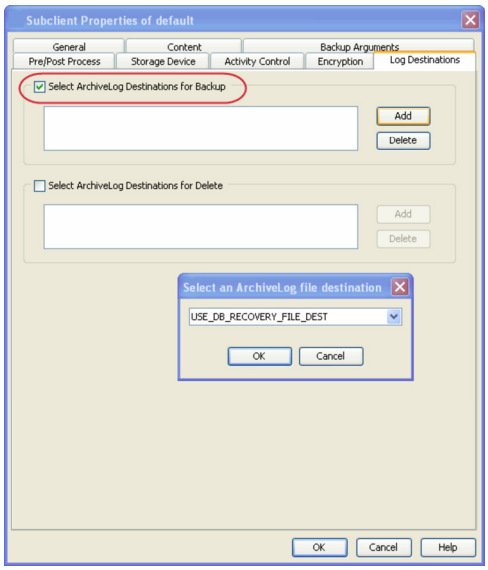


CONFIGURING ARCHIVE LOG DESTINATIONS

When you backup archive logs, you can specify the locations from where the log backups should be performed. This capability enables you to schedule backup operations from different log destinations on the same subclient. If necessary, you can also delete the logs after the backup. For more information, see Deleting the Logs after a Backup

SETTING UP THE LOG DESTINATION FOR DELETION

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Log Destinations** tab.
4. Select the **Select ArchiveLog Destinations for Backup** check box.
5. Click **Add**, type or select the Archive log file destination, and then click **OK**.
6. Click **OK**.

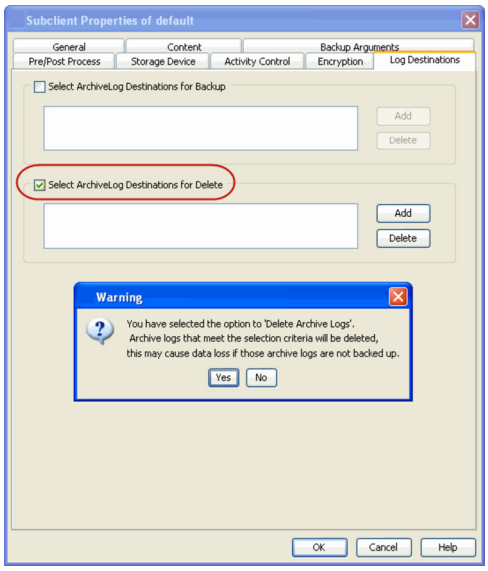


DELETING THE LOGS AFTER A BACKUP

Ensure that the logs in the specified location are backed up. This may cause data loss if those archive logs are not backed up.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Log Destinations** tab.
4. Select the **Select ArchiveLog Destinations for Delete** check box.
5. Click **Yes** to close the warning message.

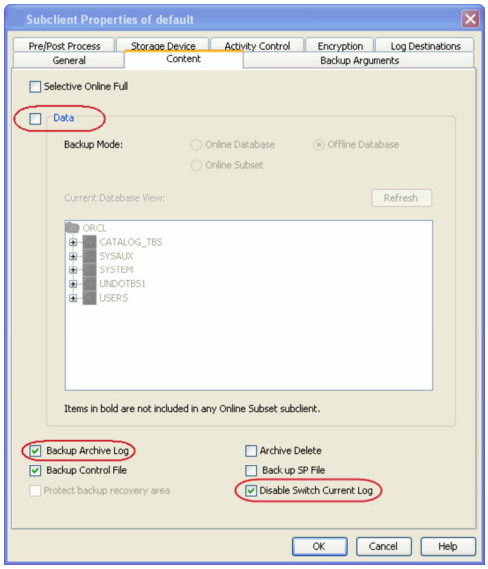
6. In the Confirmation box, type Confirm.
7. Click **OK**.
8. Click **Add**.
9. Type or select the Archive log file destination.
10. Click **OK**.
11. Click **OK**.



DISABLING LOG SWITCH

When performing archive log backups, the current redo log file is closed (even if it is not filled up completely) and the next redo log file is used for writing using a log switch. The closed redo log file is then archived during the log phase. Use the following steps to disable the log switch:

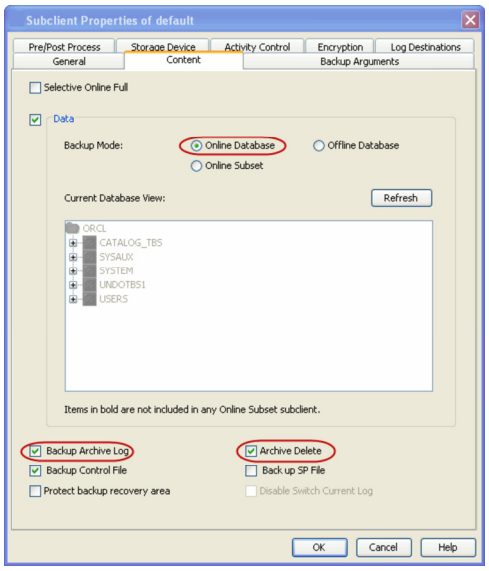
1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle|*<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Content** tab.
4. Clear the **Data** checkbox.
5. Select the **Backup Archive Log** check box.
6. Select the **Disable Switch Current Log** check box.
7. Click **OK**.



ENABLING LOG DELETION AFTER BACKUP

When backing up archive logs, by default the logs are not deleted after the backup operation. Use the following steps to enable deletion of logs soon after the backup.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | *<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Content** tab.
4. Select the **Archive Delete** check box.
5. Click **OK**.



See Deleting Archive Logs After a Specific Backup for more information.

MANAGING CONTROL FILES

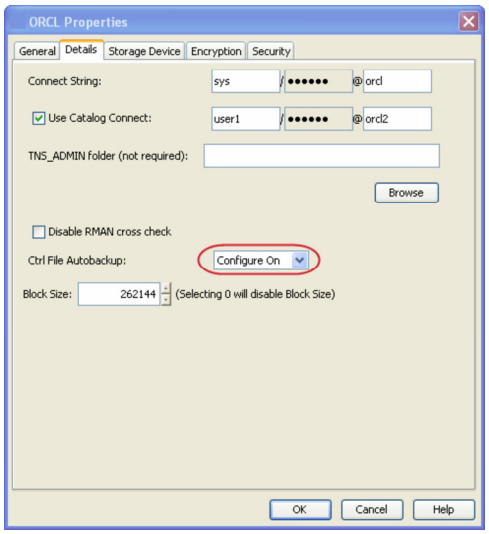
As the Control file stores the status of the physical structure of the database. It is required when you want to recover the database to the current state. Hence it is important to include control files in your backups. By default, control files are included in the subclient for selective online full backups. You can also include/exclude control files for online or offline backups. The following sections describe the methods by which you can backup control files.

ENABLING AUTOMATIC BACKUP OF CONTROL FILES FOR ALL SUBCLIENTS

You can configure the instance to automatically backup Control Files whenever you a backup the subclient in that instance.

Use the following steps to enable automatic backup of control files for all the subclients in the instance.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle**.
2. Right-click the ***<Instance>***.
3. Click the **Details** tab, in the **Ctrl File Autobackup** box,
   - Select **Configure ON**. This will backup the control file separately.
   - Alternatively, select **Configure Off** to backup the control file along with the datafile.
4. Click **OK**.

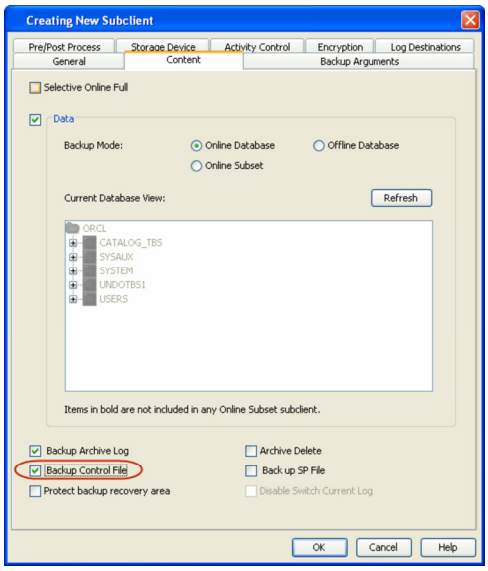


ENABLE/DISABLE CONTROL FILE BACKUPS FOR A SPECIFIC SUBCLIENT

If the control file backup is enabled at the instance level, you can also include/exclude control files for backups from a specific subclient. Use the following steps to enable control file backups for a specific subclient.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | *<Instance>***.
2. Right-click the ***<Subclient>***,and then click **Properties**.
3. Click the **Content** tab.

4. Select the **Backup Control File** check box.
5. Click **OK**.



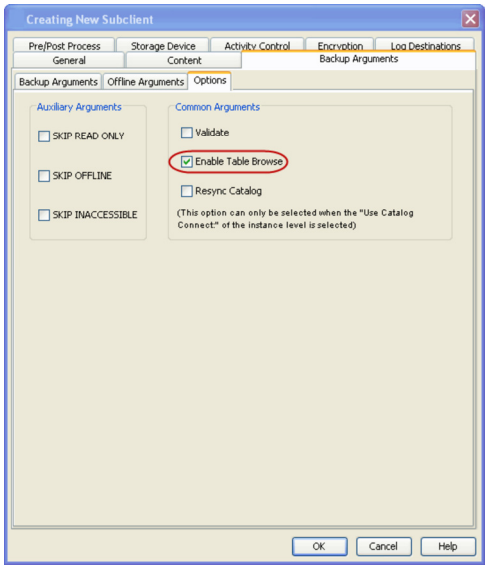
CONFIGURING TABLE RESTORES

By default, all data is backed up which includes tablespaces. If you want to restore individual tables, you need to enable table level backup.

ENABLING TABLE BROWSE FOR RESTORES

In order to backup and restore database tables, you need to enable table level backups for the subclient. Use the following steps to enable backups at table level.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | *<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Backup Arguments** tab, and then click the **Options** tab.
4. Select the **Enable Table Browse** check box.
5. Click **OK**.



SETTING UP THE AUXILIARY INSTANCE

By default, when you restore database tables to a target instance, the system automatically duplicates the source database to an auxiliary instance in a temporary staging location specified during the restore operation. The database will be automatically imported from this auxiliary instance after the restore.

Use the following steps to set up a specific database as an auxiliary instance. This is useful when you want to restore a table to a specific failure point.

1. Copy the `init<SID>.ora` file from the source database to the auxiliary database instance.
2. Update the database name and the database file locations in the init`<SID>.ora` file for the auxiliary database instance.
3. Add the `DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT` parameters in the

Windows Clients:

`DB_FILE_NAME_CONVERT=`

init<SID>.ora file. These parameters will redirect the datafiles, temp files, and log files to the auxiliary instance.

```
('sourcE_of_df_path/','dup_of_df_path/','source_of_temp_path/','dup_of_temp_path/',...)
LOG_FILE_NAME_CONVERT=('source_of_log_path/redo','dup_of_log_path/redo')
```

Unix Clients:

```
DB_FILE_NAME_CONVERT=
(source_of_df_path/,dup_of_df_path/,source_of_temp_path/,dup_of_temp_path/,...)
LOG_FILE_NAME_CONVERT=(source_of_log_path/redo,dup_of_log_path/redo)
```

4. Add the `log_archive_dest_1` parameter is added to the `init<SID>.ora` file on the auxiliary instance.
5. Restart the Oracle Services, if using Windows clients.
6. Add the destination instance name in the `Listener.ora` and `Tnsnames.ora` files. If using a different host, add the duplicate database instance name in the `Listener.ora` file on the destination host and `Tnsnames.ora` files on the destination and source hosts. Also, add the original database name in the Tnsnames.ora file on the destination host.

```
DUPDB = (DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT = 1521))
(CONNECT_DATA = (SERVER = DEDICATED)
(SERVICE_NAME = dupdb) (UR=A) ) )
```

7. Restart the Listener.

```
$lsnrctl reload
```

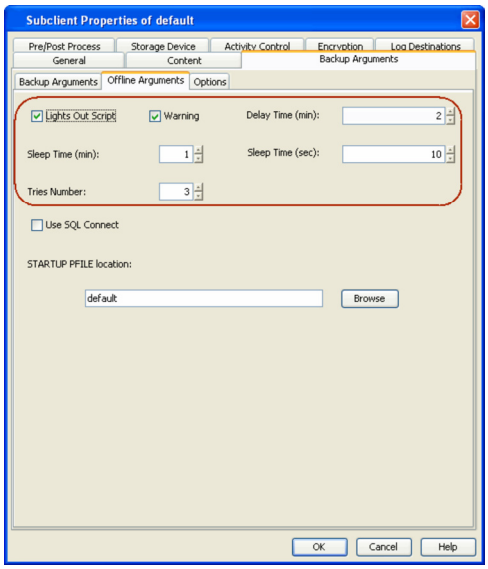
8. Ensure that the auxiliary instance is in NOMOUNT mode.

```
sql> startup nomount;
```

CONFIGURING LIGHTS OUT SCRIPT FOR OFFLINE BACKUPS

In order to perform offline backups of the Oracle database, all users must be logged out of the database and it must be completely shut down. When the database is online, you can enable a graceful shutdown of the database using lights out script that will notify the users about the shutdown and set a specific wait time for the users to logout of the database. Use the following steps to configure lights out script for offline backups:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *< Instance>***.
2. Right-click the ***<Subclient>***, and click **Properties**.
3. Click the **Content** tab, and then click **Offline Database**.
4. Click the **Backup Arguments** tab, and then click the **Offline Arguments** tab.
5. Select the **Lights Out Script** check box.
6. Select the **Warning** checkbox to display a warning message on the physical node.
7. In the **Delay Time** box, select the delay time interval in minutes.
8. In the **Sleep Time (min)** box, select or type the number of minutes to wait between retry attempts.
9. In the **Sleep Time (sec)** box, select or type the number of seconds that you want the script to wait between retry attempts to shut down the database and check the status.
10. In the **Tries Number** box, type the number of times the system must retry to attempt to shut down the database.
11. Select the **Use SQL Connect** checkbox to connect to the oracle database.
12. Click **OK**.

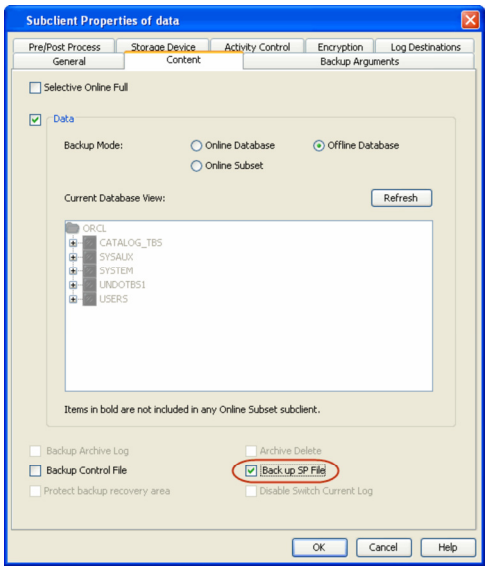


INCLUDING SERVER PARAMETER (SP) FILE DURING BACKUPS

The Server Parameter file (SPFile) contains the database startup information. By default, the backups do not include the SPFile.

Use the following steps to include SPFile during backups:

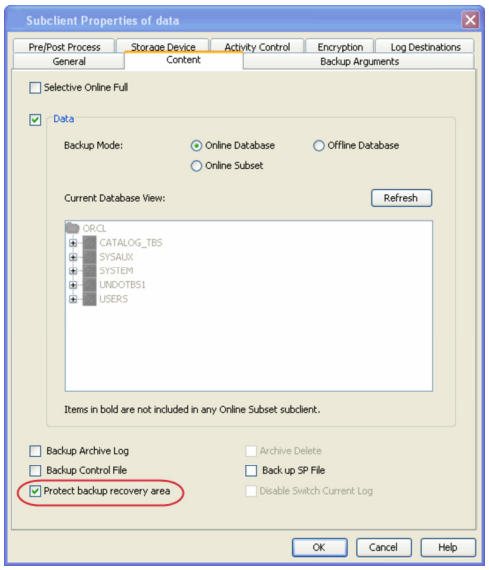
1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | *<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Content** tab.
4. Select the **Back up SP FILE** check box.
5. Click **OK**.



Enabling Backups of Flash Recovery Area

Flash Recovery Area is a specific area in the disk storage that exclusively holds a copy of all backup-related components, such as image copies, redo logs, and control file auto backups. This facilitates faster restores of backup data and minimizes restores from tapes during restore operations. Use the following steps to enable backup of flash recovery area:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | <Instance>**.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Content** tab.
4. Select the **Protect backup recover area** check box.
5. Click **OK**.



Using Recovery Catalog for Backups

By default, recovery catalog is not used for backup and restore. As the recovery catalog contains metadata about RMAN operations for each registered database, it is recommended to include recovery catalog in backups. The metadata information is useful when you want to restore and recover the database after a crash. Use the following steps to use the Recovery Catalog for backups:

1. Verify that you have a recovery catalog database created using the following command:
2. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle**.
3. Right-click the ***<Instance>***, and then click **Properties**.
4. Click the **Details** tab.
5. Select the **Use Catalog Connect** check box.
6. In the Catalog Connect string box
   - In the User Id box, type the Database user ID.

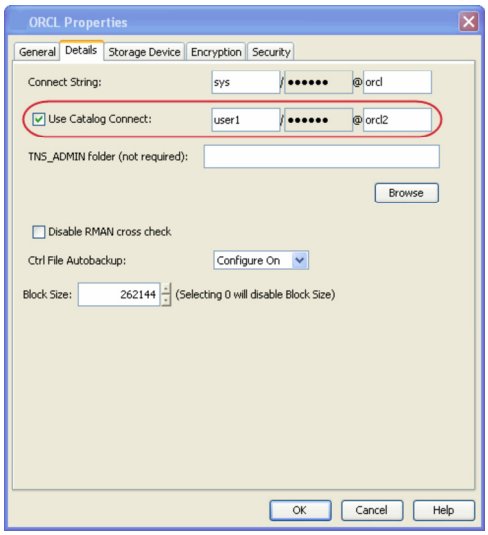
- Click the Password box, in the **Enter Password** box, type the password for the user ID.
- In the **Confirm Password** box, retype the password, and then click **OK**.
- Type the Oracle service name.

  For example:

  `sysdba/<password>@<orcl`

  where, `sysdba` is the Database User ID, `<password>` is the password of the Database User ID, and `orcl` is the Oracle service name.

7. Click **OK**.

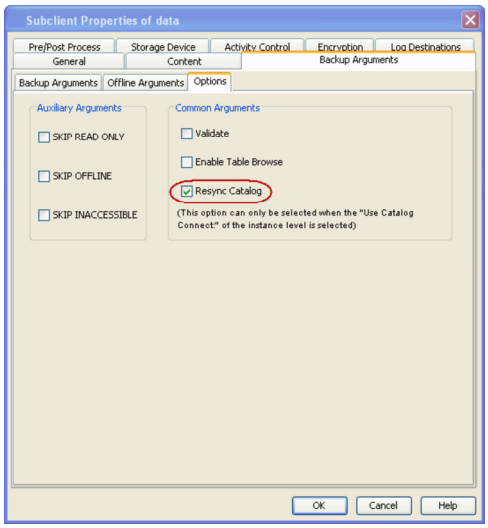


SYNCHRONIZING THE CONTROL FILE WITH THE RECOVERY CATALOG

It is a good practice to synchronize the recovery catalog with the control file, as the control file contains the latest backup information, which is need to perform restores.

Use the following steps to synchronize the control file with the recovery catalog:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | < Instance >**.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Backup Arguments** tab, and then click the **Options** tab.
4. Select the **Resync Catalog** check box.
5. Click **OK**.



CONFIGURING STREAMS FOR BACKUPS

By default, backup data is sent to media in two streams. This means that a database is sent to media during a backup in two parallel waves. This results in backup taking about half the time to complete as it otherwise would if only one stream is used.

You can increase the number of streams used for backups for a particular subclient provided the number of streams does not exceed the maximum number configured in the subclient's storage policy. Increasing the number of streams for a subclient further reduces the amount of time a backup takes to complete. For example, increasing the number of streams from 2 to 3 enhances backup time from one-half that of a single stream to one-third.

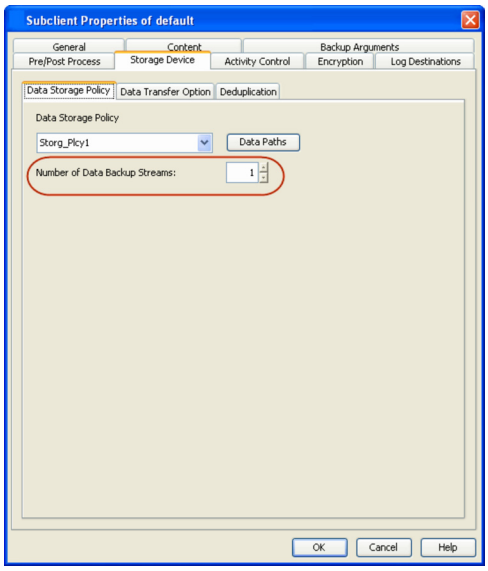
Keep in mind that the same number of streams used for performing a backup will be needed to restore the data.

DATA BACKUPS

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | <Instance>**.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Storage Device** tab.
4. In the **Number of Data Backup Streams** box, type or select the number of data

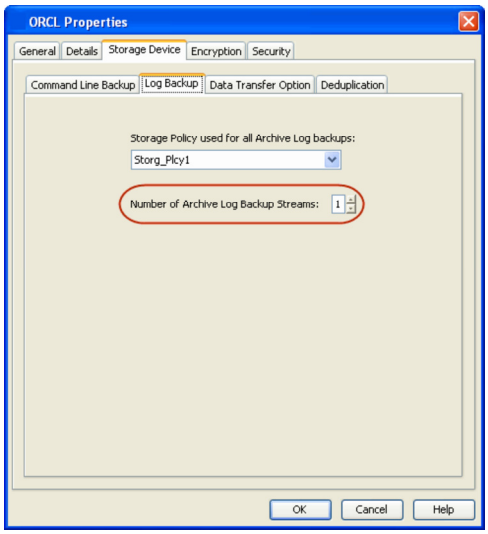
backup streams.

5. Click **OK**.



LOG BACKUPS

1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
2. Right-click the ***<Instance>***, and then click **Properties**.
3. Click the **Storage Device** tab, and then click the **Log Backup tab**.
4. In the **Number of Archive Log Backup Streams** box, type or select the number of log backup streams.
5. Click **OK**.



ENHANCING BACKUP PERFORMANCE

Several options are available for enhancing backup performance and reduce the network bandwidth used for performing backups. These options include:

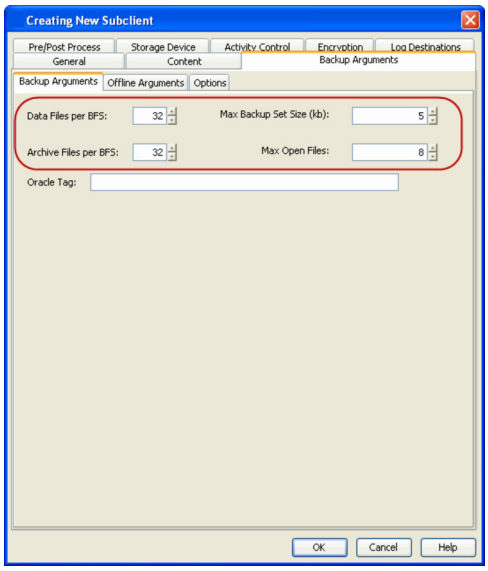
- Specifying the number of datafiles and archive files to be included in each RMAN backupset.The default value is 32.
- Specifying the maximum size for each RMAN backupset. By default no limits are defined. By default no limits are defined.
- Specifying the number of open datafiles that can be read by RMAN during the backup. The default value is 8.
- Specifying the maximum size of data blocks used during backups. The default value is 262144 Kb.

In addition to the above configurations, you can also enable distribution of data across disks during backup operations. See Enhancing Backup Performance for more details

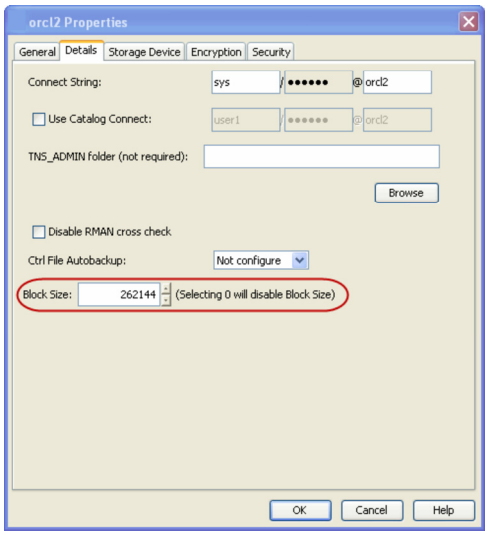
Use the following steps to enhance the backup performance:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | < *Instance*>**.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Backup Arguments** tab.
4. In the **Data Files per BFS** box, type or select the number of datafiles in each RMAN backup set.

5. In the **MAX Backup Set Size (kb)** box, type or select the size of backup set allowed for RMAN backup set.
6. In the **Archive Files per BFS** box, type or select the number of archive files in each RMAN backup set.
7. In the **Max Open Files** box, type or select the number of datafiles that RMAN can read from simultaneously during a backup operation.



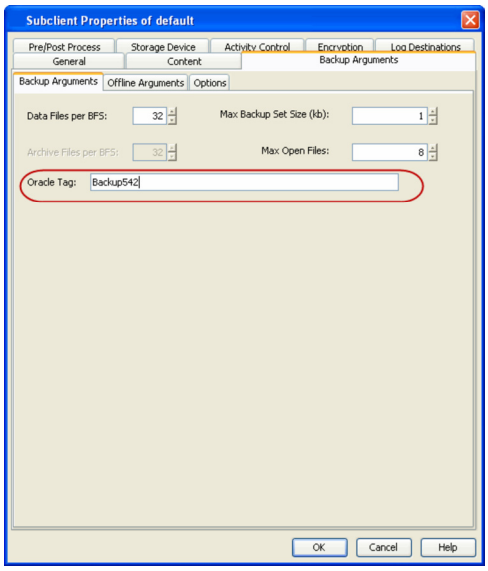
8. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**.
9. Right-click the <***instance***>, and then click **Properties**.
10. Click the **Details** tab.
11. In the **Block Size** box, type or select the size of the block for backup and restore operations.
12. Click **OK**.



ASSIGNING UNIQUE IDENTIFICATION TAGS FOR BACKUPS

You can assign unique identification tags for all backup operations from a specific subclient. These tags can be used during a restore operation to easily identify a particular backup. Use the following steps to assign unique identification tag for backups.

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**.
2. Right-click the **<*Subclient*>** and click **Properties**.
3. Click the **Backup Arguments** tab.
4. In the **Oracle Tag** box, type the tag name.
5. Click **OK**.



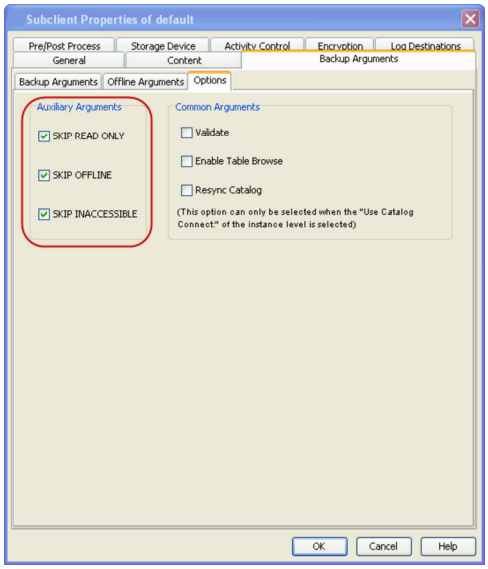
EXCLUDING DATA DURING BACKUPS

You can configure a subclient to skip the following data during backup operations:

- Read-only tablespaces
- Offline tablespaces
- Inaccessible Datafiles and Archived redo log files

Use the following steps to exclude data during backup operations:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle| *<Instance>***.
2. Right-click the ***<Subclient>***, and then click **Properties**.
3. Click the **Backup Arguments** tab, and then click the **Options** tab.
4. Select the **SKIP READ ONLY** check box to exclude the read only tablespaces.
5. Select the **SKIP OFFLIN**E check box to exclude the offline tablespaces.
6. Select the **SKIP INACCESSIBLE** check box to exclude inaccessible data and log files.
7. Click **OK**.



VALIDATING DATABASE FOR BACKUPS

Prior to running backup operations, you can validate a backup job, which will cause RMAN to simulate the backup for the purpose of determining whether the backup can be successfully restored. Once a validate job is completed, you can view the log files of the job to identify and correct any validation issues.

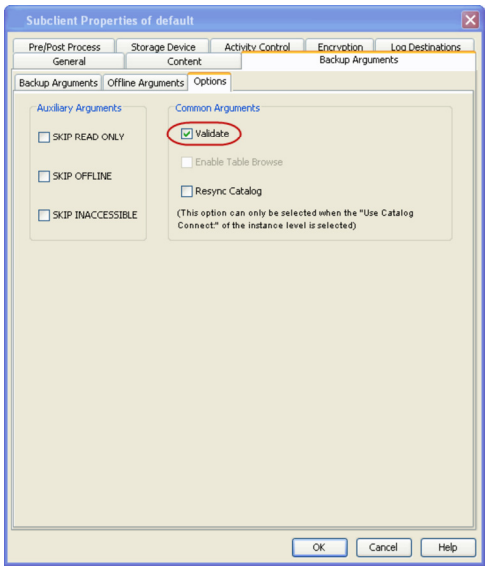
During validation, the backup jobs are simulated without the media, you can view the log files of the job to identify and correct any validation issues.

Use the following steps to enable validation of backup jobs:

Prior to running a backup, you can check the following:

- Datafiles for physical and logical block corruption
- Database files exist and are in the correct location.

1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle | <*Instance*>**.
2. Right-click the Subclient and click **Properties**.
3. Click the **Backup Arguments** tab, and then click the **Options** tab.
4. Select the **Validate** check box.
5. Click **OK**.



COMMAND LINE OPERATIONS

You can add, modify, or delete several configurable properties for the Oracle *i*DataAgent from the command line interface.

Command line configuration enables you to:

- configure the same properties across multiple clients simultaneously.
- reuse the same configurations for additional entities.

The following sections describe the available command line configurations:

LOG ON TO THE COMMSERVE

To run command line operations you must first login to the CommServe as follows:

- From Command prompt, navigate to <Software_Installation_Directory>/Base and run the following command:

```
qlogin -cs <commserve name> -u <user name>
```

- For example, to log on to CommServe 'server1' with username 'user1':

```
qlogin -cs server1 -u user1
```

CONFIGURING INSTANCES

CREATING AN INSTANCE

- From Command prompt, navigate to <Software_Installation_Directory>/Base and run the following command:

```
qcreate instance -c client -a iDataAgent -n instance -dsp defaultstoragepolicy -csp cmdlinestoragepolicy -lsp
logstoragepolicy -hu Host User (Windows|Unix) [-ntp ntpassword] -oh oracleHome -ocu connectUser -ocp connectPassword -
ocs connectService -ct usecatalog [-ctu catalogUser] [-ctp catalogPassword] [-cts catalogService] [-tns tnsadmin]
```

Example for creating an instance on the Unix client:

```
[root@client1 Base]# ./qcreate instance -c client1 -a Q_ORACLE -n instance1 -dsp sp1 -csp sp2 -lsp sp3 -hu oracle -
oh /oracle/oracle10g ocu sys -ocp sys -ocs dctmdb -ct yes -ctu snap -ctp snap -cts test

Created instance successfully.

[root@client1 Base]#
```

You can execute a CreateOracleInstance qscript too using `qoperation execscript` qcommand to create an instance.

MODIFYING AN INSTANCE

- From Command prompt, navigate to <Software_Installation_Directory>/Base and run the following command:

```
qoperation execscript -sn SetOracleInstanceProperties.sql -si 'clientname' -si 'Q_ORACLE' -si 'instancename' -si
'instanceprop' -si 'instancevalue' -si 'instanceproptype'
```

Examples:

```
[root@client1 Base]# ./qmodify instance -c client1 -a Q_ORACLE -i instance1 -csp sp2 -lsp sp3

Modified instance successfully.

[root@client1 Base]#
```

- **TO MODIFY ORACLE HOME**

  ```
  qoperation execscript -sn SetOracleInstanceProperties.sql -si 'client1' -si 'Q_ORACLE' -si 'instance1' -si 'Oracle Home' -si '/oracle/oracle10g'
  ```

- **TO MODIFY TNS ADMIN LOCATION**

  ```
  qoperation execscript -sn SetOracleInstanceProperties.sql -si 'client1' -si 'Q_ORACLE' -si 'instance1' -si 'TNS admin path' -si '/oracle/oracle10g/network/admin'
  ```

- **TO DISABLE RMAN CROSSCHEK**

  ```
  qoperation execscript -sn SetOracleInstanceProperties.sql -si 'client1' -si 'Q_ORACLE' -si 'instance1' -si 'Oracle RMAN Cross Check' -si '1' -si 2
  ```

- **TO CONFIGURE CONTROLFILE AUTO BACKUP**

  ```
  qoperation execscript -sn SetOracleInstanceProperties.sql -si 'client1' -si 'Q_ORACLE' -si 'instance1' -si ‘Auto Backup Control File’ -si '1' -si 10
  ```

  to disable Auto backup of control file, use –si ‘2’ for instancevalue(0-for Not Configure, 1- Configure On, 2- Configure OFF)

- **MODIFYING BLOCK SIZE IN INSTANCE PROPERTIES (TO CHANGE BLOCK SIZE VALUE TO 1M)**

  ```
  qoperation execscript -sn SetOracleInstanceProperties.sql -si 'client1' -si 'Q_ORACLE' -si 'instance1' -si 'Oracle block size' -si 1048576 -si 10
  ```

- **TO CHANGE USER IMPERSONATION/CONNECT STING/CATALOG CREDENTIALS**

  ```
  qopetation execscript -sn setOraclecredentials.sql -si c=clientName|allclients -si t=Catalog|DB|Impersonate| [username] -p2 <password> -si <username>
  ```

- **TO CHANGE THE CONNECT STRING USER NAME/ PASSWORD FOR ALL DATABASES OF ALL CLIENTS, WHERE THE PASSWORD IS IN PLAIN TEXT**

  ```
  qoperation execscript -sn SetOracleCredentials.sql -si allclients -si t=DB -p2 passwd -si sys
  ```

- **TO CHANGE CREDENTIALS FOR IMPERSONATE USER (APPLICABLE FOR WINDOWS CLIENTS ONLY)**

  ```
  qoperation execscript -sn SetOracleCredentials.sql -si c=client1 -si t=Impersonate -p2 passwd -si domainname\username
  ```

- **TO CHANGE CATALOG USER NAME/PASSWORD FOR ALL THE DATABASES UNDER ONE CLIENT**

  ```
  qoperation execscript -sn SetOracleCredentials.sql -si c=client1 -si t=Catalog -p2 passwd -si rman
  ```

- **TO CHANGE LOG AND COMMAND LINE STORAGE POLICIES**

  ```
  qmodify instance -c client -a dataagenttype -i instance -csp cmdlinestoragepolicy -lsp logstoragepolicy
  ```

CONFIGURING THE SUBCLIENTS

CREATING A SUBCLIENT

- Execute the following command from the <Software_Installation_Directory>/Base folder after substituting the parameters and attributes:

  ```
  qcreate subclient -c client -a dataagenttype -i instance -n subclient -sp storagepolicy -f content
  ```

Example to create subclient with default options:

```
[root@client1 Base]# ./qcreate subclient -c client1 -a Q_ORACLE -i instance1 -n subclient1 -sp sp1 -f " "

Created subclient successfully.
```

MODIFY SUBCLIENT

- Execute the following command from the <Software_Installation_Directory>/Base folder after substituting the parameters and attributes:

  ```
  qoperation execscript -sn SetSubClientProperty.sql -si 'c=<client name>' -si 'a=<agent type>' -si 'i=<instance name>' -si 'b=<backup set name>' -si 's=<subclient name>' -si <subclient property> -si <subclient property value> -si <subclient property type >
  ```

Examples:

CREATING ORACLE SELECTIVE ONLINE FULL SUBCLIENT

a. **CREATE THE SUBCLIENT**

```
qcreate subclient -c client1 -a Q_ORACLE -i instance1 -n "SOF" -sp "ora_data" -f " "
```

b. **ENABLE SELECTIVE ONLINE FULL**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'c=client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default'
-si 's=SOF' -si 'Oracle Online Selective Full' -si '1' -si '2'
```

CREATING ORACLE OFFLINE SUBCLIENT AND ENABLING THE LIGHT OUT SCRIPT

a. **CREATE THE SUBCLIENT**

```
qcreate subclient -c client1 -a Q_ORACLE -i instance1 -n "OFFLINE" -sp "ora_data" -f " "
```

b. **ENABLE THE OFFLINE OPTION**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'c=client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default'
-si 's=OFFLINE' -si 'Oracle Backup Mode' -si '2'
```

c. **ENABLE THE LIGHT OUT SCRIPT**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default' -
si 's=OFFLINE' -si 'Light out Script’ -si ‘1’ -si '2'
```

CREATING LOG ONLY SUBCLIENT

a. **CREATE THE SUBCLIENT**

```
qcreate subclient -c client1 -a Q_ORACLE -i instance1 -n "LOGONLY" -sp "ora_data" -f " "
```

b. **DISABLE DATA OPTION**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'c=client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default'
-si 's=LOGONLY' -si 'Oracle Backup Mode' -si '1'
```

c. **DISABLE DELETE ARCHIVE LOG OPTION**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'c=client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default'
-si 's=LOGONLY' -si 'Archive Log Deleting' -si '0' -si '2’
```

CONFIGURING BFS VALUES

a. **CHANGE DATAFILE PER BFS TO 10:**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'c=client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default'
-si 's=command_test1' -si ‘Oracle Data FPS’ -si '10' -si '7'
```

b. **CHANGE ARCHIVE FILES PER BFS TO 12:**

```
qoperation execscript -sn SetSubClientProperty.sql -si 'c=client1' -si 'a=Q_ORACLE' -si 'i=instance1' -si 'b=default'
-si 's=command_test1' -si ‘Arch per bfs’ -si '12' -si '8'
```

CONFIGURING NUMBER OF DATA STREAMS

Execute the following command from the <Software_Installation_Directory>/Base folder after substituting the parameters and attributes:

```
qoperation execscript -sn SetSubClientProperty.sql -si c=<client_name> -si 'a=Q_ORACLE' -si i=<instance_name> -si
'b=default' -si s=<subclient_name> -si 'Oracle Data backup streams' -si '<stream_value>’ -si '7'
```

Example:

Example to set the number of data streams to 4:

```
qoperation execscript -sn SetSubClientProperty.sql -si c=client1 -si 'a=Q_ORACLE' -si i=orcl -si 'b=default' -si s=FullSc
-si 'Oracle Data backup streams' -si '4' -si '7'
```

DELETE SUBCLIENT

- Execute the following command from the <Software_Installation_Directory>/Base folder after substituting the parameters and attributes:

```
qdelete subclient -c client -a dataagenttype -i instance -s subclient
```

Example:

```
[root@client1 Base]# ./qdelete subclient -c client1 -a Q_ORACLE -i instance1 -s subclient1
```

```
Deleted subclient successfully.
```

ENABLING MULTIPLE BACKUP COPIES

You can take multiple copies of the data or log backups using RMAN command line. During restores, even if one of the copies is missing or corrupted, the restore operation will automatically failover to the other copy and restore the data.

1.	To utilize the PARALLELISM option, you need to set the initial parameter in pfile or spfile.	Example: `BACKUP_TAPE_IO_SLAVES=TRUE`
2.	Configure device type.	Example: `RMAN> CONFIGURE DEVICE TYPE DISK PARALLELISM 2 BACKUP TYPE TO BACKUPSET;`
3.	Specify two copies of data.	Example: `RMAN> CONFIGURE DATAFILE BACKUP COPIES FOR DEVICE TYPE 'SBT_TAPE' TO 2;`
4.	Specify two copies of log backups.	Example: `RMAN> CONFIGURE ARCHIVELOG BACKUP COPIES FOR DEVICE TYPE 'SBT_TAPE' TO 2;`
5.	Add the environmental variables for the client and instance on which the *i*DataAgent is installed.	Example: `allocate channel ch1 type 'sbt_tape'` `PARMS="<software_install_path>/Base/libobk.so,` `ENV=(CvClientName=<client_name>,` `CvInstanceName=<instance_name>)"`
6.	Once you set the parameters, restart the Oracle database and perform backup operations from the CommCell Console.	Example: To restart the database, 1. Connect to the database. `SQL> connect admin/admin@orcl as sysdba` 2. Shutdown the database. `SQL> shutdown` 3. Mount the database. `SQL> startup mount;` 4. Change to archivelog mode. `SQL> alter database archivelog;` 5. Open the database. `SQL> alter database open;`

MODIFYING AN AGENT, INSTANCE, OR SUBCLIENT

There are several configurable properties available for your agent that can be modified from the agent, instance, or subclient level as per need.

It is recommended that that you do not modify the properties of a subclient when a job is in progress for that specific subclient. If a job is in progress, either wait for the job to complete or kill the job from the Job Controller.

The following table describes the properties that can configured from the agent, instance, and subclient levels.

OPTION	DESCRIPTION	RELATED TOPICS
Change Storage Policies	You can modify the storage policies in any of the following situations: ● To include a different media for the backup operation. ● To use a storage policy with a different retention criteria. You can change the storage policies from the subclient level. 1. From the CommCell Browser, right-click the subclient. 2. Click **Properties**. 3. Click **Storage Device**. 4. Select the **Storage policy** from the drop-down menu. 5. Click **OK**.	Refer to Storage Policies.
Rename a Subclient	You can rename a subclient: 1. From the CommCell Browser, right-click the subclient. 2. **C**lick **Properties.**	

	3. Type the new name in the **Subclient name** field. 4. Click **OK**.	
Rename an Instance	You can rename a subclient. 1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**. 2. Right-click the ***<Instance>***, and then click **Properties** 3. In the **Instance(Oracle SID)** box, type the instance name. 4. Click **OK**.	
Data Transfer Options	You can efficiently configure the available resources for transferring data secured by data protection operations from the subclient level. This includes the following: • Enable or disable **Data Compression** either on the client or the MediaAgent. • Configure the transfer of data in the network using the options for **Network Bandwidth Throttling** and **Network Agents**. You can configure the data transfer options. 1. From the CommCell Browser,right-click the subclient. 2. Click **Properties.** 3. Click **Storage Device.** 4. Click **Data Transfer Option** tab. 5. Choose the appropriate software compression option for this subclient. 6. Select **Throttle Network Bandwidth** and set the required bandwidth. 7. Click **OK.**	Refer to Data Compression and Network Bandwidth Throttling.
View Data Paths	You can view the data paths associated with the primary storage policy copy of the selected storage policy or incremental storage policy. You can also modify the data paths including their priority from the subclient level. 1. From the CommCell browser, right-click the subclient. 2. Click **Properties.** 3. Click **Storage Device.** 4. Select **Storage Policy** from the drop-down menu. 5. Click **Data Paths**.	
Configure a Subclient for Pre/Post Processing of Data Protection	You can add, modify or view Pre/Post processes for the subclient. These are batch files or shell scripts that you can run before or after certain job phases. 1. From the CommCell browser, right-click the subclient. 2. Click **Properties**. 3. Click **Pre/Post Process**. 4. Click one of the following phases and type the full path of the process that you want to execute during that phase. Alternatively, click **Browse** to locate the process (applicable only for paths that do not contain any spaces). ○ **PreBackup Process** ○ **PostBackup Process** ○ **PreSnap Process** ○ **PostSnap Process** 5. Click **OK**. 6. Select **Run Post Backup Process for all attempts** to run a post backup process for all attempts. 7. For subclients on Windows platforms, **Run As** displays **Not Selected**. If you want to change the account that has permission to run these commands, click **Change**. a. In the **User Account** dialog box, select **Use Local System Account,** or select **Impersonate User** and enter the user name and password. click **OK**. b. If you selected Local System Account, click **OK** to the message advising you that commands using this account have rights to access all data on the client computer.	Refer to Pre/Post Processes.
Configure Activity Control	You can enable backup and restore operations from the agent and subclient level. However, you can enable restore operations only from the agent level. 1. From the CommCell browser, right-click the subclient. 2. Click **Properties.** 3. Click **Activity Control**, select or clear option(s) as desired. 4. Click **OK**.	Refer to Activity Control.
Configure User Security	You can configure user security from the agent or subclient level.	Refer to User Administration

	You can perform the following functions: • Identify the user groups to which this CommCell object is associated. • Associate this object with a user group. • Disassociate this object from a user group. 1. From the CommCell browser, right-click the subclient. 2. Click **Properties.** 3. Click **Security**. 4. Select the appropriate user groups to which you want to associate to the CommCell object from the **Available Groups** pane, and then move the user group to the **Associated Groups** pane. 5. Click **OK**.	and Security.
Enable/Disable Data Encryption	You can enable data encryption from the suclient level.Encryption must be enabled at the client level prior to configuring any instances residing on that client. 1. From the CommCell browser, right-click the subclient. 2. Click **Properties.** 3. Click **Encryption.** 4. Select the desired encryption. 5. Click **OK**.	Refer to Data Encryption.
Enable/Disable Encryption for Third-party Command Line Operations	You can enable data encryption for the command line operations from instance properties: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*>| Oracle**. 2. Right-click the ***<Instance>***, and then click **Properties**. 3. Click the **Encryption** tab. 4. Select the desired **Encryption** from the following: ○ **None** ○ **Media Only (MediaAgent Side)** ○ **Network and Media (Agent Side)** ○ **Network Only (Agent Encrypts**, **MediaAgent Decrypt** 5. Click **OK**.	
View Software Version and Installed Updates	The **Version** tab, at the Agent level displays the software version of the component. 1. From the CommCell browser, right-click the agent. 2. Click **Properties**. 3. Click **Version**. 4. Click **OK**.	
CommCell Configuration Report	The CommCell Configuration Report provides the properties of the CommServe, MediaAgents, clients, agents, SRM agents, subclients, and storage policies within the CommCell based on the selected filter criteria. 1. From the CommCell browser, click **Reports** icon. 2. Select **CommCell Configuration**. 3. Click **Run**.	Refer to CommCell Configuration.

DELETING AN AGENT, INSTANCE, OR SUBCLIENT

The following sections describe the steps involved in deleting an agent, instance, or subclient.

When you delete an instance or backupset, the associated data is logically deleted and you can no longer access the corresponding data from CommCell Console for recovery purposes.

Refer to the troubleshooting article on Recovering Data Associated with Deleted Clients and Storage Policies for information on how to recover data if you accidentally delete an entity.

DELETING AN AGENT

You need to uninstall or DeConfigure the agent software from the client computer before deleting from CommCell Browser. After you delete the client software, you can either leave the corresponding data intact for appropriate action or you can remove the data immediately. If you choose to remove the data immediately, you must delete the agent from the CommCell Browser. If you delete the agent, all of the agent's data is irretrievably lost.

- You cannot delete an agent while operations for that agent are running.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>***.
2. Right-click the ***<Agent>***, and then click **Delete**.

3. A confirmation message is displayed with the following message:

   ```
   This operation will permanently delete the data backed up from this level and it cannot be restored.
   ```

4. Click **OK** to continue with the deletion operation., or click **No** to abort the deletion.

DELETING AN INSTANCE

Consider the following before deleting an instance:

- When you delete a specific instance all job schedules and job histories that pertain to any of the levels within the deleted instance are deleted.
- You cannot delete an instance if it is being backed up. Attempts to delete an instance under such conditions cause the deletion to fail. If a backup is in progress, either wait for the backup to complete or kill the backup job using the Job Manager. Once the backup is no longer in progress, you can delete the instance level.
- You cannot delete an instance if there is only one instance present for an agent. To delete the final instance, you must remove the agent software from the client computer.

1. From the CommCell Browser, right-click the instance that you want to delete, click **All Tasks** and then click **Delete**.
2. click **Yes** to confirm the deletion. (clicking **No** cancels the deletion and retains the node.)
3. Type the requested phrase in the **Enter Confirmation Text** dialog box and click **OK**. This should delete the instance.

DELETING A SUBCLIENT

Consider the following before deleting a subclient:

- You cannot delete a default subclient.
- Schedules associated with the subclient are also automatically deleted.

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | <*Agent*> | <*Instance*>**.
2. Right-click the **<*Subclient*>** that you want to delete, and then click **Delete**.
3. A confirmation message is displayed, asking if you want to delete the subclient.

   Click **No** to cancel the deletion and retain the subclient, or click **Yes** to continue the deletion.

Advanced Backup - Oracle *i*DataAgent

TABLE OF CONTENTS

FULL BACKUPS

Full backups provide the most comprehensive protection of data.

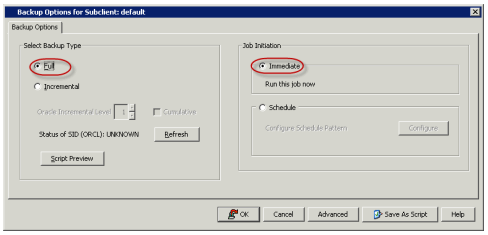
Backups for any client start with a full backup. The full backup becomes a baseline to which subsequent backup types are applied. For example, a full backup must be performed before an archive log backup can be initiated.

You can perform a full backup of an online or offline database. If the database is in NOARCHIVELOG mode, you should perform offline backup only.

Use the following steps to run a full backup:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**.
2. Right-click the **<*Subclient*>** and click **Backup**.
3. Select **Full** as the backup type and click **Immediate**.
4. Click **OK**.

   You can track the progress of the job from the **Job Controller**. When the backup job has completed, the **Job Controller** displays **Completed**.



INCREMENTAL BACKUPS

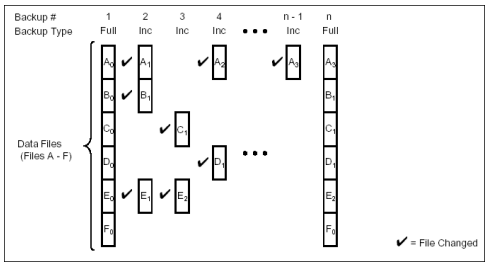
Incremental backups can be performed when the database is online.

The incremental backups will fail if the database is offline.

An incremental backup contains only data that is new or has changed since the last backup, regardless of the type. On average, incremental backups consume less media and use less resources than full backups.

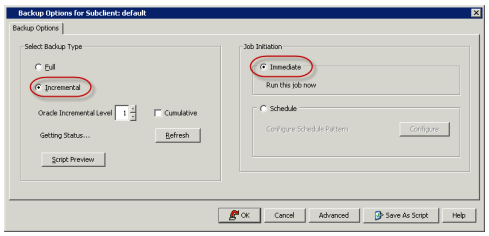
The illustration on the right clarifies the nature of full and incremental backups.

Follow steps given below to perform an incremental backup:



1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** and click **Backup**.
3. Select **Incremental** as the backup type and click **Immediate**.
4. Click **OK**.

   You can track the progress of the job from the **Job Controller**. When the backup job has completed, the **Job Controller** displays **Completed**.



CUMULATIVE INCREMENTAL BACKUPS

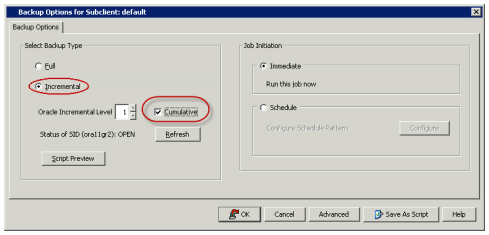
In a cumulative level *n* backup, all the data changes since the most recent backup at level *n*-1 or lower are backed up.

For example, in a cumulative level 2 backup, data changes since the most recent level 1 backup are backed up. If no level 1 backup is available, data changes since the base level 0 backup are backed up.

Cumulative incremental backups reduce restore times because you need one incremental backup from any particular level. However, cumulative backups require more space and time because they duplicate the work done by previous backups at the same level.

By default, the incremental level for cumulative backups is 1.

Follow the steps below to perform a cumulative incremental backup:



1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** and click **Backup**.
3. Select **Incremental** as the backup type, and then type or select the incremental level in the **Oracle Incremental Level** box.
4. Select the **Cumulative** check box and click **Immediate**.
5. Click **OK**.

   You can track the progress of the job from the **Job Controller**. When the backup job has completed, the **Job Controller** displays **Completed**.

ARCHIVE LOG BACKUPS

An archive log backup captures the archive redo logs generated during database transactions.

Archive log backups are useful when you want to recover database transactions that have been lost due to an operating system or disk failure. You can apply these archive logs to an online backup in order to recover a database.

By default full backups include both data and archive logs. However, you can also perform separate archive log backups.

In order to perform a backup of the archive logs:

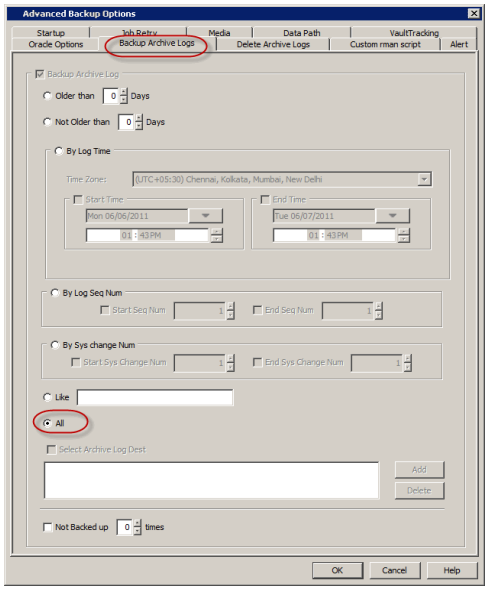
- The database has to be in ARCHIVELOG mode.
- Subclient should have been configured for archive log backups. See Creating A Subclient for Log Backups for step-by-step instructions to create a separate subclient for archive logs.

ALL ARCHIVE LOGS

Use the following steps to backup all archive logs. Note that this is the default option:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.

2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **All**.
6. Click **OK**.

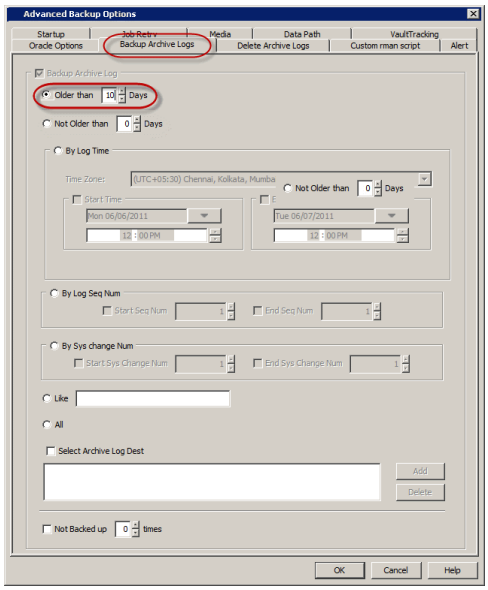


BY NUMBER OF DAYS

Use the following steps to backup archive logs older than a specified number of days.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **Older than *n* Days**, and type or select the number of days older than which the archive logs are to be backed up.

