

Quick Start - SAP for MaxDB iDataAgent

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INTRODUCTION

Calypso software provides a simplified end-to-end data protection for large scale SAP environments. It helps deliver a robust and comprehensive backup and recovery with significant speed performance and efficient use of disk and tape drives. It also assists you in full system rebuilds and eliminates recovery failures.

KEY FEATURES

The SAP iDataAgents offers the following key features:

FULL RANGE OF BACKUP AND RECOVERY OPTIONS

The SAP agents provide the flexibility to backup the SAP for Oracle database in different environments. This is very essential since SAP data is always subject to constant changes.

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

OFFLINE BACKUP

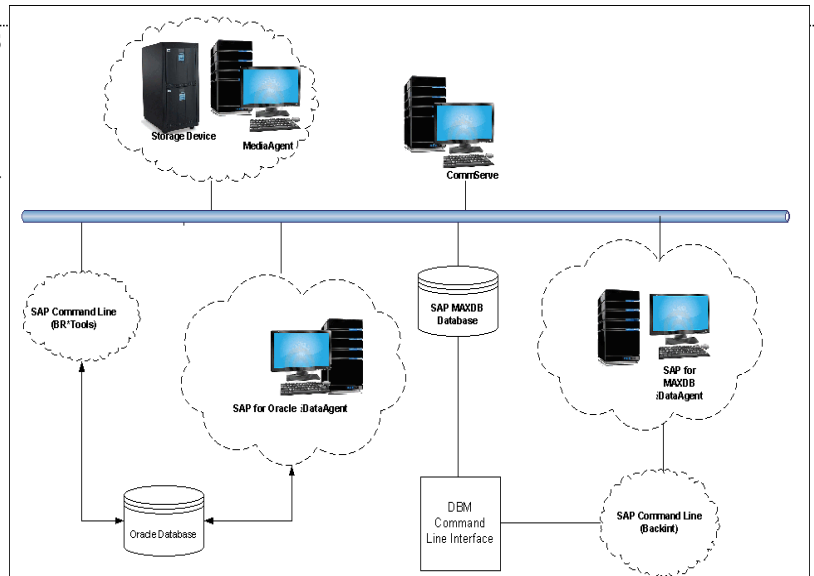
When the database is shutdown and not available for use, you can perform a full backup of the database without the logs. This is especially used when the data is consistent and there are no transactions in the database.

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 iDataAgent.



SELECTIVE ONLINE FULL BACKUP

This iDataAgent 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.

SNAPPROTECT BACKUP

SAP for Oracle iDataAgent works in conjunction with hardware snapshot engines to create a point-in-time snapshot of the data to be used for various data protection operations. This is an efficient way of backing up live data and it facilitates frequent point-in-time backups and faster recovery time.

COMMAND LINE SUPPORT

Data protection and recovery operations can be initiated from the SAP command line as per SAP requirements. The iDataAgent is fully integrated with the

Oracle database using BRTOOLS and with the SAP MAXDB database through DBM CLI, a database management tool provided by SAP and supports backup and restore operations of database and parameter files using BACKINT interface from SAP Command Line.

In addition to SAP command line, you can also perform data protection and recovery operations from the command line interface using qcommands. You also have the facility to save the operations as a script file and execute them from the command line at a later point of time.

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 on large SAP databases.

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 SAP 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. Y

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.

TERMINOLOGY

The SAP documentation uses the following terminology:

CLIENT	The computer in which the iDataAgent is installed and contains the data to be secured.
INSTANCE	The SAP for Oracle database to be used for the backup and restore operations.
SUBCLIENT	The SAP data to be backed up.
DBM CLI	DBM CLI (DBM Command Line Interface) is a Database Management Tool supplied with every SAP MAXDB that is used to perform backup and restore operations.
BACKINT	Backint is an interface program that allows DBM CLI to communicate with SAP MAXDB using streams/pipes to perform backup and restore operations.

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System Requirements - SAP for MAXDB iDataAgent

System Requirements | Supported Features

The following requirements are for the SAP for MAXDB iDataAgent:

APPLICATION/OPERATING SYSTEM		PROCESSOR	
SAP MAXDB 7.5, 7.6, 7.7, 7.8 AND 7.9 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	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	
	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	
WINDOWS	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

WINDOWS

111 MB minimum of hard disk space for software/ 498 MB recommended

100 MB of additional hard disk space for log file growth

725 MB of temp space required for install or upgrade (where the temp folder resides)

UNIX

220 MB minimum of hard disk space for software

MEMORY

16 MB RAM minimum required beyond the requirements of the operating system and running applications

Swap space = 2*RAM size

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 iDataAgent 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 iDataAgents, refer to:

- System Requirements - AIX File System iDataAgent
- System Requirements - HP-UX File System iDataAgent
- System Requirements - Linux File System iDataAgent
- System Requirements - Solaris File System iDataAgent

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
<p><directory>/<file_name>.te</p> <p>where:</p> <p><directory> is /usr/share/selinux/devel</p> <p><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.</p> <p>For example: When you are creating a policy module for backup_IDA application, you can use the following file name: backup_IDA.te</p>	<p>The content of the file should be as follows:</p> <pre>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)</pre>
<p><directory>/<file_name>.fc</p> <p>where:</p> <p><directory> is /usr/share/selinux/devel</p> <p><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.</p> <p>For example: When you are creating a policy module for</p>	<p>The content of the file should be as follows:</p> <p>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.</p> <pre>/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</pre>

backup_IDA application, you can use the following file name: backup_IDA.fc	<pre>(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)</pre>
---	---

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

Getting Started - Deploying on Windows



The SAP for MaxDB iDataAgent is used to protect SAP for MaxDB databases. Follow the steps given below to install the SAP for MaxDB iDataAgent.

INSTALLATION

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

METHOD 1: INTERACTIVE INSTALL

Use this procedure to install directly on Windows client computer.

METHOD 2: INSTALL SOFTWARE FROM COMMCCELL CONSOLE

Use this procedure to remotely install on Windows client computer.