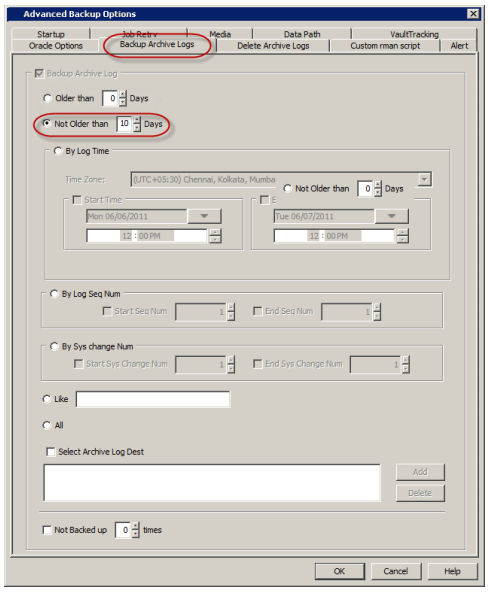
   For example, to backup logs older than 10 days, type 10.
6. Click **OK**.



Use the following steps to backup archive logs not older than a specified number of days.

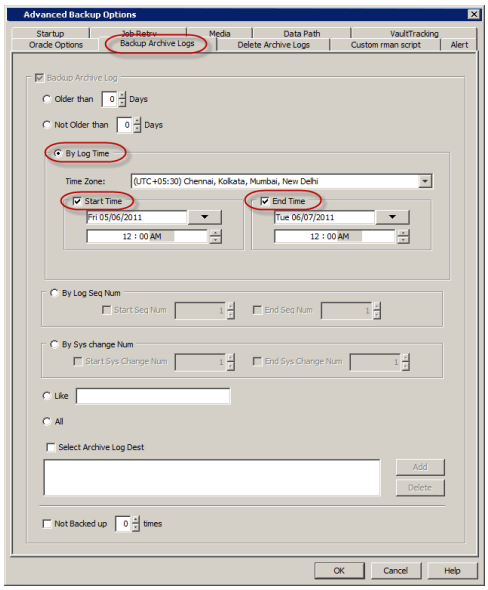
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **Not Older than *n* Days**, and type or select the number of days not older than which the archive logs are to be backed up.

   For example, to backup logs not older than 10 days, type 10.
6. Click **OK**.



WITHIN A SPECIFIC TIME RANGE

Use the following steps to backup archive logs between a specified time:



1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **By Log Time**.
6. In the **Time Zone** box, select the time zone.
7. Select the **Start Time** check box and enter the start time after which the logs were generated.
8. Select the **End Time** check box and enter the time before which the logs were generated.
9. Click **OK**.

BY LOG SEQUENCE NUMBER

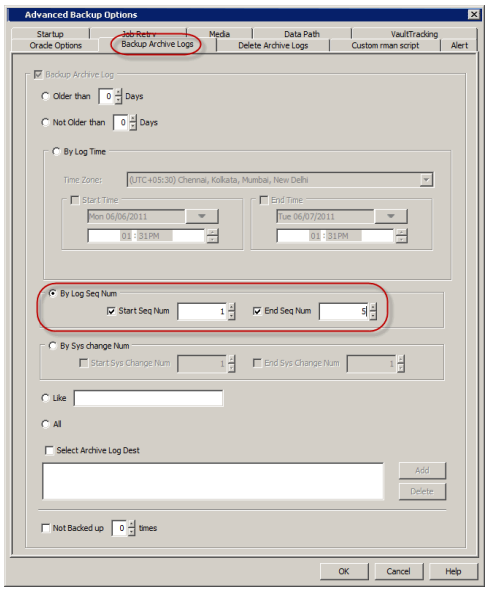
Log Sequence Number uniquely identifies an archive log. For example, if you create a database with two online log files, then the first file is assigned log sequence number 1. When the first file fills Oracle switches to the second file and assigns a log sequence number of 2; when it switches back to the first file, it assigns log sequence number 3, and so forth.

Use the following steps to backup archive logs within a specific range of log sequence numbers:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **By Log Seq Num**.
6. Select the **Start Seq Num** check box and enter the start sequence number of logs to

be backed up.

7. Select the **End Seq Num** check box and enter the end sequence number of logs to be backed up.
8. Click **OK**.

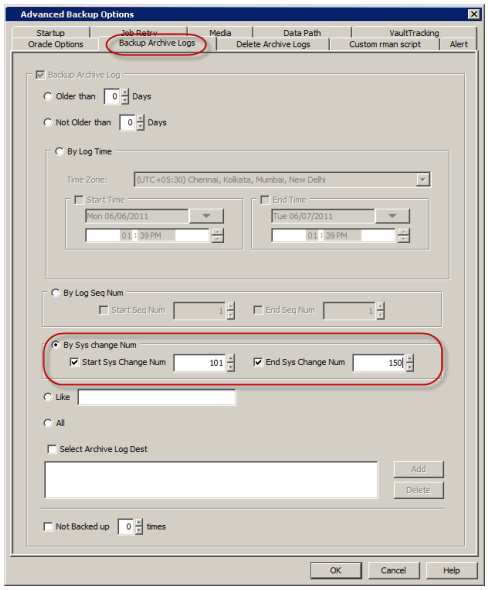


BY SYSTEM CHANGE NUMBER

System Change Number (SCN) is a stamp that defines a committed version of a database at a point in time. Oracle assigns every committed transaction a unique SCN. For example, SCNs of two successive transactions committed could be 576601 and 576799.

Use the following steps to backup archive logs within a specific range of system change numbers:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **By Sys change Num**, and then specify the **Start Sys Change Num** and **End Sys Change Num**.
6. Click **OK**.



BY A SPECIFIC STRING PATTERN

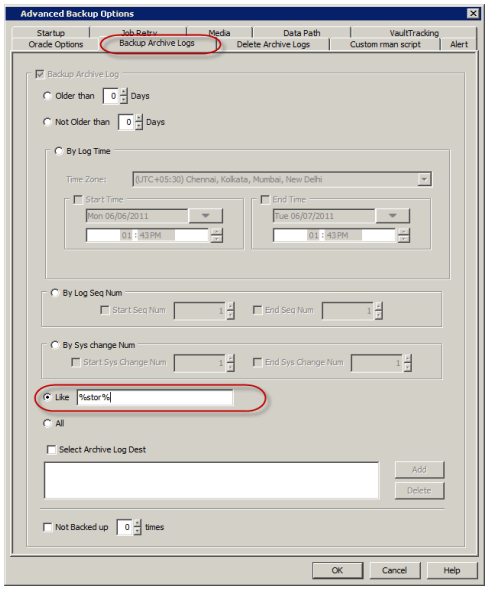
Use the following steps to backup archive log files whose name match a specific naming pattern. Note that if you do not specify any pattern, all the logs from the specified destination will be backed up.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **Like**, and then enter the desired string pattern in the text box.

   For example, to backup all archive logs whose names start with 'arch' type

'arch%.log'.

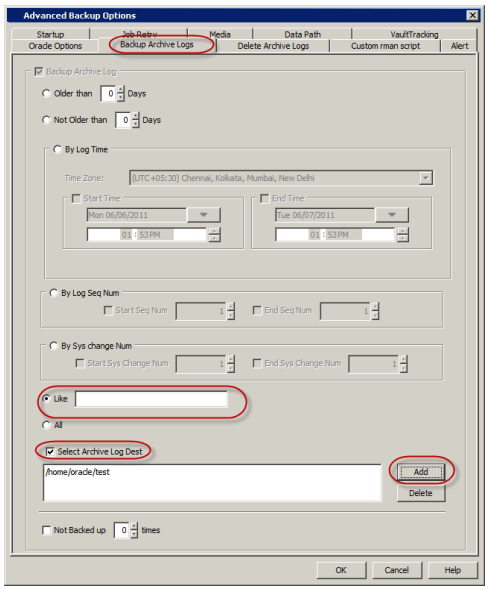
6. Click **OK**.



FROM A SPECIFIC LOCATION

Use the following steps to backup archive logs from a specific path or location. Note that the path or location specified at the backup level will override the archive log location defined at the subclient level.

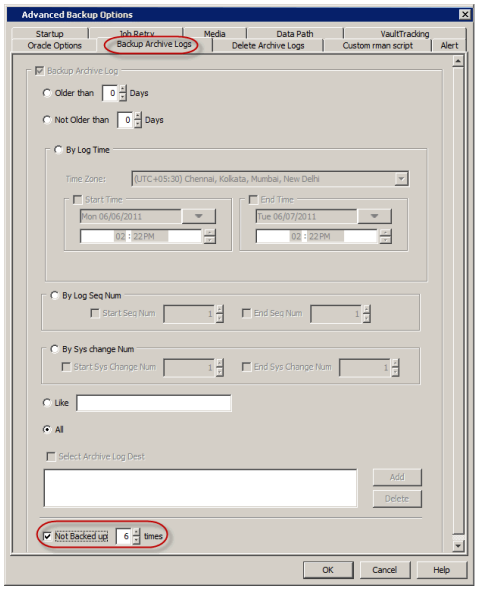
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Click **Like**.
6. Select **Select Archive Log Dest** check box.
7. Click **Add** to select the archive log location.
8. Click **OK**.



LOGS NOT BACKED UP A SPECIFIED NUMBER OF TIMES

Use the following steps to backup archive logs that have failed to backup a specified number of times earlier:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Backup Archive Logs** tab.
5. Select the **Not Backed Up *n* times** check box, and type or select the number so that the logs that meet the criteria 'Not Backed Up *n* times' are backed up.
6. Click **OK**.

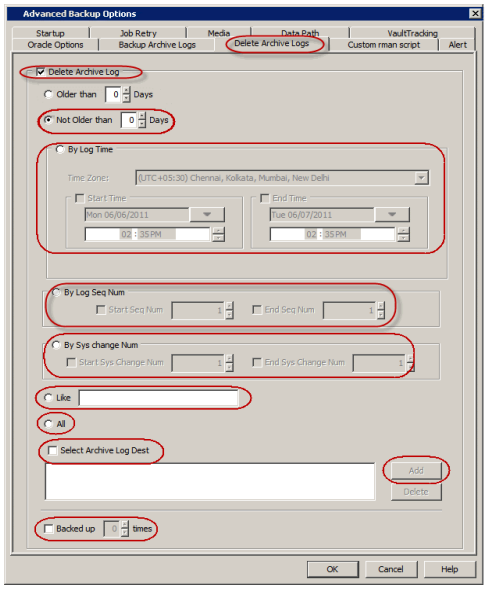


DELETING ARCHIVE LOGS FOR A SPECIFIC BACKUP

Once the archive logs are backed up you can choose to delete them from the destination location. This can be done by configuring the subclient to delete archive logs soon after the backup. See Enabling Log Deletion After Backup for step-by-step instructions on enabling deletion of logs.

> Always ensure that the archive logs are backed up before they are deleted to prevent data loss.

However, you can also choose to delete the archive logs for a specific backup job. Moreover, you can also specify additional criteria to delete the archive logs.



1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Delete Archive Logs** tab.
5. Select the **Delete Archive Log** check box.
6. Click **Yes** on the warning dialog.
7. Type **confirm** in the **Enter Confirmation text** Dialog, and then click **OK**.
8. Specify the desired criteria for archive log deletion.
9. Click **OK**.

CONTROL FILE BACKUPS

The control file contains metadata about the physical structure of the database including the location of all files, the current database state etc. Each control file is associated with only one database. The control file backups are used for creating standby databases from the CommCell Console. Standby databases are used during database recovery.

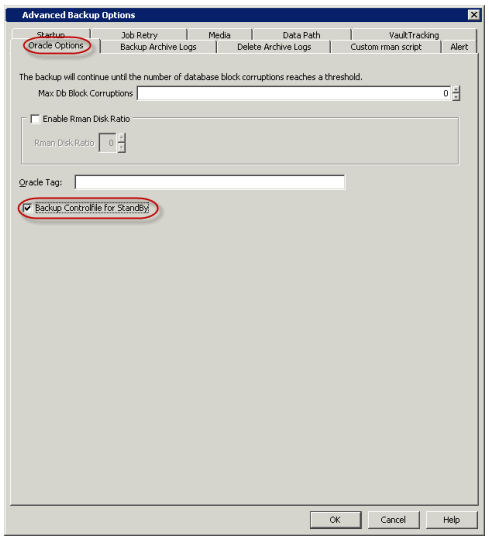
The subclients need to be configured prior to running control file backups; see Enable/ Disable Control File Backups for a Specific Subclient for step-by-step instructions.

Use the following steps to backup the control file:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle |**

<Instance>.

2. Right-click the ***<Subclient>*** configured for control file backup, and click **Backup**.
3. Click **Advanced**.
4. Click the **Oracle Options** tab.
5. Select the **Backup Controlfile for Standby** check box.
6. Click **OK**.



CONTAINER AND PLUGGABLE DATABASE BACKUPS

Oracle 12c supports container and pluggable databases. Calypso supports the backup of container and pluggable databases. You can backup the entire container database or one or more pluggable databases.

Container databases can be backed up by creating an instance for the container database. Single and multiple pluggable databases can be separately backed up through custom RMAN scripts.

BACKING UP A CONTAINER DATABASE

When you backup a container database, all pluggable databases that are part of the container database are also backed up.

1. Add an instance for the container database.
2. Follow the steps to create a full or incremental backup, where the instance is the one added for the container database.

BACKING UP A SINGLE PLUGGABLE DATABASE

1. Create and customize an RMAN script file on the client computer, where the last line in the script specifies the pluggable database to back up. The line has the following format, with "pluggable_database_name" specifying the pluggable database to back up.

   ```
   pluggable database pluggable_database_name;
   ```

   Example: RMAN script backing up the pluggable database "SINGLE_PDB".

   ```
   run {
       setlimit channel ch1 maxopenfiles 8;
       backup
       incremental level = 0
       filesperset = 32
       pluggable database SINGLE_PDB
     ;
   }
   exit;
   ```

   ```
   Click here to see the RMAN log output for this
   example.
   ```

2. Execute the RMAN script.

   See Running RMAN Scripts from Third Party Command Line.

BACKING UP MULTIPLE PLUGGABLE DATABASES

1. Create and customize an RMAN script file on the client computer, where the last line in the script specifies the pluggable databases to back up. The line has the following format, with "pluggable_database_name1" through "pluggable_databaseN. Each database must be separated by a ",".

   ```
   pluggable database pluggable_database_name1, ..pluggable_database_nameN;
   ```

   Example: RMAN script backing up the pluggable databases "PLUG_DB1" and "PLUG_DB2".

   ```
   run {
       setlimit channel ch1 maxopenfiles 8;
       backup
        incremental level = 0
        filesperset = 32
        pluggable database PLUG_DB1, PLUG_DB2
       ;
   }
   exit;
   ```

   ```
   Click here to see the RMAN log output for this
   example.
   ```

2. Execute the RMAN script.

   See Running RMAN Scripts from Third Party Command Line.

ON DEMAND BACKUPS

The content for the backup operation during On Demand backup is provided in an RMAN script and executed from the command line interface. You need to create an On Demand instance to perform on demand backup operations. Refer Creating an On Demand Instance for step by step instructions.

1. Create an RMAN script file on the client computer.

   Example: RMAN script file for archive log backup

```
run { allocate channel ch1 type 'sbt_tape'
PARMS="BLKSIZE=262144";
sql 'alter system archive log current';
backup
filesperset 4
(archivelog all);
}
exit
```

2. Create the parameter file on the client with the path to the specified RMAN script file.

   See RMAN Parameters for a list of mandatory and optional RMAN parameters.

   Example: Parameter file *argfile1.txt* with path to RMAN script file, *backuplogs.txt*, specified:

```
[instancescripts]
ora11gv1,D:\backuplogs.txt
[datatype]
LOG
[sp]
SP1
[streamcount]
2
```

3. From the command prompt, login to the CommServe using the `qlogin` command.

   Example: To log on to CommServe *server1* with user name *user1*:

```
D:\>qlogin -cs server1 -u user1
Password:
```

4. Run the backup operation using `qoperation` backup.

   Example: To run a full backup on client *client1* using the parameter file *argfile1.txt*:

```
D:\>qoperation backup -c client1 -a Q_ORACLE -
af /argfile1.txt -t Q_FULL
```

SUPPORTED RMAN PARAMETERS

PARAMETER	USAGE	DESCRIPTION
`[instancescripts]`	`[instancescripts]` *`<instance name>,<file name>`* Example: `[instancescripts]` `ora11gv1,D:\backuplogs.txt`	Name of the instance to be backed up, and the name of the file that contains the RMAN backup script.
`[datatype]`	**`[datatype]`** **`DATA`** | **`LOG`** Example: **`[datatype]`** **`LOG`**	Mark the associated backup archive files as either `DATA` or `LOG`.
`[sp]`	**`[sp]`** ***`<StoragePolicyName>`*** Example: **`[sp]`** **`SP1`**	Name of the Storage Policy to be used for the RMAN backup job.
`[streamcount]`	**`[streamcount]`** ***`<number>`*** Example: **`[streamcount]`**	Number of streams to reserve for the RMAN backup job.

	2	
[rmanlogfile]	**[rmanlogfile]** ***<ouputfile location>/<outputfile name>*** Example: [rmanlogfile] /usr/temp1 Here, temp1 is the directory and not the file name.	This is an optional parameter. Location where the RMAN backup output file will be saved and the name of the output file. By default, an output file backup.out is created in the job results directory. You can change the name of the output file as well as the location using this parameter. In order to include the JOB ID in the output file name, you need to set the sQcmd_Bkp_RmanLogFile registry key.
[options]	• **QB_NO_PARTIAL_STREAM** • **QB_NO_MULTIPLEX_STREAM** • **QB_DO_NOT_USE_ORA_CONNECT_STRING**	These are optional parameters. • If specified, the backup will start only if all the specified number of streams are available. The default behavior is to reserve as many streams as possible at the start of the backup. If additional streams become available during the backup, they will be allocated dynamically. • To multiplex different jobs. Do not multiplex streams of a single job • If specified, the backup will use the user defined connect string and catalog connect values specified in the RMAN script instead of the values specified in the Instance Properties (Details) tab in the CommCell Console.
[mediaagent]	**[mediaagent]** ***<mediaagentname>*** Example: **[mediaagent]** **MA1**	This is an optional parameter. Name of the MediaAgent to be used for the backup job.
[library]	**[library]** ***<libraryname>*** Example: **[library]** **LN1**	This is an optional parameter. Name of the library to be used for the backup job.
[drivepool]	**[drivepool]** ***<library_name>/<drivepool_name>*** Example: **[drivepool]** **LN1/DP1**	This is an optional parameter. Name of the drivepool in the library to be used for the backup job.
[scratchpool]	**[scratchpool]** ***<library_name>/<scratchpool_name>*** Example: **[scratchpool]** **LN1/SN1**	This is an optional parameter. Name of the scratchpool in the library to be used for the backup job. The drivepool and scratchpool parameters are applicable only if a tape library is used for the RMAN backup. The drivepool and scratchpool names can be given along with the library name followed by a backslash (/) or itself alone.
[jobdescription]	**[jobdescription]** ***<jobdescription>*** Example: **[jobdescription]** **weekly_data_bkp**	This is an optional parameter. Job description for the backup job.

COMMAND LINE BACKUPS

You can perform backups of one or more Oracle databases from the command line interface.

Command line backups enable you to perform backup operation on multiple clients simultaneously. In order to run the backups from command line, you need an input xml file which contains the parameters for configuring the backup options. This input xml file can be obtained from one of the following ways:

- Download the input xml file template and save it on the computer from where the backup will be performed.
- Generate the input xml file from the CommCell Console and save it on the computer from where the backup will be performed.

LOG ON TO THE COMMSERVE

To run command line operations you must first login to the CommServe as follows:

- From Command prompt, navigate to <Software_Installation_Directory>/Base and run the following command:

  ```
  qlogin -cs <commserve name> -u <user name>
  ```

- For example, to log on to CommServe 'server1' with username 'user1':

```
qlogin -cs server1 -u user1
```

PERFORM THE BACKUP

1. Download the backup_template.xml file and save it on the computer from where the command will be executed.
2. Execute the saved .xml script using qoperation execute command.

   ```
   qoperation execute -af backup_template.xml -backupLevel FULL -subclientName xxxxx -clientName xxxxx -instanceName xxxxx
   ```

3. Verify the status of the job using the following command:

   ```
   qlist job -j JOBID
   ```

4. Once the job completes, logout from the CommServe using the qlogout command.

   ```
   qlogout [-cs commserver] [-all] [-tf tokenfile] [-tk token] [-h]
   ```

EXAMPLES

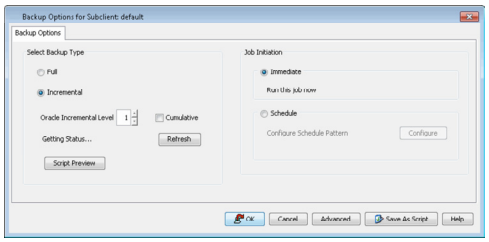
Performing a Full Backup	`qoperation execute -af backup_template.xml -backupLevel FULL -subclientName subclient1 -clientName client1 -instanceName instance1`
Performing an Incremental Backup	`qoperation execute -af backup_template.xml -backupLevel INCREMENTAL -subclientName subclient1 -clientName client1 -instanceName instance1`

GENERATE THE COMMAND LINE SCRIPT FROM THE COMMCELL CONSOLE

In addition to the parameters provided in the template xml file, if you want to include additional options for the backup, you can do so by selecting the required options from the CommCell Console and generate the command line xml script for the backup.

Follow the steps given below to generate a script which you can use to perform a backup from the command line interface:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*** | **Oracle** | ***<Instance>***.
2. Right-click the ***<Subclient>*** and click **Backup**.
3. Select the required backup options which you want to execute using the script.
4. Click **Save as Script**.

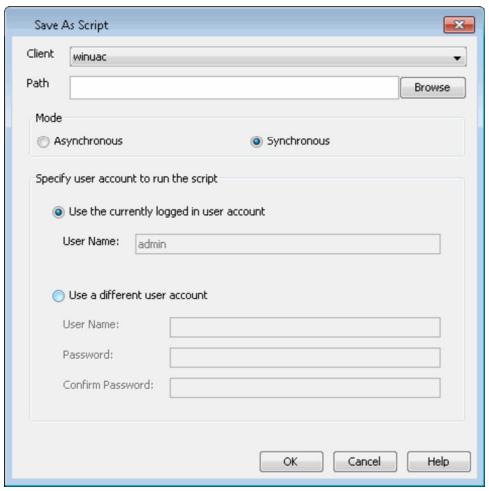


5. Enter the location where you want to save the script or click **Browse** and navigate to the location.

   The script will be saved as a .xml file and a .bat file is created.

   If a file with the same name already exists in the specified location, the .xml file will be created with a timestamp. However, the .bat file will overwrite the existing file.
6. Enter the username and password for the user account which you want to use to perform the backup.

   By default, the user account which you have used to login to CommCell console is used for performing the backup. However, if the user account does not have access to any application or database, click **Use a different account**.
7. Click **OK**.



RUNNING BACKUPS USING QCOMMANDS

You can submit RMAN scripts from the Command Line Interface using QCommands. The RMAN scripts are submitted through argument files.

AVAILABLE SBT PARAMETERS

[CvClientName]	[CvClientName] <Client_Name> **Example**:	Name of the client defined in the CommCell Console and the client name from where RMAN script runs. This parameter is optional. It is primarily used in a clustered environment.

	[CvClientName] client_name	
[CvInstanceName]	[CvInstanceName] <Instance_Name> **Example**: [CvInstanceName] instance_name	Name of the Calypso instance installed on the client from where the RMAN script runs. This parameter is optional. In cases of multiple instances of the software, the first installed instance would be 'Instance001'.
[CvOraSID]	[CvOraSID] <oracle_sid> **Example**: [CvOraSID] DB1	Name of the Oracle System ID (SID). This parameter is used during multi stream backups and also when the Oracle database name is different from Oracle SID. It is also used for multistream restores to get single job id. This parameter is optional. In case of a duplicate database restore, CvOraSID must be the destination SID name, otherwise in all cases it is source SID.

When you submit RMAN scripts using QCommands:

- One job ID is used in the CommServe. The same Job ID is also used across different streams and attempts.
- The job can be resumed from the point of failure from the CommCell Console or Command Line.
- The job history can be viewed for these jobs.
- A list of media can be obtained for the job in primary or secondary copy.
- Job-based storage policies can be used.
- Multiple streams can be allocated before the job starts.

1. Create an argument file on the client computer.

   Example: Argument file for full backup *argfile.txt*

   ```
   [client]
   machine1_cn
   [dataagent]
   Q_ORACLE
   [instance]
   orcl
   [subclient]
   default
   [backuptype]
   Q_FULL
   ```

2. From the command prompt, login to the CommServe using the `qlogin` command.

   Example: To log on to CommServe *server1* with user name *user1*:

   ```
   qlogin -cs server1 -u user1
   Password:
   ```

3. Run the backup operation using `qoperation` backup.

   Example: To run a full backup on client using argument file *argfile.txt*:

   ```
   D:\>qoperation backup -af D:\argfile.txt
   ```

RUNNING RMAN SCRIPTS FROM THIRD PARTY COMMAND LINE

Backup operations can also be performed from the third-party command line using the RMAN utility. The RMAN executable is located in the ORACLE_HOME/bin directory.

Use the following steps to run backups from the third-party command line:

1. Create an RMAN script file on the client computer.

   Example: *backup.txt*

2. From the RMAN command prompt on the client computer, add the environmental variables for the client and instance on which the *i*DataAgent is installed.

   Example:

   ```
   allocate channel ch1 type 'sbt_tape'
   PARMS="ENV=(CvClientName=<client_name>,
   CvInstanceName=<instance_name>)"
   ```

   On Unix clients, add the SBT_LIBRARY path.

   Example:

   ```
   allocate channel ch1 type 'sbt_tape'
   PARMS="SBT_LIBRARY=<software_install_path>/Base/libobk.so,
   ```

ENV=(CvClientName=*<client_name>*,

CvInstanceName=*<instance_name>*)"

The SBT_LIBRARY path for the various platforms are listed below:

- AIX with 64 bit Oracle - `<Client Agent Install Path>/Base64/libobk.a(shr.o)`
- HP UX PA RISC 64 bit Oracle - `<Client Agent Install Path>/Base64/libobk.sl`
- Solaris with 64 bit Oracle -`<Client Agent Install Path>/Base64/libobk.so`
- Linux on System Z with 64 bit Oracle - `<Client Agent Install Path>/Base64/libobk.so`
- All Other Unix platforms -`<Client Agent Install Path>/Base/libobk.so`

3. Add the RMAN script for backup to the file *backup.txt*.

Example: RMAN script file *backup.txt*

```
run {
allocate channel ch1 type 'sbt_tape'
PARMS="BLKSIZE=262144,
SBT_LIBRARY=/opt/calypso/Base/libobk.so,
ENV=
(CvClientName=<client_name>,CvInstanceName=<instance_name>)";
backup database;
release channel ch1;
}
```

4. Connect to the target database.

```
rman target sys/sys@<databasename>
```

5. Execute the RMAN script.

```
@backup.txt
```

MULTI STREAM BACKUPS FROM THIRD PARTY COMMAND LINE

Oracle third party command line operations running on multiple streams will share the same Job ID in the Job Manager. If all the streams return failure, then the job is marked as failed. However, if one of the streams fail, it is submitted to the other stream for completion.

- When you multiplex Oracle third party operations with multiple streams, each stream uses different drives by default
- When performing third party command line operations, a new `ClOraControlAgent.log` file is generated along with `ORASBT.log` to record the command line jobs
- When you use different storage policies for archive log backups and command line backups and if control file autobackup is configured in RMAN, when you submit a command line backup, the archive logs are backed up using log backup storage policy and control file autobackups use the command line storage policy.

Use the following steps to run multi stream backups from the third party command line:

1. From the RMAN command prompt, set the number of automatic channels for a specific device type.

   Note that to utilize the PARALLELISM option, set the initial parameter in pfile or spfile. Eg., `BACKUP_TAPE_IO_SLAVES=TRUE`

   In the below example, RMAN allocates two channels for the device type when using automatic channels.

   ```
   CONFIGURE DEVICE TYPE 'SBT_TAPE' PARALLELISM 2
   BACKUP TYPE TO BACKUPSET;
   ```

2. If you are using the OEM application with multiple channels, include the RMAN settings in the Oracle Enterprise Manager.

   Example:

   Unix:

   SBT_LIBRARY=*<software_install_path>*

   /Base64/libobk.so,

   BLKSIZE=262144,ENV=(CvClientName=*<client_name>*,

   CvInstanceName=*<instance_name>*,

   CvOraSID=*<oracle_sid>*

   Windows:

   ENV=(CvClientName=*<client_name>*,

   CvInstanceName=*<instance_name>*,

   CvOraSID=*<oracle_sid>*),BLKSIZE=262144

3. Create RMAN script file to run the backup operation with a single job ID, and save it in the desired *<location_path>/<file_name>*. For example, *D:\backup1.txt*.

   Example: Content in RMAN script file *backup1.txt*

When creating the RMAN script, the `CvClientName` and `CvOraSID` parameters can be used optionally for backup jobs.

If you use both the RMAN PARALLELISM configure parameter and set multiple streams from RMAN script, the backup job will utilize double the number of streams. For example, if PARALLELISM is set to 2 and 2 streams are set from RMAN script, the backup job will utilize 4 streams.

```
run
{allocate channel ch1 type 'sbt_tape'
PARMS="SBT_LIBRARY=<software_install_path>
/Base64/libobk.so,
ENV=(CvInstanceName=<instance_name>,
CvClientName=<client_name>,
CvOraSID=<oracle_sid>)";

allocate channel ch2 type 'sbt_tape'
PARMS="SBT_LIBRARY=<software_install_path>
/Base64/libobk.so,
ENV=(CvInstanceName=<instance_name>,
CvClientName=<client_name>,
CvOraSID=<oracle_sid>)";

setlimit channel ch1 maxopenfiles 1;
setlimit channel ch2 maxopenfiles 1;
backup
incremental level = 0
filesperset = 32
database include current controlfile;
sql "alter system archive log current";
backup filesperset = 1
(archivelog all delete input); }
```

4. Connect to the target database.

```
rman target sys/sys@<databasename>
```

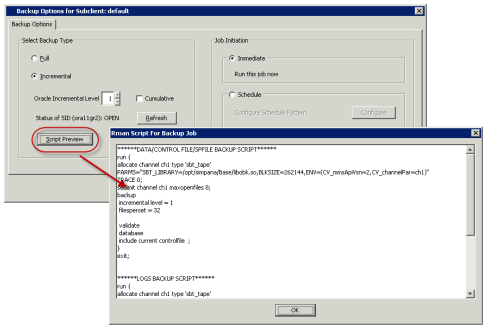
5. Navigate to the saved location and execute the RMAN script.

```
@<file_path>backup1.txt
```

PREVIEWING RMAN SCRIPTS FROM COMMCELL CONSOLE

Prior to running a backup operation from the CommCell Console, you can preview the corresponding RMAN script for the backup job. This is useful to determine whether the selected backup options will yield the desired result in the script. You can also manually copy and save the generated RMAN script to your computer and later execute the script from the command line.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** and click **Backup**.
3. Click **Script Preview**.
4. Click **OK**.



CUSTOMIZING RMAN SCRIPTS FROM COMMCELL CONSOLE

In addition to previewing the RMAN script, you can also modify the script from the CommCell Console. This is useful when you want to include the RMAN commands that are not supported by the software. Use the custom rman scripts to run the saved stored scripts. For example:
To run a backup stored script:

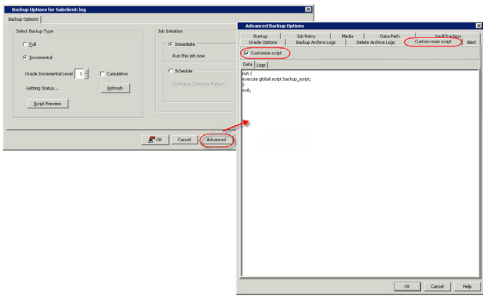
a. create stored script

```
[oracle@brahmani64 ~]$ rman target sys/sys@netapp catalog snap/snap@test

Recovery Manager: Release 10.2.0.4.0 - Production on Wed Oct 18 11:06:36 2011

Copyright (c) 1982, 2007, Oracle. All rights reserved.

connected to target database: NETAPP (DBID=3312111657)
```

```
connected to recovery catalog database

RMAN> create global script backup_script

2> {

3> backup database;

4> }

created global script backup_script

RMAN>
```

You should include recovery catalog to successfully run customized rman scripts. See Using Recovery Catalog for Backups for more information.

Use the following steps to run the custom rman scripts from CommCell Console:



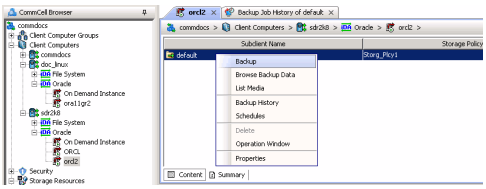
1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the **<*Subclient*>** configured for archive log backup, and then click **Backup**.
3. Click **Advanced**.
4. Click the **Custom rman script** tab.
5. Select the **Customize script** check box.
6. Edit the RMAN script as required, and then click **OK**.

SCHEDULING BACKUPS

Follow the steps given below to schedule a backup:

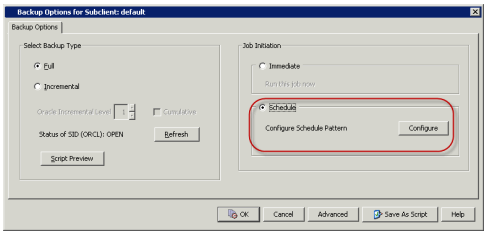
Follow the steps given below to schedule a backup:

1..



- From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
- Right-click the <***Subclient***> and click **Backup**.

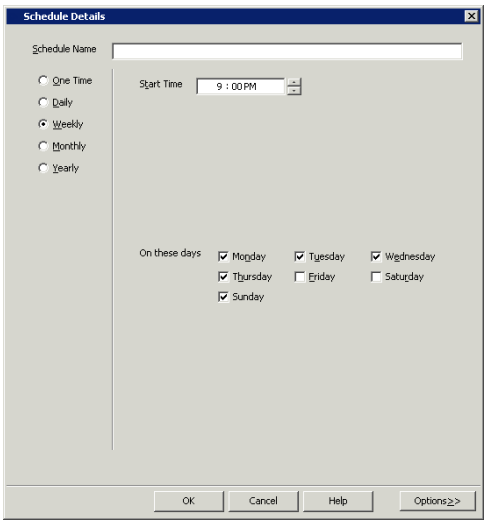
2.



- Select the **Backup type**.
- Click **Schedule** to schedule the backup for a specific time.
- Click **Configure** to set the schedule for the backup job. The Schedule Details dialog displays.

3. Select the appropriate scheduling options. For example:
   - Click **Weekly**.
   - Check the days you want the run the backup job.
   - Change the Start Time to 9:00 PM.
   - Click **OK** to close the Schedule Details dialog.
   - Click **OK** to close the Backup Options dialog.

   The backup job will execute as per the schedule.



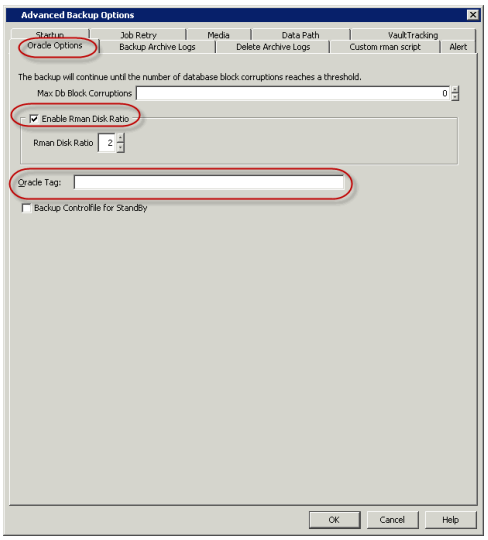
MARKING BACKUPS WITH A UNIQUE IDENTIFICATION TAG

You can configure tags for backups to uniquely identify a particular backup copy. These tags can be used later during restore operation to restore from a specific backup. Note that the tag defined at the backup job level will override the tag defined at the subclient level.

FOR A SPECIFIC BACKUP

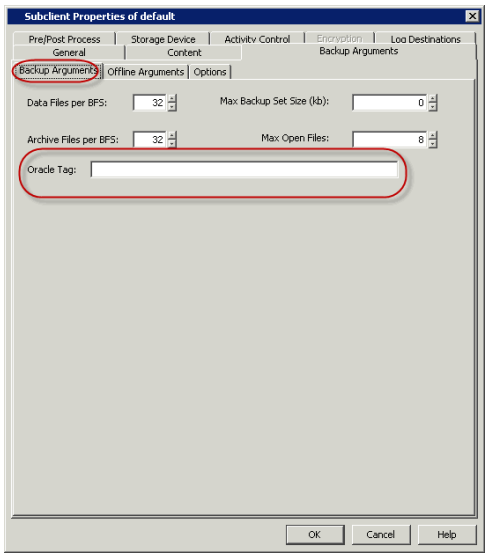
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** and click **Backup**.
3. Click **Advanced**.
4. Click the **Oracle Options** tab.
5. In the **Oracle Tag** box, type the tag name.

   For Example, weekly_backup.
6. Click **OK**.



FOR ALL BACKUPS

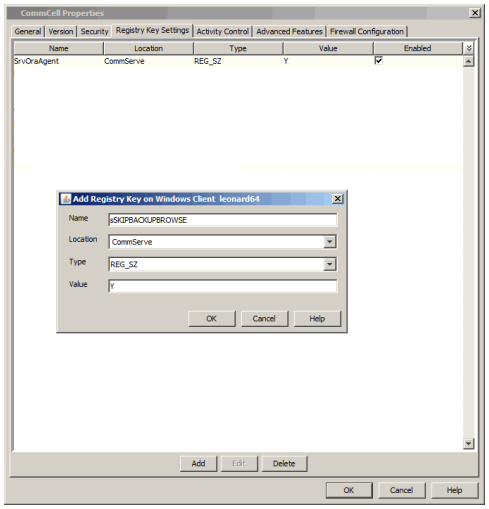
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** and click **Properties**.
3. Click the **Backup Arguments** tab.
4. In the **Oracle Tag** box, type the tag name.
5. Click **OK**.



DISABLING DATABASE BROWSE DURING BACKUPS

By default, browse query will automatically run on the database to collect datafile names when you perform a backup. This SQL query may hang or hamper the backup performance. Use the following steps to skip database browsing before performing a backup:

1. From the CommCell Browser, right-click ***<CommServe>***.
2. Click **Properties**, and then click the **Registry Key Settings** tab.
3. Click **Add**.
4. In the **Name** box, type sSKIPBACKUPBROWSE.
5. In the **Location** box, select **CommServe**.
6. In the **Type** box, select **REG_SZ**.
7. In the **Value** box, type Y.
8. Click **OK**.



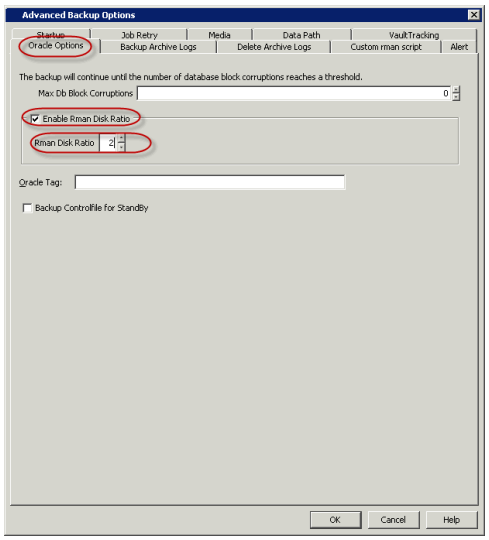
ENHANCING BACKUP PERFORMANCE

Backup performance can be increased by setting the RMAN Disk Ratio value for distributing the backup load across disks. By default, the RMAN disk ratio is not set.

Backup performance can also be enhanced by setting additional configurations at the subclient level. See Enhancing Backup Performance for more details.

Use the following steps to set the RMAN disk ratio:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle | *<Instance>***.
2. Right-click the ***<Subclient>*** and click **Backup**.
3. Click **Advanced**.
4. Click the **Oracle Options** tab.
5. Select the **Enable Rman Disk Ratio** check box.
6. Type the number of disks in the **Rman Disk Ratio** box.
7. Click **OK**.

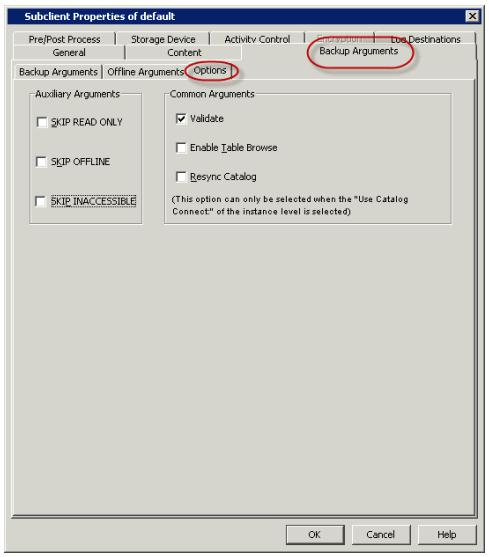


VALIDATING BACKUPS FOR RESTORE

You can validate previously run backups to ensure the integrity of the data for successful restores.

Use the following steps to validate the backup jobs of a subclient:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>*| Oracle | *<Instance>***.
2. Right-click the Subclient and click **Properties**.
3. Click the **Backup Arguments** tab, and then click the **Options** tab.
4. Select the **Validate** check box.
5. Click **OK**.



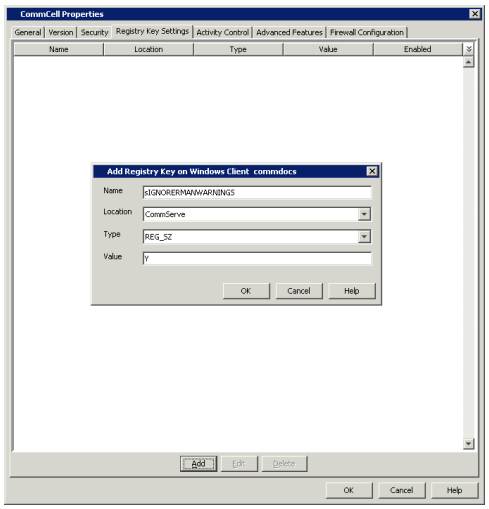
DISABLING RMAN WARNINGS FROM RMAN OUTPUT

By default RMAN warnings are reported in the RMAN output. If such warnings are found during backups, the job is reported as 'Completed With Errors'.

Use the following steps to disable the RMAN warnings:

GLOBALLY DISABLING ALL RMAN WARNINGS

1. From the CommCell Browser, right-click ***<CommServe>***.
2. Click **Properties**, and then click the **Registry Key Settings** tab.
3. Click **Add**.
4. In the **Name** box, type `sIGNORERMANWARNINGS`.
5. In the **Location** box, select **CommServe**.
6. In the **Type** box, select **REG_SZ**.
7. In the **Value** box, type Y.
8. Click **OK**.

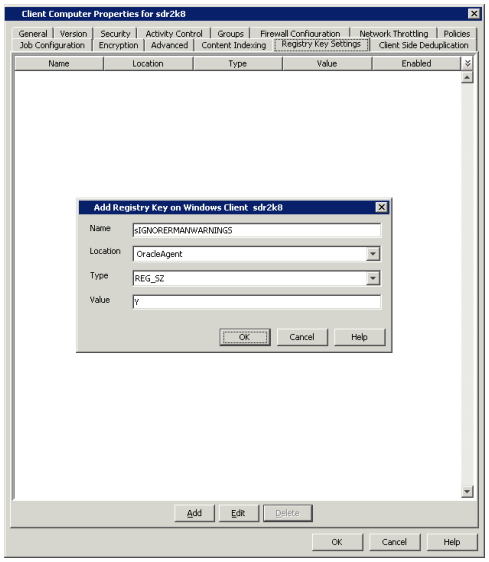


DISABLING ALL RMAN WARNINGS FOR A SPECIFIC CLIENT

Note that if this option is set in both the client and the CommServe, the client side value will override the value set in the CommServe.

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click <***Client***> and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type `sIGNORERMANWARNINGS`.
6. In the **Location** box, select **OracleAgent**.
7. In the **Type** box, select **REG_SZ**.

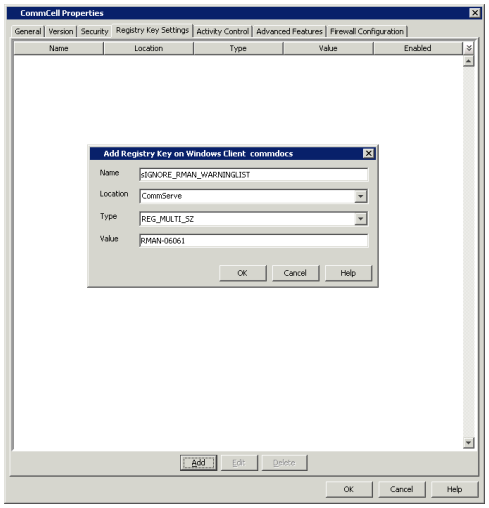
   On Unix Client, select **Value**.
8. In the **Value** box, type Y.
9. Click **OK**.



GLOBALLY DISABLING SPECIFIC RMAN WARNINGS

1. From the CommCell Browser, right-click ***<CommServe>***.
2. Click **Properties**, and then click the **Registry Key Settings** tab.
3. Click **Add**.
4. In the **Name** box, type `sIGNORE_RMAN_WARNINGLIST`.
5. In the **Location** box, select **CommServe**.
6. In the **Type** box, select **REG_MULTI_SZ**.
7. In the **Value** box, type `RMAN-<number_rman_code1>,RMAN-<number_rman_code2>,...`

   For example, to disable `RMAN-06061` warning at the CommServe level, type `sIGNORE_RMAN_WARNINGLIST RMAN-06061`.
8. Click **OK**.



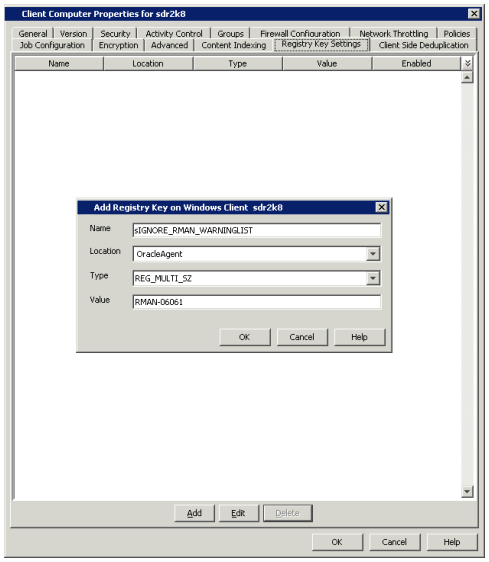
DISABLING SPECIFIC RMAN WARNINGS FOR A CLIENT

Note that if this option is set in both the client and the CommServe, the client side value will override the value set in the CommServe.

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click <***Client***> and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type `sIGNORE_RMAN_WARNINGLIST`.
6. In the **Location** box, select **OracleAgent**.
7. In the **Type** box, select **REG_MULTI_SZ**.

   On Unix Client, select **Value**.
8. In the **Value** box, type `RMAN-<number_rman_code1>,RMAN-<number_rman_code2>,...`

   For example, to disable `RMAN-06061` warning at the client level, type `sIGNORE_RMAN_WARNINGLIST RMAN-06061`.
9. Click **OK**.



MANAGING JOBS

Jobs can be managed in a number of ways. The following sections provide information on the different job management options available:

RESTARTING JOBS

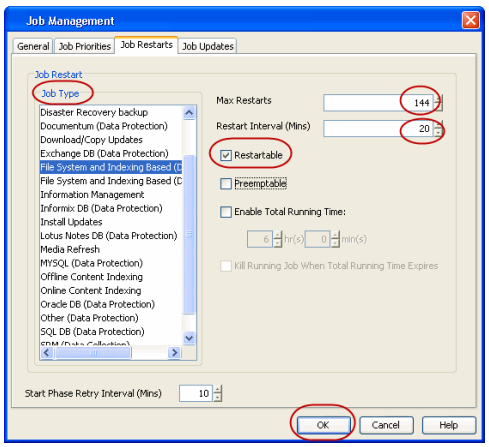
Jobs that fail to complete successfully are automatically restarted based on the job restartability configuration set in the Control Panel. Keep in mind that changes made to this configuration will affect all jobs in the entire CommCell.

To Configure the job restartability for a specific job, you can modify the retry settings for the job. This will override the setting in the Control Panel. It is also possible to override the default CommServe configuration for individual jobs by configuring retry settings when initiating the job. This configuration, however, will apply only to the specific job.

Backup jobs for this Agent are resumed from the point-of-failure.

CONFIGURE JOB RESTARTABILITY AT THE COMMSERVE LEVEL

1. From the CommCell Browser, click **Control Panel** icon.
2. Select **Job Management.**
3. Click **Job Restarts** tab and select a **Job Type.**
   - Select **Restartable** to make the job restartable.
   - Change the value for **Max Restarts** to change the maximum number of times the Job Manager will try to restart a job.
   - Change the value for **Restart Interval (Mins)** to change the time interval between attempts for the Job Manager to restart the job.
4. Click **OK.**

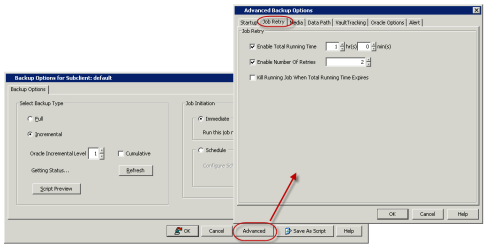


CONFIGURE JOB RESTARTABILITY FOR AN INDIVIDUAL JOB

1. From the CommCell Console, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**.
2. Right-click the Subclient and select **Backup**.

3. Click **Advanced.**
4. In the **Advanced Backup Options** dialog box, click the **Job Retry** tab.
5. Select **Enable Total Running Time** and specify the maximum elapsed time before a job can be restarted or killed.

   Select **Kill Running Jobs When Total Running Time Expires** to kill the job after reaching the maximum elapsed time.
6. Select **Enable Number Of Retries** and specify the number of retries.
7. Click **OK.**



CONTROLLING JOBS

The following controls are available for running jobs in the Job Controller window:

SUSPEND	Temporarily stops a job. A suspended job is not terminated; it can be restarted at a later time.
RESUME	Resumes a job and returns the status to Waiting, Pending, Queued, or Running. The status depends on the availability of resources, the state of the Operation Windows, or the Activity Control setting.
KILL	Terminates a job.

SUSPENDING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Suspend**.
2. The job status may change to **Suspend Pending** for a few moments while the operation completes. The job status then changes to **Suspended.**

RESUMING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Resume**.
2. As the Job Manager attempts to restart the job, the job status changes to **Waiting**, **Pending**, or **Running**.

KILLING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Kill**.
2. Click **Yes** when the confirmation prompt appears if you are sure you want to kill the job. The job status may change to **Kill Pending** for a few moments while the operation completes. Once completed, the job status will change to **Killed** and it will be removed from the Job Controller window after five minutes.

ADDITIONAL OPTIONS

The following table describes the available additional options to further refine your backup operations:

OPTION	DESCRIPTION	RELATED TOPICS
Startup Options	The Startup Options are used by the Job Manager to set priority for resource allocation. This is useful to give higher priority to certain jobs. You can set the priority as follows: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and click **Startup** tab. 4. Select the **Change Priority** checkbox. 5. Enter a priority number - 0 is the highest priority and 999 is the lowest priority. 6. Select the **Start up in suspended State** check box to start the job in a suspended state. 7. Click **OK**.	Refer to Job Priority and Priority Precedence.
Alerts	This option enables users or user groups to get automatic notification on the status of the data protection job. Follow the steps given below to set up the criteria to raise notifications/alerts: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select the **Alert** tab. 4. Click **Add Alert.** 5. From the **Add Alert Wizard** dialog box, select the required threshold and notification criteria and click **Next**.	Refer to Alerts.

	6. Select the required notification types and click **Next**. 7. Select the recipients and click **Next**. 8. Click **Finish**. 9. Click **OK**.	
Vault Tracker	This feature provides the facility to manage media that is removed from a library and stored in offsite locations. Depending on your VaultTracker setup, select the required options. Use the following steps to access and select the VaultTracker options. 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select the **VaultTracking** tab. 4. Select the required options. 5. Click **OK**.	Refer to VaultTracker or VaultTracker Enterprise.
Extended Data Retention	This option allows you to extend the expiration date of a specific job. This will override the default retention set at the corresponding storage policy copy. Follow the steps given below to extend the expiration date: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select the **Media** tab. 4. Select one of the following options: ○ **Infinite** - Select this option to extend the expiration date by infinite number of days ○ **Number of day** - Select this option to specify the number of days to extend the expiration date and then enter the number of days. 5. Click **OK**.	Refer to Extended Retention Rules.
Allow Other Schedules to Use Media Set	The Allow Other Schedules to use Media Set option allows jobs that are part of the schedule or schedule policy and using the specific storage policy to start a new media. It also prevents other jobs from writing to the same set of media. 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select the **Media** tab. 4. Select the **Allow Other Schedules To Use Media Set** check box. 5. Click **OK**.	Refer to Creating an Exportable Media Set.
Mark Media Full	This option marks the media as full, two minutes after the successful completion of the data protection job. This option prevents another job from writing to this media. Follow the steps given below: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select **Media** tab. 4. Select the **Mark Media Full on Success** check box**.** 5. Click **OK**.	Refer to Start New Media.
Start New Media	The Start New Media option enables you to start the data protection operation on a new media. This feature provides control over where the data physically resides. Use the following steps to start the data protection operation on a new media: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**. 2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select the **Media** tab. 4. Select the **Start New Media** check box. 5. Click **OK**.	Refer to Start New Media.
Data Path Options	Data Protection operations use a default Library, MediaAgent, Drive Pool, and Drive as the Data Path. You can use this option to change the data path if the default data path is not available. Follow the steps given below to change the default data path: 1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle | <*Instance*>**.	Refer Change Data Path.

	2. Right-click the **Subclient** in the right pane and click **Backup**. 3. Click **Advanced** and select the **Data Path** tab. 4. Select the **MediaAgent** and **Library**. 5. Select the **Drive Pool** and **Drive** for optical and tape libraries. 6. Click **OK**.	
CommCell Readiness Report	The CommCell Readiness Report provides you with vital information, such as connectivity and readiness of the Client, MediaAgent and CommServe. It is useful to run this report before performing the data protection or recovery job. Follow the steps given below to generate the report: 1. From the **Tools** menu in the CommCell Console, click **Reports**. 2. Navigate to **Reports | CommServe | CommCell Readiness**. 3. Click the **Client** tab and click the **Modify** button. 4. In the **Select Computers** dialog box, clear the **Include All Client Computers and All Client Groups** check box. 5. Select the client from the **Exclude** list. 6. Click the **Include >** button. 7. Click **OK**. 8. Click the **MediaAgent** tab. 9. Clear the **Include All MediaAgents** checkbox. 10. Select the MediaAgent from the **Exclude** list. 11. Click **Include >**. 12. Click **Run**. The generated report is displayed.	Refer to CommCell Readiness Report.
Backup Job Summary Report	The Backup Job Summary Report provides you with information about all the backup jobs that are run in last 24 hrs for a specific subclient. You can get information such as status, time, data size etc. for each backup job. It is useful to run this report after performing the backup. Follow the steps given below to generate the report: 1. From the **Tools** menu in the CommCell Console, click **Reports**. 2. Navigate to **Reports | Jobs | Job Summary**. 3. Click **Data Management** on the **General tab** in the right pane. 4. Select the Computers tab. 5. Click **Subclient** and select the **Edit** tab. 6. Navigate to **Client Computers | <Client> | File System | Backup Set | Subclient**. 7. Click **Run**.	Refer to Backup Job Summary Report.

Browse Data – Oracle *i*DataAgent

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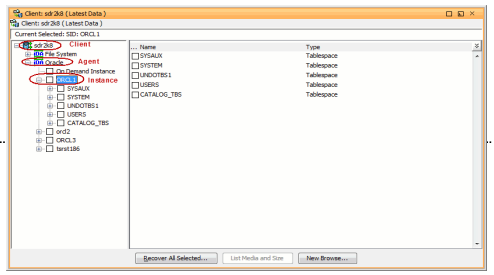
UNDERSTANDING THE BROWSE WINDOW



Browse provides an easy-to-use convenience to search and restore data.

You can open the browse window from client, agent, instance or subclient level. The sub levels displayed in the browse window is based on where you start the browse operation.

SELECTING OBJECTS FROM THE BROWSE WINDOW FOR RESTORE

The browse window displays objects and consists of two parts:

- The left pane displays the object tree at the selected level.
- The right pane displays the contents of the selected object.

Note that the window displays only the data that was obtained by a backup. Data that is excluded by a filter, or data which did not exist as of the specified browse time does not appear in the window.

Selections follow these rules:

- All selections are recursive.
- Clicking a box again causes the selection to be cleared.
- If you select an object in the left pane, then all of its contents are selected.
- You can select a specific object in the right pane.

Selection status is revealed by the selection icons as follows:

☐	Indicates that the object is not selected for restoration.
◪	Indicates that a portion of the object is selected for restoration. i.e., only some of the child object(s) within the selected object.
■	Indicates that the entire object, including all of its child objects, are selected for restoration.

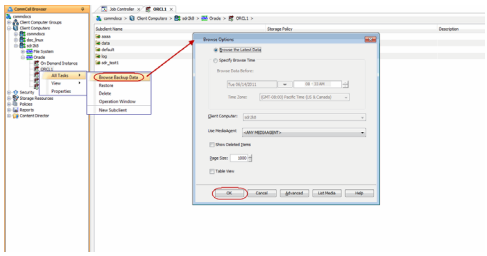
BROWSE DATA

The option to browse the backup data provides the facility to view and restore the data that was backed up. The following sections explain how to browse the backup data.

LATEST DATA

Follow the steps given below to view the latest data backed up by a backup set:

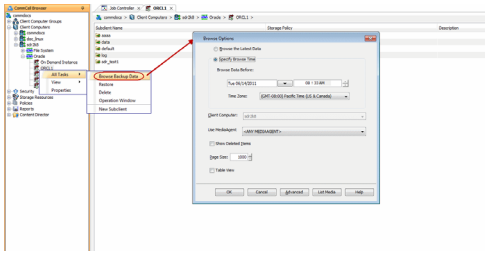
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. Click **OK**.



The latest data backed up by all the subclients is displayed in the **Client Browse** tab.

DATA BEFORE A SPECIFIED TIME

Follow the steps given below to browse the data backed up before specified time:



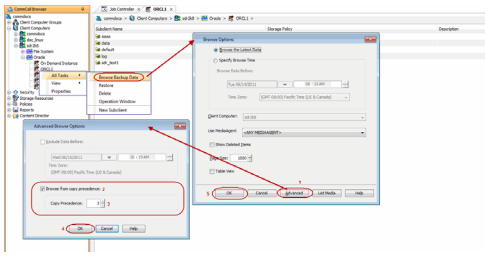
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. Select **Specify Browse Time**.
4. Select a date and time to **Browse Data Before** it.
5. Click **OK**.

BROWSE FROM COPIES

By default, when a browse operation is requested, the software attempts to browse from the storage policy copy with the lowest copy precedence. If the data that you want to browse was already pruned from the primary copy, the software searches the other copies of the storage policy, starting from the copy with the lowest copy precedence to a copy with the highest copy precedence.

This feature is useful in the following conditions:

- The media containing protected data for a particular copy has been removed from the storage library, you can choose to browse from a copy whose media are inside the library.
- Allows browsing from a copy that accesses faster disk media rather than slower tape media.
- When media drives used by a particular copy are busy with another operation, this helps in browsing from a different copy to avoid resource conflicts.



1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, click **Advanced**.
4. In the **Advanced Browse Options** dialog box select the **Browse from copy precedence** option.

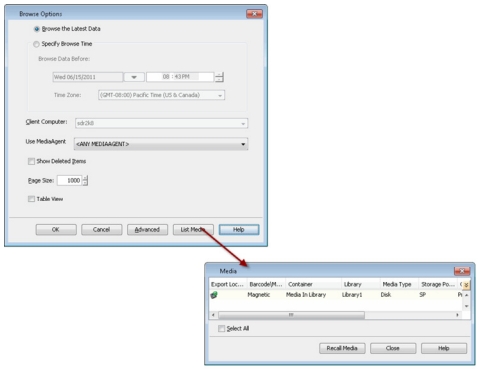
   If you specify a copy precedence number for a browse operation, the software searches only the storage policy copy with that precedence number in all storage policies used for securing the data. If data does not exist in the specified copy, the browse operation fails even if the data exists in another copy of the same storage policy.

5. Specify the precedence number in **Copy Precedence**.
6. Click **OK** in the **Advanced Browse Options** dialog box .
7. Click **OK** in the **Browse Options** dialog box.

LIST MEDIA

List media option is useful to predict media required to restore the index required to browse data. This is useful when the index is not available in the index cache.

The following section describes how to perform this operation.



1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, if required, select the following options:
   - Click **Browse the Latest Data** to list media associated with the most recent data protection cycle.
   - Click **Specify Browse Time** to list media associated with data protection operations up to the specified date and time range. Use the **Browse Data Before** box to specify the end date and time.
   - Click **Advanced** and then click **Exclude Data Before** and then select the date and time from which you wish to list media associated with data protection operations.
4. Click **List Media**.
5. From the **List Media** dialog box, select the media you wish to recall and click **Recall Media**.
6. From the **Recall Media** dialog box General tab, select the following:

- The time until which the media would be retained in the library for read operations.
- A reason for recalling the media.

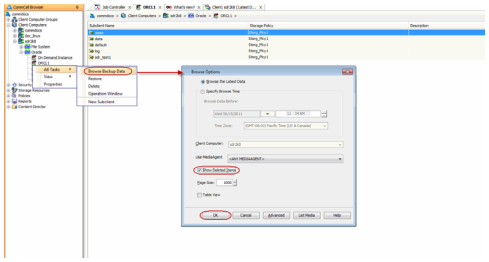
7. From the **Destination** tab, configure the following destination options:
   - Click the **Track Transit** option and select the transit location from the list, to track the transit information.
   - Select the desired **Destination**.
   - If desired, select the **Move Media to Overwrite Protection Pool** option along with the desired pool to which the media will be moved.
   - Select **Acknowledge the action as Reached Destination automatically** if desired.
8. Click **OK**.

IMAGE/NO-IMAGE BROWSE

Image browse displays the structure of the entity as it existed as of some specified time. When you browse data in the image mode, the system by default returns the requested data based on the latest image available. The image browse can only restore the latest version. If the requested version was deleted before the most recent full backup, the default browse will not find the data.

The no-image browse is useful for retrieving data that may have been deleted at some unknown time. It is also useful to retrieve a previous backup version.

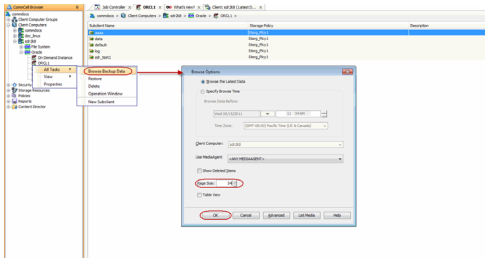
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, select one of the following options:
   - Click and select the **Show Deleted Items** option to perform a no-image browse of the data.
   - Clear the **Show Deleted Items** option to perform an image browse of the data.
4. Click **OK**.



ESTABLISH THE PAGE SIZE FOR A BROWSE

The Page Size option allows you to specify the number of objects to be displayed in the browse window. You can browse through each page list by selecting the appropriate page number in the Browse window. This field reverts back to the default setting after use.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, enter a value for **Page Size**.
4. Click **OK**.



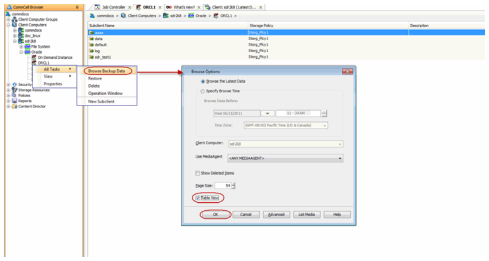
BROWSE DATABASE TABLES

This option displays the backup data as database tables of each user in a tree view during the browse operation and allows selecting multiple tables to restore them to a destination location.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, click and select **Table View**.

   In order to browse and restore the database tables, you must run a full backup of the entire database with the **Enable Table Browse** option enabled at the Subclient level.

   See, Enabling Table Browse for Restores for more information.



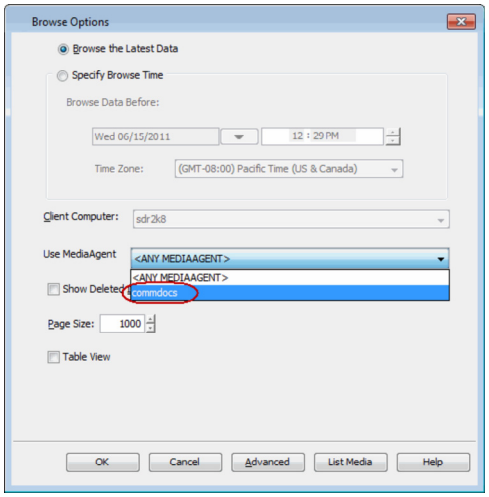
4. Click **OK**.

   You can restore the data as database tables as described in Restoring Tables to a different Host.

BROWSE USING MEDIAAGENT

Data can be restored from any compatible library and drive type in the CommCell. By default, the system automatically identifies and restores data from any configured library in the CommCell, even if the media is not available in the original library in which the data protection operation was performed. Use this procedure to Browse using a specific MediaAgent.

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**
2. Right-click a Instance and click **All Tasks** | **Browse/Browse Backup Data**.
3. From the **Browse Options** dialog box, choose the **MediaAgent** that must be used to perform the browse.
4. Click **OK**.



Advanced Restore - Oracle *i*DataAgent

TABLE OF CONTENTS

RESTORING AND RECOVERING AN ENTIRE DATABASE

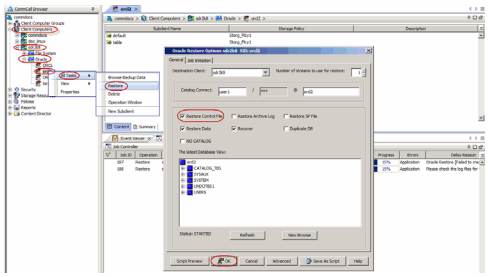
When the database is corrupted or lost, you can restore and recover it from the latest offline or online full backup (depending on how the subclient was configured for backups).

TO THE SAME HOST

By default, the database is restored to the same location from where it was backed up. Once the database is restored, it is recovered to the current time.

Use the following steps to restore and recover a database to the same host:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Verify that the **Restore Data** and **Recover** options are selected.
4. Select the **Restore Control File** check box.
5. Click **OK**.



TO A NEW HOST WITH THE SAME DIRECTORY STRUCTURE

If the computer on which you hosted a database is damaged or destroyed, you can restore and recover the lost database with the same directory structure on to a new host.

By default, the database is restored in the ARCHIVELOG mode, You can also choose to restore the db in NOARCHIVELOG mode.

Use the following steps to restore and recover a database to a new host with the same directory structure:

PREREQUISITES

1. Verify the following in both the source and destination computers:

- The connection specifications (host, service name, port) in the `tnsnames.ora` file on both the source and destination computers should be different.
- The <*username*> you use for the destination computer is different than the username for the source computer.
- Sufficient disk space is available on the destination computer to accommodate the restored database.
- Both the source and destination computers should have the following similar features:
  - Operating systems
  - Oracle version
  - ORACLE_SID
  - `init <SID>.ora` file
  - Processor (32-bit or 64-bit)
  - Datafile directory structures

SETTING UP THE SOURCE AND DESTINATION HOSTS

2. Create a new user account with recovery catalog owner permission within the Recovery Catalog for the destination computer. Use a different *<username>*

Example:

```
SQL>create user <username> identified by <password>
2>temporary tablespace <temp_tablespace_name>
3>default tablespace <default_tablespace_name>
4>quota unlimited on <default_tablespace_name>;

Statement processed.

SQL>grant connect, resource, recovery_catalog_owner to
<username>;

Statement processed.
```

3. Manually transfer the Oracle password file **orapw**<`Oracle SID name`> from the source computer to the destination computer. Usually, this file resides in ORACLE_HOME/dbs.

4. Export the recovery catalog data for the catalog user.

   For example, if the user ID for the recovery catalog owner is **user1**, you need to export the database backup information for **user1**.

5. Import the recovery catalog data to the new user account for the destination computer.

Example using IMPORT CATALOG Command:

```
RMAN>IMPORT CATALOG user1/user1@src;
```

6. Copy the recovery catalog's connect string entry in the `tnsnames.ora` file from the source host to the destination host.

```
<service_name> =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = <protocol>)(HOST = <host>) (PORT
= <##>))
(CONNECT_DATA = (SID = <Recovery Catalog database>)))
```

7. Make sure that the ORACLE_SID and ORACLE_HOME are appropriately configured on the destination computer.

Example:
For Unix:

```
#export ORACLE_SID= <target database SID>
#export ORACLE_HOME= <Oracle home directory>
```

For Windows:

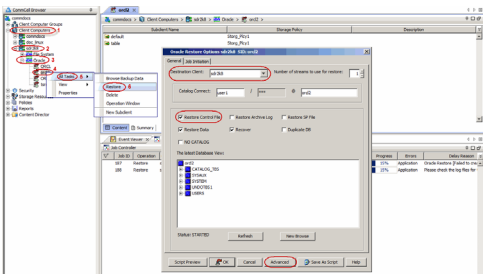
```
C:\set ORACLE_SID= <target database SID>
C:\set ORACLE_HOME= <Oracle home directory>
```

8. Install the Oracle *i*DataAgent and configure it as client in the same CommServe in which the source computer resides.

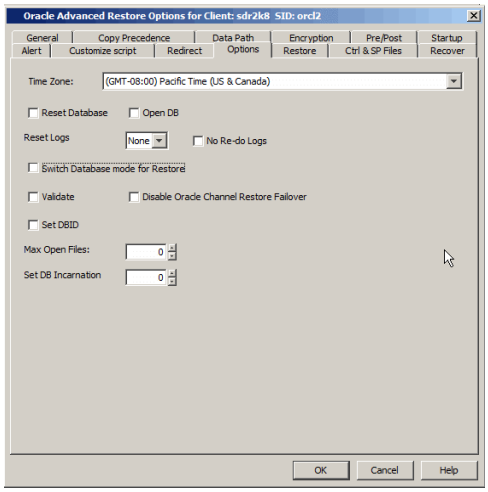
9. Create and configure a new Oracle instance, similar to the one existing in the source computer on the destination computer. Ensure that this instance is in NOMOUNT mode.

RESTORING THE DATABASE

10. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle.**
11. Right-click the <**Instance**> point to **All Tasks** and then click **Restore**.
12. Select the name of the client computer from the **Destination Client** list.
13. Select **Restore Control File** check box.
14. Click **Advanced**.



15. Click the **Options** tab.
16. If the database is in NOARCHIVELOG mode, then select **No Redo Logs**.
17. Click **OK**.



TO A NEW HOST WITH A DIFFERENT DIRECTORY STRUCTURE

If the computer on which you hosted a database is damaged or destroyed, you can restore and recover the lost database on a new host computer with a different directory structure. You can restore a database either in ARCHIVELOG or NOARCHIVELOG mode on a new host.

By default, the database is restored in the ARCHIVELOG mode, You can also choose to restore the db in NOARCHIVELOG mode.

Use the following steps to restore and recover a database to a new host with a different directory structure:

PREREQUISITES

1. Verify the following in both the source and destination computers:

- The connection specifications (host, service name, port) in the `tnsnames.ora` file on both the source and destination computers should be different.
- The *<username>* you use for the destination computer is different than the username for the source computer.
- Sufficient disk space is available on the destination computer to accommodate the restored database.
- Both the source and destination computers should have the following similar features:
  - Operating systems
  - Oracle version
  - ORACLE_SID
  - `init <SID>.ora` file
  - Processor (32-bit or 64-bit)
  - Datafile directory structures

CONFIGURING THE INIT <SID>.ORA FILE

2. Copy the `init<SID>.ora` from the old host to the new host.
3. Edit the `init<SID>.ora` file on the new host to reflect all the directory structure changes (i.e., change the path for control files, archivelog destination and *dump destinations).
4. Create the directory structures as defined in `init<SID>.ora` file for all paths.

SETTING UP THE SOURCE AND DESTINATION HOSTS

5. Create a new user account with recovery catalog owner permission within the Recovery Catalog for the destination computer. Use a different <username>

Example:

```
SQL>create user <username> identified by <password>
2>temporary tablespace <temp_tablespace_name>
3>default tablespace <default_tablespace_name>
4>quota unlimited on <default_tablespace_name>;

Statement processed.

SQL>grant connect, resource, recovery_catalog_owner to
<username>;

Statement processed.
```

6. Manually transfer the Oracle password file **orapw**`<Oracle SID name>` from the source computer to the destination computer. Usually, this file resides in

ORACLE_HOME/dbs.

7. Export the recovery catalog data for the catalog user.

   For example, if the user ID for the recovery catalog owner is **user1**, you need to export the database backup information for **user1**.

8. Import the recovery catalog data to the new user account for the destination computer.

Example using IMPORT CATALOG Command:

```
RMAN>IMPORT CATALOG user1/user1@src;
```

9. Copy the recovery catalog's connect string entry in the `tnsnames.ora` file from the source host to the destination host.

```
<service_name> =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = <protocol>)(HOST = <host>) (PORT
= <##>))
(CONNECT_DATA = (SID = <Recovery Catalog database>)))
```

10. Make sure that the ORACLE_SID and ORACLE_HOME are appropriately configured on the destination computer.

Example:
For Unix:

```
#export ORACLE_SID= <target database SID>
#export ORACLE_HOME= <Oracle home directory>
```

For Windows:

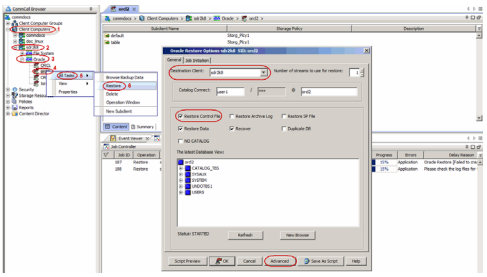
```
C:\set ORACLE_SID= <target database SID>
C:\set ORACLE_HOME= <Oracle home directory>
```

11. Install the Oracle *i*DataAgent and configure it as client in the same CommServe in which the source computer resides.

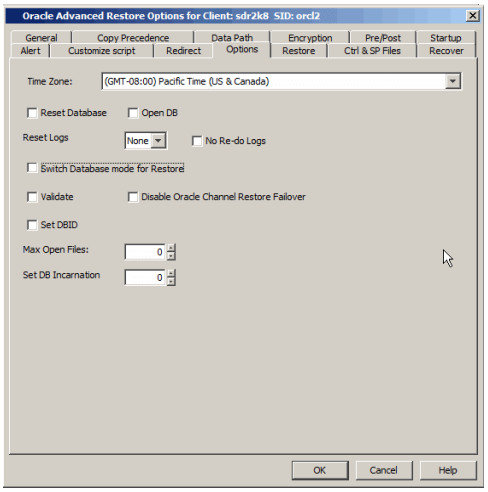
12. Create and configure a new Oracle instance, similar to the one existing in the source computer on the destination computer. Ensure that this instance is in NOMOUNT mode.

RESTORING THE DATABASE

13. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle.**
14. Right-click the <**Instance**> point to **All Tasks** and then click **Restore**.
15. Select the name of the client computer from the **Destination Client** list.
16. Select **Restore Control File** check box.
17. Click **Advanced**.



18. Click the **Options** tab.
19. If the database is in NOARCHIVELOG mode, then select **No Redo Logs**.
20. Click **OK**.



TO A PREVIOUS POINT-IN-TIME

The point-in-time restore is useful in the following scenarios:

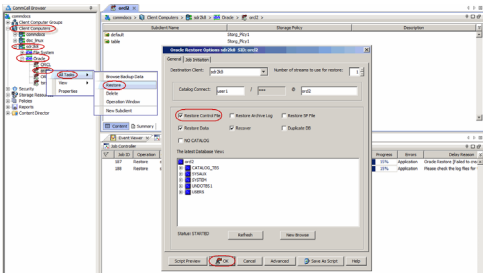
- If any undesired transaction occurs in the database, you can revert the database to a state just before the transaction.
- If a database fails, you can restore to the state just before the point of failure.

When you restore and recover an entire database to a previous point-in-time from an online backup or offline backup (depending on how the subclient was configured for backups) to the original host, it is recommended to use the control files.

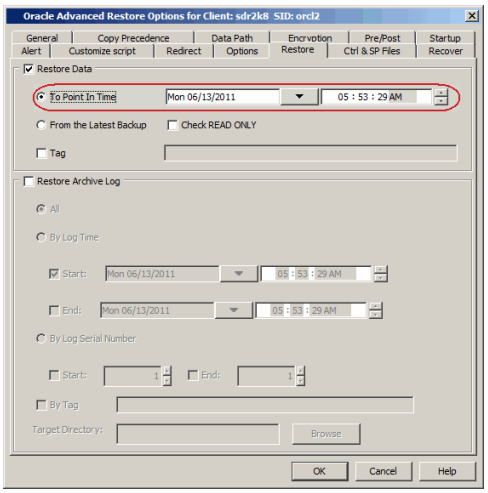
When you perform a point-in-time restore for a database, the next scheduled backup for that database will automatically convert to a full backup.

Use the following steps to restore and recover a database to a previous point-in-time:

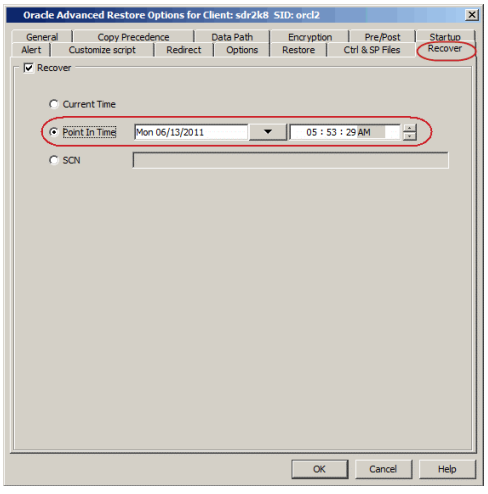
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select **Restore Control File** check box, if you want to restore the control file(s).
4. Click **Advanced**.



5. Click the **Restore** tab.
6. Click **To Point-In-Time** and select the data and time.

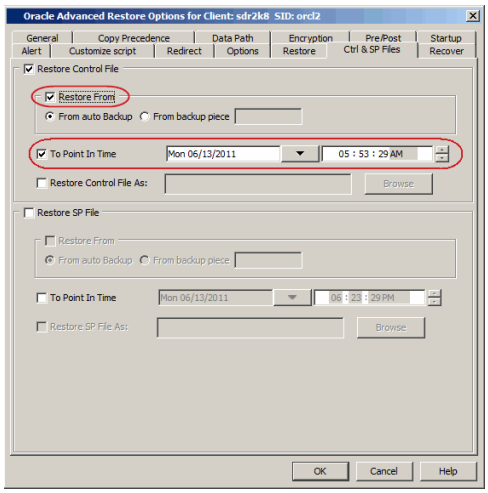


7. Click the **Recover** tab.
8. Click the **Point-In-Time** and select the data and time.



9. Click **Ctrl&SP Files** Tab, if you have selected to restore the control file(s).
10. Select **Restore From** check box.
11. Click the **Point-In-Time** and select the data and time.

    You must restore the control files to a point-in-time later than or equal to the point-in-time set in the **Restore** tab.
12. Click **OK**.

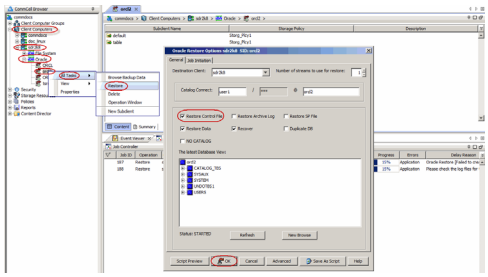


USING A TAG

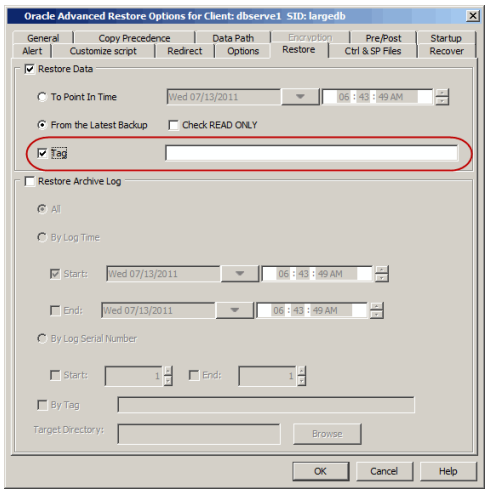
If you have assigned unique identification tags for the data, you can restore and recover an entire database from a specific backup using the tags.

Use the following steps to restore the database with specific identification tags:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select **Restore Control File** check box.
4. Click **Advanced**.



5. Click the **Restore** tab.
6. Click **By Tag** and type the Tag name that is assigned for a specific data backup that you want to restore.
7. Click **OK**.

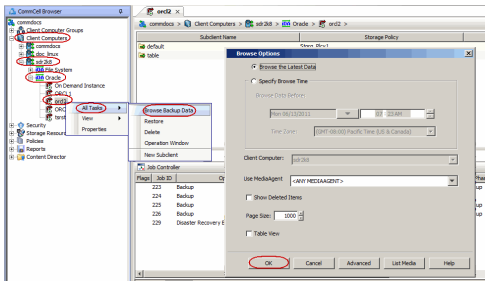


RESTORING INDIVIDUAL DATAFILES/TABLESPACES

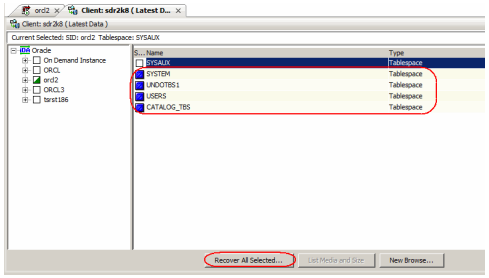
In addition to restoring a database, you can also restore specific tablespaces or datafiles that were lost due to an error or corruption. By default, the selected tablespaces/datafiles are restored to the original location from the latest online backup.

Use the following steps to restore the datafile(s) or tablespace(s):

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Browse Backup Data**.
3. Click **OK**.

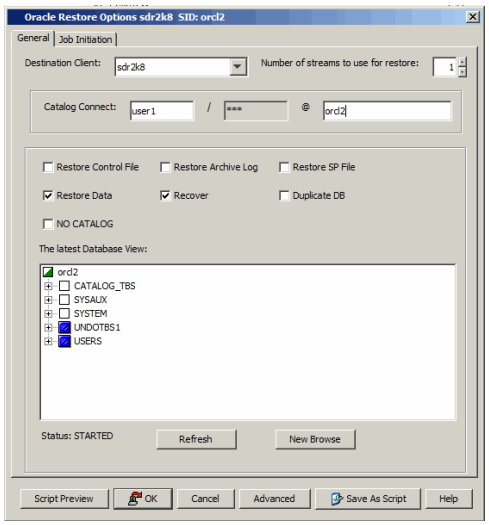


4. In the right pane of the Browse window, select the datafiles or tablespaces you want to restore and click **Recover All Selected**.



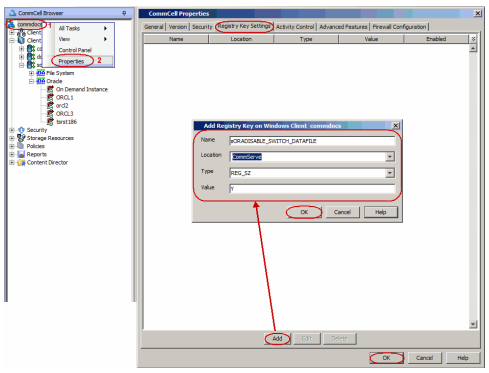
5. Click **Advanced**.
6. Click the **Options** tab and select the **Switch Database mode for Restore** checkbox.
7. Click **OK**.

If you are restoring system tablespaces, you need to manually switch the database to mount mode.

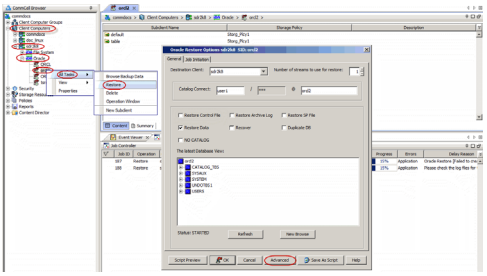


REDIRECTING TO A NEW LOCATION

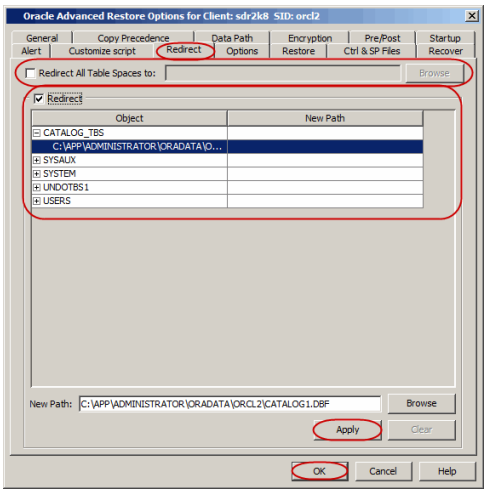
By default, the control file will be automatically updated with the new location when you redirect tablespaces/datafiles to a new location. Use the following steps to redirect the tablespaces/datafiles to a new location without updating the control file:



1. From the CommCell Browser, right-click the <***CommServe***> and then click **Properties**.
2. Click the **Registry Key Settings** tab.
3. Click **Add**.
4. In the **Name** field, type sORADISABLE_SWITCH_DATAFILE.
5. In the **Location** list, select `CommServe` from the list.
6. In the **Type** list, select **`String`**.
7. In the **Value** field, type **`Y`**.
8. Click **OK**.
9. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
10. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
11. Clear the **Recover** check box.
12. Click **Advanced**.



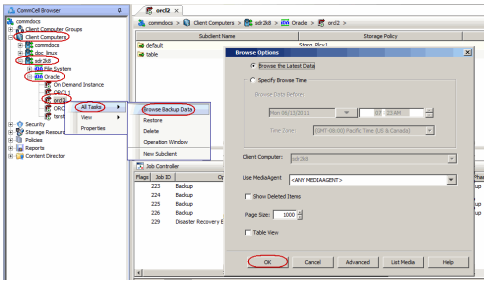
13. Click the **Redirect** tab.
14. Select the **Redirect** check box.
15. Select each object and type the new path in **New Path** box or click **Browse** to locate the new path.
16. Click **Apply** to confirm the new path.
17. Select the **Redirect All Table Spaces** to redirect all the objects displayed in the object column to a new location.
18. Click **OK**.



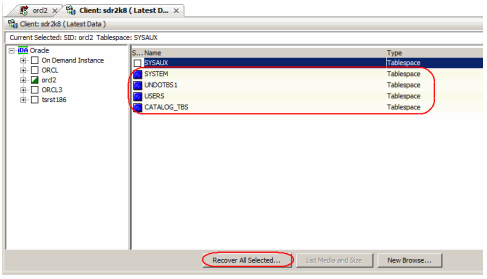
USING A TAG

If you have assigned unique identification tags during backups, you can restore from a specific backup using the tag. Use the following steps to restore the datafile(s) or tablespace(s) using a specific tag:

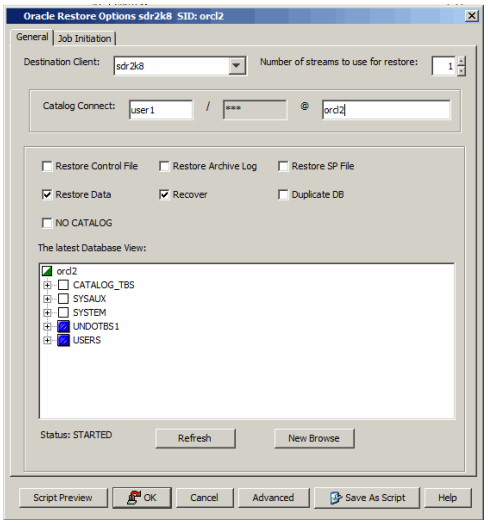
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Browse Backup Data**.
3. Click **OK**.



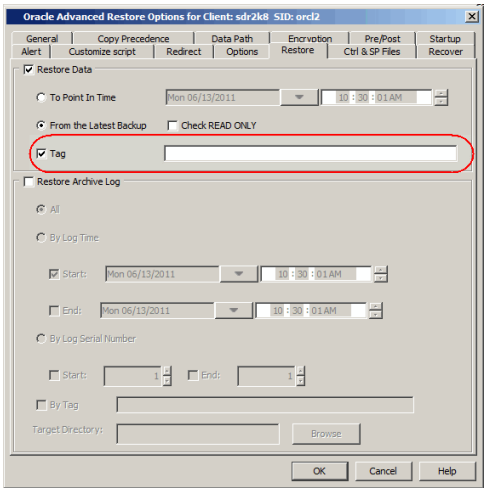
4. In the right pane of the Browse window, select the datafiles or tablespaces you want to restore and click **Recover All Selected**.



5. Click **Advanced**.



6. Click the **Restore** tab.
7. Select the **Tag** check box and type the Oracle Tag name that is assigned for a specific backup that you want to restore.
8. Click **OK**.



RESTORING ARCHIVE LOGS

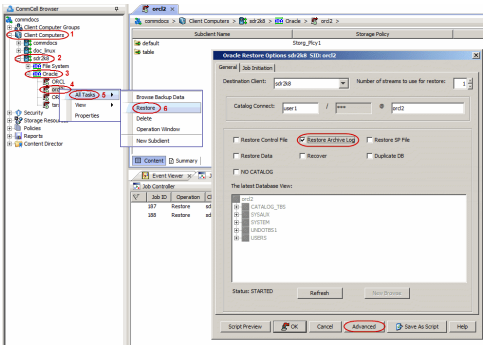
Archive logs can be restored separately or along with the database. Archive Log restores are useful in the following scenarios:

- If there is a database failure and you need to recover the database to the recent state, you will restore all the logs along with the database.
- If the logs from a specific time range were lost due to a hard disk corruption, you can restore them by performing a point-in-time restore of the logs.
- In certain cases, you might need to restore only specific logs that are missing in the database. Such logs can be identified and then restored using a serial number or identification tag.

ALL LOGS

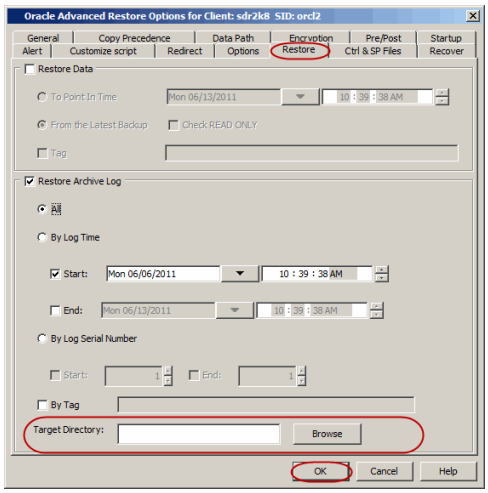
Use the following steps to restore all the archived logs (note that this is the default option):

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the **Restore Archive Log** check box.
4. Click **Advanced**.



5. Click the **Restore** tab.

6. In the **Target Directory** box, type the path or click **Browse** to specify the path to restore all the logs.
7. Click **OK**.

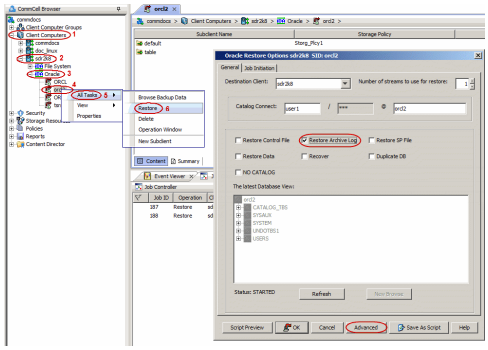


TO A SPECIFIC LOG TIME

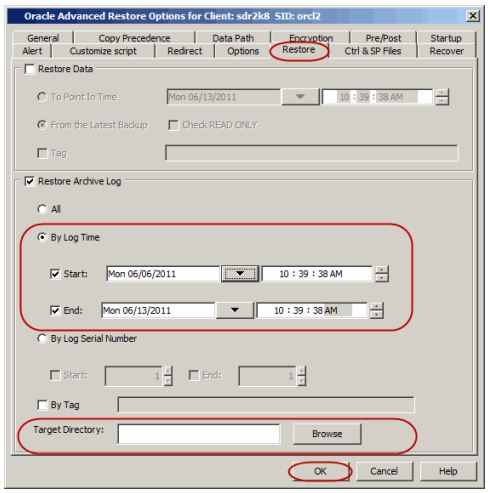
When you browse between a specific point of time range, the logs pertaining to all the cycles within the specified time range will be listed.When restoring the archive logs based on the log time, if the data is also included in the restore, ensure that the point-in-time range for the restore is the same for both the data and logs.

If you are including the database in the restore, see point-in-time restore to restore the database to a specific point-in-time. Use the following steps to restore the logs to a specific log time:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the **Restore Archive Log** check box.
4. Click **Advanced**.



5. Click the **Restore** tab.
6. Click **By Log Time** and specify the point-in-time (date and time) restore of archived log files.
7. In the **Target Directory** box, type the path or click **Browse** to specify the path to restore all the logs.
8. Click **OK**.



TO A SPECIFIC LOG SERIAL NUMBER

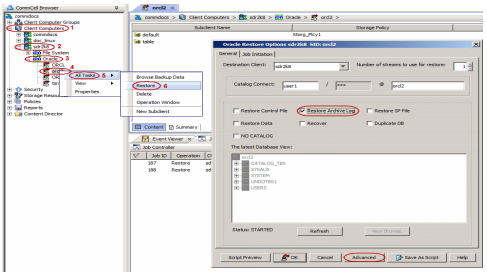
Note the following when you restore the logs based on the log serial number:

- The end serial number must be greater than or equal to the start serial number. For example, S.No 1 to 15.
- The start and the end serial number cannot be 0.

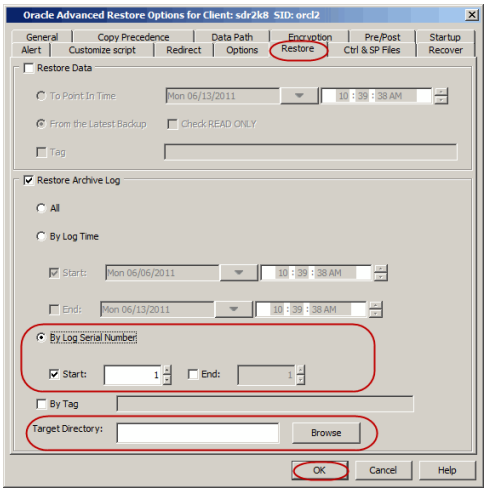
- The range of serial numbers to be restored could be from one or more backup jobs or from a part of a job and from one or more cycles.
- If only the start sequence number is provided then the logs starting from that sequence number will be restored.

Use the following steps to restore the log identified by a serial number:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select **Restore Archive Log** check box.
4. Click **Advanced**.



5. Click the **Restore** tab.
6. Click **By Log Serial Number** and type or select the **Start** and **End** log serial numbers.
7. In the **Target Directory** box, type the path or click **Browse** to specify the path to restore all the logs.
8. Click **OK**.

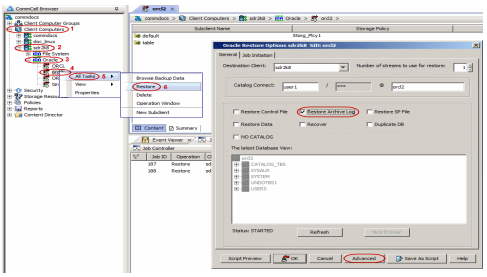


USING A TAG

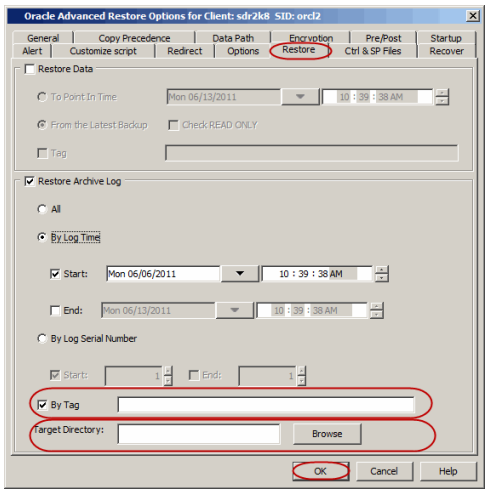
If you have assigned unique identification tags during log backups, you can restore the logs using the tags.

Use the following steps to restore the logs with specific identification tags:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select **Restore Archive Log** check box.
4. Click **Advanced**.



5. Click the **Restore** tab.
6. Click **By Tag** and type the Tag name that is assigned for a specific log backup that you want to restore.
7. In the **Target Directory** box, type the path or click **Browse** to specify the path to restore all the logs.
8. Click **OK**.



RESTORING CONTROL FILE/SP FILE

Control and SP files are required to recover a database to the current state. Restoring a control/sp file is useful in the following scenarios:

- If you want to restore the backup repository contained in the control file when the Control file is lost.
- If the recovery catalog is lost.
- If the recovery catalog was never used.
- If the catalog connect string is not specified for the instance during the backup.

Ensure that the database is in NOMOUNT mode when you restore the control/sp files.

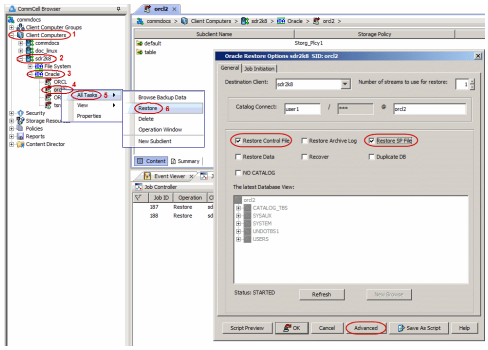
> The database will be in MOUNT mode after you restore the control/SP file.

Ensure that you have previously configured auto backup of control files to restore the control file from auto backup. Restoring a control file will destroy all the previous backups. Hence, you need to perform a full backup after you restore a control file.

FROM THE LATEST BACKUP

By default, the Control/SP files are restored from the latest backup. Use the following steps to restore a Control/SP file from a latest backup:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select **Restore Control File** and **Restore SP File** check boxes.
4. Click **OK**.

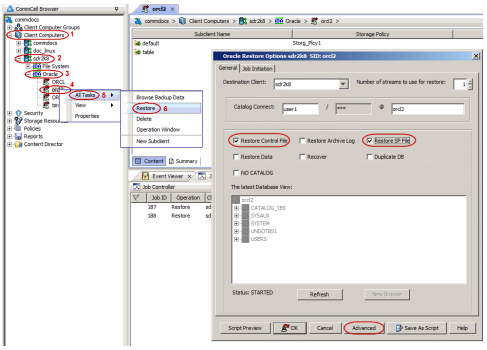


FROM A SPECIFIC BACKUP

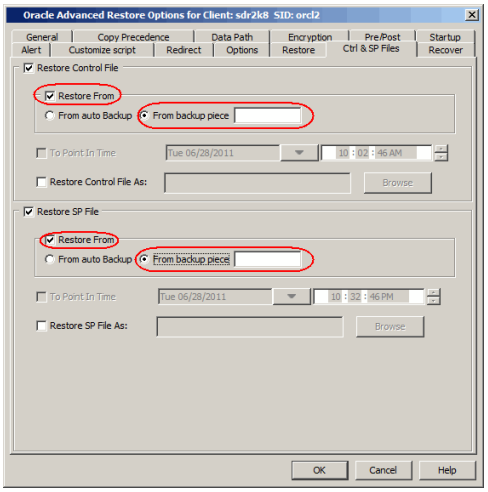
If the control file and recovery catalog are lost, you can restore the control file from a specific backup piece using a backup piece number. (Backup piece references the backup of one or several database files)

You can obtain the backup piece value from the RMAN logs of the backup job. Use the following steps to restore a control/sp file from a specific backup:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the **Restore Control File** and **Restore SP File** check boxes.
4. Click **Advanced**.



5. Click the **Ctrl&SP Files** tab.
6. Under the Restore Control File, select **Restore From** check box.
7. Click **From Backup Piece** box and type the Backup Piece value.
8. Under the Restore SP File, select **Restore From** check box.
9. Click **From Backup Piece** box and type the Backup Piece value.
10. Click **OK**.



FROM A COPY OF THE CONTROL FILE

If your database consists of multiple copies of control files, you can replace a corrupted control file by manually copying from an existing control file and restoring it.

Follow the steps given below to restore a control file from an existing control files:

1. Shutdown the database.

   ```
   SQL> shutdown
   ```

2. Manually copy one of the existing control files to the missing control file location.
3. Assign the same owner, group and file permissions to the new control file as that of the original missing control file.
4. Startup the database.

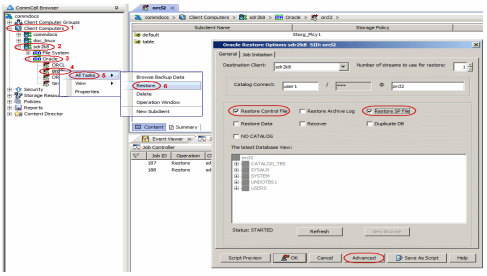
   ```
   SQL> startup nomount;
   ```

TO A POINT-IN-TIME

If you are certain that the control file was corrupted, lost at or after a specific time, you can restore the control file to such a point-in-time.

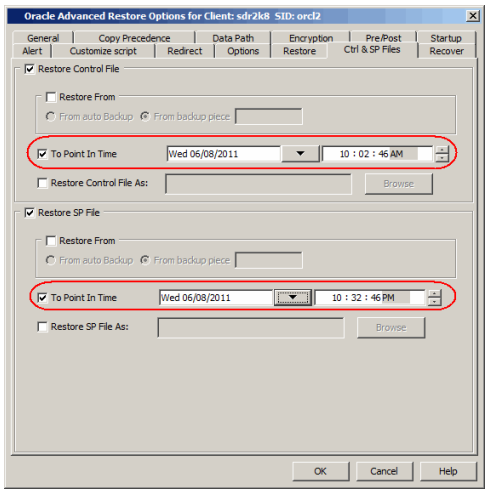
Follow the steps given below to restore a control/sp file to a point-in-time:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the **Restore Control File** and **Restore SP File** check boxes.
4. Click **Advanced**.



5. Click **Ctrl&SP Files** tab.

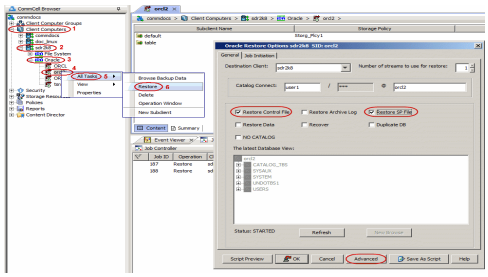
6. Under the Restore Control File, select the **To Point-In-Time** check box and select the start and end time.
7. Under the Restore SP File, select the **To Point-In-Time** check box and select the start and end time.
8. Click **OK**.



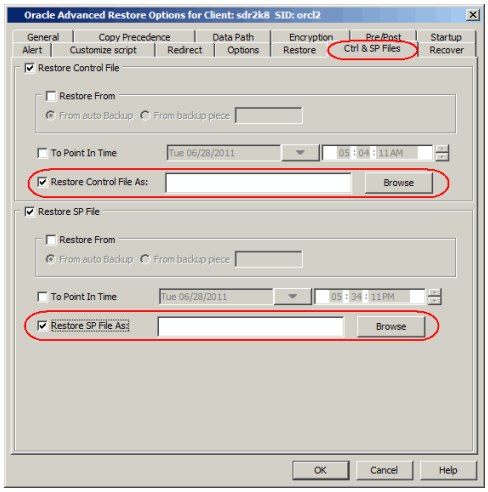
TO A NEW LOCATION

By default, the Control file/SP File is restored to the original location. Use the following steps to restore the control files to a new location:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the **Restore Control File and Restore SP File** check boxes.
4. Click **Advanced**.



5. Click the **Ctrl&SP Files** tab.
6. Select the **Restore Control File As** check box.
7. Type the path or click **Browse** to specify the new location to restore the control file.
8. Select the **Restore SP File As** check box.
9. Type the path or click **Browse** to specify the new location to restore the SP file.
10. Click **OK**.



FROM A CUSTOM AUTO BACKUP WITHOUT CATALOG

If auto backup format is customized other than the default format('%F'), you can customize the RMAN Script to restore the controlfile/spfile from this custom format auto backup without catalog.

```
The custom format for auto backup is as follows:

RMAN> show all;
using target database control file instead of recovery catalog
RMAN configuration parameters for database with db_unique_name TEST are:
CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default
CONFIGURE BACKUP OPTIMIZATION OFF; # default
CONFIGURE DEFAULT DEVICE TYPE TO DISK; # default
CONFIGURE CONTROLFILE AUTOBACKUP ON;
```

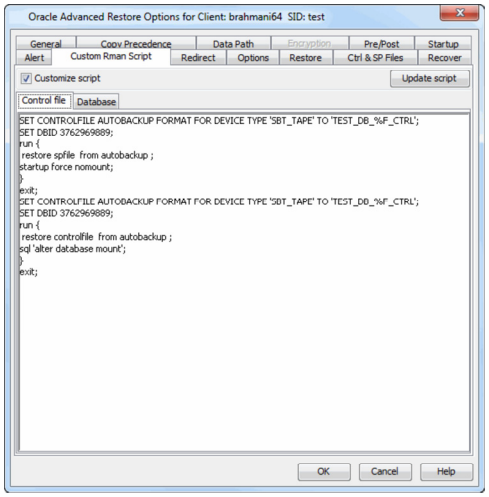
```
CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO 'TEST_DB_%F';
CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE 'SBT_TAPE' TO 'TEST_DB_%F_CTRL';
CONFIGURE DEVICE TYPE DISK PARALLELISM 1 BACKUP TYPE TO BACKUPSET; # default
CONFIGURE DATAFILE BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE ARCHCONFIGURE ARCHIVELOG BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
```

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, and select **Restore**.
3. Click **Advanced**.
4. Click the **Customize Script** tab.
5. Select the **Customize Script** checkbox.

   The default control file/spfile restore script will be generated in **Control File** tab.
6. Edit the control file/spfile restore script:

   Example:

   ```
   SET CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE 'SBT_TAPE' TO
   'TEST_DB_%F_CTRL';
   SET DBID 3762969889;
   run {
   restore spfile from autobackup ;
   startup force nomount;
   }
   exit;
   SET CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE 'SBT_TAPE' TO
   'TEST_DB_%F_CTRL';
   SET DBID 3762969889;
   run {
   restore controlfile from autobackup ;
   sql 'alter database mount';
   }
   exit;
   ```
7. Click **OK**.



RESTORING CONTAINER AND PLUGGABLE DATABASES

Oracle 12c supports container and pluggable databases. Calypso supports the restore of container and pluggable databases.

If you have backed up an entire container database you can restore the entire container database, a single pluggable database, or multiple pluggable databases.

RESTORING A CONTAINER DATABASE

Container databases can be restored like any full database. See Restoring and Recovering an Entire Database.

RESTORING PLUGGABLE DATABASES FROM A CONTAINER DATABASE BACKUP

1. Before running the restore, enter the following on the command line:

   ```
   alter pluggable database <PDB_NAME> close;
   ```
2. Create and customize an RMAN script file on the client computer, where the last line in the script specifies the pluggable databases to restore. The line has the following format, with "pluggable_database_name1" through "pluggable_databaseN". Each database must be separated by a "," and must be part of the backup.

   ```
   restore pluggable_pluggable_database_name1, ..pluggable_database_nameN;
   ```

   Example: RMAN script restoring the pluggable database "SINGLE_PDB".

   ```
   run
   {
   restore pluggable database SINGLE_PDB ;
   }
   exit;
   ```

   Click here to see the RMAN log output for this example.
3. Execute the RMAN script.

   See Running RMAN Scripts from Third Party Command Line.

RESTORING PLUGGABLE DATABASES FROM A PLUGGABLE BACKUP

1. Before running the restore, enter the following on the command line:

```
alter pluggable database <PDB_NAME> close;
```

2. Create and customize an RMAN script file on the client computer where the last line in the script specifies the pluggable database to restore. The line has the following format, with "pluggable_database_name1" through "pluggable_databaseN". Each database must be separated by a "," and must be part of the backup.

```
restore pluggable database pluggable_database_name1,
...pluggable_database_nameN;

recover pluggable database pluggable_database_name1,
..pluggable_database_nameN;
```

   Example: RMAN script restoring the pluggable databases "PLUG_DB1" and "PLUG_DB2".

```
run

{

restore pluggable database PLUG_DB1, PLUG_DB2 ;

recover pluggable database PLUG_DB1, PLUG_DB2;

}

exit;
```

   Click here to see the RMAN log output for this example.

3. Execute the RMAN script.

   See Running RMAN Scripts from Third Party Command Line.

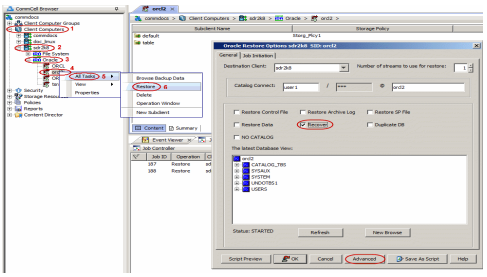
RECOVERING A DATABASE

By default, the database is recovered along with the restore. However, you can also restore the data and then recover the database at a later point-in-time.