METHOD 1: INTERACTIVE INSTALL

1. Run **Setup.exe** from the **Software Installation Disc** on Windows client computer where the SAP application resides.
2. Select the required language.
Click **Next**.

3. 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.

4. Select **I accept the terms in the license agreement**.
Click **Next**.

5. Expand **Client Modules** | **Backup & Recovery** | **Database** and select **SAP for MaxDB**.
Click **Next**.

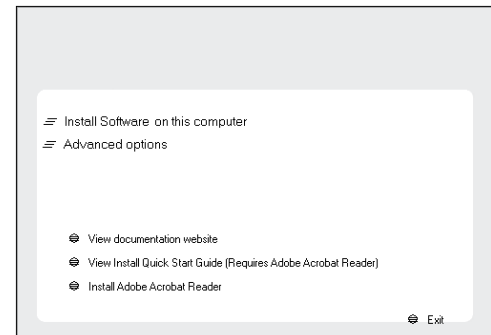
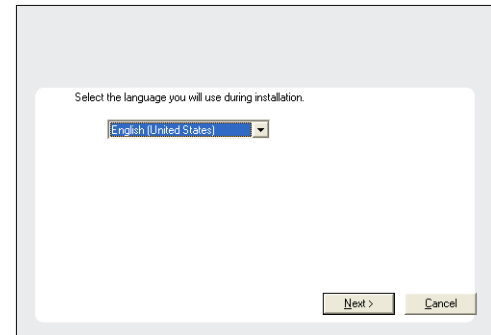
BEFORE YOU BEGIN

Download Software Packages

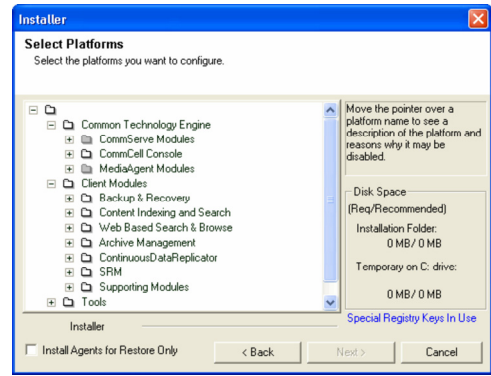
Download the latest software package to perform the install.

System Requirements

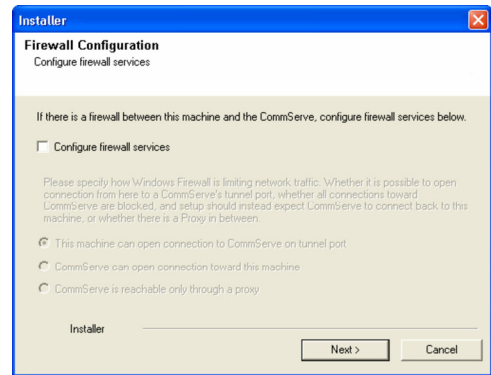
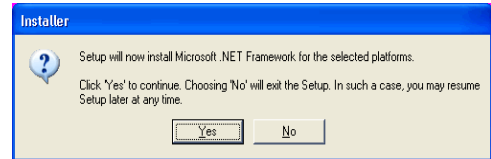
Verify that the computer in which you wish to install the software satisfies the System Requirements.



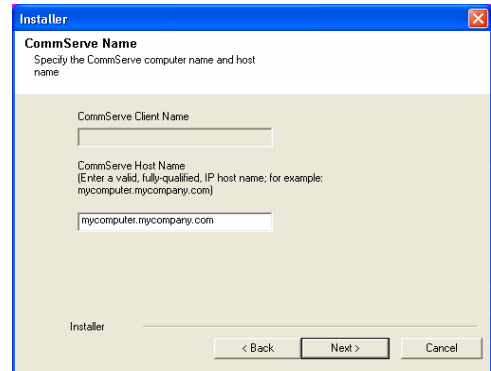
6. Click **YES** to install Microsoft .NET Framework package.
 - This prompt is displayed only when Microsoft .NET Framework is not installed.
 - Once the Microsoft .NET Framework is installed, the software automatically installs the Microsoft Visual J# 2.0 and Visual C++ redistributable packages.
7. 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**.



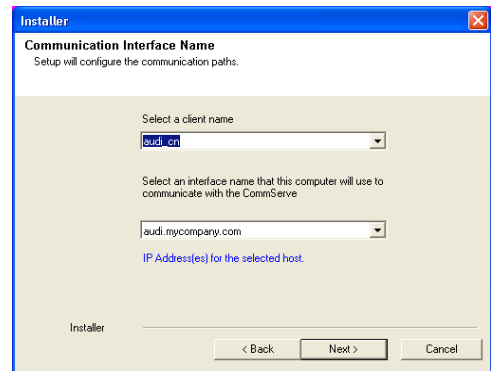
8. Enter the fully qualified domain name of the **CommServe Host Name**.
 Click **Next**.
 Do not use space and the following characters when specifying a new name for the CommServe Host Name:
`\ | ` ~ ! @ # $ % ^ & * () + = < > / ? , [] { } ; ' " ' "`



9. Click **Next**.



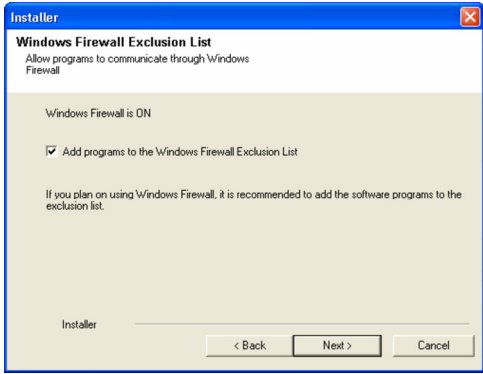
10. Select **Add programs to the Windows Firewall Exclusion List**, to add CommCell programs and services to the Windows Firewall Exclusion List.



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.

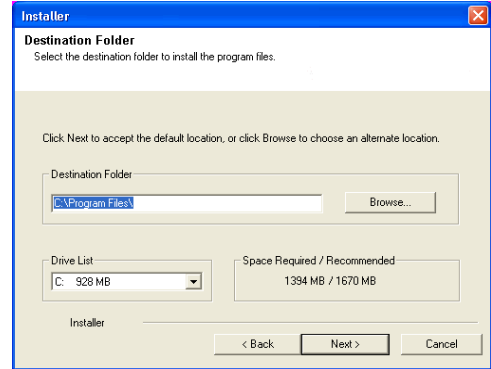
Click **Browse** to change the default location.

Click **Next**.

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

/ : * ? " < > | #

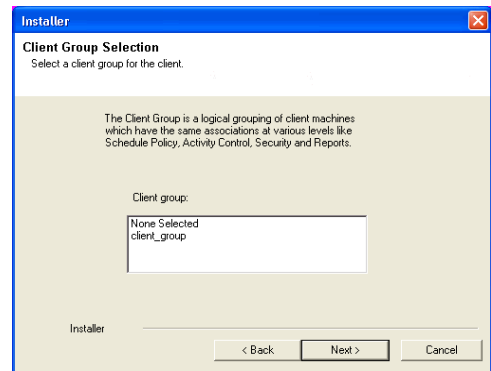
It is recommended that you use alphanumeric characters only.



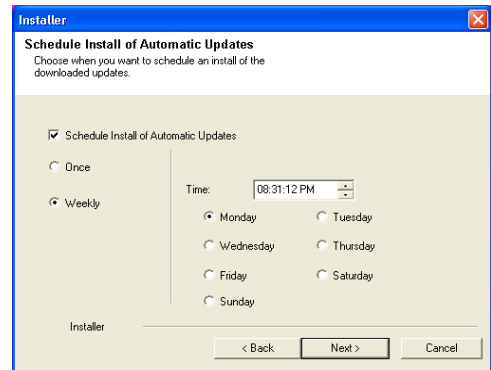
12. Select a Client Group from the list.

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**.
Click **Next**.

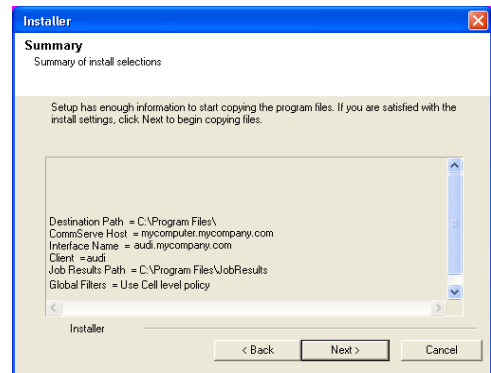
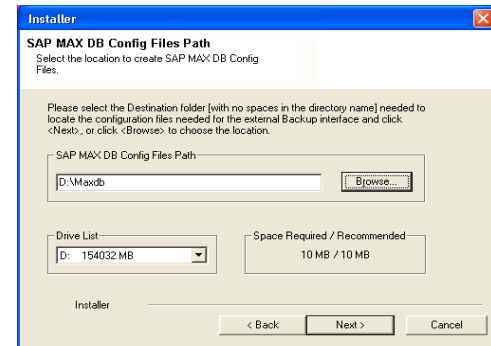
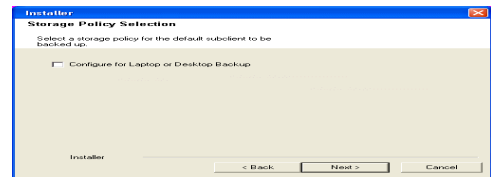
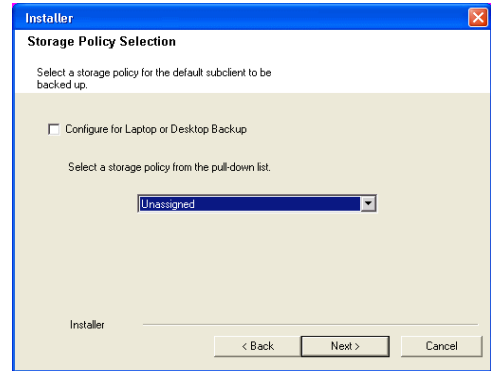
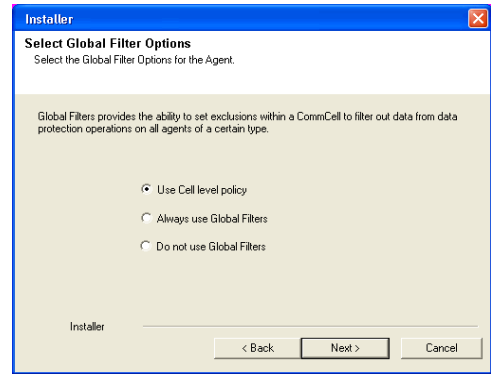
If you do not have Storage Policy created, this message will be displayed.
Click **OK**.

You can create the Storage Policy later in step 20.

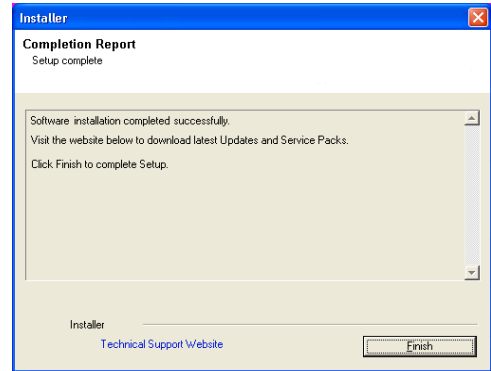
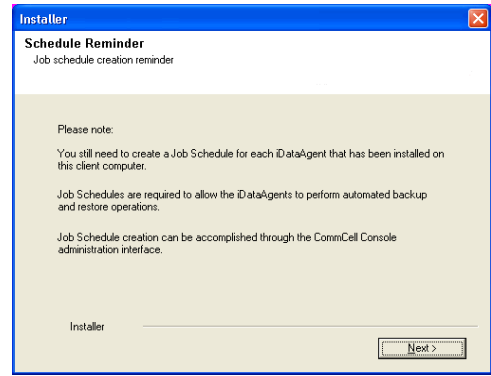
- 16. Enter the location to create SAP MAXDB Config Files.
You can Click **Browse** to select the location.
Click **Next**.