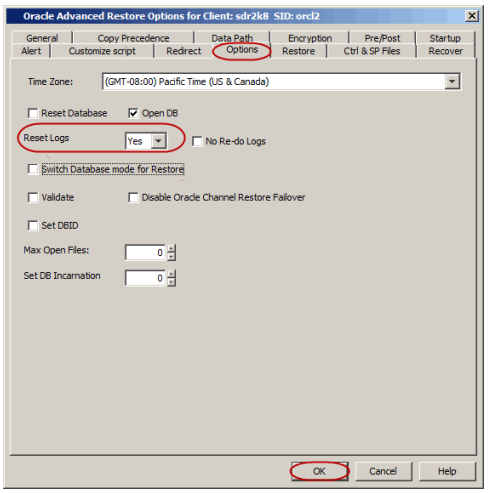
RECOVERING A DATABASE TO THE CURRENT TIME

You can recover a database to the current time either to the original host or to a different host. Use the following steps to recover a database to the current time:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Clear the **Restore Data** check box.
4. Click **Advanced**.



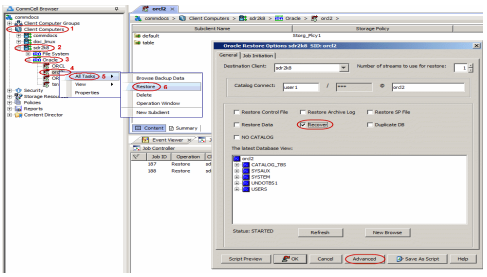
5. Click the **Options** tab.
6. In the **Reset Logs** box, select **Yes**.
7. Click **OK**.



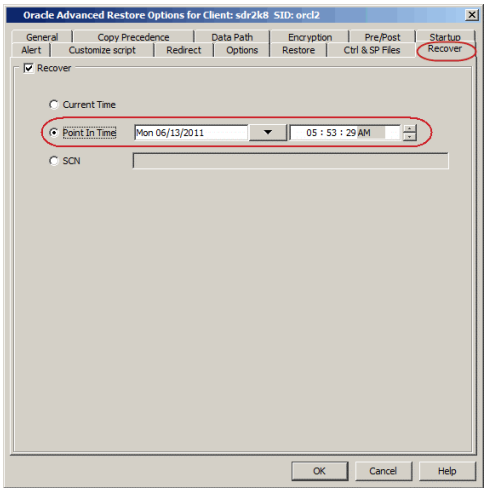
RECOVERING A DATABASE TO A POINT-IN-TIME

You can apply archived logs and recover a database to a previous point-in-time where it is consistent and stable. Use the following steps to recover a database to a point-in-time:

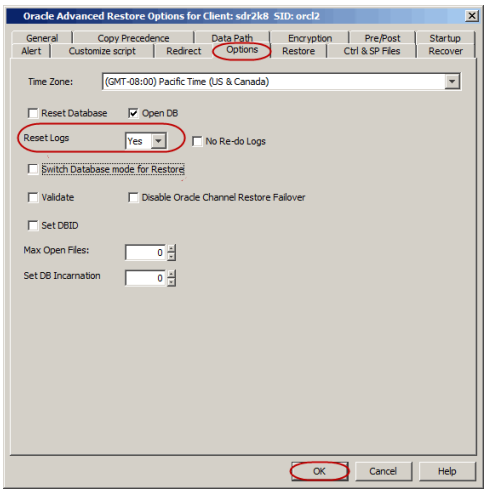
1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Clear the **Restore Data** check box.
4. Click **Advanced**.



5. Click **Recover** tab.
6. Click **Point-In-Time** and select the date and time.



7. Click the **Options** tab.
8. In the **Reset Logs** box, select **Yes**.
9. Click **OK**.

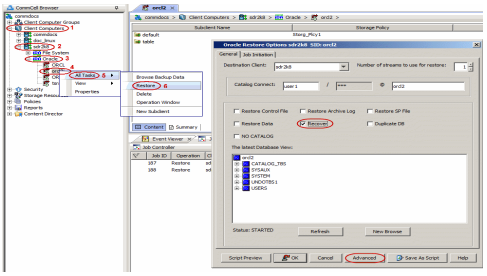


RECOVERING A DATABASE USING THE SYSTEM CHANGE NUMBER

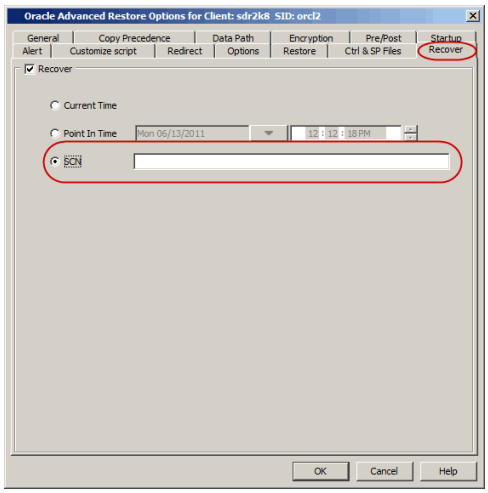
The System Change Number (SCN) keeps track of the timing of transactions in the oracle database. The SCN's are stored in the control files and the datafile headers. You can recover the database to the last existing SCN number in the control file. (The last SCN number denotes the last consistent state of the database.)

Use the following steps to recover a database using SCN:

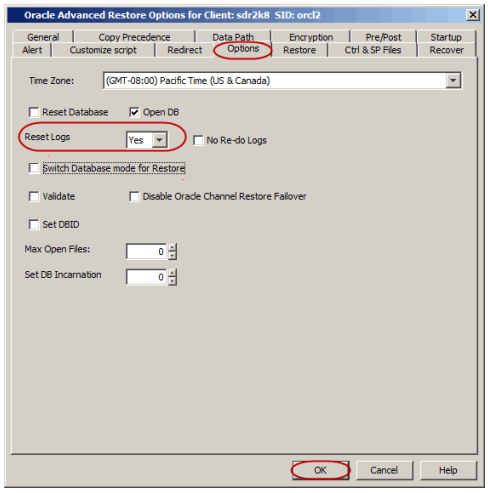
1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Clear the **Restore Data** check box.
4. Click **Advanced**.



5. Click **Recover** tab.
6. Click **SCN** and type the System Change Number.



7. Click the **Options** tab.
8. In the **Reset Logs** box, select **Yes**.
9. Click **OK**.



CREATING A DUPLICATE DATABASE

A duplicate (auxiliary) database is a copy or subset of the target database and has a unique DBID. It is independent of the primary database and can be registered in the same recovery catalog as the primary database. The duplicate database will be useful for testing and demo purposes.

If the duplicate (auxiliary) database already exists in the destination computer, it will be overwritten. Duplicate database is created from the full backup of the database with the logs. If you want the latest data in the duplicate database, make sure to perform a full backup with the log files before creating the duplicate database.

ON A DIFFERENT HOST WITH THE INSTANCE CONFIGURED

Use the following steps to create a duplicate database on a different host with the configured instance. Make sure that the instance is configured on a different host in the CommCell Console.

1. Perform a full backup along with the log files on the original database.
2. On the destination host, make sure to remove the temp.dbf file from the existing database instance.
3. Manually, copy the init<SID>.ora file from the source computer to the destination computer.

On Unix:

```
$ORACLE_HOME
```

On Windows:

```
%ORACLE_HOME%
```

4. Update the database name, dump files, archive logs and the control file locations in the init<SID>.ora file for the duplicate database instance.
5. Add the DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT parameters in the init<SID>.ora file. These parameters will redirect the datafiles, temp files, and log

On Unix:

```
DB_FILE_NAME_CONVERT=
```

files to the auxiliary instance.

Make sure that all the other parameters in the `init<SID>.ora` file are same as that in the original database.

```
(source_of_df_path/,dup_of_df_path/,

source_of_temp_path/,dup_of_temp_path/,...)

LOG_FILE_NAME_CONVERT=
(source_of_log_path/redo,dup_of_log_path/redo)
```

On Windows:

```
DB_FILE_NAME_CONVERT=
('sourcE_of_df_path/','dup_of_df_path/',

'source_of_temp_path/','dup_of_temp_path/',...)

LOG_FILE_NAME_CONVERT=
('source_of_log_path/redo','dup_of_log_path/redo')
```

(When using these parameters on a Windows computer, the file paths should be entered in uppercase.)

6. On Windows clients, restart Oracle services.

   Skip this step, if you are using an Unix client.

7. Add the duplicate database instance name in the Listener.ora file on the destination host and add TNS entry on Tnsnames.ora files on the source and destination hosts.

8. Add the source database name in the `Tnsnames.ora` file on the destination host.

```
DUPDB =
DESCRIPTION =
ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT =
1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = dupdb)
)
)
```

9. Restart the Listener.

```
$ lsnrctl reload
```

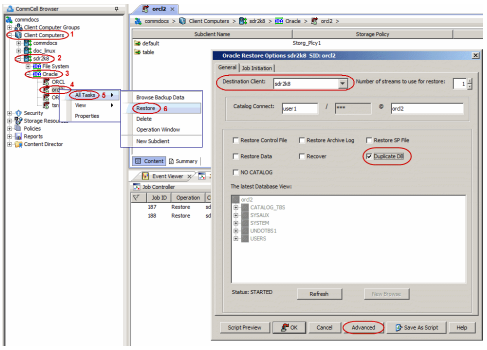
10. Provide a valid connect string for the auxiliary channel.

Example:

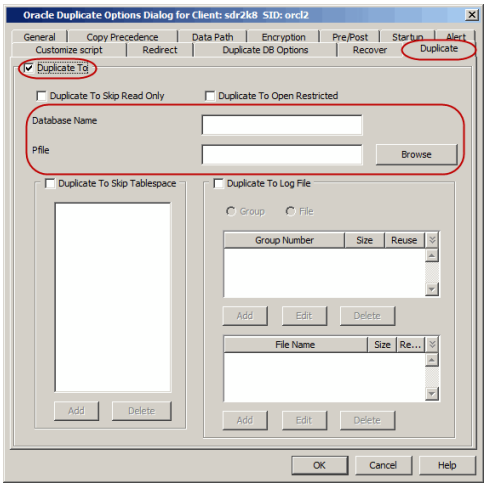
```
sys/sys@<SID name>
```

11. Startup the duplicate database instance in NOMOUNT mode.

12. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle.**
13. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
14. Select **Duplicate DB** check box.
15. Click **Advanced**.



16. Click **Duplicate** tab.
17. Click **Duplicate To**.
18. Type the name of duplicate database in **Database Name** box.
19. Click **OK**.
20. Select the name of the client computer from the **Destination Client** list.
21. Click **Advanced**.
22. Type the name of startup Parameter file in **Pfile** box or click **Browse** to locate it.
23. Click **OK**.
24. Under **The latest Database View** box, click **Refresh** to verify that the status of the duplicate database is **STARTED**.
25. Click **OK**.



ON A DIFFERENT HOST WITHOUT AN INSTANCE CONFIGURED

In order to create duplicate database on a different host without a configured instance, we need the following installed on the destination computer:

- Base client
- Oracle *i*DataAgent

Use the following steps to create a duplicate database on a different host without the configured instance. Make sure that the duplicate instance is not configured from the CommCell console.

1. Perform a full backup along with the log files on the original database.

2. Create a duplicate database instance on the destination host.

3. Manually, copy the init<SID>.ora file from the source computer to the destination computer.

   On Unix:

   ```
   $ORACLE_HOME
   ```

   On Windows:

   ```
   %ORACLE_HOME%
   ```

4. Update the database name, dump files, archive logs and the control file locations in the init<SID>.ora file for the duplicate database instance.

5. Add the DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT parameters in the init<SID>.ora file. These parameters will redirect the datafiles, temp files, and log files to the auxiliary instance.

   Make sure that all the other parameters in the `init<SID>.ora` file are same as that in the original database. Copy the destination computer `init<SID>.ora` to source computer.

   On Unix:

   ```
   DB_FILE_NAME_CONVERT=
   (source_of_df_path/,dup_of_df_path/,
   source_of_temp_path/,dup_of_temp_path/,...)
   LOG_FILE_NAME_CONVERT=
   (source_of_log_path/redo,dup_of_log_path/redo)
   ```

   On Windows:

   ```
   DB_FILE_NAME_CONVERT=
   ('sourcE_of_df_path/','dup_of_df_path/',
   'source_of_temp_path/','dup_of_temp_path/',...)
   LOG_FILE_NAME_CONVERT=
   ('source_of_log_path/redo','dup_of_log_path/redo')
   ```

   (When using these parameters on a Windows computer, the file paths should be entered in uppercase.)

6. On Windows clients, restart Oracle services.

   Skip this step, if you are using an Unix client.

7. Make sure that Static listener is configured on the destination host. Add the duplicate database instance name in the Listener.ora file on the destination host.

   Add the TNS entry in Tnsnames.ora file on the destination host.

8. Add the auxiliary database name in the Tnsnames.ora file on the source host. Make sure to use the password `change_on_install` when you create the password file for auxiliary database.

   ```
   DUPDB =
   DESCRIPTION =
   ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT =
   1521))
   (CONNECT_DATA =
   (SERVER = DEDICATED)
   (SERVICE_NAME = dupdb)
   )
   )
   ```

9. Restart the Listener.

10. Provide a valid connect string for the auxiliary channel.

    Example:

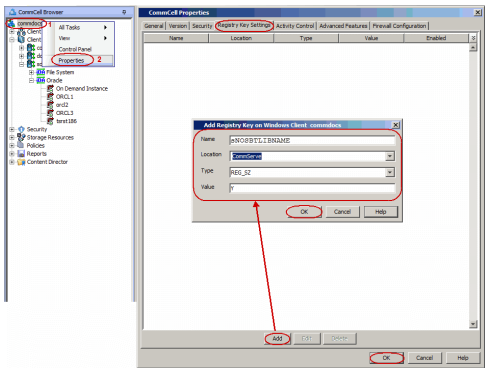
    ```
    sys/sys@<SID name>
    ```

11. Startup the duplicate database instance in NOMOUNT mode.

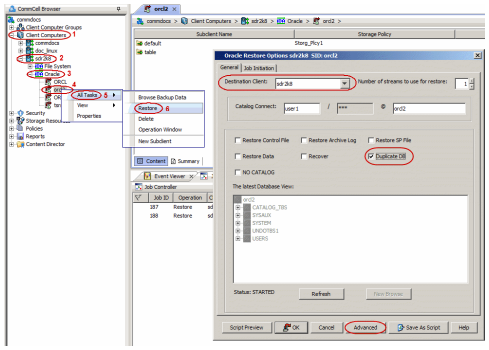
When using a different host without configuring an instance, the install path in the source and destination clients must be the same. Use the following steps to set the same install path in the source and destination clients.

12. From the CommCell Browser, right-click the <***CommServe***> and then click **Properties**.

13. Click the **Registry Key Settings** tab.
14. Click **Add**.
15. In the **Name** field, type sNOSBTLIBNAME.
16. In the **Location** list, select `CommServe` from the list.
17. In the **Type** list, select **`String`**.
18. In the **Value** field, type **`Y`**.
19. Click **OK**.

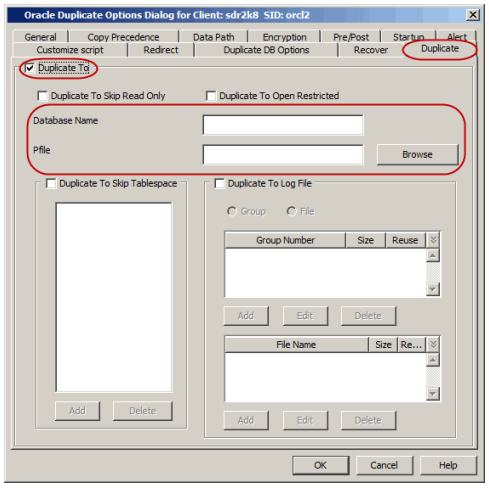


20. Ensure to run the `Ora_install.sh` on the auxiliary client.
21. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
22. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
23. Select **Duplicate DB** check box.
24. Click **Advanced**.



25. Click **Duplicate** tab.
26. Click **Duplicate To**.
27. Type the name of duplicate database in **Database Name** box.
28. Type the name of startup Parameter file in **Pfile** box or click **Browse** to locate it.
29. Click **OK**.

After restoring to a duplicate database, change the sNOSBTLIBNAME value to **N**.



ON THE SAME HOST WITHOUT THE INSTANCE CONFIGURED

Use the following steps to create a duplicate database on the same host without the configured instance:

1. Perform a full backup along with the log files on the original database.
2. Create a duplicate database instance on the destination host. If the database already exists on the destination host, make sure to remove the temp.dbf file before performing a restore operation.
3. Manually, copy the `init<SID>.ora` file from the source computer to the destination computer.

On Unix:

`$ORACLE_HOME`

On Windows:

`%ORACLE_HOME%`

4. Update the database name, dump files, archive logs and the control file locations in the init<SID>.ora file for the duplicate database instance.

On Unix:

5. Add the DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT parameters in the `init<SID>.ora` file. These parameters will redirect the datafiles, temp files, and log files to the auxiliary instance.

   Make sure that all the other parameters in the `init<SID>.ora` file are same as that in the original database.

```
DB_FILE_NAME_CONVERT=
(source_of_df_path/,dup_of_df_path/,

source_of_temp_path/,dup_of_temp_path/,...)

LOG_FILE_NAME_CONVERT=
(source_of_log_path/redo,dup_of_log_path/redo)
```

On Windows:

```
DB_FILE_NAME_CONVERT=
('sourcE_of_df_path/','dup_of_df_path/',

'source_of_temp_path/','dup_of_temp_path/',...)

LOG_FILE_NAME_CONVERT=
('source_of_log_path/redo','dup_of_log_path/redo')
```

(When using these parameters on a Windows computer, the file paths should be entered in uppercase.)

6. On Windows clients, restart Oracle services.

   Skip this step, if you are using an Unix client.

7. Add the duplicate database instance name in the `Listener.ora` file and `Tnsnames.ora` files.

8. Add the source database name in the `Tnsnames.ora` file on the destination host.

   Make sure to use the password `change_on_install` when you create the password file for auxiliary database.

```
DUPDB =
DESCRIPTION =
ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT =
1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = dupdb)
)
)
```

9. Restart the Listener.

10. Provide a valid connect string for the auxiliary channel.

    Example:

```
sys/sys@<SID name>
```

11. Startup the duplicate database instance in NOMOUNT mode.

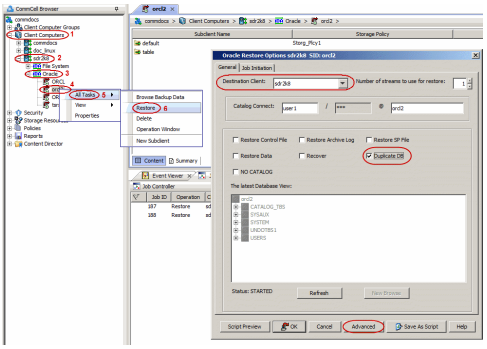
12. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**

13. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.

14. Select **Duplicate DB** check box.

15. Under **The latest Database View** box, click **Refresh** to verify that the status of the duplicate database is **STARTED**.

16. Click **Advanced**.



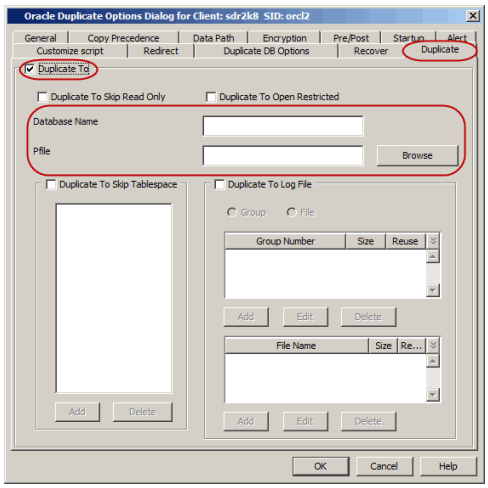
17. Click **Duplicate** tab.

18. Click **Duplicate To**.

19. Type the name of duplicate database in **Database Name** box.

20. Type the name of startup Parameter file in **Pfile** box or click **Browse** to locate it.

21. Click **OK**.



ON THE SAME HOST WITH THE INSTANCE CONFIGURED

Use the following steps to create a duplicate database on the same host with the configured instance:

1. Perform a full backup along with the log files on the original database.

2. Create a duplicate database instance on the destination host. If the database already exists on the destination host, make sure to remove the temp.dbf file before performing a restore operation.

3. Manually, copy the `init<SID>.ora` file from the source computer to the destination computer.

   On Unix:

   `$ORACLE_HOME`

   On Windows:

   `%ORACLE_HOME%`

4. Update the database name, dump files, archive logs and the control file locations in the `init<SID>.ora` file for the duplicate database instance.

5. Add the DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT parameters in the init<SID>.ora file. These parameters will redirect the datafiles, temp files, and log files to the auxiliary instance.

   Make sure that all the other parameters in the `init<SID>.ora` file are same as that in the original database.

   On Unix:

   ```
   DB_FILE_NAME_CONVERT=
   (source_of_df_path/,dup_of_df_path/,

   source_of_temp_path/,dup_of_temp_path/,...)

   LOG_FILE_NAME_CONVERT=
   (source_of_log_path/redo,dup_of_log_path/redo)
   ```

   On Windows:

   ```
   DB_FILE_NAME_CONVERT=
   ('sourcE_of_df_path/','dup_of_df_path/',

   'source_of_temp_path/','dup_of_temp_path/',...)

   LOG_FILE_NAME_CONVERT=
   ('source_of_log_path/redo','dup_of_log_path/redo')
   ```

   (When using these parameters on a Windows computer, the file paths should be entered in uppercase.)

6. On Windows clients, restart Oracle services.

   Skip this step, if you are using an Unix client.

7. Add the duplicate database instance name in the `Listener.ora` file and `Tnsnames.ora` files.

8. Add the source database name in the `Tnsnames.ora` file on the destination host.

   Make sure to use the password `change_on_install` when you create the password file for auxiliary database.

   ```
   DUPDB =
   DESCRIPTION =
   ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT =
   1521))
   (CONNECT_DATA =
   (SERVER = DEDICATED)
   (SERVICE_NAME = dupdb)
   ```

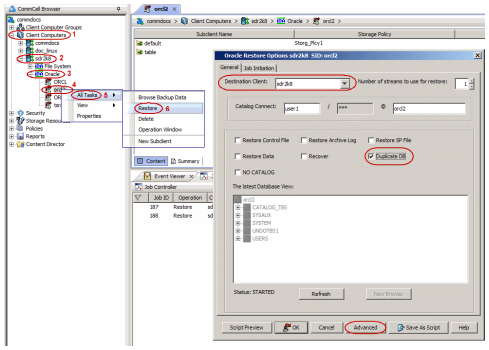
)
)

9. Restart the Listener.
10. Provide a valid connect string for the auxiliary channel.

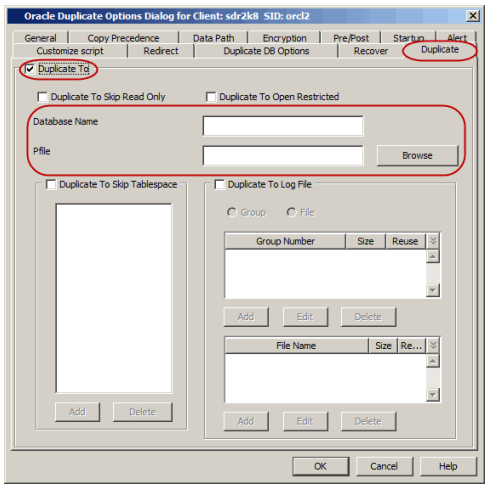
Example:

```
sys/sys@<SID name>
```

11. Startup the duplicate database instance in NOMOUNT mode.
12. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
13. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
14. Select **Duplicate DB** check box.
15. Under **The latest Database View** box, click **Refresh** to verify that the status of the duplicate database is **STARTED**.
16. Click **Advanced**.



17. Click **Duplicate** tab.
18. Click **Duplicate To**.
19. Type the name of duplicate database in **Database Name** box.
20. Type the name of startup Parameter file in **Pfile** box or click **Browse** to locate it.
21. Click **OK**.

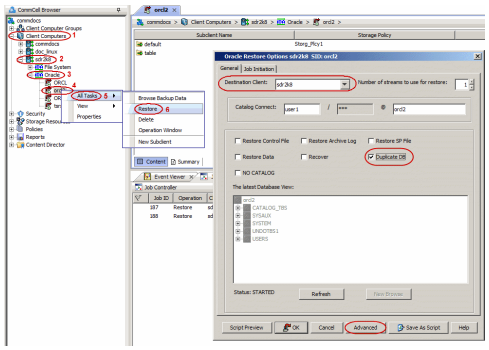


EXCLUDING READ-ONLY TABLESPACES DURING RESTORE

By default, the read only tablespaces are not verified for consistency and are restored from the backup. You can skip the consistent tablespaces and restore the tablespaces that are not consistent or missing. This will save the time taken for the restore.

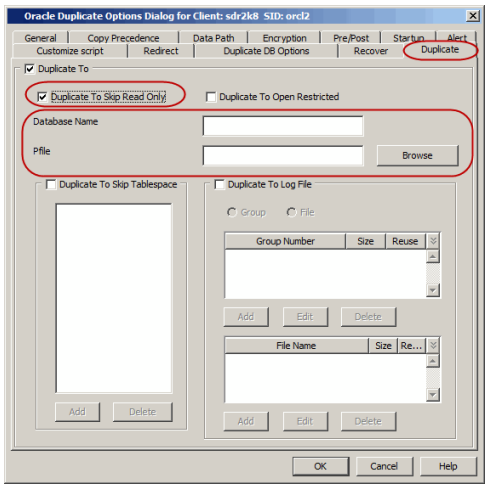
Use the following steps to exclude read only table spaces during restore:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the name of the client computer from the **Destination Client** list.
4. Select **Duplicate DB** check box.
5. Click **Advanced**.



6. Click **Duplicate** tab.
7. Click **Duplicate To**.
8. Type the name of duplicate database in **Database Name** box.
9. Type the name of startup Parameter file in **Pfile** box or click **Browse** to locate it.

10. Select **Duplicate To Skip Read Only** check box.
11. Click **OK**.

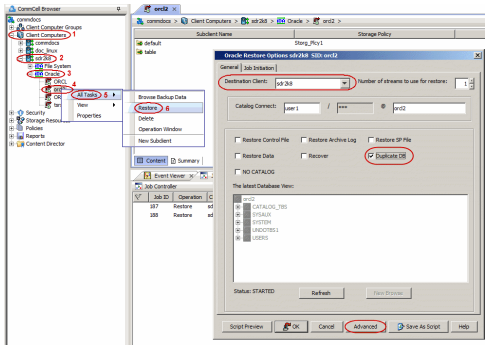


OPENING THE DATABASE IN RESTRICTED MODE AFTER A RESTORE

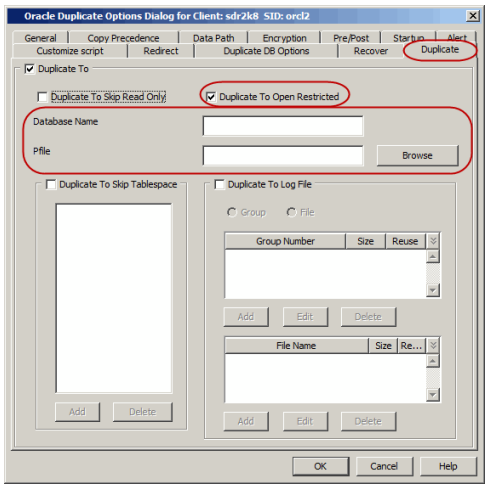
By default, a duplicated database is opened without any restricted access. If necessary, you can open the db in restricted mode for administrative tasks. This will restrict access to other users.

Use the following steps to open the duplicate database in restricted mode:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the name of the client computer from the **Destination Client** list.
4. Select **Duplicate DB** check box.
5. Click **Advanced**.



6. Click **Duplicate** tab.
7. Click **Duplicate To**.
8. Type the name of duplicate database in **Database Name** box.
9. Type the name of startup Parameter file in **Pfile** box or click Browse to locate it.
10. Select **Duplicate To Open Restricted** check box.
11. Click **OK**.

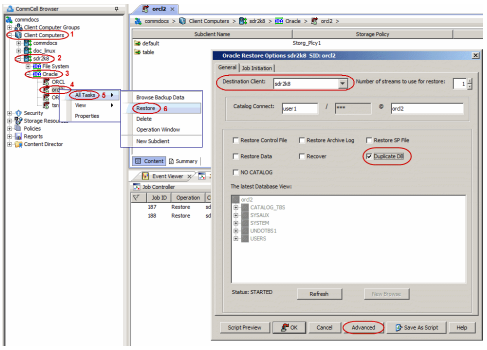


EXCLUDING TABLESPACES FROM A RESTORE

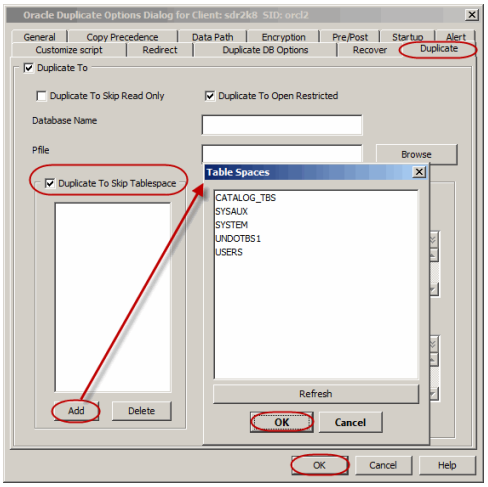
While creating a duplicate database, you can exclude some tablespaces from the duplicate database. Use the following steps to exclude the tablespaces from the duplicate database:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the name of the client computer from the **Destination Client** list.

4. Select **Duplicate DB** check box.
5. Click **Advanced**.



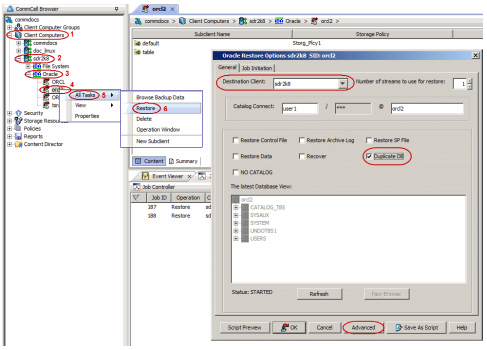
6. Click **Duplicate** tab.
7. Click **Duplicate To**.
8. Type the name of duplicate database in **Database Name** box.
9. Type the name of startup Parameter file in **Pfile** box or click Browse to locate it.
10. Select the **Duplicate To Skip TableSpaces** check box.
11. Click **Add**
12. Select the tablespaces that appear in the **TableSpaces** box to exclude from the duplicate database.
13. Click **OK**.



SETTING UP THE REDO LOG FILES

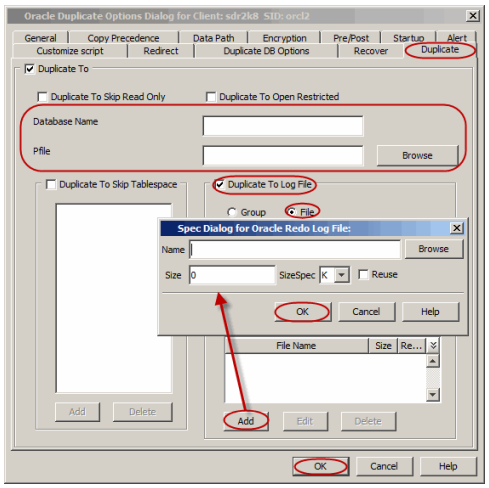
You can create online redo logs for duplicate database and apply them to restore the database in case of corruption. Use the following steps to create an online redo log file:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the name of the client computer from the **Destination Client** list.
4. Select **Duplicate DB** check box.
5. Click **Advanced**.



6. Click **Duplicate** tab.
7. Click **Duplicate To**.
8. Type the name of duplicate database in **Database Name** box.
9. Type the name of startup Parameter file in **Pfile** box or click Browse to locate it.
10. Select **Duplicate To Log File** check box.
11. Click **File** to select a file containing the online redo log.
12. Click **Add** to include the specifications for an online redo log file.
13. In the **Spec Dialog for Oracle Redo Log File** box, type the name or click **Browse** to select the redo log file.
14. Type the **Size** of the online redo log file.
15. Select the Size Specifications of the file from **SizeSpec** list.
16. Select **Reuse** check box to allow the database to reuse an existing file.

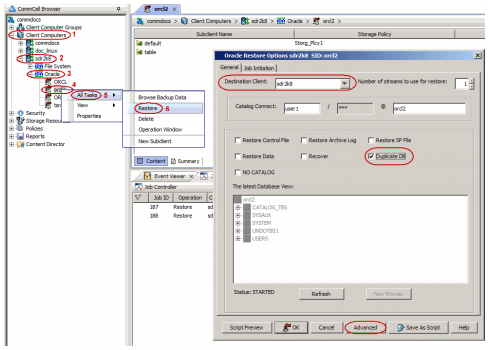
17. Click **OK**.



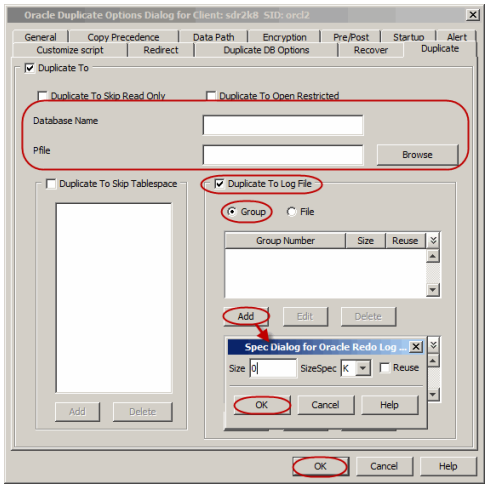
TO ADD A REDO LOG FILE FOR A GROUP

By default, groups are created to include specific online redo log members. Use the following steps to add specifications for each of these online redo log groups:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the name of the client computer from the **Destination Client** list.
4. Select **Duplicate DB** check box.
5. Click **Advanced**.



6. Click **Duplicate** tab.
7. Click **Duplicate To**.
8. Type the name of duplicate database in **Database Name** box.
9. Type the name of startup Parameter file in **Pfile** box or click Browse to locate it.
10. Select **Duplicate To Log File** check box.
11. Click **Group** to select a group containing the online redo log members.
12. Click **Add**.
13. In the **Spec Dialog for Oracle Redo Log Group** box, add the **Size** of the Group.
14. Select the Size Specifications from **SizeSpec** list.
15. Select **Reuse** check box to allow the database to reuse an existing file.
16. Click **OK**.

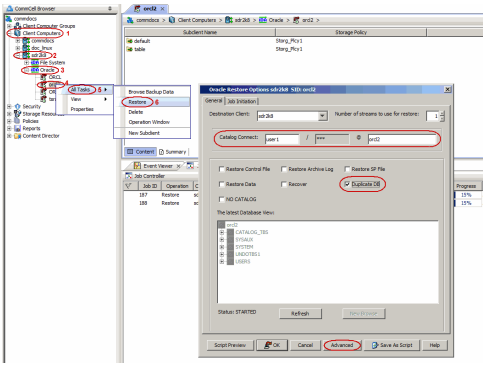


DISABLING FILE NAME VALIDATION DURING A RESTORE

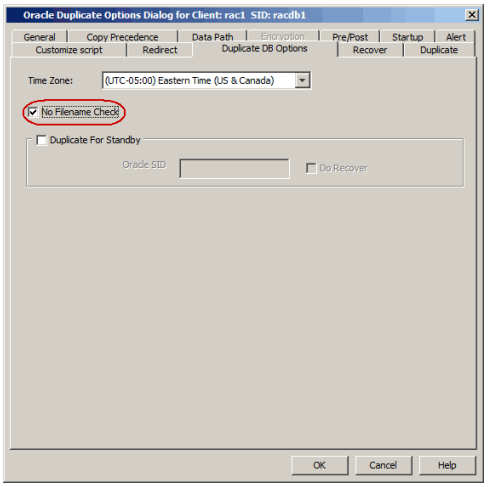
By default, when you create a standby database, RMAN will verify the target datafiles for duplicate files (files sharing the same names). This verification job may consume more time. Hence, use the following steps to prevent RMAN from performing this verification:

1. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Type the connect string name in the **Catalog String** box.
4. Select **Duplicate DB** check box.

5. Click **Advanced**.



6. Click **Duplicate DB Options** tab.
7. Select **No FileName Check** check box.
8. Click **OK**.



CREATING A STANDBY DATABASE

Standby databases are useful when a primary database experiences a disaster such as hardware related failure or data corruption and it is not configured for a cluster failover. A standby database is a replicated copy of the primary database. It is updated by applying archived redo logs from the primary database. A standby database will not have a unique DBID.

ON A DIFFERENT HOST WITHOUT THE INSTANCE CONFIGURED

Use the following steps to create a standby database on a different host without the configured instance:

SETTING UP A STANDBY DATABASE

1. Perform an online full backup of the primary database with current control file.
2. Set the following initialization parameters in `init<standbydb>.ora` (i.e., Startup PFile) on source (primary) host.

```
LOG_ARCHIVE_DEST_1='LOCATION=
C:\Oracle\Oradata\TSH1\Archive MANDATORY REOPEN=30'
LOG_ARCHIVE_DEST_2='SERVICE=stby1 LGWR SYNC AFFIRM'
*.log_archive_dest_1='LOCATION=/
LOCATION_OF_DESTINATION_DB_ARCHIVELOG /arch'
   *.STANDBY_ARCHIVE_DEST='/
LOCATION_OF_STANDBY_DB_ARCHIVELOG /stdbyarch'
   *.STANDBY_FILE_MANAGEMENT=auto
     DB_FILE_NAME_CONVERT=
('/DATA_FILE_PATH_ON_SOURCE_MACHINE/stdby',
'/ORACLE_DATA_FILE_PATH_ON_STANDBY_MACHINE/stdby/')
    LOG_FILE_NAME_CONVERT=('/
DATA_FILE_PATH_ON_SOURCE_MACHINE /stdby', '/
ORACLE_DATA_FILE_PATH_ON_STANDBY_MACHINE /stdby/')
```

3. Create an initialization parameter file, `init<standbydb>.ora` for the standby database and set the following initialization parameters on the standby host:
4. Configure the `listner.ora` and `$TNS_ADMIN/tnsnames.ora` files on the destination computer for the standby database.

On Source computer:

```
<Standbydb1_use_diff_connection_string> =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST =
```

```
destination_host_name)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME =
<standbydb_use_same_db_name_as_primary>)
)
)
<Standbydb_primary> =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)
(HOST = primary_host_name)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME =
<standbydb_same_as_destination><)
)
)
```

On standby computer:

```
<standbydb1_destination_connection_string> =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST =
destination_standby_host_name)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME =
<standbydb_destination_db_name_same_as_primary>)
(UR = A)
)
)
<standbydb_primary_connection> =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)
(HOST = primary_host_name)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = <standbydb_primary_db>)
)
)
```

5. Use a connect string to connect to the auxiliary database when the instance is not configured.

   While creating password file for standby database on destination host, make sure to use the `change_on_install` password file for auxiliary channel.

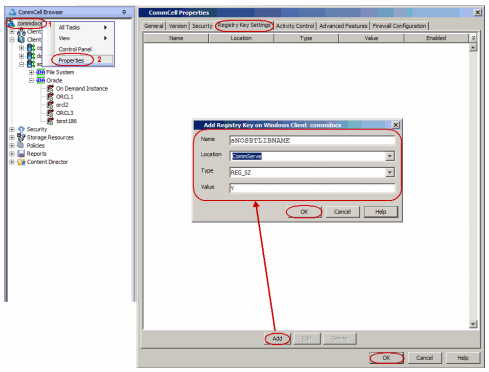
6. Startup the standby database instance in NOMOUNT mode.

When using a different host without configuring an instance, the install path in the source and destination clients must be the same.

Use the following steps to set the same install path in the source and destination clients:

7. From the CommCell Browser, right-click the <***CommServe***> and then click **Properties**.
8. Click the **Registry Key Settings** tab.
9. Click **Add**.
10. In the **Name** field, type sNOSBTLIBNAME.
11. In the **Location** list, select or type `CommServe`.
12. In the **Type** list, select **`Reg_SZ`**.

13. In the **Value** field, type `Y`.
14. Click **OK**.

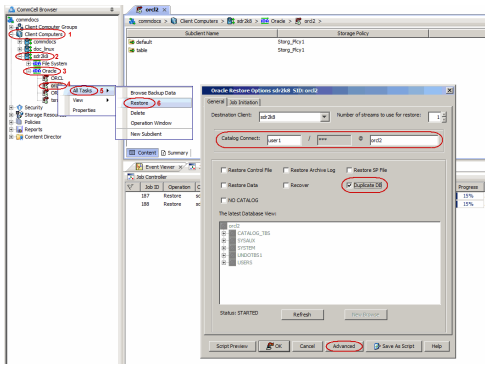


15. Ensure to run the `Ora_install.sh` on the auxiliary client.
16. Install the Oracle *i*DataAgent on the Destination host.
17. Set the Standby Role Initialization parameter, `DB_FILE_NAME_CONVERT`, to add all the temp datafiles from the primary database location to the standby database location.

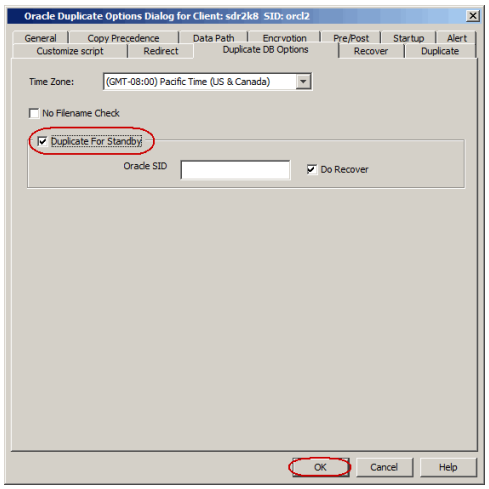
```
DB_FILE_NAME_CONVERT=
'<primary_database_temp_datafile_old _location>',
'<standby_database_temp_datafile_new_location>'
```

CREATING A STANDBY DATABASE

18. From the CommCell Browser, navigate to **Client Computers | <*Client*> | Oracle.**
19. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
20. Type the connect string name in the **Catalog String** box.
21. Select **Duplicate DB** check box.
22. Click **Advanced**.



23. Click **Duplicate DB Options** tab.
24. Click **Duplicate For Standby**.
25. Type the Oracle <SID> name in **Oracle SID** box.
26. Click **OK**.



27. Once the job is completed, the new database will be on MOUNT mode for the standby database. You must enable the log shipping to maintain the standby database up-to-date.

```
Alter database recover managed standby database disconnect;
```

ON A DIFFERENT HOST WITH THE INSTANCE CONFIGURED

Use the following steps to create a standby database on a different host with the configured instance:

Setting up a Standby database:

1. Perform an online full backup with current control file.

2. Set the following initialization parameters in the primary initialization parameter file `init<standbydb>.ora` (i.e., Startup PFile) on source (primary) host.

   LOG_ARCHIVE_DEST_1='LOCATION=C:\Oracle\Oradata\TSH1 \Archive MANDATORY REOPEN=30'

   LOG_ARCHIVE_DEST_2='SERVICE=stby1 LGWR SYNC AFFIRM'

3. Create an initialization parameter file, `init<standbydb>.ora` for the standby database and set the following initialization parameters on Standby host:

```
*.log_archive_dest_1='LOCATION=/
LOCATION_OF_DESTINATION_DB_ARCHIVELOG /arch'

   *.STANDBY_ARCHIVE_DEST='/
LOCATION_OF_STANDBY_DB_ARCHIVELOG /stdbyarch'

   *.STANDBY_FILE_MANAGEMENT=auto

     DB_FILE_NAME_CONVERT=
('/DATA_FILE_PATH_ON_SOURCE_MACHINE/stdby',
'/ORACLE_DATA_FILE_PATH_ON_STANDBY_MACHINE/stdby/')

    LOG_FILE_NAME_CONVERT=('/
DATA_FILE_PATH_ON_SOURCE_MACHINE /stdby', '/
ORACLE_DATA_FILE_PATH_ON_STANDBY_MACHINE /stdby/')
```

4. Perform any Oracle Net setup and configuration required to connect to the standby database.

   For example, set up the listener and configure the destination computer's `$TNS_ADMIN/tnsnames.ora` file for the standby database.

On Source computer:

```
<Standbydb1_use_diff_connection_string> =

(DESCRIPTION =

(ADDRESS = (PROTOCOL = TCP)(HOST = destination_host_name)
(PORT = 1521))

(CONNECT_DATA =

(SERVER = DEDICATED)

(SERVICE_NAME = <standbydb_use_same_db_name_as_primary>)

(UR = A)

)

)

<Standbydb_primary> =

(DESCRIPTION =

(ADDRESS = (PROTOCOL = TCP)(HOST = primary_host_name)(PORT
= 1521))

(CONNECT_DATA =

(SERVER = DEDICATED)

(SERVICE_NAME = <standbydb_same_as_destination><)

)

)
```

On standby computer:

```
<standbydb1_destination_connection_string> =

(DESCRIPTION =

(ADDRESS = (PROTOCOL = TCP)(HOST =
destination_standby_host_name)(PORT = 1521))

(CONNECT_DATA =

(SERVER = DEDICATED)

(SERVICE_NAME =
<standbydb_destination_db_name_same_as_primary>)

(UR = A)

)

)

<standbydb_primary_connection> =

(DESCRIPTION =

(ADDRESS = (PROTOCOL = TCP)(HOST = primary_host_name)(PORT
= 1521))

(CONNECT_DATA =

(SERVER = DEDICATED)

(SERVICE_NAME = <standbydb_primary_db>)

)

)
```

5. Use a connect string to connect to the auxiliary database when the instance is not configured. Make sure to use the password `change_on_install` when you create the password file for auxiliary channel while creating password file for standby database on destination host.

6. Startup the standby database instance in NOMOUNT mode. Configure the Oracle instance for the destination host in the CommCell Browser.

7. Ensure to run the `Ora_install.sh` on the auxiliary client.

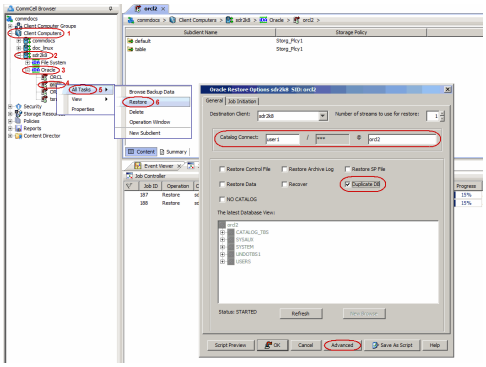
8. Ensure that the Oracle *i*DataAgent is installed on the Destination host.

9. Ensure that you set the Standby Role Initialization parameter, `DB_FILE_NAME_CONVERT`,to add all the temp datafiles from the primary database location to the standby database location.

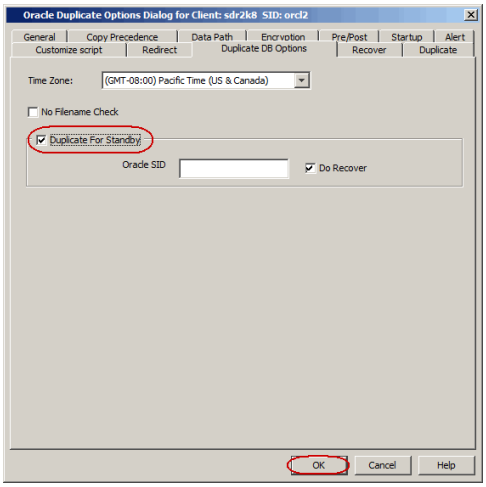
```
DB_FILE_NAME_CONVERT='<primary_database_temp_datafile_old
_location>','<standby_database_temp_datafile_new_location>'
```

Creating a Standby Database:

10. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
11. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
12. Type the connect string name in the **Catalog String** box.
13. Select **Duplicate DB** check box.
14. Under **The latest Database View** box, click **Refresh** to verify that the status of the standby database is **STARTED**.
15. Click **Advanced**.



18. Click **Duplicate DB Options** tab.
19. Click **Duplicate For Standby**.
20. Type the Oracle <SID> name in **Oracle SID** box.
21. Select **Do Recover** check box to recover the standby database.
22. Click **OK**.



RESTORING DATABASE TABLES

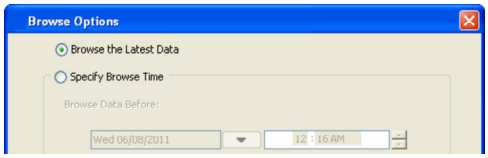
By default, the database tables can be restored from an online full backup, provided the table browse was enabled in the associated subclient before performing the backup. See Enabling Table Browse for Restores for information on configuring the subclient for table browse.

When restoring database tables, by default an auxiliary instance is automatically created. Hence, make sure that there is enough disk space on the client for the auxiliary instance.

RESTORING TABLES TO THE SOURCE DATABASE

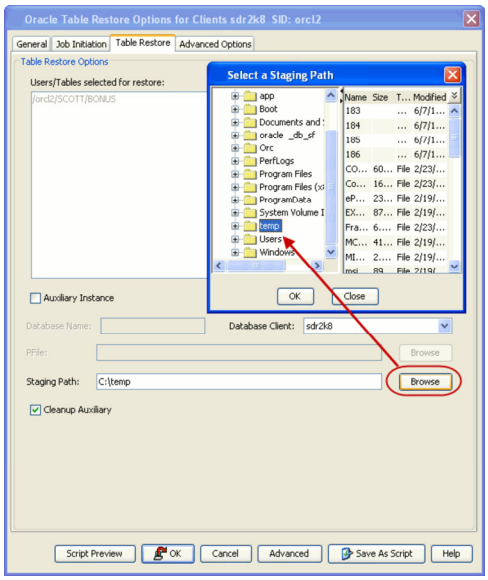
If some of the tables in the database are lost or corrupted, you can restore those tables back to the same database using the following steps:

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to **All Tasks** and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.

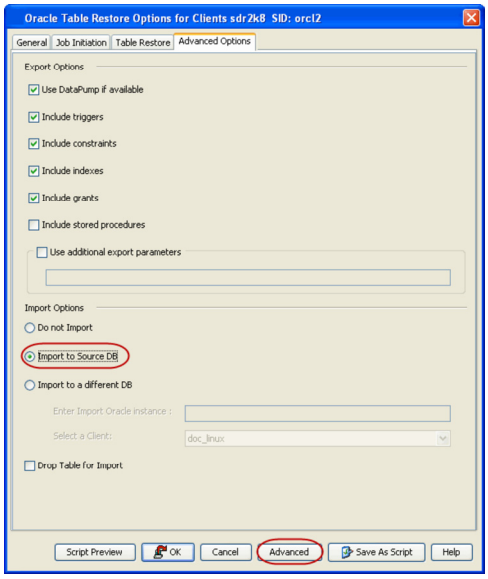


4. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.

5. Click the **Table Restore** tab.
6. In the **Staging Path** box, click **Browse** and select the location where the auxiliary instance will be created.
7. Click the **Advanced Options** tab.



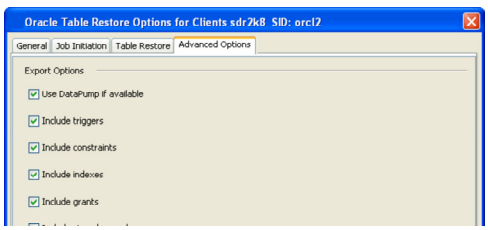
8. Select **Import to Source DB**.
9. Click **OK**.



RESTORING TABLES TO A DIFFERENT DATABASE ON THE SAME HOST

Use the following steps to restore tables to a different database on the same host:

1. Add the destination instance name in the `Listener.ora` and `Tnsnames.ora` files.
2. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
3. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
4. Select the **Table View** check box and click **OK**.
5. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.



6. Click the **Table Restore** tab.
7. In the **Staging Path** box, type the location where the tables will be restored.
8. Click the **Advanced Options** tab.
9. Select **Import to a Different DB**.
10. In the **Enter Import Oracle Instance:** box, type the destination instance name.
11. In the **Select a Client** box, select the source client.
12. Click **OK**.

RESTORING TABLES TO A DIFFERENT HOST

When restoring the tables to a different host, ensure the following:

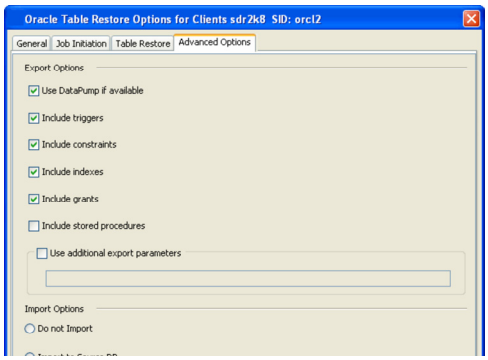
- Both the source and the destination host should have the same database schema.
- Add the duplicate database instance name in the `Listener.ora` file on the destination host and `Tnsnames.ora` files on the destination and source hosts. ,
- Add the source database name in the `Tnsnames.ora` file on the destination host.
- Ensure that both the source and destination clients use a different connection name in the `tnsnames.ora` file.

  For example:

```
// db1_table = <--- Name of the source database
db1_table =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST = M1)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = db1)
)
)
//db1 = <--- Name of the destination database
db1 =
(DESCRIPTION =
(ADDRESS = (PROTOCOL = TCP)(HOST = M2)(PORT = 1521))
(CONNECT_DATA =
(SERVER = DEDICATED)
(SERVICE_NAME = db1)
)
)
```

  Use the following steps to restore the tables to a different host:

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.
5. In the **Destination Client** box, select the destination client name.
6. Click the **Table Restore** tab.
7. In the **Staging Path** box, type the location where the auxiliary instance will be created.
8. Click the **Advanced Options** tab.



9. Select **Import to a Different DB**.
10. In the **Enter Import Oracle Instance:** box, type the destination instance name.
11. In the **Select a Client** box, select the destination client.
12. Click **OK**.

USING A USER-DEFINED AUXILIARY INSTANCE FOR A DATABASE CLIENT NOT ON SOURCE

When the selected database client is not the source on a Table Restore, you must select the Auxiliary Instance and provide a user defined Auxiliary database name. If you do not do this, the Auxiliary database is created on source client itself and the selected database client is ignored.

SETTING UP THE AUXILIARY INSTANCE

By default, when you restore database tables to a target instance, the system automatically duplicates the source database to an auxiliary instance in a temporary staging location specified during the restore operation. The database will be automatically imported from this auxiliary instance after the restore.

Use the following steps to set up a specific database as an auxiliary instance. This is useful when you want to restore a table to a specific failure point.

1. Copy the `init<SID>.ora` file from the source database to the auxiliary database instance.
2. Update the database name and the database file locations in the init`<SID>.ora` file for the auxiliary database instance.
3. Add the `DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT` parameters in the ini`t<SID>.ora` file. These parameters will redirect the datafiles, temp files, and log files to the auxiliary instance.