- 17. Click **Next**.

- 18. Click **Next**.



19. Click **Finish**.

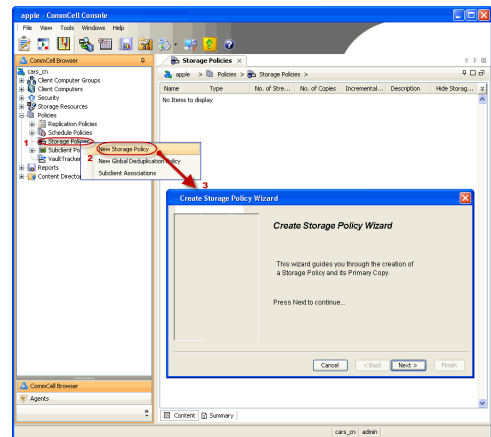


If you already have a storage policy selected in step 15, click the **Next** button available on the bottom of the page to proceed to the **Configuration** section.

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

20. Create a Storage Policy:

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

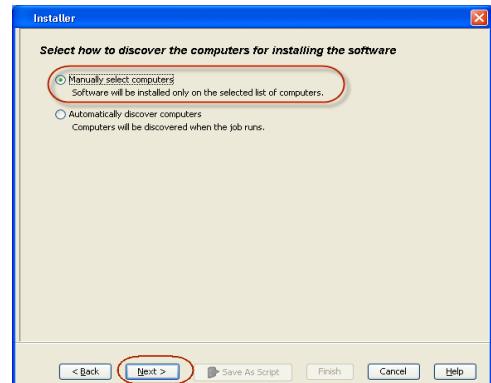
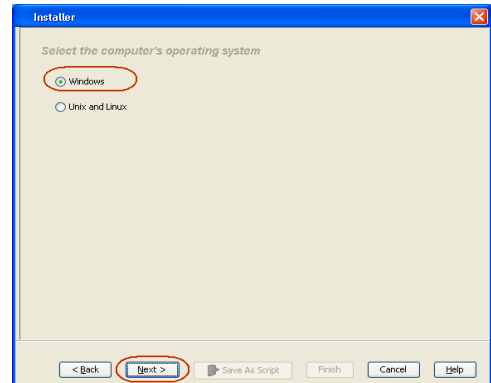
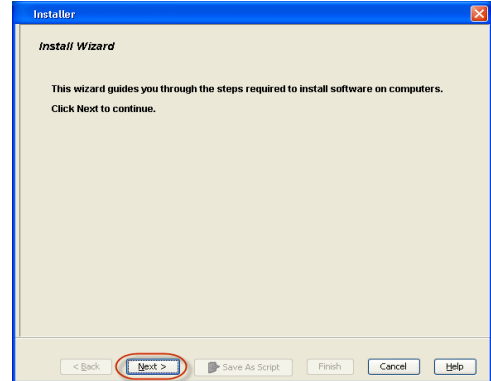
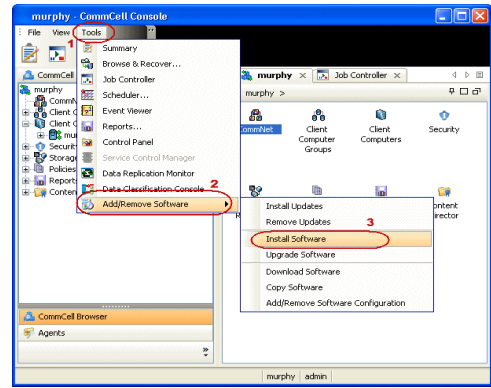
1. From the CommCell Browser, select **Tools | Add/Remove Software | Install Software**.

2. Click **Next**.

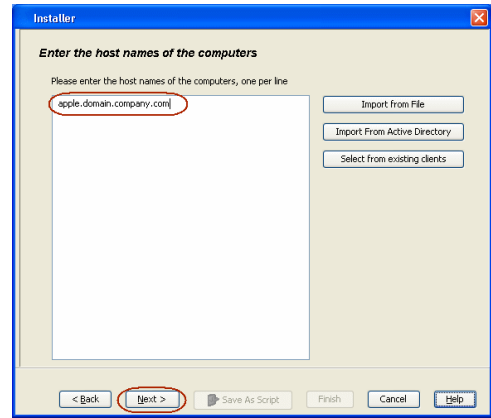
3. Select **Windows**.
Click **Next**.

4. Select **Manually Select Computers**.
Click **Next**.

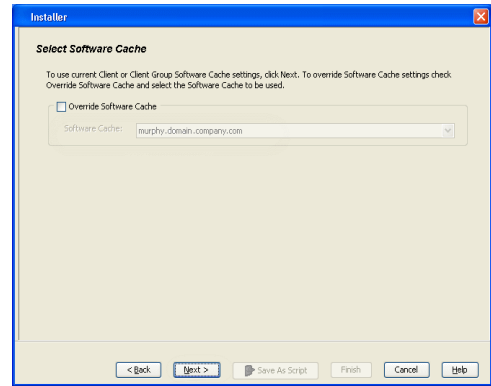
5. Enter the fully qualified domain name of the Windows client computer where the MaxDB database resides.
For example: `apple.domain.company.com`
The SAP for MaxDB iDataAgent will be installed on this client computer.
Click **Next**.



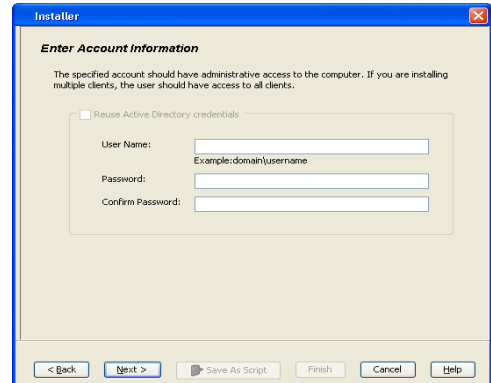
6. Click **Next**.



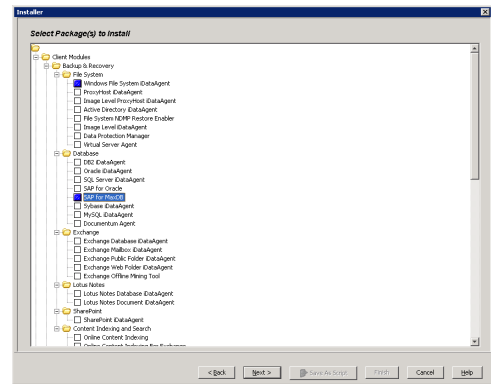
7. Specify **UserName** and **Password** of the computer.
Click **Next**.

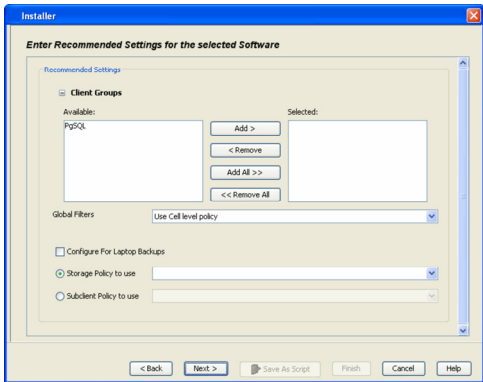


8. Select **SAP for MaxDB**.
Click **Next**.

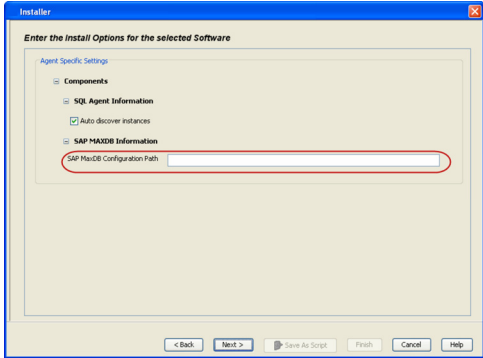


9. Click **Next**.

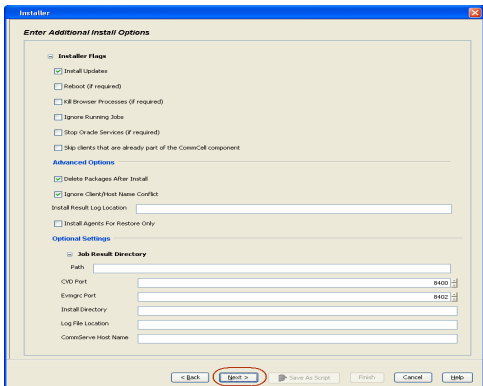




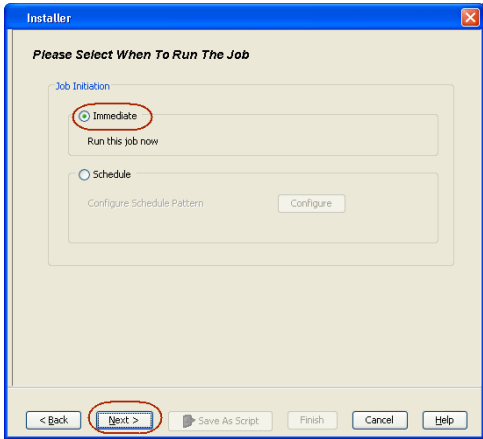
- 10. Type the **SAP MASDB Configuration Path**.
Click **Next**.



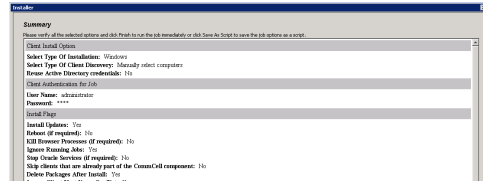
- 11. Click **Next**.



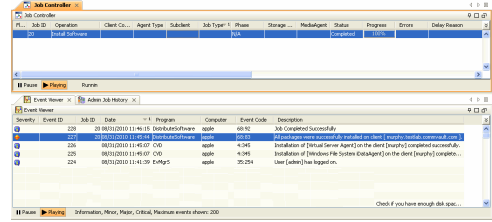
- 12. Select **Immediate**.
Click **Next**.



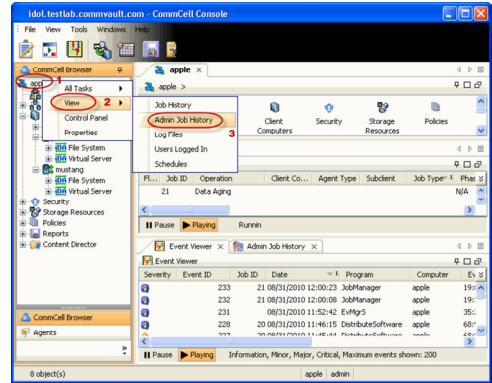
- 13. Click **Finish**.



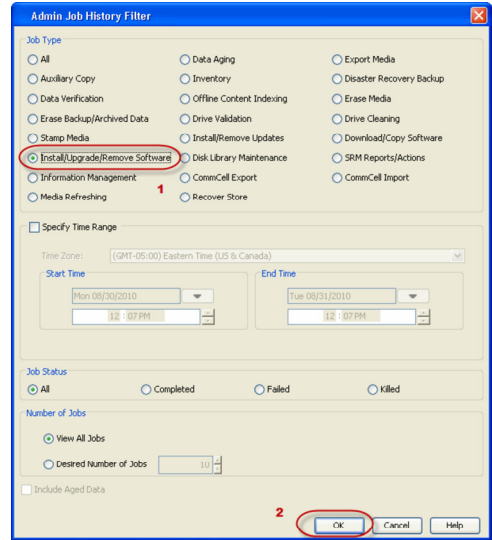
14. You can track the progress of the job from the **Job Controller** or **Event Viewer** window.



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

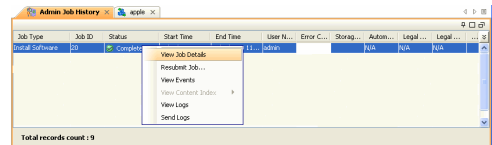


16. Select **Install/Upgrade/Remove Software**.
Click **OK**.



17. 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



Getting Started - Deploying in a Global Zone or Unix Servers

◀ Previous Next ▶

WHERE TO INSTALL

Install the software directly on the computer hosting the global zone or the Unix Server that you wish to protect. Make sure the computer satisfies the minimum requirements specified in the System Requirements.