   Windows Clients:

   ```
   DB_FILE_NAME_CONVERT=
   ('sourcE_of_df_path/','dup_of_df_path/','source_of_temp_path/','dup_of_temp_path/',...)

   LOG_FILE_NAME_CONVERT=('source_of_log_path/redo','dup_of_log_path/redo')
   ```

   Unix Clients:

   ```
   DB_FILE_NAME_CONVERT=
   (source_of_df_path/,dup_of_df_path/,source_of_temp_path/,dup_of_temp_path/,...)

   LOG_FILE_NAME_CONVERT=(source_of_log_path/redo,dup_of_log_path/redo)
   ```

4. Add the `log_archive_dest_1` parameter is added to the `init<SID>.ora` file on the auxiliary instance.
5. Restart the Oracle Services, if using Windows clients.
6. Add the destination instance name in the `Listener.ora` and `Tnsnames.ora` files. If using a different host, add the duplicate database instance name in the `Listener.ora` file on the destination host and `Tnsnames.ora` files on the destination and source hosts. Also, add the original database name in the Tnsnames.ora file on the destination host.

   ```
   DUPDB = (DESCRIPTION =

   (ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT = 1521))

   (CONNECT_DATA = (SERVER = DEDICATED)

   (SERVICE_NAME = dupdb) (UR=A) ) )
   ```

7. Restart the Listener.

   ```
   $lsnrctl reload
   ```

8. Ensure that the auxiliary instance is in NOMOUNT mode.

   ```
   sql> startup nomount;
   ```

RESTORING TABLES USING A USER-DEFINED AUXILIARY INSTANCE

By default, when you restore database tables to a target instance, the system automatically duplicates the source database to an auxiliary instance in the specified temporary staging location. Once the database is duplicated, you can import the tables to the target instance.

However, if required, you can also use an user-defined auxiliary instance for the restore operation. This is used when you want to restore a table to a specific failure point.

> When restoring tables to a different host, if a user-defined auxiliary instance option is selected for the restore, you need to recover the database to a specified point-in-time or SCN number. You cannot recover the database to the current time using an user-defined auxiliary instance.

SETTING UP THE AUXILIARY INSTANCE

1. Copy the `init<SID>.ora` file from the source database to the auxiliary database instance.

2. Update the database name and the database file locations in the init<SID>.ora file for the auxiliary database instance.
3. Add the DB_FILE_NAME_CONVERT and LOG_FILE_NAME_CONVERT parameters in the init<SID>.ora file. These parameters will redirect the datafiles, temp files, and log files to the auxiliary instance.

   Windows Clients:

   DB_FILE_NAME_CONVERT= ('sourcE_of_df_path/','dup_of_df_path/','source_of_temp_path/','dup_of_temp_path/',...)

   LOG_FILE_NAME_CONVERT=('source_of_log_path/redo','dup_of_log_path/redo')

   Unix Clients:

   DB_FILE_NAME_CONVERT= (source_of_df_path/,dup_of_df_path/,source_of_temp_path/,dup_of_temp_path/,...)

   LOG_FILE_NAME_CONVERT=(source_of_log_path/redo,dup_of_log_path/redo)
4. Add the `log_archive_dest_1` parameter is added to the `init<SID>.ora` file on the auxiliary instance.
5. Restart the Oracle Services, if using Windows clients.
6. Add the destination instance name in the `Listener.ora` and `Tnsnames.ora` files. If using a different host, add the duplicate database instance name in the `Listener.ora` file on the destination host and `Tnsnames.ora` files on the destination and source hosts. Also, add the original database name in the Tnsnames.ora file on the destination host.

   DUPDB = (DESCRIPTION =

   (ADDRESS = (PROTOCOL = TCP)(HOST = powerpc02)(PORT = 1521))

   (CONNECT_DATA = (SERVER = DEDICATED)

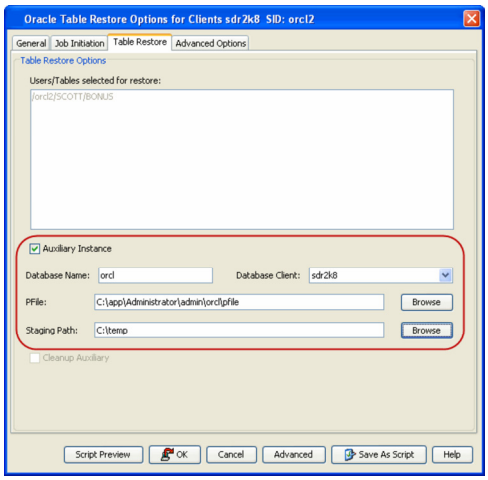
   (SERVICE_NAME = dupdb) (UR=A)))
7. Restart the Listener.

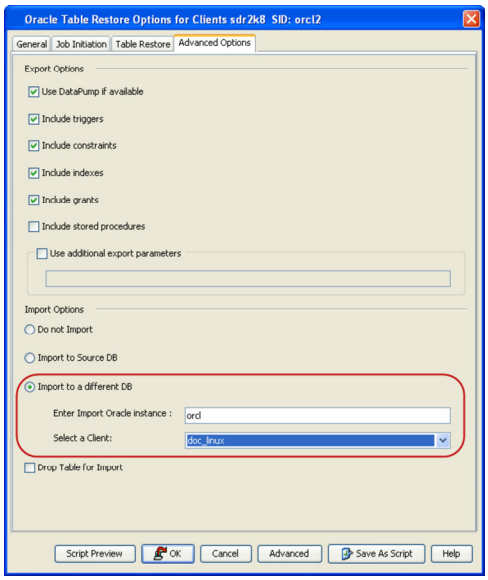
   ```
   $lsnrctl reload
   ```
8. Ensure that the auxiliary instance is in NOMOUNT mode.

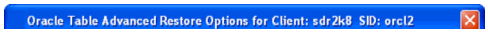
   ```
   sql> startup nomount;
   ```

RESTORING THE TABLES USING THE AUXILIARY INSTANCE

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.
5. Click the **Table Restore** tab.
6. Select the **Auxiliary Instance** checkbox.
7. In the **Database Instance** box, type the auxiliary instance name.
8. In the **Database Client** box, select the destination client for the auxiliary instance.
9. In the **PFile** box, type the path to the PFile of the auxiliary instance. Alternatively, click **Browse** to select the path.
10. In the **Staging Path** box, type the location where the auxiliary instance will be created. Alternatively, click **Browse** to select the path.
11. Click the **Advanced Options** tab.
12. Select **Import to a Different DB**.
13. In the **Enter Import Oracle Instance:** box, type the destination instance name.
14. In the **Select a Client** box, select the destination client.
15. Click **Advanced**.







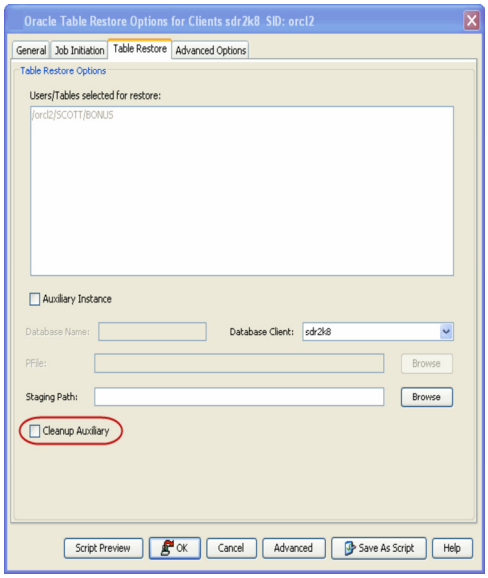
16. Select the **Recover** tab.
17. Select **Point-In-Time** checkbox and specify the time range to which the the database need to be recovered.
18. Click **OK**.

DISABLING CLEAN-UP OF AUXILIARY INSTANCE AFTER RESTORE

By default, the system generated auxiliary instance is deleted automatically once the tables are imported to the destination instance.

Use the following steps to disable the clean-up of auxiliary instance after the restore:

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.
5. Click the **Table Restore** tab.
6. In the **Staging Path** box, type the location where the tables will be restored.
7. Clear the **Cleanup Auxiliary** checkbox.
8. Click **OK**.

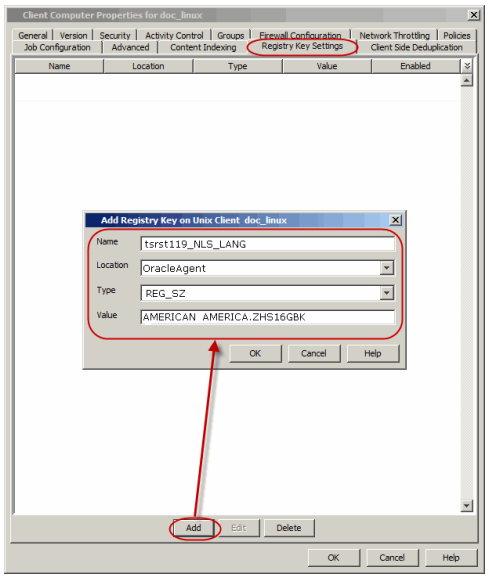


RESTORING TABLES WITH NON-ENGLISH CHARACTERS

By default, you can restore the tables with english characters. Use the following steps to restore the non-english characters in the tables:

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click the <***Client***>, and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type <ORACLE_SID>_NLS_LANG. For example, tsrst119_NLS_LANG
6. In the **Location** box, select or type `OracleAgent` from the list.
7. In the **Type** box, select **Value**.
8. In the Value box, set the database's characterset as per your database's characterset and then click **OK**.

   For example, if the database's nls characterset value is ZHS16GBK, you can set NLS_LANG reg key to AMERICAN_AMERICA.ZHS16GBK. By default this value is set to AMERICAN_AMERICA.US7ASCII.



EXPORTING TABLE OBJECTS

During table restores, the tables are exported from the auxiliary instance to the destination client and later imported to the target database. By default, the following data objects are exported along with the tables:

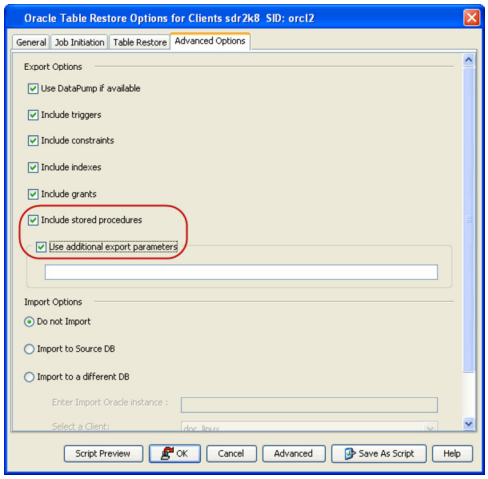
- Triggers
- Constraints
- Indexes
- Grants

However, the stored procedures associated with the selected tables are not exported by default. Use the following steps to export the stored procedures and additional export parameters, such as (COMPRESS or PARALLEL):

> Stored procedures are restored from the Schema level. Schema is the collection of data objects created by the user to contain or reference their data. Hence, if one of the table within the schema is selected for restore, all the stored procedures for that schema will also get restored.

When exporting the tables, the datapump export utility is used if it is supported by the Oracle application. The datapump utility facilitates the export of stored procedures. In oracle versions that do not support datapump export utility, you will not be able to include stored procedures during export.

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.
5. Click the **Table Restore** tab.
6. In the **Staging Path** box, type the location where the auxiliary instance will be restored.
7. Click the **Advanced Options** tab.
8. Select the **Include Stored Procedures** checkbox.
9. Select **Use additional export parameters** checkbox and type the parameters to be exported.
10. Click **OK**.

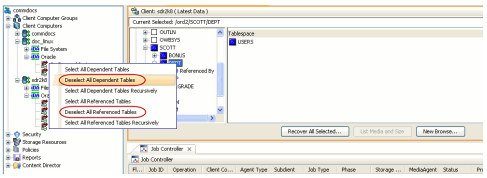


SELECTING/DE-SELECTING DEPENDENT/REFERENCED TABLES

When you browse using the table view, you can also view the dependent and referenced tables associated with the tables selected for the restore.

Dependent tables are the parent tables (containing the primary key) that the selected table (containing the foreign key) depends upon. Similarly, Referenced tables are the child tables (containing the foreign key) that references the selected table (containing the primary key).

By default, all the dependent and referenced tables will be included in the restore operation. Use the following steps to exclude the dependent/referenced tables:



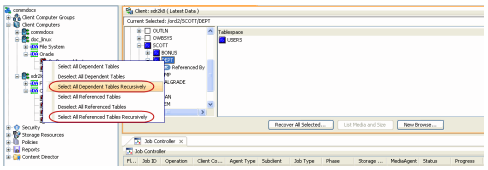
1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate to the table to be restored.
5. Right-click the ***<table>*** and click **Select/Deselect All Dependent Tables** to exclude all the dependent tables.

   Similarly, click **Deselect All Referenced Tables** to exclude all the referenced tables.
6. Click **Restore All Selected**.
7. Click the **Table Restore** tab.
8. In the **Staging Path** box, type the location where the auxiliary instance will be restored.
9. Click **OK**.

INCLUDING ALL DEPENDENCIES TO THE DEPENDENT/REFERENCED TABLES

When restoring tables, you can include recursive dependency relationship of all the dependent/referenced tables.

Use the following steps to include all the dependent/referenced tables recursively:



1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate to the table to be restored.
5. Right-click the ***<table>*** and click **Select All Dependent Tables Recursively** to include recursive dependency of dependent tables.

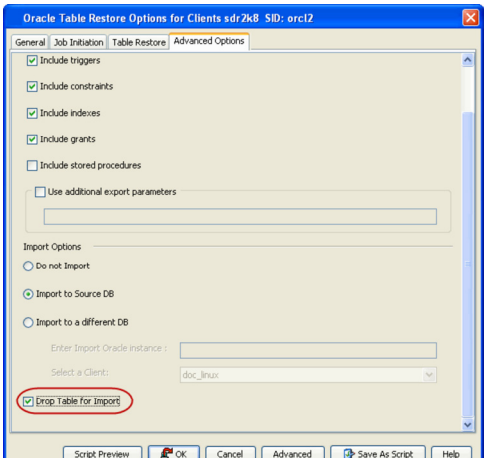
   Similarly, click **Deselect All Referenced Tables Recursively** to to include recursive dependency of referenced tables.
6. Click **Restore All Selected**.
7. Click the **Table Restore** tab.
8. In the **Staging Path** box, type the location where the auxiliary instance will be restored.
9. Click **OK**.

DELETING EXISTING TABLES DURING A RESTORE

By default, the restore operation will overwrite the existing tables in the destination database during the restore. You can also configure the restore operation to delete the existing tables before performing the restore.

Manually drop/delete the existing tables at the destination instance and then import the tables.

Use the following steps to automatically delete existing tables on the destination instance during restore. Note that you can also manually drop/delete the existing tables at the destination instance and perform the restore without enabling this option.



1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, point to All Tasks and select **Browse Backup Data**.
3. Select the **Table View** check box and click **OK**.
4. From the **Browse** window, navigate and select the tables to be restored and click **Recover All Selected**.
5. Click the **Table Restore** tab.
6. In the **Staging Path** box, type the location where the tables will be restored.
7. Click the **Advanced Options** tab.
8. Select **Import to Source DB**.
9. Click **Drop Table for Import** checkbox.
10. Click **OK**.

COMMAND LINE RESTORES

You can perform restores of one of more databases from the command line interface.

Command line restores enable you to perform restore operations on multiple clients at the same time. It also allows you to reuse the command line scripts for additional restores.

When performing command line restores, note that backups taken from the CommCell Console can be restored using Command Line and vice versa. However, backups taken from a previous version of the CommCell Console can be restored only from the Command Line.

In order to run the restores from command line, you need an input xml file which contains the parameters for configuring the restore options. This input xml file can be obtained using one of the following ways:

- Download the input xml file template and save it on the computer from where the restore will be performed.
- Generate the input xml file from the CommCell Console and save it on the computer from where the restore will be performed.

LOG ON TO THE COMMSERVE

To run command line operations you must first login to the CommServe as follows:

- From Command prompt, navigate to <Software_Installation_Directory>/Base and run the following command:

  ```
  qlogin -cs <commserve name> -u <user name>
  ```

- For example, to log on to CommServe 'server1' with username 'user1':

  ```
  qlogin -cs server1 -u user1
  ```

PERFORM THE RESTORE

1. Download the restore_template.xml file and save it on the computer from where the command will be executed.
2. Execute the saved xml script using qoperation execute command.

   ```
   qoperation execute -af restore_template.xml -clientName xxxxx -instanceName xxxxx
   ```

3. Verify the status of the job using the following command:

   ```
   qlist job -j JOBID
   ```

4. Once the job completes, logout from the CommServe using the qlogout command.

   ```
   qlogout [-cs commserver] [-all] [-tf tokenfile] [-tk token] [-h]
   ```

EXAMPLES

Restoring from a Current Backup	`qoperation execute -af restore_template.xml -clientName client1 -instanceName instance1`
Restoring Databases to a Point in Time	`qoperation execute -af restore_template.xml -clientName client1 -instanceName instance1 -toTimeValue '2011-11-28'`

RUNNING RMAN SCRIPTS USING QCOMMANDS

You can also submit RMAN scripts from the Command Line Interface using Qcommands. The RMAN scripts are submitted through argument files. This method enables you to take advantage of the CommServe's job management and reporting capabilities as well as media reservation, multi-streaming and storage policies.

When you submit RMAN scripts using qcommands:

- One job ID is used in the CommServe. The same Job ID is also used across different streams and attempts.
- The job can be resumed from the point of failure from the CommCell Console or Command Line.
- The job history can be viewed for these jobs.
- A list of media can be obtained for the job in primary or secondary copy.
- Job-based storage policies can be used.
- Multiple streams can be allocated before the job starts.
- The job will use as many available drives and start other streams as drives become available.
- Run time reservation of storage policy can be used during restore. For example, if a log backup is encountered in the data phase, all data storage policy resources will be released, and archive log resources will be dynamically reserved.

1. Create the RMAN Script file for the restore operation.

   Ensure that you create separate RMAN scripts for the data and logs

   ```
   run {
   allocate channel ch1 type 'sbt_tape'
   ```

```
PARMS="BLKSIZE=262144" ;

allocate channel ch2 type 'sbt_tape'
PARMS="BLKSIZE=262144" ;

restore database ;

recover database;

sql "alter database open";

}
```

2. Create the argument file.

   For example,

   ```
   [oraclerestorescript]

   /rman_restore.scr
   ```

3. Login to the Commserve from the command prompt.

   For example:

   ```
   qlogin -cs server1 -u user1
   ```

4. Run the `qoperation restore` command.

   Example:

   ```
   qoperation restore -sc client1 -a Q_ORACLE -i
   instance1 -af /argfile2.txt
   ```

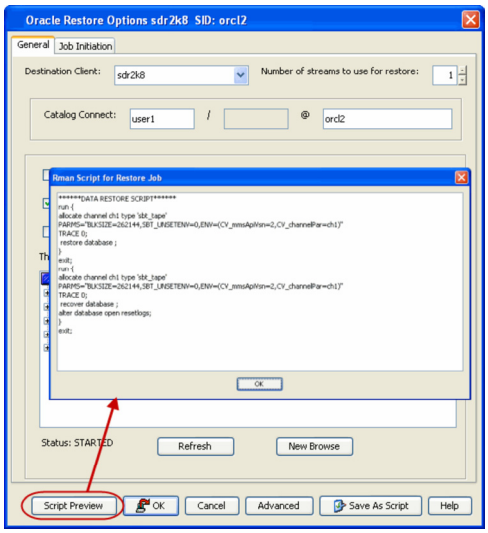
SUPPORTED RMAN PARAMETERS

PARAMETER	USAGE	DESCRIPTION
[oraclerestorescript]	**[oraclerestorescript]** ***<filename>*** Example: **[oraclerestorescript]** **restorelogs.txt**	Name of the file that contains RMAN script for restore.
[rmanlogfile]	**[rmanlogfile]** ***<ouputfile location>/<outputfile name>*** Example: [rmanlogfile] /usr/temp1 Here, temp1 is the directory and not the file name.	This is an optional parameter. Location where the RMAN restore output file will be saved and the name of the output file. By default, an output file restore.out is created in the job results directory. You can change the name of the output file as well as the location using this parameter. In order to include the JOB ID in the output file name, you need to set the sQcmd_Rst_RmanLogFile registry key.
[options]	**QR_DO_NOT_USE_ORA_CONNECT_STRING**	This is an optional parameter. If specified, the restore operation will use the user defined connect string and catalog connect values specified in the RMAN script will be used instead of the values specified in the Instance Properties (Details) tab in the CommCell Console.
[mediaagent]	**[mediaagent]** ***<mediaagentname>*** Example: **[mediaagent]** **MA1**	This is an optional parameter. Name of the MediaAgent to be used for the restore job.
[library]	**[library]** ***<libraryname>*** Example: **[library]** **LN1**	This is an optional parameter. Name of the library to be used for the restore job.
[drivepool]	**[drivepool]** ***<library_name>/<drivepool_name>*** Example: **[drivepool]** **LN1/DP1**	This is an optional parameter. Name of the drivepool in the library to be used for the restore job.
[scratchpool]	**[scratchpool]** ***<library_name>/<scratchpool_name>*** Example: **[scratchpool]** **LN1/SN1**	This is an optional parameter. Name of the scratchpool in the library to be used for the restore job. The drivepool and scratchpool parameters are applicable only if a tape library is used for the RMAN backup. The drivepool and scratchpool names can be given along with the library name followed by a backslash (/) or itself alone.

VIEWING RMAN SCRIPTS FROM THE COMMCELL CONSOLE

Prior to running a restore operation from the CommCell Console, you can preview the corresponding RMAN script for the restore job. This is useful to determine whether the selected restore options will yield the desired result in the script. You can also manually copy and save the generated RMAN script to your computer and later execute the script from the command line.

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, and select **Restore**.
3. Click **Script Preview**.
4. Click **OK**.

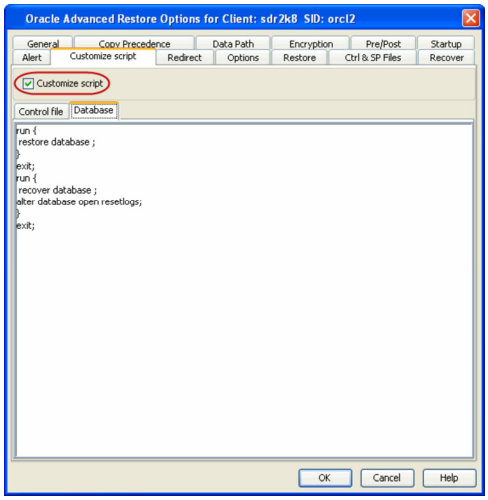


CUSTOMIZING RMAN SCRIPTS FROM THE COMMCELL CONSOLE

In addition to previewing the RMAN script, you can also modify the script from the CommCell Console. This is useful when you want to include the RMAN commands that is not supported by the software.

1. From the CommCell Browser, navigate to **Client Computers** | ***<Client>*** | **Oracle**.
2. Right-click the ***<Instance>***, and select **Restore**.
3. Click **Advanced**.
4. Click the **Customize Script** tab.
5. Select the **Customize Script** checkbox.

   The script for the control file restore will be generated.
6. Click the **Database** tab to view the script for the database restore.
7. Click **OK**.



RUNNING RMAN SCRIPTS FROM THE RMAN INTERFACE

AVAILABLE SBT PARAMETERS

[CvClientName]	[CvClientName] <Client_Name> **Example**: `[CvClientName]` `client_name`	Name of the client defined in the CommCell Console and the client name from where RMAN script runs. This parameter is optional. It is primarily used in a clustered environment.
[CvInstanceName]	[CvInstanceName] <Instance_Name> **Example**: `[CvInstanceName]`	Name of the Calypso instance installed on the client from where the RMAN script runs. This parameter is optional. In cases of multiple instances of the software, the first installed instance would be 'Instance001'.

	instance_name	
[CvOraSID]	[CvOraSID] <oracle_sid> **Example**: [CvOraSID] DB1	Name of the Oracle System ID (SID). This parameter is used during multi stream backups and also when the Oracle database name is different from Oracle SID. It is also used for multistream restores to get single job id. This parameter is optional. In case of a duplicate database restore, CvOraSID must be the destination SID name, otherwise in all cases it is source SID.
[CvSrcClientName]	[CvSrcClientName] Source_client_name	Name of the Source client defined in CommServe for which restore should look for backup pieces. It will be needed for cross-machine/duplicate restores to get correct backup piece of the required oracle instance when there are conflicting backup pieces between two oracle instances on different clients.

Prior to running the RMAN scripts from the RMAN command line, do the following:

1. Add the environmental variables for the client and instance on which the *i*DataAgent is installed.

   ```
   allocate channel ch1 type 'sbt_tape'
   PARMS="<software install path>/Base/libobk.so,ENV=
   (CvClientName=clientname,CvInstanceName=instancename)"
   ```

2. On Unix clients, add the SBT LiBRARY path.

   For example,

   ```
   allocate channel ch1 type 'sbt_tape'
   PARMS="SBT_LIBRARY=<software install path>/Base/libobk.so,ENV=
   (CvClientName=clientname,CvInstanceName=instancename)"
   ```

   The SBT_LIBRARY path for the various platforms are listed below:

   - AIX with 64 bit Oracle - `<Client Agent Install Path>/Base64/libobk.a (shr.o)`
   - HP UX PA RISC 64 bit Oracle - `<Client Agent Install Path>/Base64/libobk.sl`
   - Solaris with 64 bit Oracle -`<Client Agent Install Path>/Base64/libobk.so`
   - Linux on System Z with 64 bit Oracle - `<Client Agent Install Path>/Base64/libobk.so`
   - All Other Unix platforms -`<Client Agent Install Path>/Base/libobk.so`

3. Add the same block size value that was used for the corresponding backup job.

   You can skip this step if the default block size was used for the backup.

   ```
   allocate channel ch1 type 'sbt_tape'
   PARMS=" SBT_LIBRARY=<software install path>/Base/libobk.so, ENV=
   (CvClientName=clientname,CvInstanceName=instancename),BLKSIZE=32768";
   ```

4. From the RMAN command prompt, connect to the target database.

   ```
   rman target sys/sys@<databasename>
   ```

5. Execute the RMAN script.

   ```
   @restore.txt
   ```

The restore and recover processes are run as separate RMAN run blocks and hence when resumed, the job is restarted from the last failed RMAN run block.

RESTORING FROM A SECONDARY COPY USING RMAN INTERFACE

During restores, if the primary copy of the database is not available, you can restore from a secondary copy using the RMAN command line.

1. Include the environmental variable for copy precedence in the RMAN script.

   ```
   allocate channel ch1 type 'sbt_tape'
   PARMS=" SBT_LIBRARY=<software install path>/Base/libobk.so,
   ENV=
   (CV_restCopyPrec=2,CvClientName=clientname,CvInstanceName=instancename),BLKSIZE=32768";
   ```

2. From the RMAN command prompt, connect to the target database.

   ```
   rman target sys/sys@<databasename>
   ```

3. Execute the RMAN script.

   ```
   @restore.txt
   ```

RESTORING MULTIPLE STREAMED BACKUPS

In order to restore using multple streams from RMAN interface, set the following parameters in the RMAN script.

1. Set the number of automatic channels for a specific device type using the `CONFIGURE DEVICE TYPE ... PARALLELISM` command.

   ```
   CONFIGURE DEVICE TYPE 'SBT_TAPE' PARALLELISM 2 BACKUP TYPE TO BACKUPSET;
   ```

   In the above example, RMAN allocates two channels for the device type when using automatic channels.

2. Run the restore operation. Make sure to set the CvOraSID parameter to run the restore operation with a single job ID.

   ```
   run
   {allocate channel ch1 type 'sbt_tape'
   PARMS="SBT_LIBRARY=<software_install_path>/Base64/libobk.so,ENV=
   ```

```
(CvClientName=rdlab04,CvOraSID=DB1,CvInstanceName=Instance001)";

allocate channel ch2 type 'sbt_tape'
PARMS="SBT_LIBRARY=<software_install_path>/Base64/libobk.so,ENV=
(CvClientName=rdlab04,CvOraSID=DB1,CvInstanceName=Instance001)";

allocate channel ch3 type 'sbt_tape'
PARMS="SBT_LIBRARY=<software_install_path>/Base64/libobk.so,ENV=
(CvClientName=rdlab04,CvOraSID=DB1,CvInstanceName=Instance001)";

restore database ;

recover database ;

sql "alter database open"; }
```

3. If you are using the OEM application, include the RMAN settings in the Oracle Enterprise Manager.

   For Unix:

   ```
   SBT_LIBRARY=<software_install_path>/Base|Base64/libobk.so,BLKSIZE=262144, ENV=
   (CvClientName=client_name,CvInstancename=Instance_name,CvOraSID=database_name)
   ```

   Windows:

   ```
   ENV=
   (CvClientName=client_name,CvInstanceName=Instance_name,CvOraSID=database_name),BLKSIZE=262144
   ```

RESTORING FROM CONFLICTING BACKUPS

If there are same backup piece names for two different oracle instances, while command line restore going on, you might see the following errors:

- ORA-19626: backup set type is archived log - cannot be processed by this conversation
- ORA-19615: some files not found in backup set
- ORA-19613: datafile 3 not found in backup set

IN-PLACE RESTORE

Include the environmental variable for the source Oracle instance name in the RMAN script.

```
allocate channel ch1 type 'sbt_tape'
PARMS=" SBT_LIBRARY=<software install path>/Base/libobk.so,
ENV=(CvClientName=clientname,CvInstanceName=instancename,,CvSrcOraSID=sourceoracleSID),BLKSIZE=32768";
```

CROSS-MACHINE RESTORE

Include the environmental variable for the source client name in the RMAN script.

```
allocate channel ch1 type 'sbt_tape'
PARMS=" SBT_LIBRARY=<software install path>/Base/libobk.so,
ENV=(CvClientName=clientname,CvInstanceName=instancename,CvSrcClientName=sourceclientname),BLKSIZE=32768";
```

DUPLICATE RESTORE

Include the environmental variable for the source client name in the RMAN script.

```
allocate channel ch1 type 'sbt_tape'
PARMS=" SBT_LIBRARY=<software install path>/Base/libobk.so,
ENV=(CvClientName=clientname,CvInstanceName=instancename,CvSrcClientName=sourceclientname),BLKSIZE=32768";
```

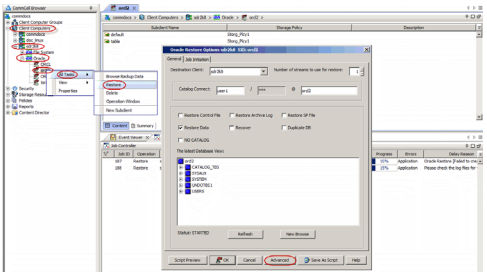
AUTOMATICALLY SWITCHING THE DATABASE MODE BEFORE A RESTORE

In order to perform a restore operation, the database should be in the MOUNT mode. If the database is not in mounted state, you are prompted to switch the database to the mounted state and then perform the restore.

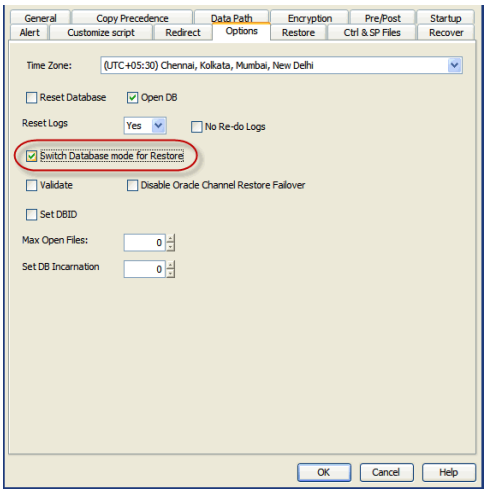
A static listener must be configured for database restores with the switch database mode when the Oracle database is in open mode. See When do we configure a static listener for additional information.

Use the following steps to automatically switch the database to mount mode prior to restore:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



4. Click the **Options** tab.
5. Select **Switch Database mode for Restore**.
6. Click **OK**.



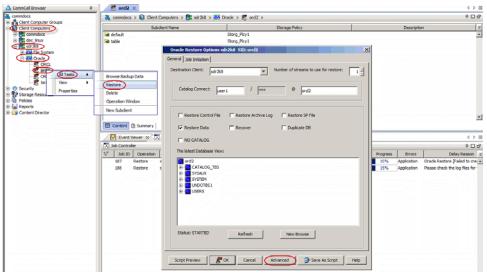
Sometimes, the database may not restart after switching the database during restore on Linux clients. To resolve this issue, see Restore - Troubleshooting.

OPENING THE DATABASE AFTER A RESTORE

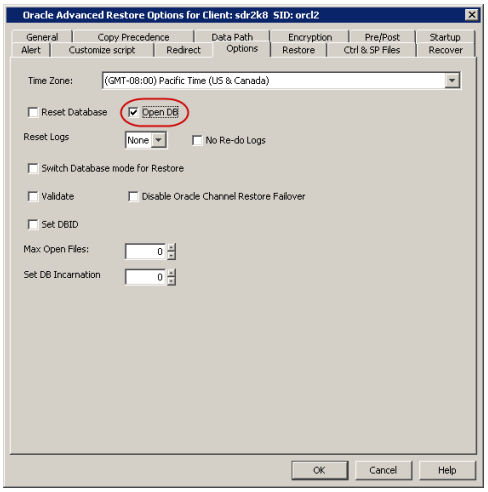
After a restore operation, you need to open the database for recording further transactions.

Use the following steps to open the database:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



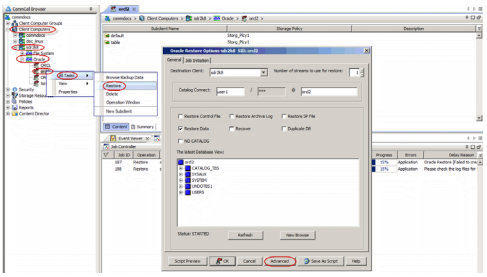
4. Click **Options** tab.
5. Select **Open DB** check Box.
6. Click **OK**.



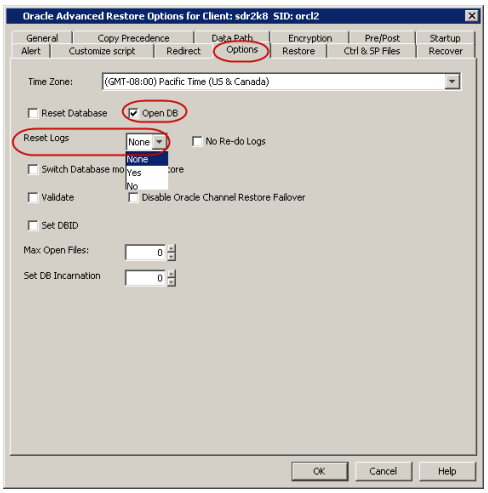
Setting the Log State after a Restore

By default, the database is automatically set to open and the logs are reset. Use the following steps to prevent resetting the logs:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



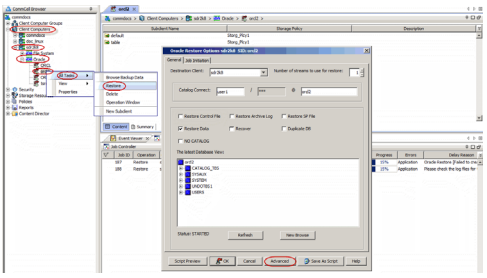
4. Click **Options** tab.
5. Select **Open DB** check Box.
6. Select the following options from **Reset Logs** list.
   - **None** - Open the database without RESETLOGS option.
   - **No** - Open the database with NORESETLOGS option.
7. Click **OK**.



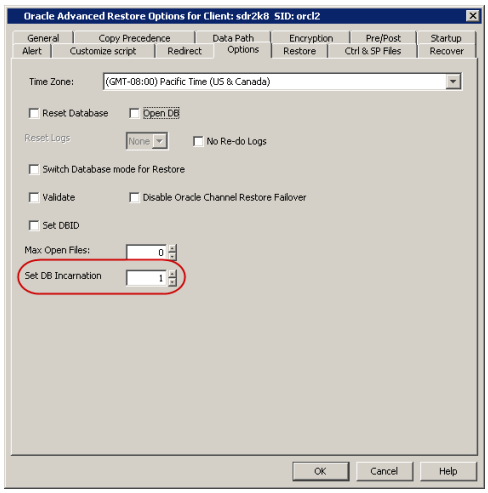
Setting the Database Incarnation

When you perform a point-in-time recovery of an Oracle database with RESETLOGS, a new incarnation of the database is created. All archive log files generated after resetting the logs will be associated to the new incarnation. However, in order to perform a point-in-time recovery from a backup of a previous incarnation, you need to reset the current incarnation to the previous incarnation value. Use the following steps to set the incarnation value:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



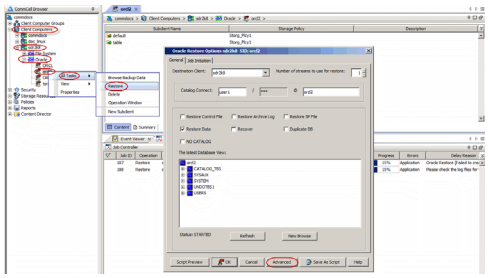
4. Click **Options** tab.
5. Select the database incarnation value from **Set DB Incarnation** list.
6. Click **OK**.



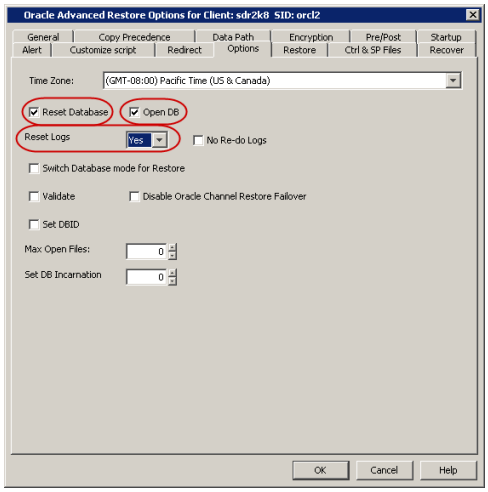
Resetting the Database after a Restore

By default, the database is not reset. After resetting the logs to open state, you can reset the database. Use the following steps to reset the database after a restore:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



4. Click **Options** tab.
5. Select **Open DB** check Box.
6. Select **Yes** from the Reset Logs list.
7. Select **Reset Database** check box.
8. Click **OK**.



Disabling Failovers during Restores

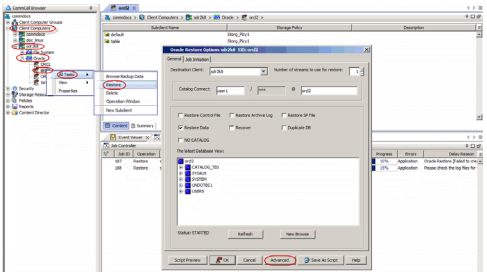
During restore operations, RMAN automatically looks for another copy of the file under the following circumstances:

- a backup piece is corrupted or deleted
- a media agent is offline
- a block in the backup is corrupted within the latest full backup

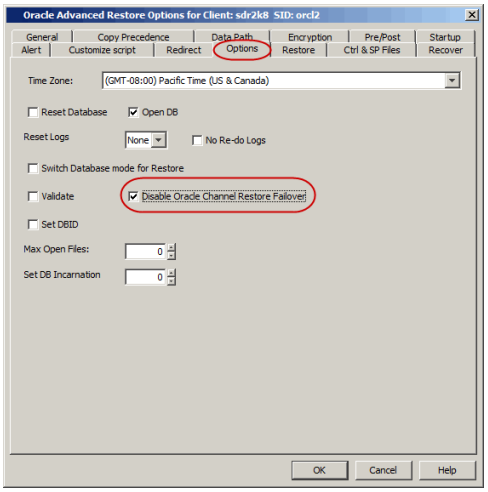
If it is not available in the other copy, RMAN will use older versions of the file, if available. When multiple channels are available for the same device type, RMAN will automatically retry on another channel. RMAN continuously searches all prior backups until it has exhausted all possibilities. This process will delay the restore jobs.

Use the following steps to disable the failovers during restore and prevent job delays:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



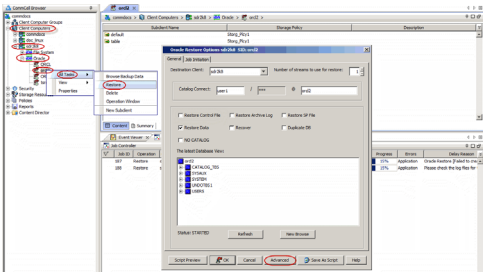
4. Click **Options** tab.
5. Select **Disable Oracle Channel Restore Failover** check box.
6. Click **OK**.



SETTING UP PRE-POST PROCESSES

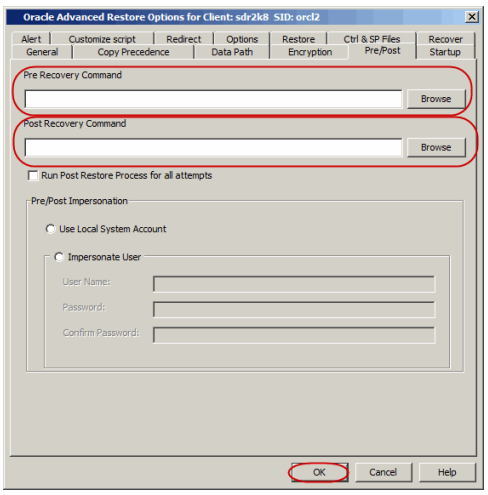
You can run batch files or shell scripts before and/or after restore jobs. Use the following steps to setup a process before or after a restore job:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **OK**.
4. Click **Advanced**.



5. Click **Pre/Post** tab.
6. Type the path for the batch file in the **Pre Recovery Command** box or click **Browse** to select the batch file to perform a process before the restore job.
7. Type the path for the batch file in the **Post Recovery Command** box or click **Browse** to select the batch file to perform a process after the restore job.
8. On Windows, select one of the following options:
   - **Use Local Accounts** - Select this option if the local account has permissions to execute the processes on the destination client.
   - **Impersonate User** - Select this option and enter the username and password, that has the permissions to execute the processes on the destination client.

   Skip this step, if you are using an Unix client.
9. Click **OK**.

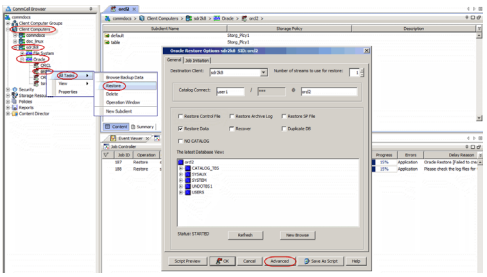


SETTING UP A PRE/POST PROCESS TO RUN AFTER EACH ATTEMPT

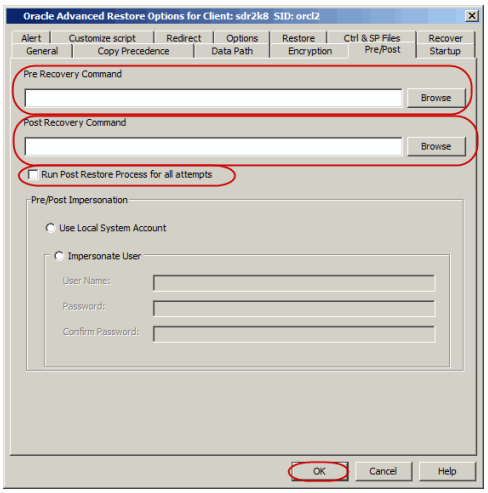
By default, a specified post process command is executed only on successful completion of the restore operation.

Perform a restore operation even if the restore operation did not complete successfully. This may be useful to bring a database online or release a snapshot. Use the following steps to run a post process:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **OK**.
4. Click **Advanced**.



5. Click the **Pre/Post** tab.
6. Enter the path for the batch file in the **Post Recovery Command** box or click **Browse** to select the batch file.
7. Select the **Run Post Process for all attempts** check box.
8. Click **OK**.

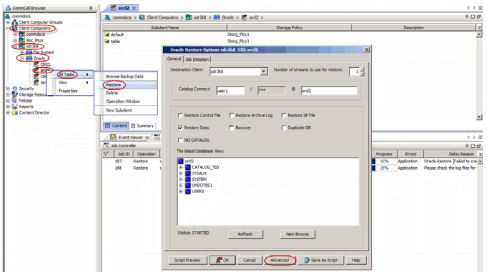


VALIDATING RESTORES

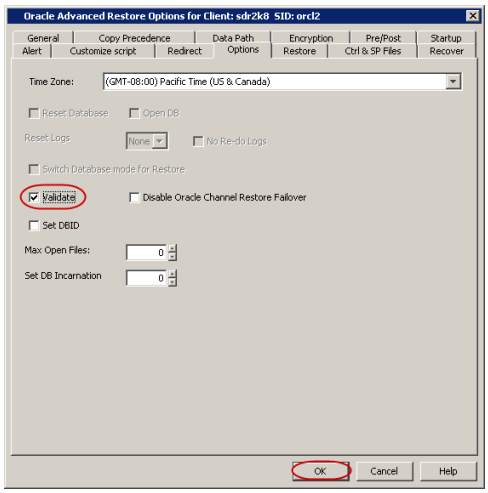
If you perform a validating restore job, the RMAN will stimulate a restore job and verifies whether the backup copies of data and logs required for the restore are intact and usable.

Use the following steps to validate a restore job:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



4. Click **Options** tab.
5. Select **Validate** check Box.
6. Click **OK**.

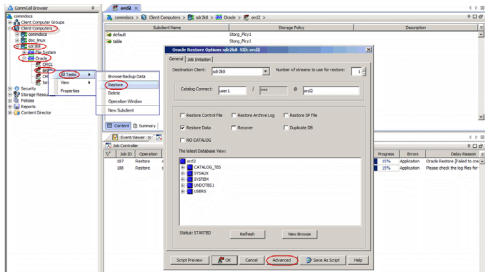


Setting the Database Identifier (DBID)

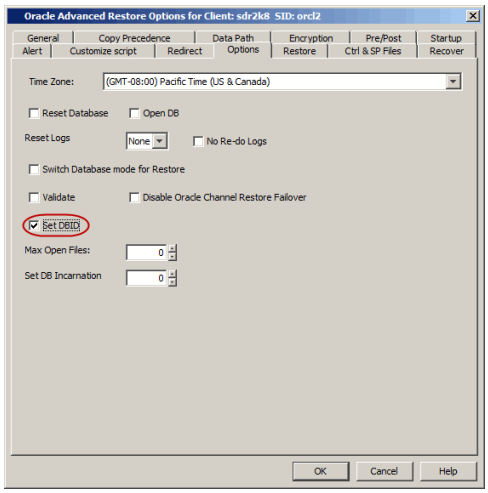
The Database Identifier (DBID) is an internal, uniquely generated number that will distinguish the target database from the rest of the databases that have the same name in the recovery catalog. Oracle creates this number automatically when you create the database. The DBID is set while restoring the control file to differentiate the database for which the control file is restored.

Use the following steps to set the DBID and differentiate the database:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



4. Click **Options** tab.
5. Select the **Set DBID** check box.
6. Click **OK**.



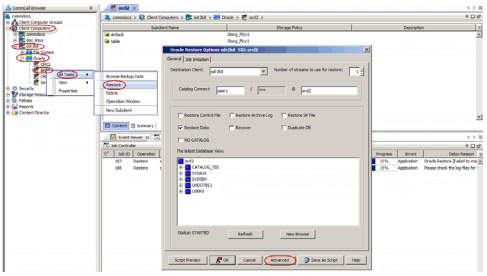
Setting Up Online Redo Log Files

Each Oracle database has a redo log. This redo log records all changes made in datafiles. When you run your database in NOARCHIVELOG mode, you disable the archiving of the redo log.

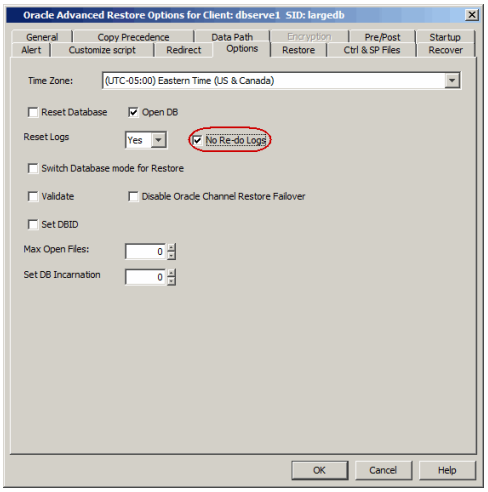
By default, the No Redo Log is disabled. Hence, While restoring the database, RMAN will search for archived re-do logs after applying incremental backup data. Setting No Re-do Logs will enable the RMAN to suppress the archived re-do logs so that only data from incremental backups is restored. Enable No Re-do logs when you perform a point-in-time restore of a database that was backed up in NOARCHIVELOG mode.

Use the following steps to enable No Re-do Logs and perform a restore operation:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



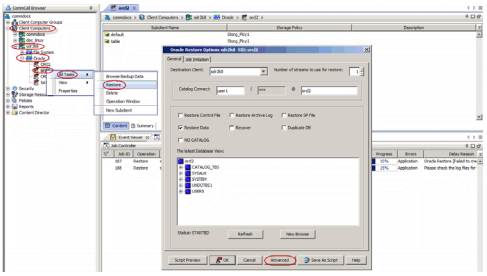
4. Click **Options** tab.
5. Select the **No Re-do Logs** check box.
6. Click **OK**.



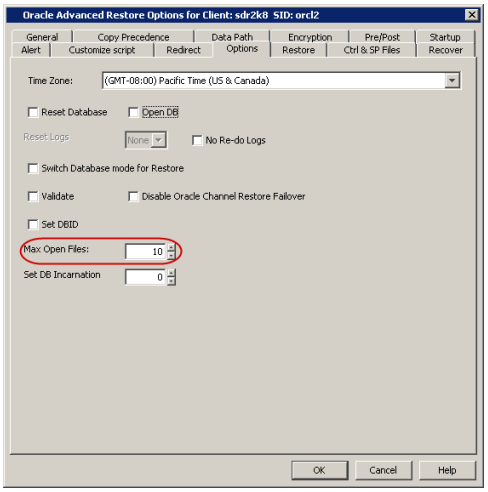
ENHANCING RESTORE PERFORMANCE

You can perform a restore operation faster when you set a maximum number of concurrent open datafiles for RMAN to read simultaneously. Use the following steps to enhance your restore operation:

1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Click **Advanced**.



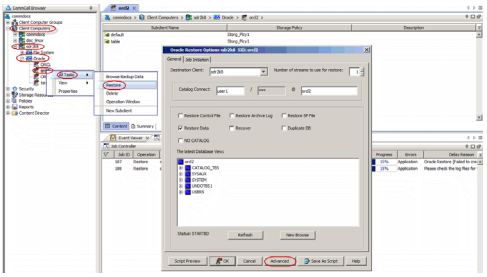
4. Click **Options** tab.
5. Select the number of open files from **Max Open Files** list.
6. Click **OK**.
7. Click **OK** to start the restore.



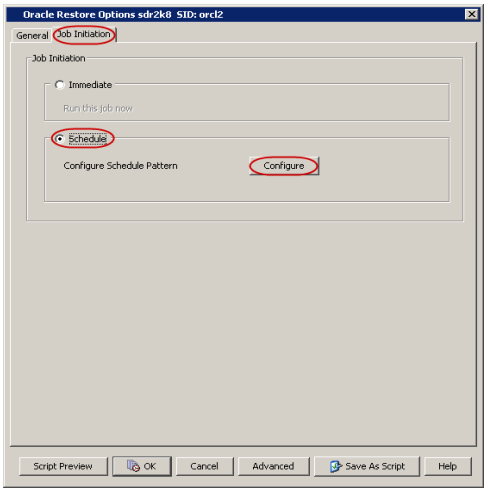
SCHEDULING A RESTORE

Follow the steps given below to schedule a restore job:

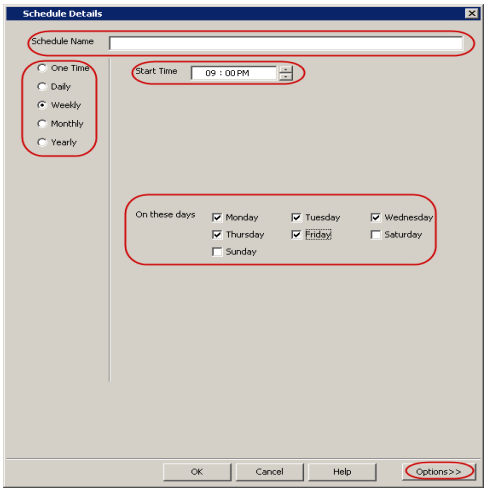
1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
2. Right-click the <***Instance***>, point to **All Tasks** and then click **Restore**.
3. Select the required restore options.



4. Click **Job Initiation** tab and then click **Schedule**.
5. Click **Configure**.

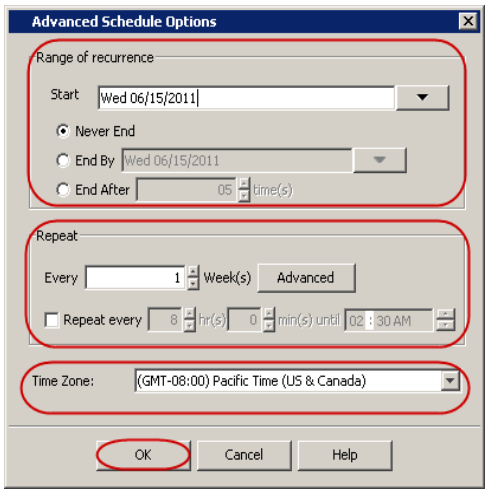


6. Select the appropriate scheduling options. For example:
   - Click **Weekly**.
   - Check the days you want the run the restore job.
   - Change the Start Time to 9:00 PM



7. Click Options for the following advanced schedule options:
   - Range of recurrence
   - Repeat times
   - Time Zone
8. Click **OK**.

The restore job will execute as per the schedule.



MANAGING RESTORE JOBS

Once you initiate the restore operation, a restore job is generated in the Job Controller. Jobs can be managed in a number of ways. The following sections provide information on the different job management options available:

RESTARTING JOBS

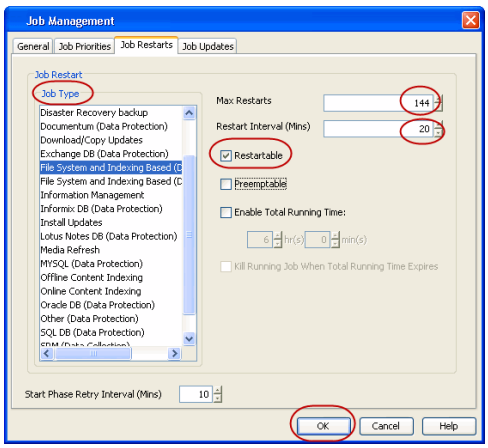
Jobs that fail to complete successfully are automatically restarted based on the job restartability configuration set in the Control Panel. Keep in mind that changes made to this configuration will affect all jobs in the entire CommCell.

To Configure the job restartability for a specific job, you can modify the retry settings for the job. This will override the setting in the Control Panel. It is also possible to override the default CommServe configuration for individual jobs by configuring retry settings when initiating the job. This configuration, however, will apply only to the specific job.

Restore jobs for this Agent are resumed from the point-of-failure.