It is recommended to install the software on the global zone to protect non-changing or static data on non-global zones. If the data is dynamic or contains application data, install the software on the non-global zone.

Use the following steps to install the SAP for MaxDB iDataAgent on the following:

- Global Zone or a Solaris Server
- Any other supported Unix Server

INSTALLATION

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

METHOD 1: INTERACTIVE INSTALL

Use this procedure to install the software directly on Unix client computer.

METHOD 2: INSTALL SOFTWARE FROM COMMCCELL CONSOLE

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

METHOD 1: INTERACTIVE INSTALL

1. Run the following command from the Software Installation Disc:
./cvpkgadd
2. The product banner and other information is displayed.
Press **Enter**.
3. Read the license agreement. Type **y** and press **Enter**.
4. Press **Enter**.
5. If your computer is 32-bit, press **Enter**.
If your computer is 64-bit, see Install Unix Agents on 64-bit Platform for step-by-step procedure.
6. Press **Enter**.

RELATED TOPICS

System Requirements

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

Firewall

Provides comprehensive information on firewall.

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]

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 platform (32 bit)
- 2) FS and MA only (64 bit)

Your choice: [1]

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

15. Type **no**.

NOTES

- If entering **Yes**, go to Step 17.

16. Type **d** for done.

17. If you indicated **Yes** in Step 15., you will be prompted for the group name that must be used to launch processes.

Enter the group name and then press **Enter**.

NOTES

- See your Unix systems administrator for assistance in creating a user group.

18. 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**.

19. If this computer and the CommServe is separated by a firewall, type **Yes** and then press **Enter**.

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

If you do not wish to configure the firewall services, type **No** and then press **Enter**.

20. Type the fully qualified domain name for **CommServe Host Name** and press **Enter**.

NOTES

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

21. Press **Enter**.

Log Directory: [/var/log]

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 "dba" 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 "dba" group.

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

Access Permissions for Other Users

Installer will assign full access rights to root user and its belonging group for all installed Software 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 Software 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:

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 "dba" group here.

Group name: dba

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 "dba".

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 : [8600]

Port Number for EvMgrC: [8602]

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

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:

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.

22. Type the number of a Client Group and press **Enter**.

A confirmation screen will mark your choice with an "X". Type **d** for done with the selection, and press **Enter** to continue.

NOTES

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


23. Enter the number corresponding to the storage policy through which you want to back up the External Data Connector 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 25.

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

The installation is now complete.

 If you already have a storage policy selected in step 23, click the Next button available on the bottom of the page to proceed to the Configuration section.

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

- 25.
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:
 - o Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
 - o Enter the name in the **Storage Policy Name** box and click **Next**.
 - o 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.
 - o From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
 - o For the device streams and the retention criteria information, click **Next** to accept default values.
 - o Select **Yes** to enable deduplication for the primary copy.
 - o From the **MediaAgent** list, click the name of the MediaAgent that will be used

- 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]

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. The selected group(s) will be marked (X) and can be deselected if you enter the same number again. After you are finished with the selection, select "Done with the Selection".

```
[ ] 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: 2

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..
Adjusting modes and permissions of files

Successfully installed Calypso

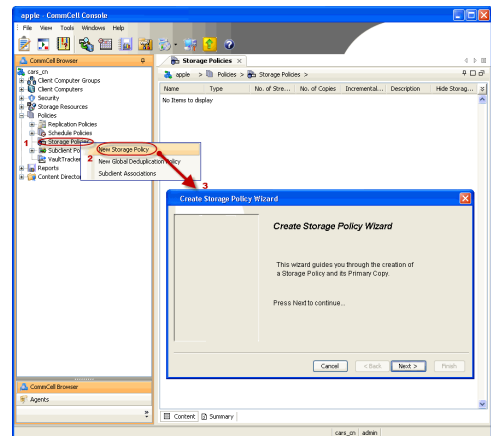
Certain Calypso packages can be associated with a virtual IP, or in other words, installed on a "virtual machine" belonging to some cluster. At any given time the virtual machine's services and IP address are active on only one of the cluster's servers. The virtual machine can "fail-over" from one server 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 stone.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 stone.company.com
- 2) Install Calypso on a virtual machine
- 3) Exit

Your choice: [1]



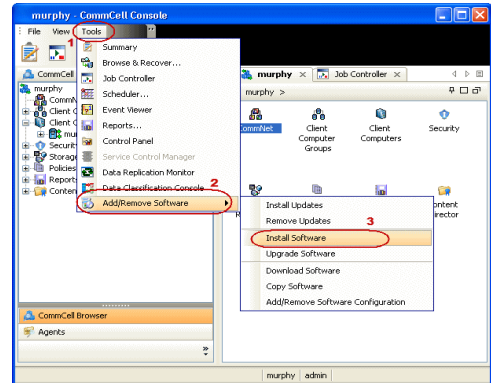
to store the Deduplication store.

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**.

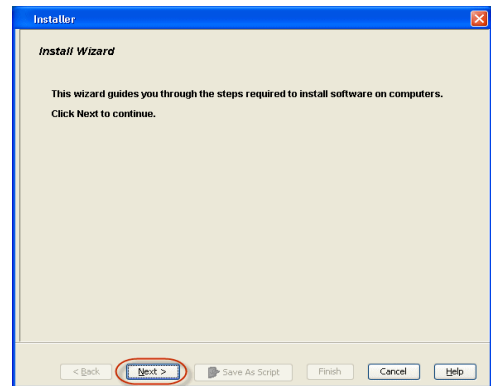
- o Review the details and click **Finish** to create the Storage Policy.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

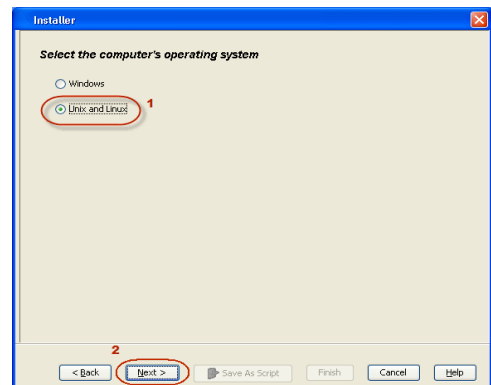
1. From the CommCell Browser, select **Tools | Add/Remove Software | Install Software**.



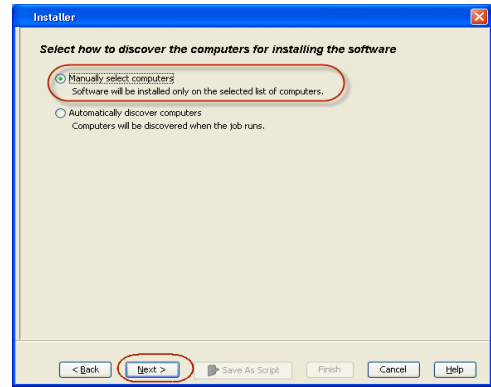
2. Click **Next**.



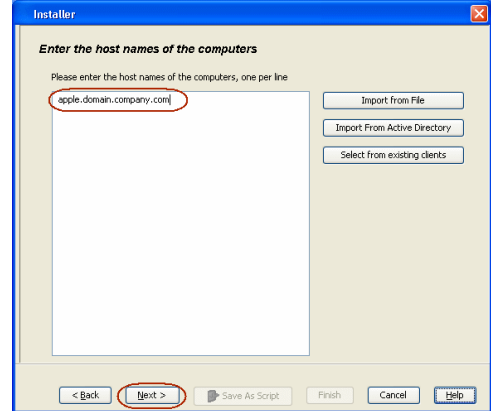
3. Select **Unix and Linux**.
Click **Next**.



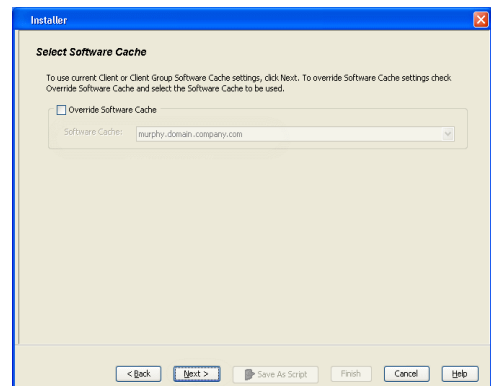
- 4. Select **Manually Select Computers**.
Click **Next**.



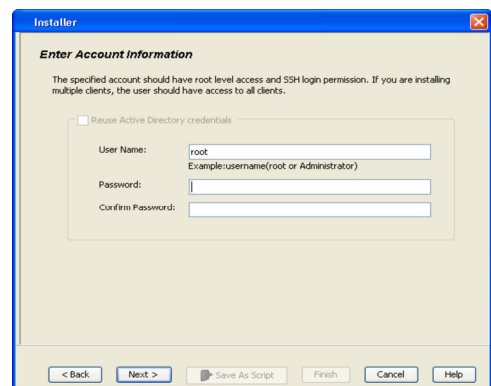
- 5. Enter the fully qualified domain name of the computer in which you wish to install.
For example: apple.domain.company.com
The SAP for MaxDB iDataAgent will be installed on this client computer.
Click **Next**.



- 6. Click **Next**.

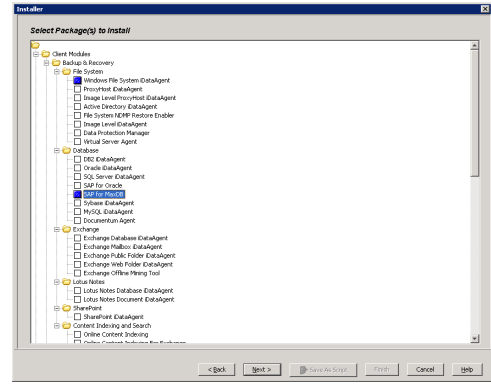


- 7. Specify **UserName** and **Password** of client computer.
Click **Next**.

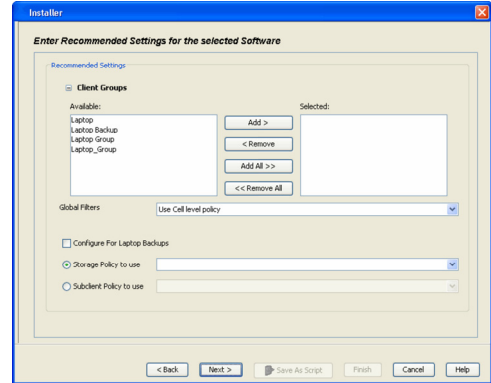


- 8. Select **SAP for MaxDB** .
Click **Next**.

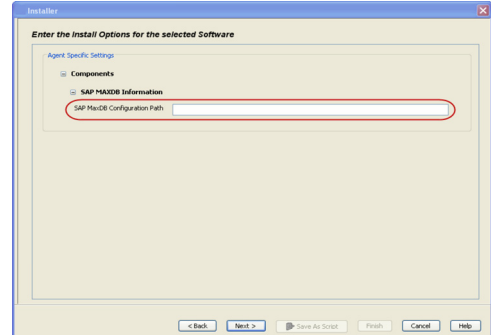
9.
 - Select **Client Group** from **Available** and click **Add**.
Do not add more than one Client Group.
 - Select a **Storage Policy** from the drop-down list. Click **Next**.



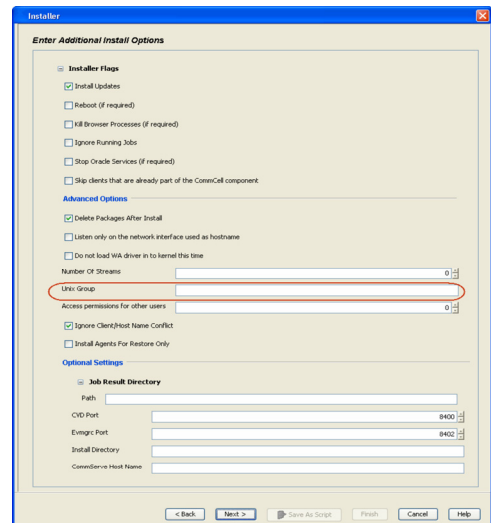
10. Type the **SAP MaxDB Configuration Path**.
Click **Next**.



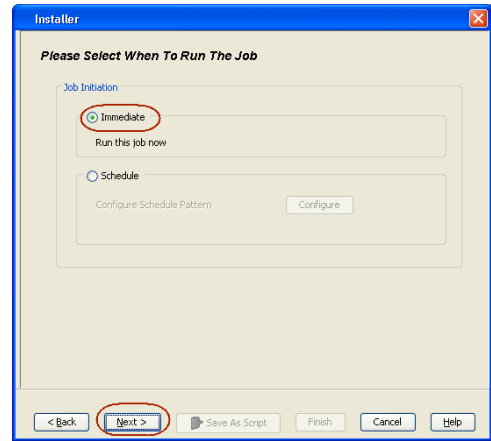
11. Click **Next**.



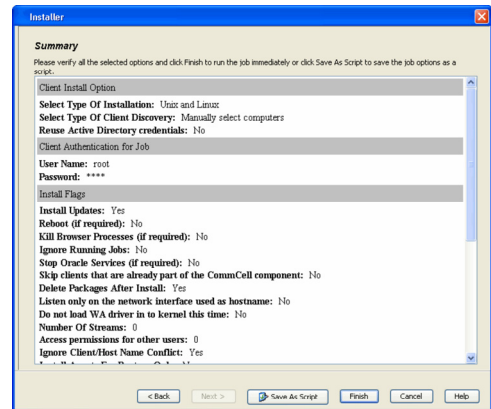
12. Select **Immediate**.
Click **Next**.



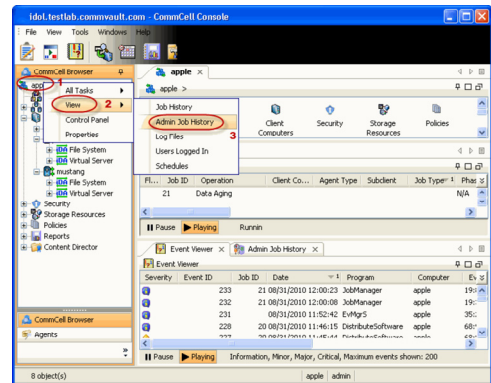
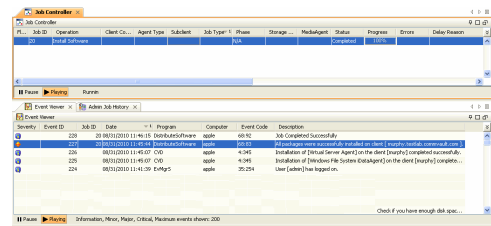
13. Click **Finish**.



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