CONFIGURE JOB RESTARTABILITY AT THE COMMSERVE LEVEL

1. From the CommCell Browser, click **Control Panel** icon.
2. Select **Job Management**.
3. Click **Job Restarts** tab and select a **Job Type**.
   - Select **Restartable** to make the job restartable.
   - Change the value for **Max Restarts** to change the maximum number of times the Job Manager will try to restart a job.
   - Change the value for **Restart Interval (Mins)** to change the time interval between attempts for the Job Manager to restart the job.
4. Click **OK**.



CONTROLLING JOBS

The following controls are available for running jobs in the Job Controller window:

SUSPEND	Temporarily stops a job. A suspended job is not terminated; it can be restarted at a later time.
RESUME	Resumes a job and returns the status to Waiting, Pending, Queued, or Running. The status depends on the availability of resources, the state of the Operation Windows, or the Activity Control setting
KILL	Terminates a job.

SUSPENDING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Suspend**.

2. The job status may change to **Suspend Pending** for a few moments while the operation completes. The job status then changes to **Suspended**.

RESUMING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Resume**.
2. As the Job Manager attempts to restart the job, the job status changes to **Waiting**, **Pending**, or **Running**.

KILLING A JOB

1. From the Job Controller of the CommCell Console, right-click the job and select **Kill**.
2. Click **Yes** when the confirmation prompt appears if you are sure you want to kill the job. The job status may change to **Kill Pending** for a few moments while the operation completes. Once completed, the job status will change to **Killed** and it will be removed from the Job Controller window after five minutes.

RESUBMITTING JOBS

If a restore job fails to complete successfully, you can resubmit the job without the need to reconfigure the original job's restore options using the **Resubmit Job** feature. When a job is resubmitted, all the original options, restore destinations, and other settings configured for the job remain in tact.

RESUBMIT A RESTORE JOB

1. From the CommCell Browser, right-click a client computer whose data recovery history you want to view, click **View**, then click to view a job history.
2. From the **Job History Filter** dialog box, select **Restore**.
   - If you want to view more advanced options for restores, from the Job History Filter, select **Restore**, then click **Advanced**.
   - From the **Data Recovery History Advanced Filter** select the destination client computer of the restores you would like to view, then click **OK**.
3. The system displays the results of the options you selected in the **Data Recovery Job History** window.
4. Right-click on any job, and select **Resubmit**.
5. Select the job options.
6. Click **OK**.

ADDITIONAL RESTORE OPTIONS

Several additional options are available to further refine your restore operations. The following table describes these options, as well as the steps to implement them.

Be sure to read the overview material referenced for each feature prior to using them.

OPTION	DESCRIPTION	RELATED TOPICS
Use hardware revert capability if available	This option allow you to revert the data to the time when the snapshot was created. Selecting this option brings back the entire LUN to the point when the snapshot was created, overwriting all modifications to the data since the snapshot creation. This option is only available if the storage array used for SnapProtect Backup supports the revert operation. 1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**. 2. Right-click the ***<Instance>*** point to **All Tasks**, and then click **Browse Backup Data**. 3. Click **OK**. 4. In the right pane of the Browse window, select the data you want to restore and click **Recover All Selected**. 5. Click **Advanced**. 6. Select **Use hardware revert capability if available** check box. 7. Click **OK**.	
Startup Options	The Startup Options are used by the Job Manager to set priority for resource allocation. This is useful to give higher priority to certain jobs. You can set the priority as follows: 1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**. 2. Right-click the ***<Instance>*** point to **All Tasks**, and then click **Browse Backup Data**. 3. Click **OK**.	Refer to Job Priority and Priority Precedence.

	4. In the right pane of the Browse window, select the data you want to restore and click **Recover All Selected**. 5. Click **Advanced**. 6. Click **Startup** tab. 7. Select **Change Priority**. 8. Select a priority number - 0 is the highest priority and 999 is the lowest priority. 9. Select the **Start up in suspended State** check box to start the job in a suspended state. 10. Click **OK**.	
Copy Precedence	By default, the system retrieves data from the storage policy copy with the lowest copy precedence. If the data was pruned from the primary copy, the system automatically retrieves data from the other copies of the storage policy in the lowest copy precedence to highest copy precedence order. Once the data is found, it is retrieved, and no further copies are checked. You can retrieve data from a specific storage policy copy (Synchronous Copy or Selective Copy). If data does not exist in the specified copy, the data retrieve operation fails even if the data exists in another copy of the same storage policy. Follow the steps given below to retrieve the data from a a specific storage policy copy: 1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**. 2. Right-click the ***<Instance>*** point to **All Tasks**, and then click **Browse Backup Data**. 3. Click **OK**. 4. In the right pane of the Browse window, select the data you want to restore and click **Recover All Selected**. 5. Click **Advanced**. 6. Click **Copy Precedence** tab. 7. Select the **Restore from copy precedence** check box. 8. Select the number from **Copy Precedence** list. 9. Click **OK**.	Refer to Recovering Data From Copies.
Data Path Options	The data recovery operations use a default Library, MediaAgent, Drive Pool, and Drive as the Data Path. You can use this option to change the data path if the default data path is not available. Follow the steps given below to change the default data path: 1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**. 2. Right-click the ***<Instance>*** point to **All Tasks**, and then click **Browse Backup Data**. 3. Click **OK**. 4. In the right pane of the Browse window, select the data you want to restore and click **Recover All Selected**. 5. Click **Advanced**. 6. Click **Data Path** tab. 7. Select the MediaAgent from **Use MediaAgent** list. 8. Select the Library from **Use Library** list. 9. Select the drive pool and drive from **Use Drive Pool** and **Use Drive** lists for optical and tape libraries. 10. Select the name of the Proxy server from **Use Proxy** list, if you wish to restore using a proxy server. 11. Click **OK**.	Refer to Change Data Path.
Encryption	If the client's data is encrypted with a pass phrase, you must enter the pass-phrase to start the data recovery operation. Follow the steps given below to enter the pass-phrase: 1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**. 2. Right-click the ***<Instance>*** point to **All Tasks**, and then click **Browse Backup Data**. 3. Click **OK**. 4. In the right pane of the Browse window, select the data you want to restore and click **Recover All Selected**. 5. Click **Advanced**. 6. Click **Encryption** tab.	Refer to Data Encryption.

	7. Type the pass phrase in **Pass Phrase** box. 8. Re-type the pass phrase in **Re-enter Pass Phrase** box. 9. Click **OK**.	
Alerts	This option enables users or user groups to get automatic notification on the status of the data recovery job. Follow the steps given below to set up the criteria to raise notifications/alerts: 1. From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**. 2. Right-click the ***<Instance>*** point to **All Tasks**, and then click **Browse Backup Data**. 3. Click **OK**. 4. In the right pane of the Browse window, select the data you want to restore and click **Recover All Selected**. 5. Click **Advanced**. 6. Click **Alerts** tab. 7. Click **Add Alert**. 8. From the **Add Alert Wizard** box, select the required threshold and notification criteria and click **Next**. 9. Select the required notification types and click **Next**. 10. Select the recipients and click **Next**. 11. Click **Finish**. 12. Click **OK**.	Refer to Alert.
CommCell Readiness Report	The CommCell Readiness Report provides you with vital information, such as connectivity and readiness of the Client, MediaAgent and CommServe. It is useful to run this report before performing the data protection or recovery job. Follow the steps given below to generate the report: 1. From the **Tools** menu in the CommCell Console, click **Reports**. 2. Navigate to **Reports | CommServe | CommCell Readiness**. 3. Click the **Client** tab and click the **Modify** button. 4. In the **Select Computers** dialog box, clear the **Include All Client Computers and All Client Groups** check box. 5. Select the client from the **Exclude** list. 6. Click the **Include >** button. 7. Click **OK**. 8. Click the **MediaAgent** tab. 9. Clear the **Include All MediaAgents** checkbox. 10. Select the MediaAgent from the **Exclude** list. 11. Click **Include >**. 12. Click **Run**. The generated report is displayed.	Refer to CommCell Readiness Report.
Restore Job Summary Report	The Restore Job Summary Report provides you with information about all the data recovery jobs that are run in last 24 hours for a specific client and agent. You can get information such as failure reason, failed objects, job options etc. It is useful to run this report after performing the restore. Follow the steps given below to generate the report: 1. From the **Tools** menu in the CommCell Console, click **Reports**. 2. Navigate to **Reports | Jobs | Job Summary**. 3. Click **Data Recovery** on the **General tab** in the right pane. 4. On the **Computers** tab, select the client and the agent for which you want to run the report. 5. Click **Run**.	Refer to Restore Job Summary Report.

Data Aging - Oracle *i*DataAgent

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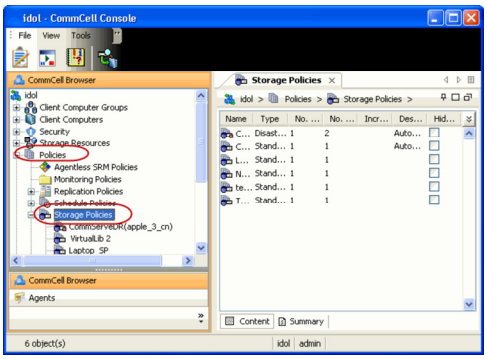
GETTING STARTED

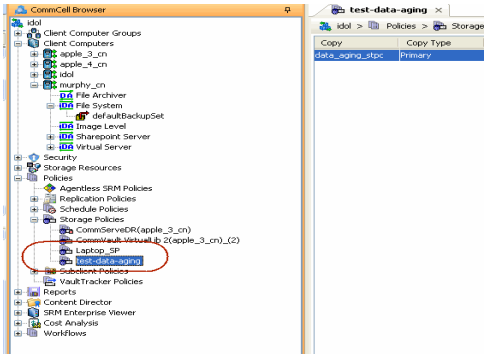
Data Aging is the process of removing old data from secondary storage to allow the associated media to be reused for future backups.

By default, all backup data is retained infinitely. However, you should change the retention of your data based on your needs. Note that if you continue to have infinite retention, you will also need infinite storage capacity.

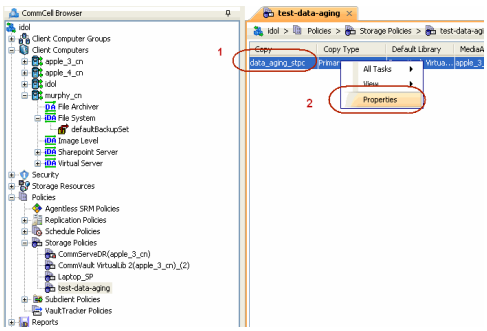
1. From the CommCell Browser, navigate to **Policies | Storage Policies**.



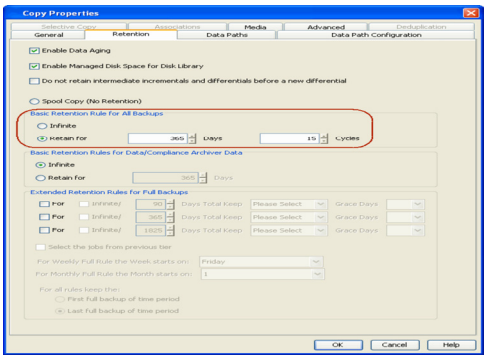
2. Highlight the **Storage Policy**.



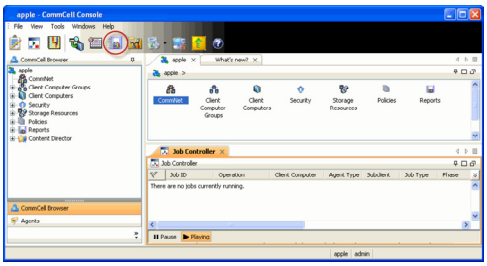
3. From the right pane, right-click the **Storage Policy Copy** and click the **Properties**.



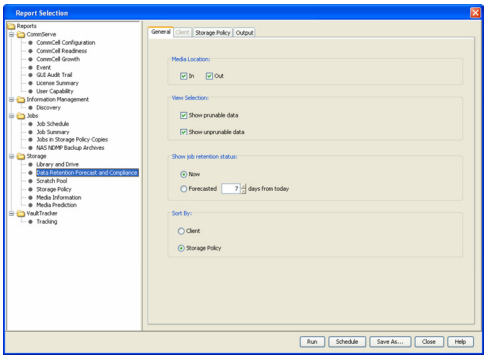
4.
- Click the **Retention** tab.
- Click the **Retain For** in the **Basic Retention Rules for All Backups** area.
- Enter number of days to retain the data.
- Enter number of cycles to retain the data.
- Click **OK**.



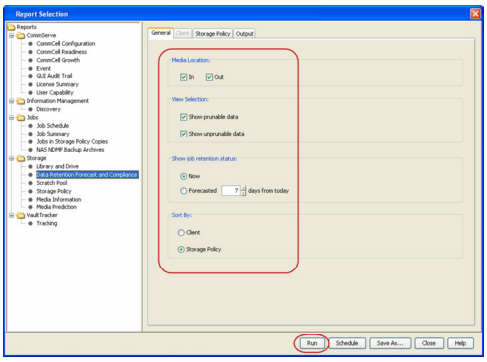
5. From the CommCell Browser, click the **Reports** icon.



6. Expand Reports and select **Data Retention Forecast and Compliance**.



7. Click **Run**.

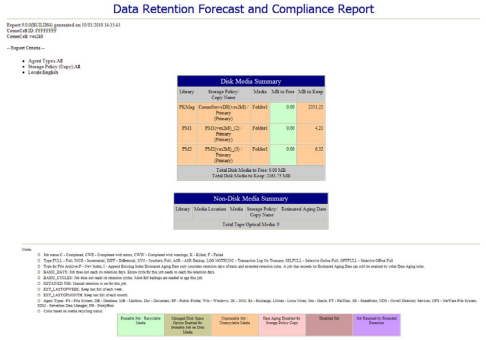


8. The report will display the data to be pruned when a data aging job is run.

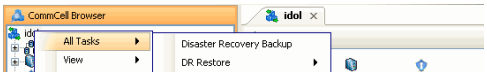
   To ensure only data intended for aging is actually aged, it is important to identify the data that will be aged based on the retention rules you have configured. Hence, ensure this report includes only the data you intend to age.

   If necessary, fine-tune your rules so that only the intended data is aged.

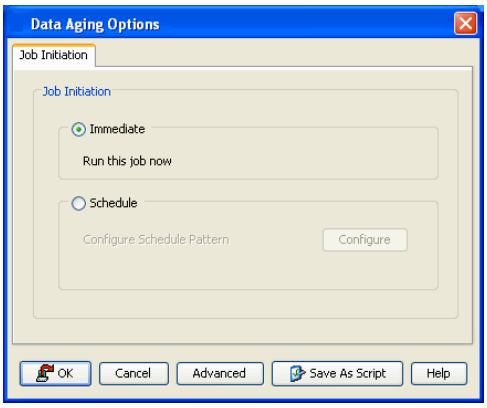
   Once you run a data aging job, the data will be lost.



9. From the CommCell Console, right click the CommServe icon and click **All Tasks** | **Data Aging**.

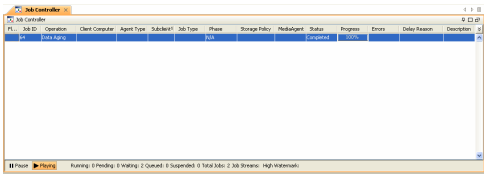


10. Select **Immediate** in the Job Initiation section and click **OK**.



11. You can track the progress of the job from the **Job Controller** window. When the job has completed, the Job Controller displays **Completed**.

    Make sure that the job completes successfully. If the job did not complete successfully, re-run the job.



EXTENDED RETENTION RULES

Extended retention rules allow you to keep specific full (or synthetic full) backups for longer periods of time.

Extended retention rules can be used in the following circumstances:

- If you have a single drive tape library
- If you want to create a hierarchical retention scheme (grandfather-father-son tape rotation)

In all other cases, it is recommended that the Auxiliary Copy feature be used for extended storage as it actually creates another physical copy of the data, thereby reducing the risk of data loss due to media failure.

UNDERSTANDING EXTENDED RETENTION RULES

Extended retention allows you to retain a specific full (or synthetic full) backup for an additional period of time. For example, you may want to retain your monthly full backups for 90 days.

Extended retention rules allow you to define three additional "extended" retention periods for full (or synthetic full) backups. For example:

- You may want to retain your weekly full backups for 30 days.
- You may want to retain your monthly full backup for 90 days.
- You may want to retain your yearly full backup for 365 days.

A backup job will be selected for extended retention based on its start time. For example: If a backup job starts at 11:55 pm on August 31st and ends at 1 am on September 1st, then it will be selected as the last full backup for the month of August and will be picked up for extended retention.

SETTING UP EXTENDED RETENTION RULES

Use the following steps for setting up the extended retention rules:

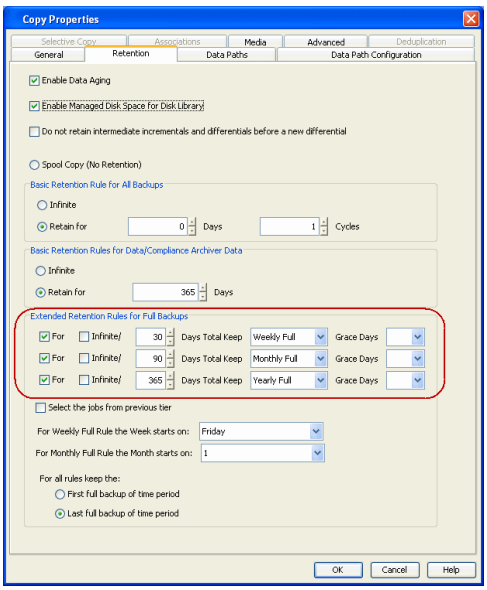
1. Right-click the storage policy copy and click **Properties**.
2. Click the **Retention** tab.
3. Set the basic retention rules by clicking **Retain for** and entering the number of days and cycles appropriate for your organization.
4. Set the extended retention rules as follows:

   Click the **For** button.

   Enter the number of **Days Total** to retain the backup.

   Click the **Keep** drop-down list, and select the desired backup criteria (e.g., Monthly Full).

   Click the **Grace Days** drop-down list and select the number of days (e.g., 2).
5. Repeat Step 4 to configure additional extended retention.
6. Click **OK**.



Data Aging for Transaction, Archive, and Logical Log Backups

Log Backups (transaction, archive, or logical logs) are not considered part of the backup cycle. Therefore, storage policy cycle retention parameters do not apply to them. However, log backups may be linked to data backup operations, which can affect their retention as follows:

- Log backups are linked to a full backup if they are run at the same time. This is regardless of whether the full backup included data only or data and logs. Such backups follows the standard data aging rules.
- If a full backup job is run on data and logs, then the next log backup will not be linked to this full backup job. These are unlinked log backups and by default, this will follow the unique data aging rules for log backups as given below:
  - Logs that need to be copied to secondary copies will not be aged both on primary and non-primary source copy
  - Logs that exist only on one copy will be aged when they are older than the oldest data
  - When logs exist on multiple copies, the logs on the copy with longest retention days will be retained with the data and will be aged after the oldest data. The log jobs on the remaining copies will be aged according to copy retention days without checking if the oldest data exists or not.
  - Partial, disabled logs will be aged when they are older than the oldest data
- If a full backup job is run on data, then the next log backup job will be linked to this full backup job. These are considered as linked or chained log backups and are not aged until the linked data is aged. In addition, these log backups will also follow the unique data aging rules for log backups.

Pruning All Log Backups by Days Retention Rule

Use the following steps to enable unlinked log backups to be aged according to the defined days retention rule for the data:

1. From the CommCell Browser, select **Tools** | **Control Panel**.
2. Double-click **Media Management**
3. Click the **Data Aging** tab.
4. Enable the **Prune All Database Agent Logs Only By Days Retention Rule** option.
5. Click **OK**.

Data Aging of the Oracle Recovery Catalog Database

When a Data Aging job is run, the **BackupPieceName** UNAVAILABLE command is automatically issued to RMAN to disable specific backup pieces in the Oracle Recovery Catalog database that were pruned from the Media Manager CommServe tables. Any backup pieces that were aged from the system's database that have exceeded their retention criteria will be marked as unavailable in the Oracle Recovery Catalog database through this methodology. You can delete these specific backup pieces by creating and enabling the OracleDeleteAgedBackupPiece registry key.

Timeout for Oracle Crosscheck Per Instance During Data Aging

By default the timeout for Oracle CROSSCHECK per instance is 600 seconds during data aging operation. You can modify this value (or

disable the option) by using the OraCrossCheckTimeOut registry key.

EFFECTS OF DOWNED SERVICES

When data aging is running, if the Oracle services go down, the data aging operation will complete successfully. However, you need to manually execute Oracle CROSSCHECK to synchronize the Oracle Recovery Catalog database with that of the CommServe database.

EFFECTS ON ORACLE ARCHIVE LOGS

Oracle archive logs get deleted for those clients/instances where the Oracle CROSSCHECK has been completed successfully. However, if the timeout for the Oracle CROSSCHECK is small (between 1 - 300) and if there are many archive logs, then the crosscheck will fail with a timeout error (or any other error). In such cases, the archive logs will get deleted from the CommServe database during the next data aging operation.

EFFECTS OF UNINSTALLING THE SOFTWARE

When uninstalling the *i*DataAgent software, CROSSCHECK will no longer be performed by the system to synchronize entries in the CommServe Database with the RMAN catalog. If either of these *i*DataAgents is later re-installed, then the next data aging job will synchronize the RMAN catalog with the CommServe Database unless the data on tape has been deleted (such as the case where the tape/volume was used for other backups and has been pruned).

DATA AGING RULES FOR ORACLE ARCHIVE INDEX

Oracle archive index is deleted when the associated backup data is deleted. This applies to SnapProtect Backup and Table Level Backup.

DISABLE ORACLE RMAN CROSSCHECKS DURING DATA AGING

By default, during a data aging operation, an Oracle CROSSCHECK is performed by the system to synchronize the entries in the CommServe database with the RMAN catalog. If required, you can disable this CROSSCHECK operation using the **Disable RMAN Cross Check** option in the Instance Properties (Details) tab for the specific Oracle instance. For step-by-step instructions, see Disable RMAN Cross Check.

DATA AGING RULES FOR SELECTIVE ONLINE FULL BACKUPS

A selective online full operation that consists of archive logs and oracle data can also be linked to the logs of a separate job, which was initiated within the time frame of the selective online full operation. These logs and the selective online full are then considered as one entity within the software, regardless of whether or not separate jobs have the same job ID. Therefore, they are copied to synchronous and selective copies together during auxiliary copy operations and are aged together. If any part of the selective online full is missing from a copy, the full will not be considered as a valid full and will not be counted as a cycle during data aging. Consider the following:

- Data from selective online full backups are considered the same as regular full and offline full backups for each Oracle subclient in terms of basic retention rules of cycles and days. However, if any logs on a primary copy have not been fully copied to a secondary copy, the selective online full cannot be aged.
- Data from selective online full backups are considered the same as offline full backups for each Oracle subclient in terms of extended retention rules of days. Selective online full backups and all logs linked with it must be retained together on the same storage policy copy.
- Those Logs that are linked with a selective online full (and the logs of the selective online full) can be aged only if they are older than the oldest data that can be aged and the corresponding data of the selective online full that can be or have been aged.
- Selective online full backup jobs that are completed with errors will not be retained by extended retention rules during data aging operation.

DATA AGING RULES FOR COMMAND LINE BACKUPS

- Oracle third party command line log backups can be linked to third party data backups as well as any other kind of backup data as per regular data link rule.
- Data from third-party command line (i.e., RMAN) backups for Oracle is aged differently than data from backups initiated through the CommCell Console. Retention cycles are not used for copies involved in operations from the third-party command line. For such operations, data is aged according to the associated retention time. However, you can manually set the retention time for each third party command line job from the storage policy copy. The command line log backups will be aged according to the retention time set for its associated command line data backup job.
- The qoperation agedata command can age data and logs simultaneously based on the Job ID, and it is especially useful for aging each of these items separately.

DATA AGING RULES FOR ON DEMAND AND CUSTOMIZED RMAN SCRIPT BACKUPS

Data Aging for Oracle On Demand and Customized RMAN Script backup jobs uses days/time, and ignores cycles, as the determining factor for pruning the data. Therefore, once the retention time criteria has been met, all data (for both data and logs) is pruned that was

backed up using the storage policy specified in the RMAN script that was run through the Command Line Interface.

When you perform an On Demand Full backup job (that includes data and logs), the next log backup job will get linked to this job, since the job type for Full backup is DATA for both the data and log phase.

An effective storage policy strategy for Oracle On Demand and Customized RMAN Script backups is as follows:

- The same storage policy should not be used for regular Oracle backups and Oracle On Demand backups or Customized RMAN Script backups.
- The storage policy copy containing logs of Oracle On Demand backups or Customized RMAN Script backups should have a much longer retention time than other storage policies used by regular Oracle backups for the same instance. This is to prevent the logs of Oracle On Demand backups from being pruned before the data of regular Oracle backups, and allow the database to be fully restored and recovered using the data of old regular Oracle backups and logs afterwards.

Oracle RMAN Retention Policy

An Oracle RMAN retention policy can be configured for each database. When RMAN retention rules are in effect, RMAN considers the backup jobs comprising data files and control files as obsolete, that is, no longer needed for recovery, according to criteria that you specify in the CONFIGURE RETENTION POLICY command. When you run DELETE OBSOLETE or CROSS CHECK operations, RMAN ages data by freeing disk and tape space used by backups that are no longer needed.

Do not configure RMAN retention policy if you want to retain data using the data aging feature provided in the CommCell console. To disable the RMAN retention policy, use the following command: CONFIGURE RETENTION POLICY TO NONE. This ensures that data will only be aged according to the retention rules specified in the associated storage policy copy.

Data Aging Rules for Jobs Completed with Errors

Jobs that are completed with errors are not treated as a valid full backup job and hence are pruned based on basic retention rules. However, in case if you require to apply extended retention rules to these jobs, you can exclude jobs that completed with errors during extended retention calculations. Note that this option is applicable only for Selective Online full backup jobs.

1. From the CommCell Browser, select **Tools** | **Control Panel**.
2. Double-click **Media Management**
3. Click the **Data Aging** tab.
4. Change the value for the **Ignore Completed With Errors job option for Extended Retention calculations** option from 1 to 0.
5. Click **OK**.

Advanced Topics

Data Aging - Advanced
Provides comprehensive information on additional Data Aging capabilities.

Disaster Recovery - Oracle *i*DataAgent

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PLANNING FOR A DISASTER RECOVERY

Before you begin a disaster recovery, make sure to perform the following:

- Perform frequent Oracle backups with control files and the latest file system.
- Make sure that the recovery catalog is available on a separate computer.

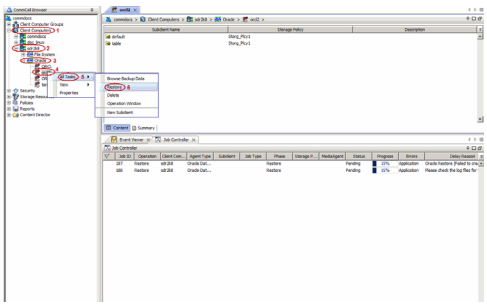
REBUILDING THE OPERATING SYSTEM

In the case of disaster recovery, where a full system restore is required, you must first rebuild the system to exactly the state as it existed before the problem. Use the following steps to rebuild the operating system:

1. Rebuild the hardware if needed.
2. Install the same version of the operating system with the same patches that were previously installed.
3. Edit the host file of the client to include the CommServe name.
4. Install the File System *i*DataAgent on the client.
5. Perform a full system restore of the File System iDataAgent. This will restore the Oracle application available under the <oracle install> directory. If there are any problems with the Oracle iDataAgent, we recommend that you un-install and re-install the software in the same drive as it was previously installed. Use the same installation parameters, passwords, and backup type settings as were previously used. In addition to restoring your operating system, this operation will restore the Oracle application files and the Oracle *i*DataAgent.
6. Make sure to exclude the Oracle Database files while performing the file system backup. You can achieve this by setting a backup filter for **.dbf** files in the appropriate file system subclients.
7. Reboot the computer.
8. Manually copy the init<SID>.ora file on to the computer you are rebuilding.
9. Perform the following steps if the recovery catalog is on the same computer that you are rebuilding:
   - Create the recovery catalog database as it existed before the crash.
   - Create the user who was the owner of the recovery catalog with the same user privileges that existed for the user.
   - Import the user which was exported to a flat file and was backed up as a part of the file system using the Oracle **Import** command.
10. Start the database in the **NOMOUNT** mode.

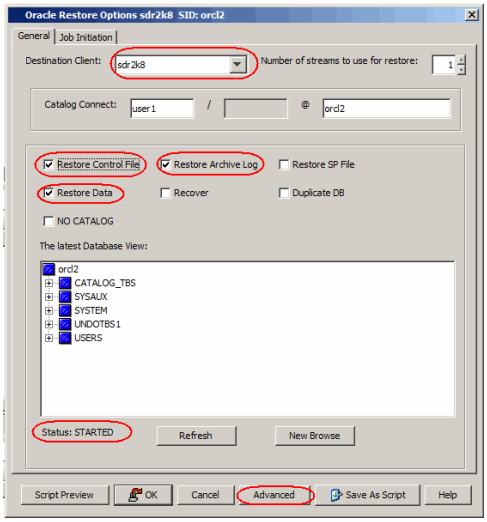
RESTORING THE ORACLE DATABASE

1.
   - From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
   - Right-click the <***Instance***> point to **All Tasks** and then click **Restore**.



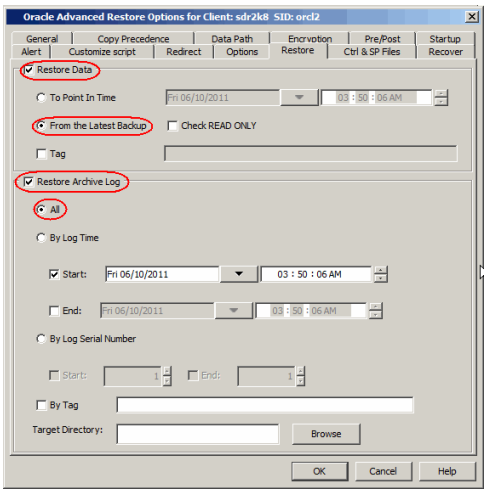
2.
   - Select the name of the client computer from the **Destination Client** list.
   - Clear **Recover** check box.
   - Select **Restore Archive Log** check box.
   - Select **Restore Control File** check box.

- Verify that the **Status** of the database is displayed as **STARTED**
- Click **Advanced**.



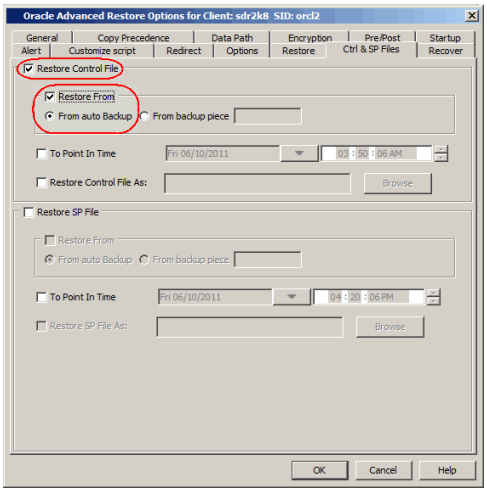
3.

- Click the **Restore** tab.
- Ensure that the **Restore Data** with **From the Latest Backup** and **Restore Archive Log** with **All** options are selected.



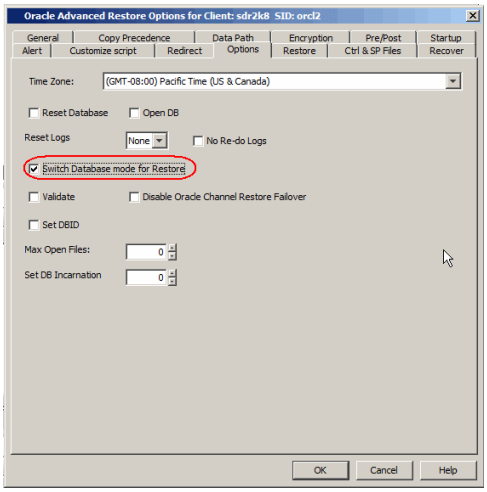
4.

- Click the **Control&SP files** tab.
- Ensure that the **Restore Control File** with **From Auto Backup** options are selected.

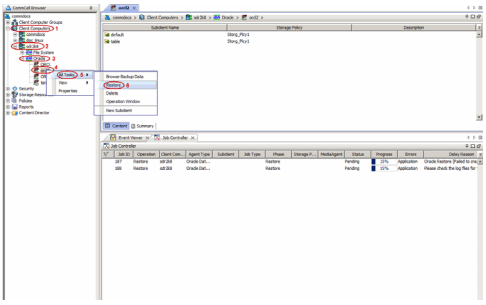


5.

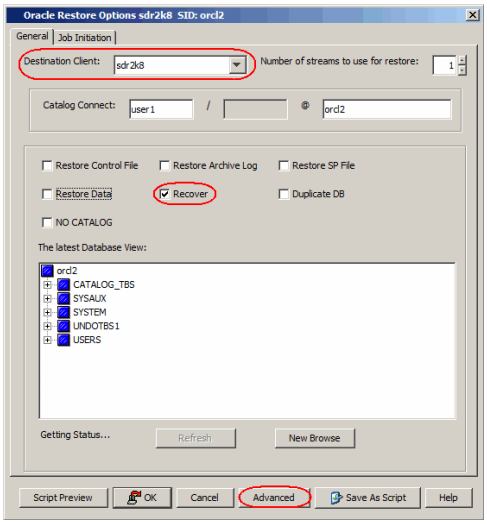
- Click the **Options** tab.
- Select the **Switch Database mode for Restore** check box.
- Click **OK**.



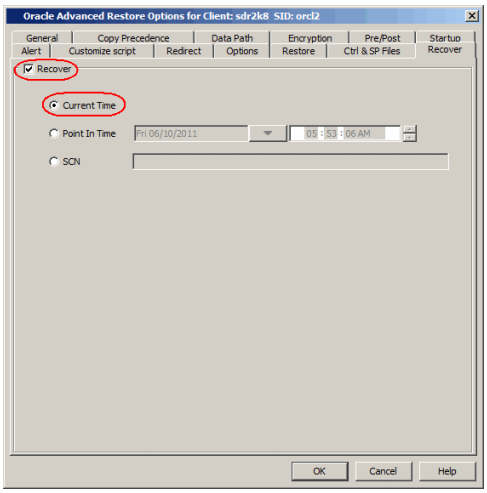
6.
- From the CommCell Browser, navigate to **Client Computers | *<Client>* | Oracle**.
- Right-click the <***Instance***> point to **All Tasks** and then click **Restore**.



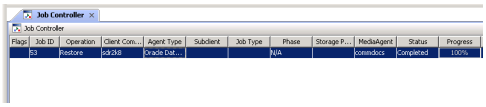
7.
- Select the name of the client computer from the **Destination Client** list.
- Clear the **Restore Data** check box.
- Click **Advanced**.



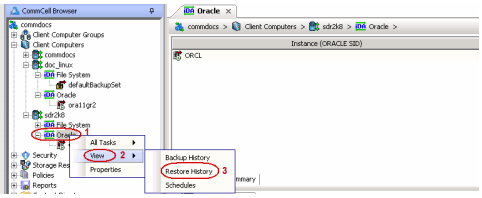
8.
- Click **Recover** tab.
- Ensure that the **Recover** with **Current Time** options are selected.
- Click **OK**.



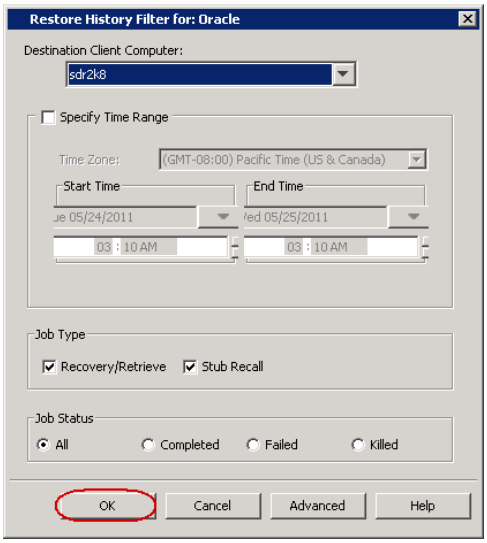
9. You can monitor the progress of the restore job in the **Job Controller**.



10. Once the restore job has completed, right-click the agent and click **View | Restore History**.

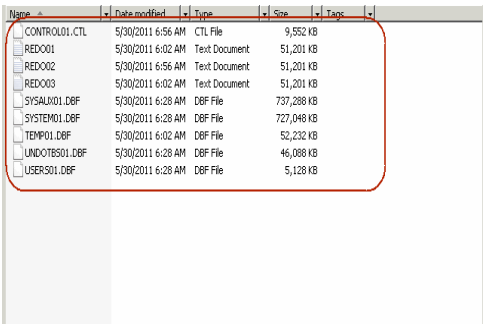


11. Click **OK**.



12. Once the database is restored, verify that the restored database and log files are available in the original location.

    After the Database is restored, perform a full backup of the Oracle Database.



Additional Operations - Oracle *i*DataAgent

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AUDIT TRAIL

The Audit Trail feature allows you to track the operations of users who have access to the CommCell. This capability is useful if a detrimental operation was performed in the CommCell and the source of that operation needs to be determined.

Audit Trail tracks operations according to four severity levels:

- **Critical**: This level records operations that will result in imminent loss of data.
- **High**: This level records operations that may result in loss of data.
- **Medium**: This level records changes to the general configuration of one or more entities. Such changes may produce unintended results when operations are performed.
- **Low**: This level records changes to status, addition of entities, and other operations that have minimal impact on existing CommCell functions.

To set Audit Trail retention periods:

1. From the **Tools** menu in the CommCell Console, click **Control Panel**, and then select **Audit Trail**.
2. From the **Audit Trail** dialog box, select the desired retention time (in days) for each severity level.
3. Click **OK**.

AUXILIARY COPY

An auxiliary copy operation allows you to create secondary copies of data associated with data protection operations, independent of the original copy.

1. Expand the **Policies** node, right-click storage policy for which you want to perform an auxiliary copy, click **All Tasks**, and then click **Run Auxiliary Copy**.
2. If you are starting the auxiliary copy operation from the CommServe level, select the storage policy for which you wish to perform the auxiliary copy.

   If you are starting the auxiliary copy operation from the Storage Policy level, the Storage Policy field is already populated with the name of the Storage Policy you selected.

3. If the source copy is configured with a shared library, select the **Source MediaAgent** for the auxiliary copy.
4. Click **OK** to start the auxiliary copy operation. A progress bar displays the progress of the operation.

LICENSE ADMINISTRATION

REQUIRED LICENSES

The Oracle *i*DataAgent requires the ***i*DataAgent for Oracle** license.

CONVERTING EVALUATION LICENSES TO PERMANENT LICENSES

If you installed the software using an Evaluation License, you can upgrade to a Permanent License as follows:

1. From the CommCell Browser, right-click the CommServe icon, click **Control Panel**, and then click **License Administration**.

2. Select the **Update License** tab and then click **Convert**.
3. Check the box that corresponds to the evaluation license you would like to upgrade and then click **Convert**.

The license information is updated in the **License Administration** window.

USING CAPACITY-BASED LICENSING

License Usage by Capacity is a licensing mechanism that allows you to obtain licenses based on the amount of data you back up. It provides the following features:

- Flexibility of usage on all agents, rather than being tied to number of server, agents, etc.
- Allows you to purchase licenses based on your data protection needs

Both **Core** and **Enterprise** license types are available. Refer to License Usage by Capacity for comprehensive information on utilizing this method.

RELEASING A LICENSE

If you no longer require a license on a computer, such as cases where the computer is being retired, you can release the license and use it later for another computer. Backup data from the retired computer can still be restored after the license is released provided the data is not aged.

1. From the CommCell Browser, right-click the name of the client from which you want to release a license, click **All Tasks**, and then click **Release License for Client**.
2. Click **OK** to continue releasing the license
3. Click **Yes** to confirm you want to release the license or **No** to abort.

ONLINE HELP LINKS

Use the following links to view the online help for the corresponding tabs in the CommCell Console:

OPERATIONS	ENTITY	ONLINE HELP LINKS	SUB LINKS
CONFIGURATION	Agent	Oracle Properties (General) Oracle Properties (Version) Oracle Properties (Security) Oracle Properties (Activity Control)	
	Instance	Properties of Oracle: <*instance name*> (General) Properties of Oracle: <*instance name*> (Details) Properties of Oracle: <*instance name*> (Storage Device) Properties of Oracle: <*instance name*> (Encryption) Properties of Oracle: <*instance name*> (Security)	
	Subclient	Subclient Properties of <*Subclient Name*> (General) Subclient Properties of <*Subclient Name*> (Content) Subclient Properties of <*Subclient Name*> (Backup Arguments) Subclient Properties of <*Subclient Name*> (Log Destinations) Subclient Properties of <Subclient Name> (Encryption) Subclient Properties of <Subclient Name> (Activity Control) Subclient Properties of <*Subclient Name*> (Storage Device) Subclient Properties of <*Subclient Name*> (Pre/Post Process)	
BACKUP	Backup Options	Backup Options for Subclient <*Subclient Name*>	Save As Script Command Line XML Options Schedule Details
	Advanced Backup Options	Advanced Backup Options (Startup) Advanced Backup Options (Job Retry) Advanced Backup Options (Media) Advanced Backup Options (Data Path) Advanced Backup Options (VaultTracking) Advanced Backup Options (Alert) Advanced Backup Options (Custom RMAN Script)	

		Advanced Backup Options (Backup Archive Logs) Advanced Backup Options (Delete Archive Logs) Advanced Backup Options (Oracle Options)	
RESTORE	Restore Options	Oracle Restore Options (General) Oracle Restore Options (Job Initiation)	Save As Script Command Line XML Options Schedule Details
	Advanced Restore Options	Advanced Restore Options (General) Advanced Restore Options (Copy Precedence) Advanced Restore Options (Data Path) Advanced Restore Options (Encryption) Advanced Restore Options (Pre/Post) Advanced Restore Options (Startup) Advanced Restore Options (Recover) Advanced Restore Options (Ctrl & SP Files) Advanced Restore Options (Restore) Advanced Restore Options (Options) Advanced Restore Options (Redirect) Advanced Restore Options (Customize Script) Advanced Restore Options (Alert) Advanced Restore Options (Duplicate) Advanced Restore Options (Duplicate DB Options)	

OPERATING SYSTEM AND APPLICATION UPGRADES

Operating system upgrades are only supported when upgrading from one version of an OS to a different version of the same OS (e.g., Win2003 to Win2008). The two methods of upgrading are:

- **Seamless Upgrade -** This involves uninstalling the Agent software, upgrading the operating system, and then re-installing the Agent software.
- **Full OS Replacement -** This involves performing a clean install of a new version of the OS, re-installing any application software, then re-installing the CommServe, MediaAgent, and/or Agent software.

For Full OS Replacement, the client computer must be configured to have the CommServe, MediaAgent, and/or Client software re-installed to the same location, the same Fully Qualified Domain Name or short domain name, the same partitions, disk drive format (FAT, NTFS, et. al.), and IP configuration as previously.

> If it is necessary to remove Agent software to facilitate an operating system or application upgrade, do not delete the icon for the Agent from the CommCell Console, or all associated backed up data will be lost.

Use the following strategy to upgrade the operating system software:

- Identify the computers you want to upgrade and the CommCell components installed on each of these computers.
- Choose the type of upgrade procedure you want to use on each computer: seamless or full replacement.
- CommServe, MediaAgent, and Client computers can be upgraded in any order.

OPERATION WINDOW

By default, all operations in the CommCell can run for 24 hours. To prevent certain operations from running during certain periods of the day, you can define operation rules so that these operations are disabled during those times.

When operation rules are configured, operations that are started within the time window specified will go to a queued (as opposed to pending) state. Once the time window specified in the operation rule has elapsed, these queued or running operations will resume automatically.

1. In the CommCell Browser, right-click the appropriate entity, click **All Tasks**, and then click **Operation Window**.
2. Click **Add**.
3. From the **Operation Window** dialog box:
   - Enter the name of the rule in the **Name** field.
   - Select either an administration, data protection (either full or non-full), and/or a data recovery operation from the **Operations** pane.

4. Click **OK**.

SCHEDULE POLICY

A schedule policy is a defined schedule or group of schedules for specific operations to be performed on associated objects within the CommCell. When the schedules from a policy are run, the specified operations, (e.g., auxiliary copy, backup, etc.,) will be performed on the associated CommCell objects.

1. Expand the **Policies** node, right-click **Schedule Policies** and click **Add**.
2. Type the **Name** of the schedule policy.
3. Select the **Type** of schedule policy.
4. Select the **Agent Type**.
5. Type a description of the schedule policy.
6. Click **Add**.
7. Enter a Schedule Name in the **Schedule Pattern** tab.
8. Click **OK**.
9. On the **Associations** tab, select the objects to be associated with the schedule policy.
10. Click **OK**.

STORAGE POLICY

A Storage policy defines the data lifecycle management rules for protected data. Storage policies map data from its original location to a physical storage media and determine its retention period.

1. Expand the **Policies** node, right-click **Storage Policies**, and select **New Storage Policy**.
2. Click **Next**.
3. Select **Data Protection and Archiving** to create a regular storage policy or **CommServe Disaster Recovery Backup** to backup the CommServe database and click **Next**.
4. Click **Next**.
5. Enter the name of storage policy and click **Next**.
6. Enter the name of the primary copy and click **Next**.
7. From the drop down box, select the default library for the primary copy and click **Next**.
8. From the drop down box, select the MediaAgent and click **Next**.
9. Enter number of data streams and set the retention period for the policy and click **Next**.
10. Click **Next**.
11. Click **Browse**, browse to your designated deduplication store location and click **Next**.
12. Confirm your selections and click **Finish**.

UNINSTALLING COMPONENTS

You can uninstall the components using one of the following method:

Method 1: Uninstall Components Using the CommCell Console

Method 2: Uninstall Components from Add or Remove Programs

METHOD 1: UNINSTALL COMPONENTS USING THE COMMCELL CONSOLE

1. From the CommCell Browser, right-click the desired Client Computer and click **All Tasks -> Add/Remove Programs** and click **Uninstall Software**.
2. **Uninstall Software Options** dialog will appear.
3. In the **Uninstall Software** tab, select **Uninstall All** to uninstall all the software packages.
4. In the **Job Initiation** tab, select **Immediate** to run the job immediately.

   You can track the progress of the job from the **Job Controller** or **Event Viewer**.

METHOD 2: UNINSTALL COMPONENTS FROM ADD OR REMOVE PROGRAMS

1. Click the **Start** button on the **Windows** task bar and then click **Control Panel**.
2. Double-click **Add/Remove Programs**.

   For Windows Vista/Windows 2008, click Uninstall a Program in the **Control Panel**.
3. Click **Remove** to uninstall the components in the following sequence:
    1. <Agent>
    2. File System *i*DataAgent
    3. Base Software

ADVANCED TOPICS

Provides comprehensive information about additional capabilities for the following features:

- Audit Trail
- Auxiliary Copy
- License Administration
- License Usage by Capacity
- Operation Window
- Schedule Policy
- Storage Policies
- Uninstalling Components

Back to Top

Best Practices - Oracle *i*DataAgent

CREATING USER GROUP ON UNIX CLIENT COMPUTER

When more than one database applications such as Oracle and DB2 reside on the same UNIX client computer, prior to the installation of database *i*DataAgents on this computer, it is recommended to do the following:

- Create a new user group on the UNIX client computer.
- Add the desired users/owner of each database application residing on the client computer to this newly created user group.

This newly created common user group name must be assigned during the installation of database *i*DataAgents.

PLANNING A BACKUP

- If you are running in NOARCHIVELOG mode, you must back up the database offline.
- If you are running in ARCHIVELOG mode and database accessibility is a priority, an online backup of the database may be appropriate.
- If the database must be accessible and you have a small backup window, you can run a series of online backups in which different portions of the database are backed up at different times.

You can also combine all of these backup types in your backup strategy. Once you have determined your backup needs, you can define your backup strategy by creating one or more subclients for the database.

CREATING SUBCLIENTS

As a best practice, it is recommended that you create separate subclients to backup data that undergo frequent changes.

For example, if the EXAMPLE and USERS dbspaces undergo frequent changes, you can create a separate subclient for each tablespace.

Example:

• User-defined subclient: Test1

Content: EXAMPLE

• User-defined subclient: Test2

Content: USERS

It is recommended that you create a separate user-defined subclient for the log files on the client.

Distributing the client data using subclients as recommended above, can help improve backup performance by organizing the workload on the client into logical groupings.

RE-CONFIGURING DEFAULT SUBCLIENT CONTENT

We recommend that you do not re-configure the content of a default subclient because this would disable its capability to serve as a catch-all entity for client data. As a result, some data will not get backed up or scanned.

ENABLING FULL SYSTEM RESTORE ON DEFAULT SUBCLIENT

The default subclient for the Oracle instance usually includes all the objects in the instance. Once the default subclient is created, synchronize the recovery catalog with the control files. This would help in successfully performing a full system restore in the event of destroyed or damaged client.

RESTORING CONTROL/SP FILES

Ensure that the database is in NOMOUNT mode when you restore the control/sp files. Ensure that you have previously configured auto backup of control files to restore the control file from auto backup. Restoring a control file will destroy all the previous backups. Hence, you need to perform a full backup after you restore a control file.

RESTORING DEPENDENT TABLES

It is recommended to include the parent tables along with all the dependent tables for a successful restore operation. This will ensure the inclusion of all the reference constraints of the dependent tables along with parent tables.

RESTORING - RECOVERY CATALOG

When restoring backups with recovery catalog, the method you use to restore the Recovery Catalog depends on the method you have used to back up the Recovery Catalog.

If you have exported the Recovery Catalog using the **exp** command, you must import the Recovery Catalog into a new database using the **imp** command. If you have backed up the Recovery Catalog from the CommCell Console, use an appropriate restore method from the CommCell Console to restore the Recovery Catalog.

RUNNING COMMAND LINE OPERATIONS

- Any RMAN command line operation can fail if the required media resource is unavailable due to a conflicting resource reservation by another backup/recovery process or when the resource is unavailable offline. If this happens, it is recommended to establish or verify the availability of the required resource and then rerun the RMAN command line operation.
- When performing backups using RMAN scripts from command line, it is recommended to use separate scripts for data and logs since only one data type can be passed through the argument file (i.e., data or log). This data type is used by the system to mark the archive files created by the backups as DATA or LOG in the CommServe database. Therefore, if you have scripts containing both data and logs, the archive files will be marked as either DATA or LOG depending on the data type mentioned in the argument file.
- Although you can combine data and log scripts in the same job, it is a best practice to run data and log scripts in separate jobs. The drive reservation and re-try mechanism will function more efficiently, if you use this method.

ON DEMAND BACKUP

We recommend not to run data and log backups in the same RMAN script.

KEY PERFORMANCE TUNING PARAMETERS AND THEIR RECOMMENDED USES

Performance tuning parameters are a valuable tool for the recovery administrator to increase efficiency of backup and restore operations by avoiding throughput bottlenecks. The performance of Oracle backup and restore operations can be optimized through the appropriate configuration of RMAN parameters. See Enhancing Backup Performance and Enhancing Restore Performance for more details.

DATA FILES PER BFS

The Data Files per BFS parameter defines the number of datafiles to be bundled in each RMAN backupset for datafile backups. It is often used in conjunction with the Max Open Files parameter to establish the proper RMAN multiplexing factor for disk buffer allocation.

For example:

Assume that you are backing up six datafiles with one RMAN channel.

If FILESPERSET=6 and MAXOPENFILES=1, then the channel includes 6 datafiles in a backupset but does not multiplex the files because RMAN is not reading from more than one file simultaneously.

The channel reads one file at a time and writes to the backup piece. In this case, the level of multiplexing is 1 and would result in relatively slower backups because of the throughput bottleneck.

Ideally, the MAXOPENFILES parameter should be set in such a way that the number of files read simultaneously is just enough to fully utilize the output device.

In this example, if FILESPERSET=6 and MAXOPENFILES=3, the level of multiplexing is 2 and would result in a quicker and more efficient backup, especially when the output device is tape, by allowing RMAN to provide the proper disk buffer allocation. However, keep in mind that multiplexing too many files can decrease restore performance depending on the hardware configuration.

ARCHIVE FILES PER BFS

The Archive Files per BFS parameter defines the number of archive files to be bundled in each RMAN backupset for archive log backups. Its use is similar to the Data Files per BFS parameter.

MAX BACKUPSET SIZE (KB)

The Max Backupset Size parameter defines the maximum allowable size for an RMAN backupset. It can be used to adjust performance for either partial restore or whole database restores. A smaller MAXBACKUPSETSIZE will result in faster partial restores, however, an entire database restores will be slower. A larger MAXBACKUPSETSIZE will result in a faster entire database restores. However, they may not be optimal for partial restores. It is generally recommended that you avoid entering too small a value for this setting, which should be at least 2000 KB. The exception is the default value of 0, which means unlimited.

MAX OPEN FILES

The Max Open Files parameter defines the maximum number of concurrent open datafiles that RMAN can read from simultaneously during a backup operation. A smaller MAXOPENFILES setting results in faster performance on most systems. However, it should be used in conjunction with the Data Files per BFS or Archive Files per BFS parameters to achieve the most efficient RMAN multiplexing level for optimizing disk buffer allocation. The goal is to set the number of files read simultaneously to fully utilize the output device. Keep in mind that the default value for this parameter is 8.

DISK RATIO

Disk ratio enables RMAN to read data files across disks and group them in a backup set.

For example:

Consider data files distributed across 10 disks that supply data at 10 bytes/second and a tape drive that needs 40 bytes/second to keep streaming. In this case, you can set the disk ratio value to 4, which will direct RMAN to include data files from 4 disks in each backup set.
Disk ratio groups the data files into backup sets and distributes the backup load across disks. The disk ratio facilitates the backup performance. However, the restore performance will be slower if more number of disks are grouped. Hence, make sure that a minimum possible value is set for disk ratio.

GUIDELINES TO IMPROVE DEDUPLICATION PERFORMANCE

Use the following settings for Oracle *i*DataAgent to get a better deduplication performance.

- Block Size Settings:

  Recommended deduplication block size to 128 KB.

- Compression Settings:
  - Turn off deduplication compression from subclient, instance and storage policy copy level.

    See Setting Up Data Compression for step-by-step instructions.

- Oracle Application Settings:
  - Turn off Oracle compression.
  - Increase Oracle block size to 512 KB.

    See Running RMAN Scripts from Third Party Command Line for modifying the block size.

  - Depending upon your environment, modify **Data Files per BFS** value to 4 or 8.

    See Enhancing Backup Performance for step-by-step instructions.

  - Make sure RMAN backup optimization is OFF.
- Use Non-deduplicated Storage Policy with Compression ON settings to back up the following:
  - Oracle Archive Logs
  - Flash Recovery Area (FRA)
  - Oracle Export dump files using File System Agent

Frequently Asked Questions - Oracle *i*DataAgent

CAN WE PERFORM COMMAND LINE BACKUPS OF ORACLE INSTANCES WITH DIFFERENT ORACLE SID AND DATABASE NAMES?

Yes. Different SID and database names for Oracle instances are supported for Oracle command line backups.

However to get single job id CvOraSID Environmental variable should be used otherwise multiple jobs will be generated.

Example for Unix:

```
SBT_LIBRARY=<software_install_path>
/Base64/libobk.so,
BLKSIZE=262144,ENV=(CvClientName=<client_name>,
CvInstanceName=<instance_name>,
CvOraSID=<oracle_sid>
```

CAN WE PERFORM COMMAND LINE BACKUPS IF ORACLE DATABASE NAME AND INSTANCE NAME (AS DEFINED IN THE COMMCELL CONSOLE) ARE DIFFERENT?

No. Prior to running backups from the RMAN command line, ensure that the Oracle database name and the Instance Name as defined in the CommCell Console are the same, otherwise you will need to pass the name of the instance in the RMAN script as follows:

```
allocate channel ch1 type 'sbt_tape'
PARMS="SBT_LIBRARY=<SBT_LIBRARY_NAME>,ENV=(CvClientName=<client_name>,CvInstanceName=<instance_name>,CvOraSID=<Oracle_SID>)"
```

where *<client_name>* and *<instance_name>* are the names of the Client and Instance (e.g., Instance001) on which the *i*DataAgent is installed.

Example for Linux:

Consider oracle instance name as RMAN and database name as RMANDB.

```
allocate channel ch1 type 'sbt_tape'
PARMS="SBT_LIBRARY=<software_install_path>/Base/libobk.so>,ENV=(CvClientName=machine1_cn,CvInstanceName=Instance001,CvOraSID=RMAN)"
```

ON WINDOWS CLIENTS, CAN WE RUN MULTIPLE RMAN JOBS SIMULTANEOUSLY FOR THE SAME INSTANCE FROM THE COMMCELL CONSOLE?

No. You should always limit the RMAN jobs for the same instance to run one at a time in the CommCell Console and Scheduler.

CAN WE PERFORM RMAN CROSS CHECK ON ON DEMAND INSTANCES?

No. We cannot perform RMAN Cross check on On Demand Instances.

CAN WE RUN MULTIPLE INSTANCE SCRIPTS USING THE SAME INPUT FILE FOR AN ON DEMAND INSTANCE?

No. We cannot run multiple instance scripts using the same input file for an On Demand Instance.

WHY DOES THE DATA SIZE INCREASE WHEN YOU RESTART AN ON DEMAND BACKUP JOB?

If you restart an On Demand backup job with multiple scripts for the same instance, the backup is resumed from the beginning of the script. During this process, the archive files that were backed up before the restart will again be included in the backup after the restart. This increases the data size of the restarted backup job.

You can prevent this behavior by updating the scripts before the restart.

CAN WE RUN THIRD-PARTY COMMAND LINE BACKUP OPERATIONS WHEN A SELECTIVE ONLINE BACKUP JOB IS RUNNING?

No. Third-party command line backup operations cannot be run when a selective online full backup job is running.

CAN WE MOVE ORACLE INSTANCES USING COMMAND LINE?

Yes. We can move Oracle instances from one client or cluster node to another client or node within a CommCell using the qoperation move command. However, On Demand instances cannot be moved using this command. See qoperation move for more information on usage.

WHEN DOES A NON-FULL BACKUP AUTOMATICALLY GET CONVERTED TO A FULL BACKUP?

- When you select backup type as Full in CommCell Console and enter the backup type as Incremental on customize script, the job will run as Full.
- When you select backup type as Incremental in CommCell Console and enter the backup type as Full on customize script, the job will run as Full. However, the Job Manager will treat this job as Incremental (on job controller and job history and job report). This job will be pruned as it reaches the data retention date.
- When a storage policy is changed and if backup type is switched to full from job manager, the increment level will be changed to 0.
- If you do not enter the backup type on customize script, then the system picks up the backup type selected in CommCell Console.

CAN WE RUN ORACLE DATA INTEGRATOR (ODI) BACKUP IF CHANNEL NAME CONTAINS ALL ZEROES

No. We cannot perform On Demand Instance backups (ODI) backups if the channel name contains all zeroes.

Example:

allocate channel ch00 type sbt;

WHAT IS A SELECTIVE ONLINE FULL BACKUP JOB?

Selective Online Full backup is a full backup performed when an Oracle database is online and is copied to a selective copy (during an auxiliary copy operation) from which it can be restored.
The advantage of this type of backup is that both the data and logs use the same storage policy, which means that they reside together on the same media. They are completely self-contained for restore and long term archiving purposes. This is especially useful in disaster recovery situations by alleviating the need to locate different offsite media from various jobs to gather the necessary data and logs to recover the database. Also, the data aging rules for selective online full backups are different from regular full backups, as both data and logs are aged together under the same storage policy.

WHY ORACLE FULL JOBS ARE NOT COPYING TO SELECTIVE COPY DURING AUXILIARY COPY OPERATION?

Only Oracle Selective Online Full and Offline jobs will be copied to a selective copy. All other jobs including regular online full jobs will not be copied.

HOW TO RETAIN THE ORACLE FULL JOBS THAT ARE NOT HONORING EXTENDED RETENTION RULES?

Oracle regular Online FULL jobs are not considered for selective copy. Hence, they do not honor the extended retention rules. Extended retention is supported only for Oracle Selective Online Full and Offline FULL jobs.

HOW DO YOU VERIFY IF EXTERNAL PRUNING IS ENABLED FOR ORACLE DATA?

Oracle Data is retained using the retention settings in RMAN. From the RMAN prompt, run the following command to verify the retention rules:

```
show RETENTION POLICY;
```

Run the following command from RMAN to receive obsolete pieces:

```
report obsolete;
```

Run the following command from RMAN if you want to delete them:

```
delete obsolete;
```

Oracle sends prune request to Media manager to prune data when delete obsolete command is run from RMAN session.

We do not recommend running these commands as it interferes with Calypso retention rules and auxiliary copies.

See Oracle RMAN Retention Policy for more information.

HOW DO WE SET THE DATE TIMESTAMP IN THE RMAN OUTPUT?

In the RMAN output, the date timestamp parameter is set to Mon DD YYYY HH24:MI:SS format, by default.

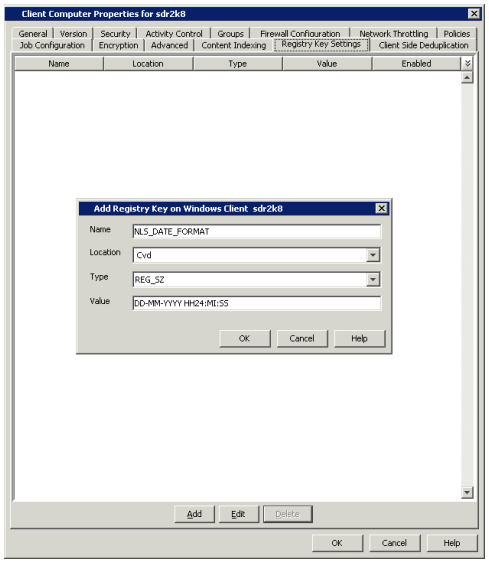
Use the following steps to set the date timestamp in a specified format:

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click <***Client***> and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.

5. In the **Name** box, type NLS_DATE_FORMAT.
6. In the **Location** box, select **iDataAgent**.
7. In the **Type** box, select **REG_SZ**.

   On Unix Client, select **Value**.
8. In the **Value** box, type *<Value>*.

   For example, DD-MM-YYYY HH24:MI:SS.
9. Click **OK**.



CAN WE INCLUDE MULTIPLE RUN BLOCKS IN THE SAME RMAN SCRIPT FOR AN ON DEMAND INSTANCE?

No. We cannot include multiple Run Blocks in the same RMAN script.

HOW IS THE DATA RETRIEVED DURING BROWSE AND RESTORE OPERATIONS?

When you browse or restore data, the browse function by default returns the requested data based on the latest backups available. This is usually the information that users are interested in. The browse function does this by using the current date and time as the effective date.

HOW CAN WE SUCCESSFULLY RESTORE A TABLE?

You must select all the tablespaces on which this table resides to successfully restore a table.

WHAT ARE THE TABLES THAT CAN BE RESTORED IN ORACLE 11G2?

You can restore tables under non-system tablespaces in Oracle 11g2.

HOW ARE TABLE INDEXES HANDLED DURING RESTORE?

When you include the indexes during a table restore, note that only the index definition is restored and not the indexed data.

CAN WE MANUALLY IMPORT TABLES FROM THE AUXILIARY INSTANCE?

Once the tables are restored to the auxiliary instance, you can either use the CommCell Console to export the data from the auxiliary instance and import it to a destination that you choose, or you can leave the data in the staging path and import the data manually by using Oracle import utilities.

HOW ARE STORED PROCEDURES RESTORED?

Stored procedures are restored from the Schema level. Schema is the collection of data objects created by the user to contain or reference their data. Hence, if one of the table within the schema is selected for restore, all the stored procedures for that schema will also get restored.

CAN WE RESTORE TABLES WHEN THERE IS A SCHEMA CHANGE IN THE DATABASE?

No. Table restores are not supported when there are schema changes in the database.

WHAT HAPPENS IF ONE OF THE STREAMS FAIL WHEN RUNNING THIRD-PARTY COMMAND LINE OPERATIONS WITH MULTIPLE STREAMS?

Oracle third-party command line operations running on multiple streams will share the same Job ID in the Job Manager. If all the streams return failure, then the job is marked as failed. However, if one of the streams fail, it is submitted to the other stream for completion.

HOW ARE THIRD PARTY COMMAND LINE JOBS HANDLED WHEN ORACLE SERVICES USE A DIFFERENT SERVICE ACCOUNT INSTEAD OF LOCAL SYSTEM?

When Oracle Services use a different service account other than Local System, third party command line jobs are run with multiple job IDs. In such cases, use the following steps to enable third party command line jobs to run with a single job ID:

1. From the **Start** menu, point to **Administrative Tools**, and then click **Local Security Policy**.
2. Double-click **Local Policies**, and then double-click **User Rights Assignment**.
3. In the details pane, double-click **Adjust memory quotas for a process**.
4. Click **Add User or Group**.
5. In the **Enter the object names to select** box, type the user or group name to which you want to assign the user right, and then click **OK**.
6. In the details pane, double-click **Replace a process level token**.
7. Click **Add User or Group**.
8. In the **Enter the object names to select** box, type the user or group name to which you want to assign the user right, and then click **OK**.

HOW DO WE DELETE ARCHIVE LOGS FROM A FLASH RECOVERY AREA THAT IS PROTECTED?

When the Oracle database is configured to save archive logs in the Flash recovery area, backup jobs will fail if the Oracle subclients have both the Protect backup recovery area and the Archive Delete options enabled at the same time.

To avoid such backup failures you need to configure two different subclients, one for Protect backup recovery area and the other for enabling Archive Deletion option for deleting Archive logs.

WHAT IS THE BEHAVIOR OF ARCHIVE FILES IF YOU RESTART AN OFFLINE BACKUP JOB?

By default, the offline full backup jobs restart from the beginning. The archive files that are created in the earlier attempt are still marked valid. The size of the application in the restarted job will increase from the earlier attempt of this backup job.

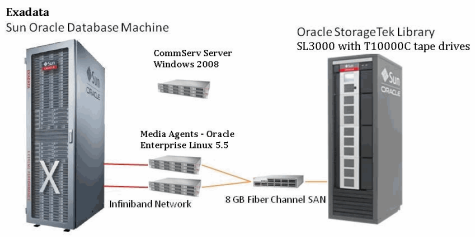
If we submit restore from the latest offline restarted jobs, the data from the archive files that are created after the job is restarted will also be restored.

HOW DO WE CONFIGURE BACKUPS ON ORACLE EXADATA DATABASE MACHINES?

In order to backup Oracle Exadata Database Machines, do the following:

1. Install the Oracle *i*DataAgent on all the Exadata nodes.
2. Create a RAC pseudo client that includes all the Exadata nodes.
3. Add the MediaAgent to the Infiniband network.

   If using tapes for backup, make sure to include an optimal tape block size (eg.,2048K for Linux clients) in the storage policy copy. See Set the Chunk Size and Block Size for a Data Path for information on setting the block size value.
4. Add Data Interface Pair (DIPs) for Infiniband IP address between the Exadata nodes and the MediaAgent.
5. Run backups on the pseudo client.



WHY IS THE CLEANUP NOT OCCURRING FOR STAGING AREA DURING TABLE LEVEL RESTORES?

It happened as you have not removed the data files which are restored to staged path and auxiliary instance when a table level restore failed in export or import phase. You can run the export and import jobs manually without restoring the database again.

CAN I USE A DEDUPLICATED STORAGE POLICY FOR LOG BACKUPS?

Yes. You can assign deduplicated storage policy for log backups. However, the *i*DataAgent will consider the storage policy as a non-deduplicated storage policy and does not Deduplicate the logs.

WHEN DO WE CONFIGURE A STATIC LISTENER?

If the Oracle connect string uses a dynamic listener, you must configure a static listener to perform:

- Offline backups with lights out script when the Oracle database is in open mode.
- Database restores with the switch database mode when the Oracle database is in open mode.

CAN I PERFORM A BACKUP AND RESTORE OF A CONTAINER AND PLUGGABLE DATABASE?

Yes.

- Container databases can be backed up by creating an instance for the container database. This backup includes all the pluggable databases in the container database. See Managing Configuration Databases for details.
- Pluggable databases can be individually backed up, or backed up together. See Backing Up a Single Pluggable Database and Backing Up Multiple Pluggable Databases.
- Container backups can be used to restore the entire container database, or its pluggable databases. See Restoring a Container Database and Restoring Pluggable Databases from a Container Database Backup.
- Pluggable backups can be restored. See Restoring Pluggable Databases from a Pluggable Database Backup

Troubleshooting Backup - Oracle *i*DataAgent

Backup | Restore

BACKUP FAILURES

The following section provides information on troubleshooting backups.

Increase in sbtio.log file size	Sometimes, jobs fail due to increase in the size of sbtio.log file in the $UDUMP directory. To resolve this, set the size limit for thesbtio.log file using the sMAXORASBTIOLOGFILESIZE registry key. Once the specified size limit is reached, the sbtio.log file gets pruned automatically.
Command Line Backup Failures	• Make sure if the required media resource is available and then run the backups once again. • For on demand backups, you can run more than one script for an instance. However, backup jobs will fail if there are more than one instance in the argument file. • For Oracle on Windows, it is recommended to avoid using a space after a comma in the argument file. A backup job will fail if you leave a space after a comma in the argument file. • RMAN command line backup fails with the following error "Unable to open lock file /opt/calypso/Base/Temp/locks/.dir_lock: Permission denied" This may occur if the unmask parameter is set as 022 in the .profile file for the Oracle instance. As a workaround, change the unmask to 000 or 002 and try the backup again.
	Sometimes, the third party command line jobs may hang when you perform large backups and restores. This happens since ClOraControlAgent updates the job manager for every 100MB data transfer and this causes the thread failure for large backups/ restores after transferring some of the data. The following exception will be seen in the clOraControlAgent.log: 5710030 304 02/22 03:47:23 608119 OraAgentBase::NotifyCommServeJobContinue() - m_jobObject->setUnCompBytesToAdd(105119744) ... 5710030 304 02/22 03:47:24 608119 CvThread::start_func() - Unhandled exception. 5710030 405 02/22 03:47:37 608119 ClOraControlAgent::OnClientTimeout() - Got timed out while waiting for msg from client 0 You can set sBYTESDIFFMBS registry key <value> in MBs in OracleAgent/.properties. This will update the job manager at every <value> in MBs specified in the key.
Offline backups fails when using lights out script	• Offline backups using lights out script fails with the following error: RMAN error "ORA-12528 TNS listener - all appropriate instances are blocking new connections As a workaround, add a reference to the database in the listener.ora file as shown in the example below: SID_LIST_LISTENER = (SID_LIST = (SID_DESC = (SID_NAME = PLSExtProc) (ORACLE_HOME = C:\oracle\product\10.1.0\db_1) (PROGRAM = extproc)) (SID_DESC = (SID_NAME = rman10g) (ORACLE_HOME = C:\oracle\product\10.1.0\db_1) (SID = rman10g))) Oracle offline backup with lights out option fails when you use the default value for retry attempts for the subclient. As a workaround, increase the retry attempts by setting the **Tries number** value greater than or equal to 5. See Configuring Lights Out Script for Offline Backups for more details.
Time Out Failures	The default time for resources to allocate streams during RMAN command line backups is 86400 seconds (i.e., 24 hours). If a backup fails due to a timeout being reached, you can configure the sALLOCATESTREAMSECS registry key to increase the waiting time period.
Backup Failures	• If the following line is present in the $ORACLE_HOME/sqlplus/admin/glogin.sql file, it may cause the SrvOraAgent server process on the CommServe to fail when browsing database contents or executing a backup. set linesize 80 To avoid such failures, comment out that line from the file and re-try the browse or backup operation. • Backup fails with following error: Character conversion not supported

	By default, the NLS_LANG variable on the client computer is set to American_America.US7ASCII character. If the Oracle instance uses NLS_LANG set to a non American_America.US7ASCII character, the Oracle backup operations will fail. In such cases, use the <oracle_SID>_NLS _LANG registry key to set the NLS_LANG environment variable to the non American_America.US7ASCII character on the client computer.
Backup Fails on Red Hat Enterprise Linux 4 with oracle version 10.1.0.5 32Bit	**ISSUE:** The backup may fail with the following error on Red Hat Enterprise Linux 4 with oracle version 10.1.0.5 32Bit as there is a known oracle issue with libunwind.so.3 file: channel ch1: starting piece 1 at Jul 12 2013 16:46:08 PID 30152, signal 6 (Aborted), address 0x75c8 [bt]: (1) /lib/tls/libpthread.so.0 [0x622890] [bt]: (2) /lib/ld-linux.so.2 [0x3b07a2] [bt]: (3) /lib/tls/libc.so.6(gsignal+0x55) [0x3f57a5] [bt]: (4) /lib/tls/libc.so.6(abort+0xe9) [0x3f7209] [bt]: (5) /soft/oracle/product/db/10.1.0.5/lib/libunwind.so.3(GetCurrentFrame32+0xdc) [0xb7ffd0ce] [bt]: (6) /soft/oracle/product/db/10.1.0.5/lib/libunwind.so.3(_Unwind_RaiseException+0x5b) [0xb7ffc86b] [bt]: (7) ./libstdc++.so.6(__cxa_throw+0x5d) [0xb60a126d] [bt]: (8) ./libCvLib.so(_ZN10CvFwDaemonC1EPKcbii+0x2ee) [0xb6207c00] [bt]: (9) ./libCvLib.so(_ZN10CvFwClient7connectEPKcS1_iiiiPFvR9CQiSocketPvES4_b+0xf6f) [0xb6211acb] [bt]: (10) ./libCvSession.so(_ZN9CVSession16socketConnectionEPKcS1_+0x261) [0xb72cd4f1] [bt]: (11) ./libCvSession.so(_ZN9CVSession9getSocketEPKcS1_+0x135) [0xb72cddd5] [bt]: (12) ./libCvSession.so(_ZN9CVSession13getConnectionEPKvPKc+0x11b) [0xb72cdf1b] [bt]: (51) oracleHWRHDEV(main+0xbb) [0x82816bf] [bt]: (52) /lib/tls/libc.so.6(__libc_start_main+0xd3) [0x3e2de3] [bt]: (53) oracleHWRHDEV(ldxsto+0x1d1) [0x828157d] RMAN-00571: === RMAN-00569: =============== ERROR MESSAGE STACK FOLLOWS =============== RMAN-00571: === RMAN-03009: failure of backup command on ch1 channel at 07/12/2013 16:46:33 RMAN-10038: database session for channel ch1 terminated unexpectedly RMAN> Recovery Manager complete.] 3 16:46:33 RMAN-10038: database session for channel ch1 terminated unexpectedly RMAN> Recovery Manager complete.] **RESOLUTION:** Upgrade your oracle version from 10.1.x to 10.2 to avoid the backup failure on Red Hat Enterprise Linux 4.
Database block corruption	Oracle backups fail with the following error: LISTING 2: r_20030520213618.log RMAN-00571: === RMAN-00569: =============== ERROR MESSAGE STACK FOLLOWS =============== RMAN-00571: === RMAN-03009: failure of backup command on d1 channel at 05/20/2003 21:36:26 ORA-19566: exceeded limit of 0 corrupt blocks for file /u01/app/Oracle/oradata/MRP/sales_data_01.dbf Make sure that the maximum value for database block corruptions is set for the backup. It is recommended that you set this value to match the number of corrupted database blocks identified by RMAN for the database file being backed up.
Backups fail intermittently on Linux clients	On Linux clients, if the libobk.so library fails to load, the backups may fail. As a workaround, do the following steps: 1. Log in to the Oracle client computer as root. 2. From the system prompt, enter the following command: **ldconfig /<*Base_directory_name*>** For example: # ldconfig <*software installation path*>/Base This will ensure that the libobk.so library is loaded so that backups for Oracle on Linux can run successfully.
Backup fails on Windows Clients	Make sure that the Oracle user is part of administrator group. If the user is not part of administrator group, assign group permissions for the user as follows: 1. From Windows Explorer, right-click Calypso folder and then select **Properties**. 2. Click the **Security** tab. 3. Select the user and click **Edit**. 4. Click the **Allow** checkbox for **Full Control** permission for the user, and then click **OK**. 5. From the Registry Editor, navigate to **HKEY_LOCAL_MACHINE | SOFTWARE**. 6. Right click **CommVault Systems** and select **Permissions...**

	7. Select the user and click **Allow** checkbox for **Full Control** permission.
Log backups failure	• If the Oracle database is configured to save the archive logs in the Flash recovery area, and Oracle subclients having both Protect backup recovery area and Archive Delete enabled at the same time then the backup will fail. To resolve this, there should be two different subclients, one for Protect backup recovery area and the other for Archive Delete. • Log backup fails if you select the default USE_DB_RECOVERY_FILE_DEST entry as a log destination for the backup. To resolve this, make sure that the log destinations are included in the PFile(init<SID>.ora) or SPFile (spfile.ora) file. Also ensure that the correct log destination is selected for the backup.
Backup fails on Linux clients because of UNKNOWN Instance Status	Backups may fail on Linux clients if the Oracle instance status is shown as UNKNOWN on CommCell Console. To resolve this issue, make sure the nproc value in /etc/security/limits.d/90-nproc.conf file is greater than 1024.
Shared Memory Error	**Issue**: The backup failed because the shared memory on the HP-UX PA-RISC client has not been configured per operational guidelines. **Resolution**: Add the **DisableIPC_GLOBAL** file in the **/apps/simpana/Base** directory on the client where the backup failed. 1. Stop the Calypso software. 2. Create an empty file called **DisableIPC_GLOBAL** in the **/apps/simpana/Base** directory. From the command line, enter the following: **touch /apps/simpana/Base/DisableIPC_Global** 3. Restart the Calypso software.

TROUBLESHOOTING PERFORMANCE ISSUES

If you are experiencing performance issues during backup, you can troubleshoot them by enabling logging of performance details in the log files. These performance counters contain information that help in resolving the performance related issues during backups.

1. Use the following registry to display the performance details for a specific backup job.

REGISTRY KEY	LOCATION	SUPPORTED VALUES
sORASBTPERFSTAT	• For Windows: HKEY_LOCAL_MACHINE\Software\CommVault Systems\Galaxy\Instance<xxx>\OracleAgent • For Unix: /etc/CommVaultRegistry/Galaxy/Instance<xxx>/OracleAgent/.properties	Y or Yes to enable.

The following performance counters will be printed in the log files:

TOTAL ORACLE I/O TIME	Time spent per SBT thread for reading the data from disk.
TOTAL MA I/O TIME	Time spent during data transfer to MediaAgent i.e., data read from the network buffer and written to the disk.

2. Perform a client backup to determine the performance statistics. To perform a backup, see Getting Started Backup - Oracle *i*DataAgent for step-by-step instructions.

   You can track the progress of the job from the **Job Controller** window of the CommCell Console.

   - Right-click the backup job and click **Details** and verify the **Data Transferred on Network**.

     For example, if backup job is using 10 streams, make sure to backup at least 200 GB of data. If you are performing backups using 5 streams, make sure to backup at least 100 GB of data.

   - Kill the job by right-clicking the backup job and then click **Kill**.

3. View log files of backup job to verify performance counters. See View the Log Files of a Job History for step-by-step instructions.

4. In the log file verify the above performance counters.

   If the **Total Oracle I/O Time** value is more than the **Total MA I/O Time** value then perform the following to improve performance:

   - Verify Oracle application compression. If it is ON, turn OFF the compression.
   - Verify Bull Calypso compression. If it is ON, turn OFF the compression from instance and storage policy copy level. See Setting

Up Data Compression for step-by-step instructions.

- Depending upon your environment, modify Data Files per BFS (value to 4 or 8) and Max Open Files. See Enhancing Backup Performance for step-by-step instructions.

If the **Total Oracle I/O Time** value is lesser than the **Total MA I/O Time** value then perform the following to improve performance:

- If the write throughput of the disk is slow, run CvDiskPerf tool to measure the throughput for the disk. See Measure the Deduplication Disk Performance for more information.
- If the data transfer on the network is slow or you have a low bandwidth network environment, then verify Network Throughput by running CvNetworkTestTool tool. If network throughput is low then enable nNumPipelineBuffers registry key to increase the data transfer throughput from the client. See Increasing Data Transfer Throughput From Client for more information.

COMPLETED WITH ONE OR MORE ERRORS

Backup jobs from Oracle *i*DataAgent will be displayed as "Completed w/ one or more errors" in the Job History in the following cases:

- When RMAN Script execution for the backup job completes with warnings.
- When job is killed after backing up some data.
- During offline backups, if the database cannot be opened after a backup.

ORACLE ERRORS

If you receive an Oracle error during an Oracle backup operation, we recommend that you follow procedures published by Oracle Corporation on resolving the specific error. We also advise you to consult with your on-site Oracle database administrator, as needed.

Troubleshooting Restore - Oracle *i*DataAgent

Backup | Restore

The following section provides information on troubleshooting restores.

BROWSE FAILURES

Point in time Table Browse Failures	When you have encryption enabled for the client, point in time table browse operation fails with the following error message: **Pass-phrase protection is on for client [80], but pass-phrase was not specified.** Make sure that the pass phrase is exported to the MediaAgent when encryption is enabled for the client. 1. From the CommCell Browser, right-click the client and select Properties. 2. Click the **Encryption** tab. 3. Click **Via Pass-Phrase**. 4. Click **Export**. 5. In the **Destination Computer** box, select the MediaAgent. 6. In the **Pass-Phrase** box, type the pass-phrase used for encryption. 7. In the **Re-enter Pass-Phrase** box, re-type the pass-phrase to confirm. 8. Click **Export**. 9. Click **OK**.

RESTORE FAILURES

Table Restore Failures	Make sure that the Oracle Services are running as Local System.
Database Restore Failures	After performing an Oracle restore operation from the CommCell Console where options were selected for **Redirect**, **Rename** and **Recover** at the same time, you must click the **Refresh** button on the **Subclient Properties (Content)** tab or run a backup after the restore operation has completed before proceeding with another restore. This is necessary to ensure that the CommCell Console recognizes the changes that were made to the Oracle database and control file, so that it reflects the current structure of the database to be restored, otherwise the restore will fail.
Unable to create Duplicate Database	• When you are creating a duplicate database or using an auxiliary instance for a table restore, make sure that one of the databases use sys as the connect string. • If a duplicate database restore fails with error PLS-00553: character set name is not recognized; then make sure that the character sets are the same between the location from where you are running RMAN, and the location of the target database. As this is an Oracle related issue, please contact Oracle support for more information.
Increase in sbtio.log file size	Sometimes, jobs fail due to increase in the size of sbtio.log file in the $UDUMP directory. To resolve this, set the size limit for thesbtio.log file using the sMAXORASBTIOLOGFILESIZE registry key. Once the specified size limit is reached, the sbtio.log file gets pruned automatically.
Table Level Restore Intermittent Failures	The table level restore operation may fail intermittently due to an error in the Oracle's DataPump utility and the following error message will be displayed: UDE-00008: operation generated ORACLE error 31623 ORA-31623: a job is not attached to this session via the specified handle In such cases, set the sNODATAPUMPEXPORT registry key to Y on the client and re-submit the job.
Control File Restores Failures	Ensure that the DBID is assigned for the instance. Make sure that the DBID value for the database you are restoring is automatically displayed in Instance Properties.
Command Line Restore Failures	Verify the availability of the required resource then rerun the RMAN command line operation
	Sometimes, the third party command line jobs may hang when you perform large backups and restores. This happens since ClOraControlAgent updates the job manager for every 100MB data transfer and this causes the thread failure for large backups/ restores after transferring some of the data. The following exception will be seen in the clOraControlAgent.log: 5710030 304 02/22 03:47:23 608119 OraAgentBase::NotifyCommServeJobContinue() - m_jobObject->setUnCompBytesToAdd(105119744) ... 5710030 304 02/22 03:47:24 608119 CvThread::start_func() - Unhandled exception. 5710030 405 02/22 03:47:37 608119 ClOraControlAgent::OnClientTimeout() - Got timed out while waiting for msg from client 0 You can set sBYTESDIFFMBS registry key <value> in MBs in OracleAgent/.properties. This will update the job manager at every <value> in MBs specified in the key.
Unable to create a Standby Database	Standby database fails with the following error message: temporary file TEMP01.DBF conflicts with file used by target database Make sure that the Standby Role Initialization parameter, DB_FILE_NAME_CONVERT, is set to add all the temp datafiles from the primary database location to the standby database location, as follows: DB_FILE_NAME_CONVERT='<primary_database_temp_datafile_old_location>','

	<standby_database_temp_datafile_new_location>

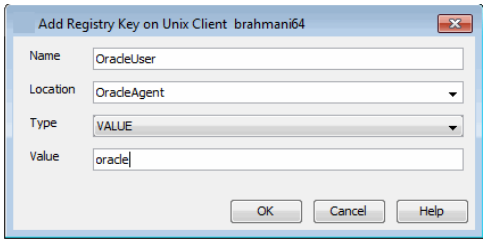
RESTORE ERROR ON LINUX CLIENT WHEN SWITCH DATABASE MODE IS ENABLED

When restoring Oracle database on Linux clients, if the **Switch database mode for restore** option is selected to keep database in correct mode during restore, the database may not restart after switching the database mode. Also, the restore operation may fail with the following error message.

RMAN Script execution failed with error [RMAN-04014: startup failed: ORA-27137: unable to allocate large pages to create a shared memory segment]. Please check the Logs for more details.

This issue occurs if the oracle user has a higher ulimit configuration than the root user. To resolve this issue, apply the ulimit value of Oracle user for the restore using the following steps:

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click the <***Client***>, and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type OracleUser.
6. In the **Location** box, select or type OracleAgent from the list.
7. In the **Type** box, select **Value**.
8. In the Value box, type the Oracle user name (eg., **oracle**) and then click **OK**.
9. Click **OK**.
10. Restart Calypso Services on the client.



RECOVERING DATA ASSOCIATED WITH DELETED CLIENTS AND STORAGE POLICIES

The following procedure describes the steps involved in recovering data associated with the following entities:

- Deleted Storage Policy
- Deleted Client, Agent, Backup Set or Instance

BEFORE YOU BEGIN

This procedure can be performed when the following are available:

- You have a Disaster Recovery Backup which contains information on the entity that you are trying to restore. For example, if you wish to recover a storage policy (and the data associated with the storage policy) that was accidentally deleted, you must have a copy of the disaster recovery backup which was performed before deleting the storage policy.
- Media containing the data you wish to recover is available and not overwritten.
- If a CommCell Migration license was available in the CommServe when the disaster recovery backup was performed, no additional licenses are required. If not, obtain the following licenses:
  - IP Address Change license
  - CommCell Migration license

  See License Administration for more details.
- A standby computer, which will be used temporarily to build a CommServe.

RECOVERING DELETED DATA

1. Locate the latest Disaster Recovery Backup which contains the information on the entity (Storage Policy, Client, Agent, Backup Set or Instance) that you are trying to restore.

- You can check the Phase 1 destination for the DR Set or use Restore by Jobs for CommServe DR Data to restore the data.
- If the job was pruned and you know the media containing the Disaster Recovery Backup, you can move the media in the **Overwrite Protect Media** Pool. See Accessing Aged Data for more information. You can then restore the appropriate DR Set associated with the job as described in Restore by Jobs for CommServe DR Data.
- If the job is pruned and you do not know the media containing the Disaster Recovery Backup, you can do one of the following:

  If you regularly run and have copies of the Data on Media and Aging Forecast report you can check them to see if the appropriate media is available.

2. On a standby computer, install the CommServe software. For more information on installing the CommServe, see CommServe Deployment.
3. Restore the CommServe database using the CommServe Disaster Recovery Tool from the Disaster Recovery Backup described in Step 1. (See Restore a Disaster Recovery Backup for step-by-step instructions.)
4. Verify and ensure that the **Bull Calypso Client Event Manager Bull Calypso Communications Service (EvMgrS)** is running.
5. If you did not have a CommCell Migration license available in the CommServe when the disaster recovery backup was performed, apply the IP Address Change license and the CommCell Migration license on the standby CommServe. See Activate Licenses for step-by-step instructions.
6. Export the data associated with the affected clients from the standby CommServe as described in Export Data from the Source CommCell.

   When you start the Command Line Interface to capture data, use the name of the standby CommServe in the -commcell argument.

7. Import the exported data to the main CommServe as described in Import Data on the Destination CommCell.

   This will bring back the entity in the CommServe database and the entity will now be visible in the CommCell Browser. (Press F5 to refresh the CommCell Browser if the entity is not displayed after a successful merge.)
8. If you have additional data that was backed up after the disaster recovery backup and before the deletion of the entity, use the procedure described in Import Metadata from a Tape or Optical Media to obtain the necessary information.
9. You can now browse and restore the data from the appropriate entity.

   As a precaution, mark media (tape and optical media) associated with the source CommCell as READ ONLY before performing a data recovery operation in the destination CommCell.

OPTIMIZING MEMORY ALLOCATION FOR TABLE RESTORES

When restoring large tables, the restore operation may fail if there is insufficient memory allocation for creating the auxiliary instance.

Use the following steps to optimize the memory allocation for the auxiliary instance:

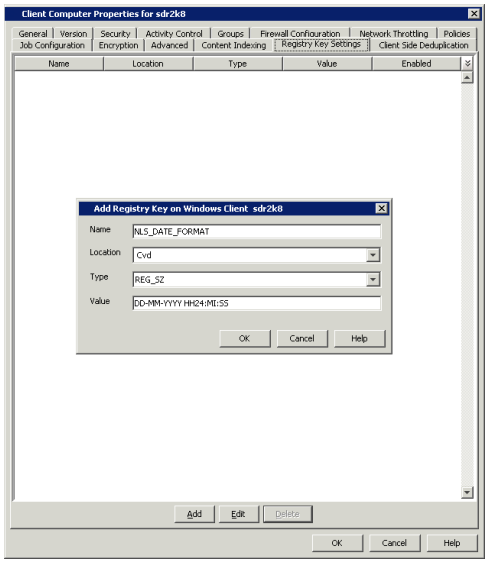
ALLOCATING MEMORY FOR AUXILIARY INSTANCE

By default, 16MB pool size is allocated for the auxiliary instance. Use the following steps to increate this size limit:

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click the <***Client***>, and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type sLARGEPOOLSIZE.
6. In the **Location** box, select ***i*DataAgent**.
7. In the **Type** box, select **REG_SZ**.

   On Unix Client, select **Value**.
8. In the **Value** box, type *<Value>*.

   For example, 32M.
9. Click **OK**.



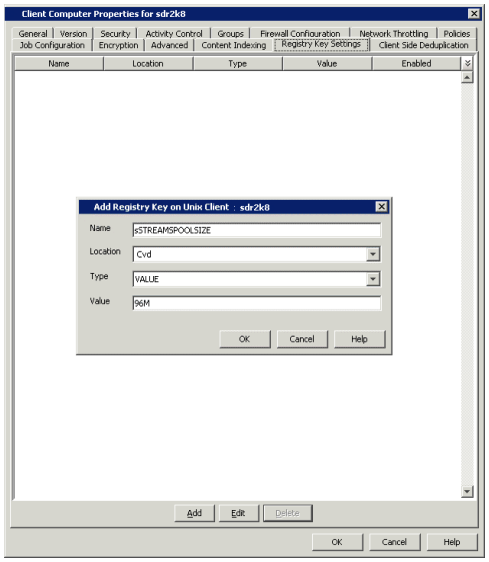
ALLOCATING MEMORY FOR ORACLE STREAMS

By default, the system allocates 48 MB for the Oracle streams. You can modify this value using the following steps:

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click <***Client***> and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type sSTREAMSPOOLSIZE.
6. In the **Location** box, select **iDataAgent**.
7. In the **Type** box, select **REG_SZ**.

   On Unix Client, select **Value**.
8. In the **Value** box, type *<Value>*.

   For example, 96M.
9. Click **OK**.

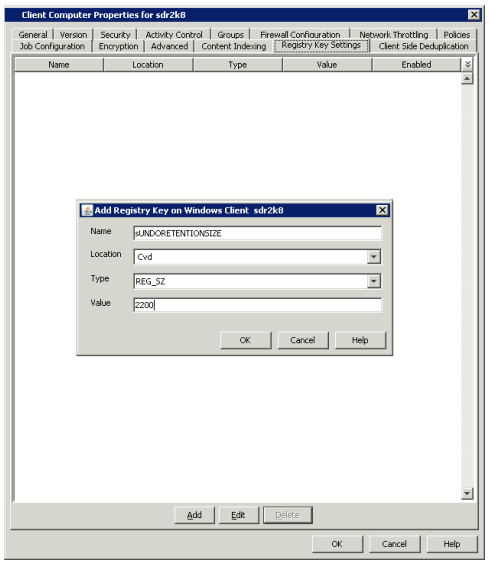


SETTING THE UNDO RETENTION PERIOD

Whenever a transaction is committed, the old undo information, is retained by default for a period of 1800 secs. You can modify this value, using the following steps:

1. From the CommCell Browser, navigate to **Client Computers**.
2. Right-click the <***Client***>, and then click **Properties**.
3. Click the **Registry Key Settings** tab.
4. Click **Add**.
5. In the **Name** box, type sUNDORETENTIONSIZE.
6. In the **Location** box, select **iDataAgent**.
7. In the **Type** box, select **REG_SZ**.

   On Unix Client, select **Value**.
8. In the **Value** box, type *<Value>*.
9. Click **OK**.



VIEWING RMAN ERRORS

- If the system notifies you that there was an "RMAN error" during a backup or restore operation, we advise you to view the RMAN Output Log to identify which error was encountered. To view the RMAN Output Log, do the following:

  1. From the CommCell Browser, right-click the ***<Instance>***, point to **View**, and then click either **Backup History** or **Restore History**.
  2. Click **OK**.
  3. On the Job History window, right-click the job, and then select **View Log File**.The RMAN Output Log will display for the job.

  Once you have identified the specific RMAN error, consult one of the following publications from Oracle Corporation for information on resolving the specific error, in conjunction with your on-site Oracle database administrator:

  - Oracle - Backup and Recovery Guide
  - Oracle - Recovery Manager User's Guide and Reference
  - Oracle - Recovery Manager User's Guide

COMMCELL CONSOLE ERRORS

- If only command line backups have been performed, and a Browse Restore operation is subsequently attempted from the CommCell Console without first opening and closing the subclient properties, then the system will display a message indicating that no data was backed up. If this happens, ensure that you open and then close the subclient properties of the Oracle *i*DataAgent you are trying to restore, then try the Browse Restore operation again.
- If the line "set linesize 80" is present in the file $ORACLE_HOME/sqlplus/admin/glogin.sql, it may cause the SrvOraAgent server process on the CommServe to fail when browsing database contents or executing a backup. To avoid such failures, comment out that line from the file and re-try the browse or backup operation.
- For Oracle 10g and higher, if the instance is configured for autobackup with flash recovery, then restoring the SPFile from the CommCell Console will not work. The following work-arounds are available in this situation:
  - Work-around 1:

    Comment out the option "db_recovery_file_dest" from the PFile, then re-create the SPFile using the new PFile. Afterwards, restoring the SPFile from the CommCell Console should work.
  - Work-around 2:

    Restore the SPFile manually using RMAN with the script below:

    ```
    RMAN> run {
    2> ALLOCATE CHANNEL c1 DEVICE TYPE DISK;
    3> restore spfile from autobackup;
    4> }
    ```

POINT-IN-TIME RECOVERY

When you recover a database to a point in time, the RMAN command ALTER DATABASE OPEN RESETLOGS is executed which will reset the SCN (System Change Number) and time stamp on every object of the database (i.e., datafiles and control files). Also, only the archived

redo logs that match the RESETLOGS SCN and timestamp value will be applied to the database, thus recovering the database to a time that is not current. This is a very useful operation if the point-in-time to which you are trying to recover is certain and known, but can be counterproductive if you are guessing at the point-in-time.

If you are not sure about the point-in-time for the recovery, it is recommended to restore the data and the control files to a point in time without recovery. This method will allow you to restore the database to a state that you can make the determination whether or not you have achieved the correct point-in-time, without invoking the"ALTER DATABASE OPEN RESETLOGS" statement that would reset SCNs and time stamps on the database objects.

After determining the correct point-in-time through this method, you can recover the database to the point in time to reset your Oracle database to the desired incarnation.

Sample scripts are provided below for your Oracle database administrator to use as reference for developing custom scripts that you can run from the RMAN command line, to perform special operations apart from the CommCell Console.

SAMPLE SCRIPT FOR RESETTING A DATABASE AFTER RESETLOGS

The following example resets a database after performing an incomplete media recovery:

```
run {
allocate channel dev1 type disk;
set until logseq 1234 thread 1;
restore database skip tablespace readonly;
recover database;
sql "ALTER DATABASE OPEN RESETLOGS";
release channel dev1;
}

reset database;
```

SAMPLE SCRIPT FOR RESETTING THE DATABASE TO AN OLD INCARNATION

The following command makes an old incarnation of database PROD1 current again:

```
# obtain primary key of old incarnation

list incarnation of database prod1;
```

List of Database Incarnations

DB Key	Inc Key	DB Name	DB ID	CUR	Reset SCN	Reset Time
1	2	PROD1	1224038686	NO	1	02-JUL-98
1	582	PROD1	1224038686	YES	59727	10-JUL-98

```
shutdown immediate;

# reset database to old incarnation

reset database to incarnation 2;

# recover it
run {
allocate channel dev1 type disk;
restore controlfile;
startup mount;
restore database;
recover database;
sql "ALTER DATABASE OPEN RESETLOGS";
release channel dev1;
}
```

COMPLETED WITH ONE OR MORE ERRORS

Restore jobs from Oracle *i*DataAgent will be displayed as "Completed w/ one or more errors" in the Job History in the following cases:

- During a table restore, if the export or import of table fails.
- RMAN recovery is completed, but an incorrect open mode is selected for restore.

RESTORE COMPLETED WITH WARNINGS

Restore jobs from Oracle for Oracle *i*DataAgent will be displayed as "Completed with Warnings" in the Job History in the following case:

- When the database restore succeeds but it fails when recovering the database or opening the database.

ORACLE ERRORS

If you receive an Oracle error during an Oracle restore operation, we recommend that you follow procedures published by Oracle Corporation on resolving the specific error. We also advise you to consult with your on-site Oracle database administrator, as needed.

Oracle Properties (General)

Use this dialog box to obtain or provide general and/or user account information for the agent.

Client Name

Displays the name of the client computer on which this Agent is installed.

***i*DataAgent**

Displays the identity of the Agent that is installed on the client computer.

Installed date

Displays the date on which the Agent was installed or upgraded on the client computer.

Enable Instance Discovery

Select this option to

Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

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Version

Use this dialog box to view the *i*DataAgent version.

Security

Use this dialog box to:

- Identify the user groups to which this CommCell object is associated.
- Associate this object with a user group.
- Disassociate this object from a user group.

Available Groups

Displays the names of the user groups that are not associated with this CommCell object.

Associated Groups

Displays the names of user groups that are associated with this CommCell object.

Activity Control

Use this dialog box to enable or disable backups and restores on a selected subclient.

If data management and data recovery operations are disabled at the client computer group or client level, then these operations below these levels will be disabled. If data management / data recovery operations are enabled at the client computer group or client level, then these operations below these levels will be enabled.

Enable Backup

Specifies whether Backups will occur from this agent or subclient.

If cleared:

- Backup operations from this agent or subclient cannot be started and are skipped.
- Running and waiting data management operations for this agent or subclient run to completion.
- Stopped data management operations for this agent or subclient cannot be resumed until this option is enabled.
- Pending data management operations for this agent or subclient do not run until this option is enabled.

Enable Restore

Specifies whether Restores will occur from this agent or subclient.

If cleared:

- Restore operations from this agent or subclient cannot be started and are skipped.
- Running and waiting data recovery operations for this agent or subclient run to completion.
- Stopped data recovery operations for this agent or subclient cannot be resumed until this option is enabled.
- Pending data recovery operations for this agent or subclient do not run until this option is enabled.

Properties of Oracle: *<instance name>* (General)

to define a new instance or view the properties of an existing Oracle instance.

Client name

Displays the name of the client computer on which this instance is found.

***i*DataAgent**

Displays the name of the *i*DataAgent to which this instance belongs.

Instance (ORACLE SID)

- When you create a new instance (Oracle SID), type the name of the instance.
- For an existing instance (Oracle SID), the name of the instance is displayed.

ORACLE Version

For an existing instance, the version of Oracle on which the *i*DataAgent was installed or upgraded on the client computer is displayed.

DBID

For an existing instance, the unique database identifier for this instance is displayed. The DBID is used to identify the database to which a datafile/tablespace belongs to and is also found in control file of this database.

ORACLE USER

Specifies the user name to access the Oracle application on a Unix client from the CommCell Console.

In order to perform backup and restore operations for the associated instance, use <SID_name>adm.

Make sure that the user has administrator privileges to access the Oracle application.

User Account

Displays the user name to access the Oracle application on a Windows client. Click the **Change** button and provide the user name and password in the Impersonate NT User dialog box.

ORACLE HOME

- When you create a new instance, enter or click **Browse** to specify the path to the application's Home directory.
- For an existing instance, the path to the application's Home directory is displayed.

ORACLE Status

For an existing instance, the status of the oracle database is displayed. Generally, the oracle database states are Open, Mounted, Started or Shutdown. Click **Refresh** to know the current status of the instance.

Properties of Oracle: *<instance name>* (Details)

When you create a new instance, use this tab to add the details of the instance.

For an existing instance, use this tab to view or change the details of the selected instance.

Connect String

- When you create a new instance, specify the database connect string.
- For an existing instance, you can change the database connect string by entering 1) database user ID, 2) password for the user ID @ 3) Oracle instance name in the three spaces provided. The user ID must have SYSDBA, ALTER SYSTEM and SELECT ANY TABLE system privileges.

Alternatively, instead of the SELECT ANY TABLE privilege, you can create less powerful user IDs with the following object privileges:

- SELECT ON "SYS"."V_$DATABASE"
- SELECT ON "SYS"."V_$DATAFILE"
- SELECT ON "SYS"."V_$SESSION"
- SELECT ON "SYS"."DBA_TABLESPACES"
- GRANT SELECT ON "SYS"."V_$ARCHIVE_DEST" TO "USER_NAME"

You can create a user ID with these privileges, or you can use the internal user ID.

Use Catalog Connect

When selected, a connection is established between the target database and the Recovery Catalog database using the specified connect string, and the Recovery Catalog database will be used for backups.

When cleared, there will be no connection between the target database and the Recovery Catalog database, and the target database Control Files will be used for backups.

The three fields are used to identify/create the connect string for the Recovery Catalog database. You can change the connect string by using entering 1) Recovery Catalog database user ID, 2) password for the user ID @ Recovery Catalog service name.

TNS Admin

Identifies the path to the TNS Admin directory. If you have not provide the path, a default path \network\admin is appended to the path of the $ORACLE_HOME directory.

For example, if $ORACLE_HOME is \opt2\oracle, then TNS_ADMIN is \opt2\oracle\network\admin.

Browse

Click to establish or change the designated TNS_ADMIN directory.

Disable RMAN cross check

When selected, the CommServe database will not be cross verified with the RMAN catalog during a data aging operation.

Ctrl File Autobackup

Lists the configuration options available AUTOBACKUP of control file so that every time a BACKUP or COPY command is executed in RMAN, an autobackup of the control file is performed.

Select:

Not Configure - Disables autobackup of the control file.

Configure On - If the backup includes a datafile, then RMAN will not automatically include the current control file in the datafile backupset, but will write the control file and server parameter file to a separate autobackup piece. If the backup does not include a datafile, the control file and server parameter file will be written to their own autobackup piece.

Configure Off - If the backup includes a datafile, then RMAN automatically includes the current control file and server parameter file in the datafile backupset. RMAN will not create a separate autobackup piece containing the control file and server parameter file.

Block Size

Specify the block size for backup and restore operations on the selected instance. You can disable the block size specification by setting the value to 0. In such cases, the default RMAN block size value will be used for backup and restore operations.

Properties of Oracle: *<instance name>* (Storage Device)

Use this dialog box to manage the oracle Instance properties.

When you create a new instance, use this tab to add the details of the instance.

For an existing instance, use this tab to view or change the storage policy used to back up data via the command line for the selected instance, select a storage policy for backing up logs on the selected instance, select a data transfer options for the selected instance or view or establish the options for Deduplication on the subclient.

Command Line Backup

- **Storage Policy used for user command backup of data**
  - When you create a new instance (Oracle SID), specify the storage policy used for command line backups and restores
  - For an existing instance (Oracle SID), you can use this space to select another storage policy. A changed storage policy will apply only to new command line backup jobs (i.e., those command line backup jobs that you subsequently start).

Log Backup

- **Storage Policy used for all Archive Log backups**
  - When you create a new instance (Oracle SID), specify the storage policy used by the subclients in this instance to back up archive log files.
  - For an existing instance (Oracle SID), you can use this space to select another storage policy.
- **Number of Archive Log Backup Streams**
  - When you create a new instance (Oracle SID), specify the number of backup streams to be used for backing up Archive Log files. The maximum number of streams is determined by the value established for the Storage Policy.
  - For an existing instance (Oracle SID), you can use this space to change the number of Archive Log Backup Streams.

Data Transfer Option

- **Software Compression**

  Select the software compression to be used for "Command Line Backup" in case hardware compression is not available or not selected on the destination storage policy copy.

  On Client

  Use the client's software compression functionality.

  On MediaAgent

  Use the MediaAgent's software compression functionality.

  Off

  Do not use software compression.

- **Resource Tuning**

  Specify the number of processes (1-4) that the client uses to transfer data. Improvement in performance is resource dependent.

  Throttle Network Bandwidth (MB/HR)

  Specify the number of processors from available options.

DEDUPLICATION

Use this tab to establish the options for deduplication on the subclient. It indicates whether deduplication for the subclient is enabled or disabled, and if enabled whether the signature generation (a component of deduplication) is performed on the client or MediaAgent computer.

Note that deduplication is supported on disk storage devices. So the deduplication options are applicable only if the subclient is associated with a Storage Policy containing disk storage.

On Client

Click to enable signature generation on the client computer.

On MediaAgent

Click to enable signature generation on the MediaAgent computer.

Properties of Oracle: *<instance name>* (Encryption)

Use this dialog box to manage the SQL Server Instance properties.

Client name

Displays the name of the client computer on which this instance is found.

Billing Department

Displays the name of the billing department, when the Instance is associated with a billing department..

***i*DataAgent**

Displays the name of the *i*DataAgent to which this instance belongs.

Version

Displays the SQL version.

Server Type

Displays the server type according to the instance selected to be added.

VDI Timeout

Use the space to type the VDI Timeout value in seconds.

When restoring a SQL database, the VDI timeout represents the time the system must wait for the SQL server to become ready to accept data into the database. If the database you are attempting to restore is particularly large, it may become necessary to increase this time-out value.

Use VSS

Available for SQL Server clients running on Windows Server.

When selected, traditional full backups for all databases within the instance will be switched to VSS full backups.

When cleared, all full backups for all databases within the instance will use the traditional backup methods.

Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

Security

Use this dialog box to:

- Identify the user groups to which this CommCell object is associated.
- Associate this object with a user group.
- Disassociate this object from a user group.

Available Groups

Displays the names of the user groups that are not associated with this CommCell object.

Associated Groups

Displays the names of user groups that are associated with this CommCell object.

Subclient Properties of <*subclient name*>(General)

Use this dialog box to manage the Oracle database properties.

Client Name

Displays the name of the Client computer to which this subclient belongs.

***i*DataAgent**

Displays the name of the *i*DataAgent to which this subclient belongs.

Instance

Displays the name of the Instance to which this subclient belongs.

Subclient (Oracle SID)

Displays the instance name of this Subclient.

Subclient Name

Displays the name of this Subclient.

You can use this space to enter or modify the name of the subclient.

Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

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Subclient Properties (Content)

Use this tab to define the contents of a new subclient or to change the contents of an existing subclient. When you back up the subclient, database objects included in the subclient content are backed up.

Selective Online Full

Specifies whether selective online full backups will be performed for this subclient.

Backup Device

Specifies the SAP for Oracle-specific device (Util_File, Rman_util, util_file_online, Util_Volume, or Util_Volume_online) to use for backups. For more information, refer to the appropriate SAP for Oracle application documentation.

Data

Specifies whether data files will be backed up for this subclient, and provides you with a choice of backup modes - Online Database, Online Subset or Offline Database.

- **Backup Mode**

  A choice of modes is provided to specify the manner in which data file backups for this subclient will be conducted.

  Online Database

  Specifies the backup of the online database.

  Online Subset

  Specifies the backup of a subset of database objects. Use the tree displayed in the **Current Database View** to add new or modify these subsets. The database must be online and in ARCHIVELOG mode when the backup is invoked.

  Offline Database

  Specifies the backup of the offline database. The database must be in the MOUNT mode when the backup is invoked.

- **Current Database View**

  Displays the subsets (tablespaces and datafiles) that are available in the database associated with this subclient.

  Refresh

  Click to refresh the content of the database.

Backup Archive Log

Specifies whether archived redo log files will be backed up. These logs can be applied to the database in order to recover it to a point-in-time. Keep in mind that when this option is selected, the Resync Catalog option on the Backup Arguments tab will automatically be selected by default. This option is not available when you select Offline Database.

Archive Delete

Specifies whether archived redo log files will be deleted once they are backed up. Any archived redo log files that do not match the format indicated by the LOG_ARCHIVE_FORMAT environment variable are not deleted. This option is available only when you select the Backup Archive Log option.

Backup Control File

Specifies whether the control files will be backed up.

Protect backup recovery area

Specifies whether to back up the Flash Recovery Area for Oracle 10g or higher versions.

Back up SP File

Specifies whether the Server Parameter File (SP File) will be backed up.

Disable Switch Current Log

When selected, log switching is disabled for the current redo log file during an archive log backup.

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Subclient Properties (Backup Arguments)

Use this tab to define the backup arguments of a new subclient or to change the backup arguments of an existing subclient.

Backup Arguments

- **Data Files per BFS**

  Use this space to specify the number of data files to be bundled in each RMAN backupset. When a value is entered greater than the default setting of 32, the following line will be displayed in the RMAN log file: set limit channel ch1 maxopenfiles = *nn*;

- **Archive Files per BFS**

  Use this space to specify the number of archive files to be bundled in each RMAN backupset.

- **Max Backupset Size (KB)**

  Use this space to specify the maximum size, in kilobytes, allowed for an RMAN backupset.

- **Max Open Files**

  Use this space to specify the maximum number of concurrent open datafiles that RMAN can read from simultaneously during a backup operation.

- **Oracle Tag**

  Use this space to enter a character string that will be used as the Oracle Tag argument associated with backups performed on the selected subclient.

Offline Arguments

The offline arguments are enabled when you choose **Offline Databases** in the Content tab.

- **Lights Out Script**

  Specifies whether the Lights Out Script will be automatically executed before backing up databases. This script shuts down the database and uses the SPFile to start up the database in mount mode. Once the backup is completed, the script opens the database. When cleared, you will have to manually start the database in mount mode, before performing a backup of an offline database. The lights out script is automatically installed with the Oracle *i*DataAgent.

- **Warning**

  For Oracle on Unix, specifies whether to issue a message to the physical node for users logged into the database warning them that the database will be shut down in the number of minutes specified in the **Delay Time (min)** option.

- **Delay Time (min)**

  For Oracle on Unix, use this space to specify the number of minutes that you want the system to wait after the warning message is sent to the physical node before attempting to shut down the database.

- **Sleep Time (min)**

  Use this space to specify the interval in minutes that you want the system to wait, or sleep, between retry attempts to shut down the database and check the status. Note that this option is only activated when the number of tries limit has been reached for the **Sleep Time (sec)** option.

- **Tries Number**

  Use this space, located below the **Sleep Time (min)** option, to specify the number of times that the system will retry attempts to shut down the database when the **Sleep Time (min)** option is activated.

- **Sleep Time (sec)**

  Use this space to specify the interval in seconds that you want the system to wait, or sleep, between retry attempts to shut down the database and check the status. Note that this option is only activated when the database cannot be shut down during the first attempt after the **Delay Time (min)** has expired.

- **Tries Number**

  Use this space, located below the **Sleep Time (sec)** option, to specify the number of times that the system will retry attempts to shut down the database when the **Sleep Time (sec)** option is activated.

- **Use SQL Connect**

  When selected, the CommServer connects to the oracle database using the SQL command “Connect <Connect string> as sysdba”. The “Connect String” value is configured in the Instance properties (Details) tab. When not selected, the connection is established using the SQL command “Connect /as sysdba”.

- **STARTUP PFILE location**

Specifies the location of the PFile to be used with the **Lights Out Script** option. You need to select this option only if you want to start up the database using the PFile. By default, the system uses the SPFile available in $ORACLE_HOME/dba directory (for Unix) or $ORACLE_HOME/database directory (for Windows) to start up the database.

Browse

Click to establish or change the designated STARTUP PFILE.

Options

Auxiliary Arguments

- **SKIP READ ONLY**

  Specifies whether to omit read-only tablespaces from the backup.

- **SKIP OFFLINE**

  Specifies whether to omit offline tablespaces from the backup.

- **SKIP INACCESSIBLE**

  Specifies whether to omit data files and archived redo log files that are inaccessible due to read I/O errors from the backup. When cleared, the backup fails when it encounters inaccessible data files and archived redo log files.

Common Arguments

- **Validate**

  Specifies whether to run a validate backup job, which will cause RMAN to simulate a backup job for the purpose of determining whether the backup can be successfully restored.

- **Enable Table Browse**

  Specifies that the Oracle *i*DataAgent or Oracle RAC *i*DataAgent gathers the database tables and user information during the backup so that the backup data can be displayed in a table view during a browse operation. This option can be used only on subclients configured for online backups.

- **Resync Catalog**

  Specifies whether the contents of the Recovery Catalog will be synchronized with the contents of the control file.

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Subclient Properties (Log Destinations)

Use this tab to determine the location from where the archive logs will be backed up or deleted.

Select ArchiveLog Destinations for Backup

Specifies the location from where the archive logs will be backed up. Use **Add** and **Delete** to administer these locations.

	The location provided in the Select Archive Destinations field within the Advanced Backup Options (Back up Archive Logs) tab will override the location provided in this field.

Select ArchiveLog Destinations for Delete

Specifies the location from where the archive logs will be deleted. Use **Add** and **Delete** to administer these locations.

	The location provided in the Select Archive Destinations field within the Advanced Backup Options (Delete Archive Logs) tab will override the location provided in this field.

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Encryption

Use this dialog box to select the data encryption options for the selected content. When accessing this dialog box from the Subclient Properties Encryption tab, this setting applies only to the selected subclient content for operations run from the CommCell Console. When accessing this dialog box from the Instance Properties Encryption tab, this setting applies only to third-party Command Line operations. The functionality is not propagated to the Subclient Properties Encryption tabs.

None

When selected, no encryption will take place during a data protection operations.

Media Only (MediaAgent Side)

When selected, for data protection operations, data is transmitted without encryption and then encrypted prior to storage. During data recovery operations, data is decrypted by the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will be required to provide a pass-phrase for data recovery operations unless you export the client pass-phrase to the destination client(s). When using pass-phrase security for third-party Command Line operations or DataArchiver Agents stub recovery operations, you must export the pass- phrase to the destination client.

Network and Media (Agent Side)

When selected, for data protection operations, data is encrypted before transmission and is stored encrypted on the media. During data recovery operations, data is decrypted by the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will be required to provide a pass-phrase for data recovery operations unless you export the client pass-phrase to the destination clients.

Network Only (Agent Encrypts, MediaAgent Decrypts)

When selected, for data protection operations, data is encrypted for transmission and then decrypted prior to storage on the media. During data recovery operations, data is encrypted by the MediaAgent and then decrypted in the client.

When using this setting in conjunction with the client property **With a Pass-Phrase**, you will not be required to provide a pass-phrase for data recovery operations.

Script Preview

Click to display the backup script, based on the current subclient configuration, that will be submitted to RMAN when backups are performed for the selected Oracle subclient.

Activity Control

Use this dialog box to enable or disable backups and restores on a selected subclient.

If data management and data recovery operations are disabled at the client computer group or client level, then these operations below these levels will be disabled. If data management / data recovery operations are enabled at the client computer group or client level, then these operations below these levels will be enabled.

Enable Backup

Specifies whether Backups will occur from this agent or subclient. .

If cleared:

- Backup operations from this agent or subclient cannot be started and are skipped.
- Running and waiting data management operations for this agent or subclient run to completion.
- Stopped data management operations for this agent or subclient cannot be resumed until this option is enabled.
- Pending data management operations for this agent or subclient do not run until this option is enabled.

Storage Device

Use this dialog box to establish the storage device related settings on the selected subclient.

The following tabs are displayed:

- (Data) Storage Policy
- Data Transfer Option
- Deduplication

STORAGE POLICY

Use this tab to select or view storage policy settings on the selected subclient.

Data/Database/Transaction Log Storage Policy

Displays the storage policy to which this subclient is currently associated. To associate a storage policy to a new subclient or to change the storage policy associated with an existing subclient, click one in the list.

Incremental Storage Policy

Displays the name of the Incremental Storage Policy associated with this subclient, if the storage policy has the Incremental Storage Policy option enabled.

Data Paths

Click to view or modify the data paths associated with the primary storage policy copy of the selected storage policy.

Create Storage Policy

Click to launch the Create a Storage Policy wizard. Once the storage policy has been created, it will be displayed in the list of storage policies to which the selected subclient can be associated.

DATA TRANSFER OPTION

Use this tab to establish the options for data transfer.

Software Compression

Indicates whether software compression for the subclient or instance is enabled or disabled, and if enabled whether it is performed on the client or MediaAgent computer.

- **On Client**

  Click to enable software compression on the client computer.

- **On MediaAgent**

  Click to enable software compression on the MediaAgent computer.

- **Off**

  Click to disable software compression.

Note that hardware compression has priority over the software compression. Hardware compression is established in the Data Path Properties dialog box. The above software compression option will take effect when the data path is associated with a disk library, or when hardware compression is disabled in the data path associated with tape libraries.

If the subclient is associated with a storage policy copy that is deduplicated, then the compression settings on the storage policy copy takes precedence. See Copy Properties (Deduplication) - Advanced tab for compression settings on deduplicated storage policy copy.

Resource Tuning

Indicates the processes used by the client to transfer data based and whether bandwidth throttling is enabled or not.

- **Network Agents**

  Specifies the number of data pipes/processes that the client uses to transfer data over a network. Increasing this value may provide better throughput if the network and the network configuration in your environment can support it. On non-UNIX computers, the default value is 2 and a maximum of 4 can be established if necessary. On UNIX computers the default value is 1 and a maximum of 2 can be established if necessary.

- **Throttle Network Bandwidth (MB/HR)**

  Specifies whether the backup throughput is controlled or not. (By default this option is not selected and therefore the throughput is not controlled). When selected, use the space to specify a value for the throughput. By default, this is set to 500. The minimum

value is 1 and there is no limit to the maximum value. (In this case the backup throughput will be restricted to the maximum bandwidth on the network.)

Use this option to set the backup throughput, based on the network bandwidth in your environment. Use this option to reduce the backup throughput, so that the entire network bandwidth is not consumed, especially in slow links. Increasing this value will end up consuming the bandwidth with the maximum throughput limited to the network bandwidth capability.

Note that throttling is done on a per Network Agent basis.

DEDUPLICATION

Use this tab to establish the options for deduplication on the subclient. It indicates whether deduplication for the subclient is enabled or disabled, and if enabled whether the signature generation (a component of deduplication) is performed on the client or MediaAgent computer.

Note that deduplication is supported on disk storage devices. So the deduplication options are applicable only if the subclient is associated with a Storage Policy containing disk storage.

On Client

Click to enable signature generation on the client computer.

On MediaAgent

Click to enable signature generation on the MediaAgent computer.

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Pre/Post Process

Use this dialog box to add, modify or view Pre/Post processes for the selected subclient.

Pre Backup Process

Displays the name/path of the process that you want to run before the pre-backup phase.

You can use this space to enter a process that will execute before this phase, or use the **Browse** button to search for and select the name/path of the process. The system allows the use of spaces in the name/path, provided they begin with an opening quotation mark and end with a closing quotation mark.

Post Backup Process

Displays the name/path of the process that you want to run after the post backup phase.

You can use this space to enter a process that will execute before this phase, or use the **Browse** button to search for and select the name/path of the process. The system allows the use of spaces in the name/path, provided they begin with an opening quotation mark and end with a closing quotation mark

Run Post Backup Process for all attempts

Specifies whether this process will execute for all attempts to run the phase.

When selected, this option will execute the specified process for all attempts to run the phase, including situations where the job phase is interrupted, suspended, or fails.

When cleared, the specified process will only execute for successful, killed, or failed jobs.

Run As / User Account

Displays either the Local System Account, or for added security, another account as having permission to run these commands.

Change

Click to add or modify the account that has permission to run these commands.

Backup/Archive Options

Use this dialog box to schedule or immediately run a backup/archive job. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent for which the information is being displayed.

Select Backup Type

- **Full**

  Specifies the job as a Full backup, which backs up all data for the selected subclient(s).

- **Incremental**

  Specifies the job as an Incremental backup, which backs up only that portion of the data that is new or has changed since the last backup.

  
  For the Oracle, DB2, Informix, and SAP for Oracle *i*DataAgents, **Incremental** backup works like **Differential** backups described in the online documentation.

- **Level**

  Specifies the level of incremental backup for Oracle backups. Valid values are from 1 to 4.

- **Cumulative**

  Specifies a Cumulative Incremental backup at level 1 to 4 for Oracle backups. When cleared, the system performs a non-cumulative backup.

- **Enter the maximum number of database block corruptions**

  Specifies the maximum number of database block corruptions that the backup can encounter before stopping.

- **Status of SID**

  Displays the state of the Oracle database. (OPEN, MOUNTED, STARTED or SHUTDOWN)

- **Refresh**

  Click to display the most current status of the database.

- **Script Preview**

  Click to display the backup script, based on the selected backup options, that will be submitted to RMAN when backups are performed for the selected Oracle client.

Job Initiation

- **Run Immediately**

  Specifies this job will run immediately.

- **Schedule**

  Specifies this job will be scheduled. Click **Configure** to specify the schedule details.

Configure Alert

- **Alert**

  The currently configured Alert.

- **Add/Modify Alert**

  When clicked, opens the Alert Wizard to configure alerts for this operation.

- **Delete Alert**

  When clicked, deletes any existing alerts that are already configured.

Advanced

Click to select advanced backup/archive options, such as create a new index, start new media, and mark media as full.

Save As Script

Click to open the Save As Script dialog, which allows you to save this operation and the selected options as a script file (in XML format). The script can later be executed from the Command Line Interface using qoperation execute command.

When you save an operation as a script, each option in the dialog will have a corresponding xml parameter in the script file. When executing the script, you can modify the value for any of these XML parameters as per need.

To view the XML values for each of the options in the dialog, see the following:

- Command Line XML Options for Oracle *i*DataAgent
- Command Line XML Options for Oracle RAC *i*DataAgent

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Save as Script

Use this dialog box to choose a name and path for the script file and the mode of execution.

Client

Enter or select the name of the client computer where the script will be created.

Path

Enter the path for the script that will be created.

Browse

Click this button to browse to a path for the command line script.

- Scripts are not supported on the Windows NT platform.
- It is recommended not to use any reserved device names (e.g., LPT1) as the name of the file.
- The file names are not case-sensitive.
- Do not end the file name with a trailing space or a period. Although the underlying file system may support such names, the operating system does not support them.

Mode

- **Synchronous**

  Specifies that the script execute in synchronous mode. A synchronous operation exits only when the operation has completed. This option is only available when scripting a single job.

- **Asynchronous**

  Specifies that the script execute in asynchronous mode. An asynchronous operation submits the job to the CommServe and exits immediately, returning control to the calling program or script.

Specify User Account to Run the Script

Specifies to use the given user account to save the operation as a script.

- **Use the Currently Logged in User Account**

  Click to use the same user account used for logging into the CommCell Console.

  - **User Name**

    Type the user name that was used for logging into the CommCell Console.

  - **Password**

    Type the password for the user account used for logging into the CommCell Console.

  - **Confirm Password**

    Type to re-confirm the password.

- **Use a Different User Account**

  Click to specify a different user account to save the operation as a script.

  - **User Name**

    Enter the different user name to be used for saving the operation as a script.

  - **Password**

    Enter the password for the user account to be used for saving the operation as a script.

- **Confirm Password**

  Type to re-confirm the password.

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Schedule Pattern

Use this dialog box to schedule jobs.

Schedule Name

Displays the name of the schedule. If creating a new schedule, use this space to enter the name of the schedule.

One Time

For a job run a single time. Select the date and time you want the job to begin.

Daily

For a job run on a daily basis. Choose the interval, in days, at which you want the job to repeat.

Weekly

For a job run on a weekly basis. You can run the job every n number of weeks on the selected days of the week.

Monthly

For a job run on a monthly basis. You can run the job every n number of months on the selected date or day. You can also select the standard calendar or a custom calendar (if available). Monthly schedules using custom calendars will run according to the definitions of a month as defined in the calendar.

Yearly

For a job run on a yearly basis. You can run the job annually on the selected date or day.

The Monthly and Yearly selections allow you to schedule other calendar events that are commonly of interest. For example, you can schedule backups on the last weekday every three months for quarterly backups. Optionally, you can select the **Every n Month(s)** option, which allows you to customize intervals at which the job will run. You can also select the standard calendar or a custom calendar (if available). Yearly schedules using custom calendars will run according to the definitions of a year as defined in the calendar.

Automatic Schedule

Select this option to run a job on a specified frequency.

Job Interval

Allows you to specify intervals for jobs.

- **Minimum Interval between Jobs**

  Specify the number of hours to start a backup job if the below criteria (Network Management, Power Management and Resource Utilization) is/are satisfied.

- **Maximum Interval between Jobs**

  Specify the number of hours since the last successful job completed to start a job even if the below criteria (Network Management, Power Management and Resource Utilization) is/are not satisfied.

Network Management

Allows you to specify the available network types.

- **Start only if wired network is available**

  Select to start the job when the network connectivity is wired.

- **Start only if specific network is available**

  Select to start a job using a specific network. Specify network details and add the network address.

- **Minimum Network Bandwidth *n* Kbps**

  Select to specify the minimum number of kbps that the job should use for the network bandwidth. By default, the minimum bandwidth is 128.

- **Throttle at *n* % until bandwidth *n* Kbps**

  Select to specify the percentage of throttle that the job should use until the bandwidth reaches an specific kbps value. By default, the job throttles at 40% until the bandwidth is 2048.

Power Management

Allows you to specify power management options for the computer.

- **Start only if the computer is running on A/C power**

  Select this option to run the job only when the computer is on A/C power.

- **Stop the task if batter mode begins**

  Select this option to stop the job if the computer is on battery mode.

Resource Utilization

Allows you to setup the job schedule with specific resource utilization.

- **Start only if CPU utilization is below**

  Select this option to run the job when CPU utilization is below the specified percentage.

- **Start the job if free disk space drops below**

  Select this option to run the job when disk space is below the specified percentage.

Options

Click to display **Advanced Scheduling Options**.

Startup

Select from the following options. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the operation for which the information is being displayed.

Priority

- **Use Default Priority**

  If selected, the default priority for this type of job will be used in determining how the Job Manager will allocate resources for this job.

- **Change Priority**

  Use this option to manually specify the priority for the job, between 0 (highest priority) and 999 (lowest priority). The Job Manager will use the priority setting when allocating the required resources. This is useful if you have jobs that are very important and must complete, or jobs that can be moved to a lower priority.

Start up in suspended state

Specifies that this job will start in the Job Controller in a suspended state and cannot run until the job is manually resumed using the **Resume** option. This option can be used to add a level of manual control when a job is started. For example, you could schedule jobs to start in the suspended state and then choose which scheduled jobs complete by resuming the operation started in the suspended state.

Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

Job Retry

Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or operation for which the information is being displayed.

Enable Total Running Time

The maximum elapsed time, in hours and minutes, from the time that the job is created. When the specified maximum elapsed time is reached, as long as the job is in the "Running" state, it will continue; if the job is not in the "Running" state when the specified time is reached, Job Manager will kill the job.

Enable Number of Retries

The number of times that Job Manager will attempt to restart the job. Once the maximum number of retry attempts has been reached, if the job has still not restarted successfully, Job Manager will kill the job. Note that this job-based setting will not be valid if restartability has been turned off in the Job Management Control Panel.

Kill Running Jobs When Total Running Time Expires

Option to kill the job when the specified Total Running Time has elapsed, even if its state is "Running". This option is available only if you have specified a Total Running Time.

Advanced Backup Options (Media)

You can select advanced backup media options for the operation.

Start New Media

This option starts the backup/migration/archive operation on a new media, which causes the following to occur:

- If removable media is used, the current active media is marked as Appendable and a new media is used for the backup/migration/archive.
- If disk media is used, a new volume folder is created for the backup/migration/archive.

If cleared, the operation automatically uses the current active media or volume.

Mark Media Full after Successful Operation

This option marks media full, 2 minutes after the completion of the backup/archive operation. If any jobs are initiated within the 2 minutes, they are allowed to write to the media. If the job was associated with the prior media, new media (such as a new tape) will be used for subsequent jobs. (Applies to all backup/archive types.)

Allow other Schedule to use Media Set

This option allows jobs that are part of a schedule policy or schedule and using a specific storage policy to start a new media and also prevent other jobs from writing to the set of media. It is available only when the **Start New Media** and **Mark Media Full** options are enabled, and can be used in the following situations:

- When one scheduled job initiates several jobs and you only want to start new media on the first job.
- When you want to target specific backups to a media, or a set of media if multiple streams are used.

Extend Job Retention

- **Infinite**: Select this option to retain this job indefinitely.
- **Number of Days**: Select this option to prune this job after the number of days specified.
- **Storage Policy Default**: Select this option to apply the retention rules of the associated storage policy, which is the default option.

Advanced Backup Options (Data Path)

Select the data path to be used for the backup/archive operation.

Ensure that the Library, MediaAgent, Drive Pool, and Drive selected for this operation is available online and is a part of the associated Storage Policy.

Use MediaAgent

Specifies the name of the MediaAgent that will be used to perform the backup operation. If necessary, you can change the name of the MediaAgent.

For example, if the library is shared and you wish to use a specific MediaAgent (instead of the system selected MediaAgent, or a MediaAgent which may be idle, or less critical) or if you know that the library attached to the specified MediaAgent.

Use Library

Specifies the name of the library that will be used to perform the backup operation. Use this option when you wish to backup to a specific library.

Use Drive Pool

Specifies the name of the Drive Pool that will be used to perform the backup operation. Use this option when you wish to backup using a specific Drive Pool.

Use Drive

Specifies the name of the Drive that will be used to perform the backup operation. Use this option when you wish to backup using a specific Drive from the selected Drive Pool.

Vault Tracking

Select options to export and track media, using Vault Tracker.

Vault Tracking Options will be displayed only when a Vault Tracker license is available in the CommServe.

Vault Tracking options are only applicable for data protection operations using a storage policy associated with a library containing removable media (e.g., tape, optical or stand-alone.)

Export media after the job finishes

Specifies the media used by the data protection operation and media with the specific Media Status (if specified) will be exported and tracked by Vault Tracker.

Exclude Media Not Copied

When selected, allows you to exclude media with jobs that have to be copied.

Media Status

- **All**

  Click to select all media. Clear this option to select media with a specific status.

- **Active**

  Click to select media with its status marked as active.

- **Full**

  Click to select media with its status marked as full.

- **Overwrite Protected**

  Click to select media with its status marked as read-only .

- **Bad**

  Click to select media with its status marked as bad.

Export Location

Specifies the destination location and lists the stationary locations entered using the **Export Location Details** dialog box.

Track Transit

Specifies that transit information must be tracked, and lists the transit locations entered using the **Export Location Details** dialog box.

Use Virtual Mail Slots

Specifies the exported media is stored within the library in the virtual mail slots defined in the **Library Properties (Media)** dialog box.

Filter Media By Retention

Specifies that the system must automatically filter media based on whether the media has extended retention jobs or not.

- **Media with extended retention job(s)**

  Specifies that media with at least one extended retention job will be exported.

- **Media with no extended retention job(s)**

  Specifies that media with no extended retention jobs will be exported.

Alert

Use this tab to configure an alert for a schedule policy.

Configure Alert

- **Alert**

  The currently configured Alert.

- **Add/Modify Alert**

  When clicked, opens the Alert Wizard to configure alerts for this operation.

- **Delete Alert**

  When clicked, deletes any existing alerts that are already configured.

Advanced Backup Options (Custom rman script)

Use this dialog box to edit and save the RMAN Scripts.

Customize Script

Select this option to customize the RMAN script.

Data

Displays the rman script for data backup.

Logs

Displays the rman script for logs backup.

Advanced Backup Options (Back up Archive Logs)

Use the Advanced Backup Options (Backup Archive Logs) tab to enable and specify options for backing up archive logs.

Backup ArchiveLog

Specifies whether archive logs will be backed up. When selected, archive logs are backed up according to the criteria as specified below.

- **Older than *n* Days**

  Specifies whether to back up archive logs older than the specified number of days. Use the space to enter the number of days.

- **Not older than *n* Days**

  Specifies whether to back up archive logs that are not older than the specified number of days. Use the space to enter the number of days.

- **By Log Time**

  Specifies whether to back up the logs based on the time they were created. Use the **Start Time** and **End Time** fields to specify the time range when the logs were created, as the criteria for archive logs to be backed up.

- **By Log Sequence Number**

  Specifies whether to back up archive logs according to the specified range of Log Sequence Numbers (LSN). Use the **Start LSN** and/or **End LSN** fields to specify the range of LSNs used as the criteria for archive logs to be backed up.

- **By System Change Number**

  Specifies whether to back up archive logs according to the specified range of System Change Numbers (SCN). Use the **Start SCN** and/or **End SCN** fields to specify the range of SCNs used as the criteria for archive logs to be backed up.

- **LIKE**

  Specifies whether to back up archive logs that match the specified string pattern, or partial string pattern. Use the space to enter the string pattern. Note that when you select this option and leave the field blank, all the archive logs from the selected destinations get backed up. Refer RMAN documentation for information on how to enter a pattern.

- **ALL**

  Specifies to back up one copy of all archive logs, from any destination randomly, regardless of any criteria.

Select ArchiveLog destinations

Specifies the destination from where the archive logs will be backed up.

	When **ALL** is selected, this option is not available. The destination provided in this field overrides the destination provided in the Select ArchiveLog Destinations for Backup field within the Subclient Properties (Log Destinations) tab.

- **Add**

  Click to select an archive log destination.

- **Delete**

  Click to remove an archive log destination from the previously selected list of archive log destinations.

- **Not Backed Up *n* times**

  Select to backup the archive logs that have not been backed up for at least *n* number of times.

Advanced Backup/Archive Options (Delete Archive Logs)

Use the Advanced Backup Options (Delete Archive Logs) tab to enable and specify options for deleting archive logs.

Delete ArchiveLog

Specifies whether archive logs will be deleted. When selected, archive logs are deleted according to the criteria as specified below.

- **Older than *n* Days**

  Specifies whether to delete archive logs older than the specified number of days. Use the space to enter the number of days.

- **Not older than *n* Days**

  Specifies whether to delete archive logs that are not older than the specified number of days. Use the space to enter the number of days.

- **By Log Time**

  Specifies whether to delete the archive logs based on the time the logs were created. Use the **Start Time** and/or **End Time** fields to specify the time range the log files were created, as the criteria for archive logs to be deleted.

- **By Log Sequence Number**

  Specifies whether to delete archive logs according to the specified range of Log Sequence Numbers (LSN). Use the **Start LSN** and/or **End LSN** fields to specify the range of LSNs used as the criteria for archive logs to be deleted.

- **By System Change Number**

  Specifies whether to delete archive logs according to the specified range of System Change Numbers (SCN). Use the **Start SCN** and/or **End SCN** fields to specify the range of SCNs used as the criteria for archive logs to be deleted.

- **LIKE**

  Specifies whether to delete archive logs that match the specified string pattern, or partial string pattern. Use the space to enter the string pattern. Note that when you select this option and leave the field blank, all the archive logs from the selected destinations get deleted. Refer RMAN documentation for information on how to enter a pattern.

- **ALL**

  Specifies to delete one copy of all archive logs, from any destination randomly, regardless of any criteria.

Delete Instance Archive Log

When selected, all the archive logs of the specified instance is deleted.

Select ArchiveLog destinations

Specifies the destination from where the archive logs will be deleted.

	When **ALL** is selected, this option is not available. The destination provided in this field overrides the destination provided in the Select ArchiveLog Destinations for Delete field within the Subclient Properties (Log Destinations) tab.

- **Add**

  Click to select an archive log destination.

- **Delete**

  Click to remove an archive log destination from the previously selected list of archive log destinations.

- **Backed Up *n* times**

  Select to delete the archive logs that have been backed up for at least *n* number of times.

Advanced Backup Options (Oracle Options)

You can select the following advanced options for the oracle backup operations:

Max DB block corruptions

Specifies the maximum number of database block corruptions a backup process can encounter before stopping.

Enable RMAN disk ratio

When this option is selected, RMAN reads data files across disks and groups them in a backup set.

- **RMAN Disk Ratio**

  Specifies the number of disks from which data files are included in each backup set.

Oracle TAG

Use this space to enter a character string that will be used as the Oracle tag argument associated with the specific backup operation. This will override the tag defined at the subclient level.

Backup Control File for StandBy

Specifies to backup the current control file for creating Standby databases.

Oracle Restore Options (General)

Use this dialog box to select restore options.

Destination Client

Displays the name of the client computer to which the selected data will be restored. Select a client from the list to change the destination computer.

The list includes the following clients:

- Which are established as clients within the CommCell.
- Clients with Operating Systems that support the cross-platform restore operation from this client.

By default, data is restored to the same computer from which it was backed up.

Number of streams to use for restore

Use this space to set the number of data channels through which data is restored.

Catalog Connect

Displays the connect string for the catalog database. The recovery catalog contains metadata about RMAN operations for each registered database. This metadata information is useful when you want to restore and recover the database after a crash or corruption.

Use the three fields (spaces) to type the connect string for the catalog database. Use the first field to type the recovery catalog database user ID. Use the second field to type the password for the user ID, and use the third field to type the recovery catalog service name.

When restoring backups with recovery catalog, the connect string details used during the backup will get automatically displayed here.

Restore Control File

Specifies whether to restore the control file from the latest control file backup or from a backup piece to its original location or to a new location.

Restore Archive Log

Specifies whether to restore the archived redo log files. Selecting this option will allow you to choose the options for restoring the archive logs.

Restore SP File

Specifies whether to restore the server parameter file (SP File). Selecting this option will allow you to choose the options for restoring the server parameter file.

Restore Data

By default, this option is selected along with **Recover** option. Selecting this option will allow you to choose the options for restoring the datafiles.

Recover

By default, this option is selected along with **Restore Data** option. Selecting this option will allow you to choose the options for recovering the database after a restore.

Duplicate DB

Specifies whether to create a duplicate database. Selecting this option will display the **Duplicate** and **Duplicate DB Options** tabs in Advanced Restore options allowing you to choose options for creating a duplicate database.

NO CATALOG

Specifies whether the system will refer to the Recovery Catalog database when recovering the target database. If this option is selected, the system will instead refer to the target database's control files. Use this option if the Recovery Catalog database has been corrupted or if you did not use the Recovery Catalog database to back up the data.

When cleared, the system looks up the Recovery Catalog database when recovering the target database. This option can be used only if the CONTROL FILE exists.

The Latest Database View

By default, displays the database tree as it existed in the latest backup. Use the tree structure to establish either an entire or partial database restore by selecting the appropriate entity.

If you specify a point-in-time when you click **New Browse**, the database tree as existing in the specified point-in-time is displayed.

Status

Displays the state of the database. (OPEN, MOUNTED, STARTED or SHUTDOWN)

Refresh

Click to refresh the screen with the current status of the database

New Browse

Click to display the Specify Point-In-Time dialog box, which allows to you to select the options to restore from either the:

- Latest backup, or a
- Backup from a specific point in time.

By default, the database tree is displayed in the latest backup data pane. It is suitably refreshed based on the selected option.

Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

Advanced

Click to select additional restore options.

Script Preview

Click to display the restore script, based on the selected restore options, that will be submitted to RMAN when restores are performed for the selected Oracle client.

Save As Script

Click to open the Save As Script dialog, which allows you to save this operation and the selected options as a script file (in XML format). The script can later be executed from the Command Line Interface using qoperation execute command.

When you save an operation as a script, each option in the dialog will have a corresponding xml parameter in the script file. When executing the script, you can modify the value for any of these XML parameters as per need.

To view the XML values for each of the options in the dialog, see the following:

Command Line XML Options

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Job Initiation

Select from the following options. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the operation for which the information is being displayed.

Immediate

Run This Job Now

Specifies this job will run immediately.

Schedule

Specifies this job will be scheduled. When you click **Configure**, the Schedule Details dialog box will open and allow you to configure the schedule pattern.

Result file location on CommServe

This option is only applicable for List Media operations. Specifies the name of the file in which the results of the scheduled list media job must be saved. Click **Browse** to access to the **Directory Browse** dialog box which allows you to select the folder / file in the CommServe computer.

Automatic Copy

Specifies that an auxiliary copy operation will be performed at the interval specified. This operation will occur when new data that must be copied is found on the primary copy.

Interval

The time interval in which the Automatic Copy will be performed. The default interval is 30 minutes.

Save As Script

Click to open the Save As Script dialog, which allows you to save this operation and the selected options as a script file (in XML format). The script can later be executed from the Command Line Interface using qoperation execute command.

When you save an operation as a script, each option in the dialog will have a corresponding xml parameter in the script file. When executing the script, you can modify the value for any of these XML parameters as per need.

To view the XML values for each of the options in the dialog, see the following:

Operations Supporting Save As Script

Configure Alert

Provides the necessary options to configure the alerts associated with this operation.

- **Add/Modify Alert**

  When clicked, opens the Alert Wizard to configure necessary alerts for this operation.

- **Delete Alert**

  When clicked, deletes any existing alerts that are already configured.

Advanced

Click to select additional options.

Script Preview

Click to display the restore script, based on the selected restore options, that will be submitted to RMAN when restores are performed for the selected Oracle client.

Save as Script

Use this dialog box to choose a name and path for the script file and the mode of execution.

Client

Enter or select the name of the client computer where the script will be created.

Path

Enter the path for the script that will be created.

Browse

Click this button to browse to a path for the command line script.

- Scripts are not supported on the Windows NT platform.
- It is recommended not to use any reserved device names (e.g., LPT1) as the name of the file.
- The file names are not case-sensitive.
- Do not end the file name with a trailing space or a period. Although the underlying file system may support such names, the operating system does not support them.

Mode

- **Synchronous**

  Specifies that the script execute in synchronous mode. A synchronous operation exits only when the operation has completed. This option is only available when scripting a single job.

- **Asynchronous**

  Specifies that the script execute in asynchronous mode. An asynchronous operation submits the job to the CommServe and exits immediately, returning control to the calling program or script.

Specify User Account to Run the Script

Specifies to use the given user account to save the operation as a script.

- **Use the Currently Logged in User Account**

  Click to use the same user account used for logging into the CommCell Console.

  - **User Name**

    Type the user name that was used for logging into the CommCell Console.

  - **Password**

    Type the password for the user account used for logging into the CommCell Console.

  - **Confirm Password**

    Type to re-confirm the password.

- **Use a Different User Account**

  Click to specify a different user account to save the operation as a script.

  - **User Name**

    Enter the different user name to be used for saving the operation as a script.

  - **Password**

    Enter the password for the user account to be used for saving the operation as a script.

- **Confirm Password**

  Type to re-confirm the password.

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Schedule Pattern

Use this dialog box to schedule jobs.

Schedule Name

Displays the name of the schedule. If creating a new schedule, use this space to enter the name of the schedule.

One Time

For a job run a single time. Select the date and time you want the job to begin.

Daily

For a job run on a daily basis. Choose the interval, in days, at which you want the job to repeat.

Weekly

For a job run on a weekly basis. You can run the job every n number of weeks on the selected days of the week.

Monthly

For a job run on a monthly basis. You can run the job every n number of months on the selected date or day. You can also select the standard calendar or a custom calendar (if available). Monthly schedules using custom calendars will run according to the definitions of a month as defined in the calendar.

Yearly

For a job run on a yearly basis. You can run the job annually on the selected date or day.

The Monthly and Yearly selections allow you to schedule other calendar events that are commonly of interest. For example, you can schedule backups on the last weekday every three months for quarterly backups. Optionally, you can select the **Every n Month(s)** option, which allows you to customize intervals at which the job will run. You can also select the standard calendar or a custom calendar (if available). Yearly schedules using custom calendars will run according to the definitions of a year as defined in the calendar.

Automatic Schedule

Select this option to run a job on a specified frequency.

Job Interval

Allows you to specify intervals for jobs.

- **Minimum Interval between Jobs**

  Specify the number of hours to start a backup job if the below criteria (Network Management, Power Management and Resource Utilization) is/are satisfied.

- **Maximum Interval between Jobs**

  Specify the number of hours since the last successful job completed to start a job even if the below criteria (Network Management, Power Management and Resource Utilization) is/are not satisfied.

Network Management

Allows you to specify the available network types.

- **Start only if wired network is available**

  Select to start the job when the network connectivity is wired.

- **Start only if specific network is available**

  Select to start a job using a specific network. Specify network details and add the network address.

- **Minimum Network Bandwidth *n* Kbps**

  Select to specify the minimum number of kbps that the job should use for the network bandwidth. By default, the minimum bandwidth is 128.

- **Throttle at *n* % until bandwidth *n* Kbps**

  Select to specify the percentage of throttle that the job should use until the bandwidth reaches an specific kbps value. By default, the job throttles at 40% until the bandwidth is 2048.

Power Management

Allows you to specify power management options for the computer.

- **Start only if the computer is running on A/C power**

  Select this option to run the job only when the computer is on A/C power.

- **Stop the task if batter mode begins**

  Select this option to stop the job if the computer is on battery mode.

Resource Utilization

Allows you to setup the job schedule with specific resource utilization.

- **Start only if CPU utilization is below**

  Select this option to run the job when CPU utilization is below the specified percentage.

- **Start the job if free disk space drops below**

  Select this option to run the job when disk space is below the specified percentage.

Options

Click to display **Advanced Scheduling Options**.

Advanced Restore Options (Restore)

Use this dialog box to revert the data to the time when the snapshot was created.

Use hardware revert capability if available

Selecting this option brings back the entire LUN to the point when the snapshot was created, overwriting all modifications to the data since the snapshot creation. This option is only available if the storage array used for SnapProtect Backup supports the revert operation.

Use Rman Restore

Selecting this option will allow you to restore the data from the snapshot using Rman utility.

Use FileSystem Restore

Selecting this option will allow you to restore the data from the snapshot using File System Restore from CommCell Browser.

Advanced Restore Options (Copy Precedence)

Choose the copy from which you wish to recover or retrieve. Select from the following options:

Restore from copy precedence

When selected, the system recovers or retrieves data from the selected storage policy copy (**Synchronous Copy** or **Selective Copy**). If data does not exist in the specified copy, the data recovery or retrieve operation fails even if the data exists in another copy of the same storage policy.

When cleared, (or by default) the system recovers or retrieves data from the storage policy copy with the lowest copy precedence. If the data was pruned from the primary copy, the system automatically recovers or retrieves from the other copies of the storage policy in the following order:

1. Lowest copy precedence to highest copy precedence among all synchronous copies.
2. Lowest copy precedence to highest copy precedence among all selective copies (if your agent supports selective copies).

Once the data is found, it is recovered or retrieved, and no further copies are checked.

Copy Precedence

When selected, the system recovers or retrieves data from the copy with the specified precedence number.

Advanced Restore Options (Data Path)

Select the data path for the restore/recovery operation. You can specify the MediaAgent, Library, Drive Pool, and Drive from which the restore operation must be performed.

Use MediaAgent

Specifies the name of the MediaAgent that will be used to perform the restore operation. If necessary, you can change the name of the MediaAgent.

For example, if the library is shared and you wish to use a specific MediaAgent (instead of the system selected MediaAgent, or a MediaAgent which may be idle, or less critical) or if you know that the media containing the data you wish to restore is available in the library attached to the specified MediaAgent.

If the media containing the data is not available in the tape/optical library attached to the MediaAgent, the system will automatically prompt you to insert the appropriate media. In the case of a disk library, the operation will fail if the requested data is not available in the disk library attached to the specified MediaAgent.

Use Library

Specifies the name of the library that will be used to perform the restore operation. Use this option when you wish to restore using a specific library.

For example, if you know that the media containing the data you wish to restore is available in a specific library.

Use Drive Pool

Specifies the name of the Drive Pool that will be used to perform the restore operation. Use this option when you wish to restore using a specific Drive Pool.

To restore NAS data, select the drive pool type that was used to perform the backup, *i.e.*, if a drive pool associated with an NDMP Remote Server was used to perform the backup, select a drive pool associated with an NDMP Remote Server. Similarly, if an NDMP drive pool was used, specify an NDMP drive pool.

Use Drive

Specifies the name of the drive in the drive pool that will be used to perform the restore operation. Use this option when you wish to restore using a specific Drive in the Drive Pool.

Use Proxy

Specifies the name of the proxy server that will be used to perform the restore operation. Use this option when you wish to restore using a proxy server.

Advanced Restore Options (Encryption)

Pass-Phrase

Enter the pass-phrase that is currently assigned to the client, whose data you are restoring. Note that if you have changed the pass-phrase since you secured the client data, you need to provide the new pass-phrase here, not the old one.

Re-enter Pass-Phrase

Re-enter the pass-phrase for confirmation.

If you attempt an immediate restore of encrypted data that was pass-phrase protected without entering the pass-phrase here, the restore operation will fail.

If you have an exported pass-phrase set up, and you enter the pass-phrase under **Decryption**, you over-ride (not overwrite) the client properties pass-phrase. Thus, if you enter the pass-phrase incorrectly, the restore does not complete successfully.

Advanced Restore Options (Pre/Post)

Establish pre/post processes for restore jobs, and the account that has permissions to run these processes (for Windows-based agents).

Pre Recovery Command:

Displays the name/path of the process to run before the restore. Add or modify the name/path, or use the **Browse** button to search for and select the name/path. The system allows the use of spaces in the name/path, provided they begin with an opening quotation mark and end with a closing quotation mark.

Post Recovery Command:

Displays the name/path of the process to run after the restore. Add or modify the name/path, or use the **Browse** button to search for and select the name/path. The system allows the use of spaces in the name/path, provided they begin with an opening quotation mark and end with a closing quotation mark.

Run Post Restore Process for all attempts

Specifies whether this process will execute for all attempts to run the phase. Selecting this option will execute the specified process for all attempts to run the phase, including situations where the job phase is interrupted, suspended, or fails. Otherwise, when the checkbox is cleared the specified process will only execute for successful, killed, or failed jobs.

Pre/Post Impersonation

For Windows-based agents, you must designate either the Local System Account or, for added security, another account as having permission to run these commands for restore jobs.

- **Use Local System Account**

  Normally, the Local System Account has permissions to access all the data on the local computer.

- **Impersonate User**

  Select this check box to enable the User Name and Password boxes. If the Impersonate User account defined here is not available, restore jobs using pre/post commands will fail. This account operates independently of the Impersonate User account for backup jobs.

- **User Name**

  Enter the Window's user account name which will have permission to execute the desired commands.

- **Password**

  Enter the corresponding password for this account.

- **Confirm Password**

  Enter the password again for this account.

Startup

Select from the following options. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the operation for which the information is being displayed.

Priority

- **Use Default Priority**

  If selected, the default priority for this type of job will be used in determining how the Job Manager will allocate resources for this job.

- **Change Priority**

  Use this option to manually specify the priority for the job, between 0 (highest priority) and 999 (lowest priority). The Job Manager will use the priority setting when allocating the required resources. This is useful if you have jobs that are very important and must complete, or jobs that can be moved to a lower priority.

Start up in suspended state

Specifies that this job will start in the Job Controller in a suspended state and cannot run until the job is manually resumed using the **Resume** option. This option can be used to add a level of manual control when a job is started. For example, you could schedule jobs to start in the suspended state and then choose which scheduled jobs complete by resuming the operation started in the suspended state.

Description

Use this field to enter a description about the entity. This description can include information about the entity's content, cautionary notes, etc.

Advanced Restore Options (Recover)

Use this dialog box to recover the database. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or feature for which the information is being displayed.

Recover

Specifies whether the system will recover the database. Recover applies and restores any incremental backups and archived redo log files that are needed to bring the database back to the specified time/System Change Number (SCN).

Current Time

Specifies that the database will be recovered to the current time.

Point In Time

Specifies whether the system will recover the database to a specific point in time that you specify. To change the date, click one in the list. Also, use the space to enter the appropriate time. The date and time to which the database is recovered must be later than or equal to the date and time of the control files restore.

Before using the **Recover** option in combination with the **Point-In-Time** option to recover the Oracle database to a point-in-time, read Caution on the Use of RESETLOGS in Books Online.

SCN

Specifies that the database will be recovered to the System Change Number that you specify. Use the space to enter the SCN.

Advanced Restore Options (Control and SP Files)

Use this dialog box to restore the control file and the server parameter file. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or feature for which the information is being displayed.

Restore Control File

Specifies whether the system will restore the control file of the target database. If the **To Point in Time** and the **Restore Control File As** options are not selected, the control files is restored from the latest control file backup to its original location. When cleared, the system will not restore the control file of the target database.

From Autobackup

Specifies whether to restore the control file from the latest autobackup.

From backup piece

Specifies whether to restore the control file from the given backup piece. Enter the backup piece name in the text box provided.

Replicate

Specifies whether to copy the restored control file to the locations specified in the CONTROL_FILES initialization parameter of the target database.

To Point In Time

Specifies whether the system will restore the control file to a specific point in time that you specify. To change the date, click one in the list. Also, use the space to enter the appropriate time. The date and time to which the control files will be restored must be later than or equal to the date and time to which the database datafiles will be restored. Synchronize the time between the computers hosting your CommServe and Oracle client before you specify the date and time for the point-in-time restore.

Restore Control File As

Specifies whether the system will restore the control file to the name and location that you specify. If you select this option, either use the space to type the desired location or click **Browse** to find this location. The restored control file will not be automatically replicated to the control files of the database, but this can be done manually. Restoring a control file to a new location can be performed even without a recovery catalog. The database should be mounted for this type of restore.

Browse

Click to restore to the specified destination directory and enter a name for the control file.

Restore SP File

Specifies whether to restore the server parameter file (SP File) of the target database. If the **To Point in Time** and the **Restore SP File As** options are not selected, the server parameter file is restored from the latest backup to its original location. When cleared, the system will not restore the server parameter file of the target database. Keep in mind that RMAN cannot overwrite a server parameter file currently in use by the target database.

From Autobackup

Specifies whether to restore the server parameter file from the latest autobackup.

From backup piece

Specifies whether to restore the server parameter file from the given backup piece. Enter the backup piece name in the text box provided.

To Point in Time

Specifies whether to restore the server parameter file to a specific point in time that you specify. To change the date, click one in the list. Also, use the space to enter the appropriate time. The date and time to which the server parameter file will be restored must be later than or equal to the date and time to which the database datafiles will be restored. Synchronize the time between the computers hosting your CommServe and Oracle client before you specify the date and time for the point-in-time restore.

Restore SP File As

Specifies whether the system will restore the server parameter to the name and location that you specify. If you select this option, either use the space to type the desired location or click **Browse** to find this location.

Browse

Click to restore to the specified destination directory and enter a name for the server parameter file.

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Advanced Restore Options (Restore)

Use this dialog box to restore data and archive logs. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or feature for which the information is being displayed.

Restore Data

Specifies whether to restore datafiles from the specified full backup. When cleared, the system does not restore datafiles.

Data is restored from the latest full backup only. If you have performed incremental backups and need to apply this data to the full backup, see the description of the **Recover** option below.

- **To Point In Time**

  Specifies that the system will restore data files from the full backup created at or before the point-in-time based on the date and time that you specify. For a Point-In-Time recovery, you should have all log files available up to that time.

  To change the date, click one in the list. Also, use the space to set the appropriate time. Ensure that the date/time that you enter is equal to or later than the date and time that the backup completed. Also, ensure that the date/time to which the datafiles are restored is earlier than or equal to the date and time of the control files restore.

- **Tag**

  Specifies that the backup tag assigned to the specific backup that you want to restore will be entered. Tags are constructed at the time of backup. Since data is restored from full backups only, ensure that the tag you select is the tag for a full backup. Use the space to type the backup tag.

- **From the Latest Backup**

  Specifies that datafiles will be restored from the latest full backup.

- **Check READ ONLY**

  Specifies whether the read-only tablespaces are checked for consistency. If the tablespaces are not consistent, or if they are missing, they are restored. Otherwise, they are not restored.

  When cleared, the read-only tablespaces are not checked for consistency and restored from the backup.

Restore Archive Log

Specifies whether to restore the archive log files.

- If the archived log files exist in the LOG_ARCHIVE_DEST location and are not corrupted, the backed up archive log files are not restored.
- If the archive log files do not exist or are unusable, the backed up archive log files are restored to the directory specified in LOG_ARCHIVE_DEST.

When cleared, the system does not restore the archive log files.

- **By Log Time**

  Specifies that the archive log files will be restored based on the specified dates and times that you specify.

- **Start**

  When selected and used without the End Log Time option, specifies that the system will restore all archive log files starting from the date and time that you specify and up to the current date. When selected and used with the End Log Time option, specifies that the system will restore all archive log files starting from the date and time that you specify and up to the date specified by End Log Time.

  To change the start date, click one in the list. Also, use the space provided to enter a new start time.

- **End**

  When selected and used with the Start Log Time option, specifies that the system will restore archive log files starting from the date and time specified by Start Log Time up to the date and time specified by End Log Time. When selected and used without the Start Log Time option, specifies that the system will restore archive log files from the oldest active backed up archive log file up to the date and time specified by End Log Time.

  To change the end date, click one in the list. Also, use the space provided to enter a new end time.

- **By LSN**

  Specifies that the system will restore the archive log files based on the specified Log Sequence Numbers (LSNs) that you specify.

- **Start**

  When selected and used without the END LSN option, specifies that the system will restore archive log files starting from the log

file with the sequence number that you specify in START LSN and ending with the current log file.

When selected and used with the END LSN option, specifies that the system will restore archive log files starting from the log file with the sequence number that you specify in START LSN and ending with the log file sequence number that you specify in END LSN. Use the space to enter the start LSN.

- **End**

  When selected and used without the START LSN option, specifies that the system will restore archive log files from the oldest available archive log file and ending with the sequence number that you specify in END LSN. All the Log Sequence Numbers from log #1 must be backed up to tape. Use the space to enter the end LSN.

- **Auto Detect Device**

  For SAP for Oracle, specifies whether the system should automatically detect the device that was used for the backup. This field is selected by default. If you have old data, you may need to use the **SAP Device Type** field below as an alternative.

- **SAP Device Type**

  For SAP for Oracle, click to manually select the device that was used for backup. If you have old data, you may need to use this field as an alternative to the **Auto Detect Device** field above.

- **By Tag**

  Specifies that the system will restore the archive log files based on the tag name that you specify. Use the space provided to enter the tag name.

- **Target Directory**

  Use this space to type the specified destination directory to which the archive log files will be restored. Alternatively, click **Browse** for this purpose.

  If you leave this field blank, the archive log files are restored to the LOG_ARCHIVE_DEST location.

- **Browse**

  Click to establish the directory for restoring the archived log files.

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Advanced Restore Options (Options)

Use this dialog box to choose additional restore options. Note that all the options described in this help may not be available and only the options displayed in the dialog box are applicable to the agent or feature for which the information is being displayed.

Time Zone

To view the information in the time zone that you require, click a time zone in the list.

Reset Database

Specifies whether the **reset database** command will direct RMAN to create a new database incarnation record in the Recovery Catalog. Selecting this option will reset the target database, and is to be used only when you open the database with the RESETLOGS option. Read *Caution on the Use of RESETLOGS* in Books Online before selecting this option.

Open DB

Specifies whether to open the database after the restore/recovery operation has completed. Selecting this option will open the database, and enable the **Reset Logs** option.

Reset Logs

Lists the following choices for resetting the logs when the database is opened:

- None - Open the database without any RESETLOGS option.
- Yes - Open the database with RESETLOGS option.
- No - Open the database with NORESETLOGS option.

To change the setting, select one from the list. This option is only enabled when the **Open DB** checkbox is selected.

No Re-do Logs

Specifies whether you will perform a point-in-time restore when the database is in NOARCHIVELOG mode. If you do not select this option, the point-in-time recovery will fail.

Validate

Specifies whether to run a validate restore job, which will cause RMAN to simulate a restore job for the purpose of determining whether copies of data required for the restore are intact and usable.

Switch Database Mode for Restore

When selected, the database mode will be changed automatically for the restore operation.

Disable Oracle Channel Restore Failover

When selected, prevents RMAN to failover to the previous backup to complete the restore operation for Oracle 10g or higher version. This will avoid job delays caused by the failover operation.

Set DBID

Specifies to set the DBID of the target database to perform restore of control file and/or spfile from autobackup. This option is primarily used

- when there is no catalog and you need to restore the control file or spfile from autobackup.
- when you need to restore the control file when there are multiple databases with the same name in the catalog.

Max Open Files

Use this space to specify the maximum number of concurrent open datafiles that RMAN can read from simultaneously during a restore operation.

Set DB Incarnation

Specifies the database incarnation value to be reset in order to restore the database to a point-in-time before the last reset logs.

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Advanced Restore Options (Redirect)

Use this dialog box to rename and/or redirect one or more datafiles when the data is restored as well as to redirect table spaces to another location for restore.

Redirect All Table Spaces to

Specifies whether to redirect all table spaces displayed in the Object column to the specified location. Use the space or click **Browse** to include or change this location.

Redirect

Specifies whether individual table spaces and/or datafiles can be redirected to the specified location. Select the desired table space (s) and/or datafile(s) in the window that you want to redirect and type the path in the **New Path** entry field.

New Path

Displays the specified location for redirection. You can use this space to modify this location.

Browse

Click to browse to a new path. The new path will then be displayed in the **New Path** entry field.

Apply

Click to set the path or name changes. Changes will then be displayed in the New Path column.

Clear

Click to clear the **New Path** entry field.

Advanced Restore Options (Customize script)

Use this dialog box to customize the RMAN scripts.

Customize Script

Select this option to customize the RMAN script.

Control File

Displays the RMAN script for restoring control file.

Database

Displays the RMAN script for restoring the database.

Alert

Use this tab to configure an alert for a schedule policy.

Configure Alert

- **Alert**

  The currently configured Alert.

- **Add/Modify Alert**

  When clicked, opens the Alert Wizard to configure alerts for this operation.

- **Delete Alert**

  When clicked, deletes any existing alerts that are already configured.

Duplicate Options (Duplicate)

Use this dialog box to choose options for creating a duplicate database.

Duplicate To

Specifies whether to enable options for creating a duplicate database that has a different configuration than the target database. Selecting this option will allow you to configure the duplicate database.

Skip Read Only

Specifies whether the read-only tablespaces are checked for consistency. If the tablespaces are not consistent, or if they are missing, they are restored. Otherwise, they are not restored. When cleared, the read-only tablespaces are not checked for consistency and restored from the backup.

Open Restricted

Specifies whether to open the duplicate database in restricted mode (applicable only for Oracle 10g and higher). Selecting this option will enable a restricted session in the duplicate database when it is opened.

Database Name

Use this space to enter the database name for the duplicate database.

Pfile

Use this space to specify the location of the STARTUP PFILE that will be used to start up the duplicate database.

Browse

Click to browse for the STARTUP PFILE.

Skip Tablespace

Specifies whether to exclude selected tablespaces from the duplicate database. Selecting this option enables the tablespace display pane allowing you to select the tablespaces you want excluded from the duplicate database.

Refresh

Click to refresh the tablespace display pane.

Log File

Specifies whether to create new online redo logs for a duplicate database. Selecting this option will enable the redo log group and file options for creating new redo logs.

Group

Specifies a group containing the online redo log members. Selecting this option will allow you to **Add** specifications for an online redo log group, **Edit** an existing entry or **Delete** it by clicking the respective button.

File

Specifies a file for the online redo log. Selecting this option will allow you to **Add** specifications for an online redo log file, **Edit** an existing entry or **Delete** it by clicking the respective button.

Group Number

Displays the number of the online redo log group.

Size

Displays the size of the online redo log group.

Reuse

Displays whether the database is allowed to reuse an existing file if one exists.

File Name

Displays the name of the online redo log file.

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Duplicate Options (Duplicate DB Options)

Use this dialog box to choose options for creating a duplicate database or a standby database.

Time Zone

Lists the time zones for a Point In Time recovery. To change the time zone, click one in the list.

No Filename Check

Specifies whether RMAN will check target datafiles sharing the same names as the duplicated files to see if they are in use. Selecting this option prevents RMAN from performing this check. This option is required when you are using the same path (i.e., the standby and primary datafiles and logs have identical filenames).

Duplicate for Standby

Specifies whether the database being duplicated is to be used as a standby database. Selecting this option will create a standby database with the same configuration as the target database.

Oracle SID

Use this space to enter the Oracle System Identifier (SID) that will be used for the standby database.

Do Recover

Specifies whether RMAN will recover the standby database after it has been created. Selecting this option will recover the standby database.