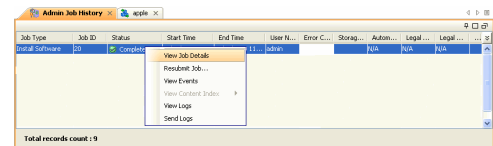
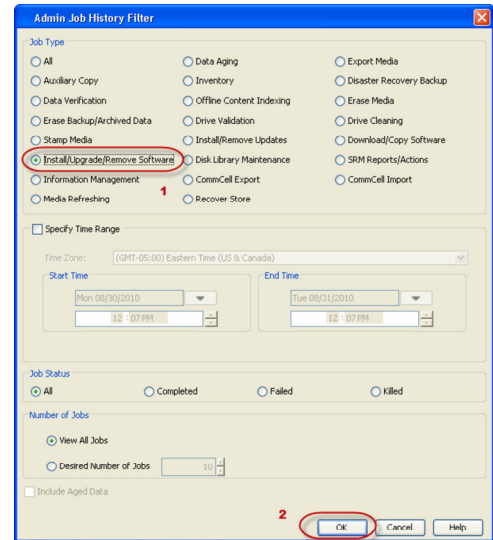
15. Once the job is complete, right-click the **CommServe** computer, click **View** and then click **Admin Job History**.



16. Select **Install/Upgrade/Remove Software**.
Click **OK**.

17. 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



Getting Started - Deploying in a Non-Global Zone

◀ Previous Next ▶

WHERE TO INSTALL

Install the software on each of the non-global zones where you have application data.

It is recommended to install the software on the global zone to protect non-changing or static data on non-global zones. If the data is dynamic or contains application data, install the software on the non-global zone.

INSTALLATION

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

METHOD 1: INTERACTIVE INSTALL

Use this procedure to install the software directly on Unix client computer.

METHOD 2: INSTALL SOFTWARE FROM COMMCCELL CONSOLE

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

METHOD 1: INTERACTIVE INSTALL

1. Mount the installation disc on the non-global zone.

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

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

Connect to Non-Global Zone terminal

2. Run the following command from the Software Installation Disc:

```
./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**.

6. If your computer is 32-bit, press **Enter**.

If your computer is 64-bit, see [Install Unix Agents on 64-bit Platform for step-by-step procedure](#).

7. Press **Enter**.

RELATED TOPICS

System Requirements

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

Firewall

Provides comprehensive information on firewall.

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]

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 platform (32 bit)

2) FS and MA only (64 bit)

Your choice: [1]

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.

- All the modules installed on the computer will store the log files in this directory.
16. Type **no**.
- NOTES**
- If entering **Yes**, go to Step 18.
17. Type **d** for done.
18. If you indicated **Yes** in Step 16., you will be prompted for the group name that must be used to launch processes.
- Enter the group name and then press **Enter**.
- NOTES**
- See your Unix systems administrator for assistance in creating a user group.
19. 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**.
20. If this computer and the CommServe is separated by a firewall, type **Yes** and then press **Enter**.
- For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.
- If you do not wish to configure the firewall services, type **No** and then press **Enter**.
21. Type the fully qualified domain name for **CommServe Host Name** and press **Enter**.
- NOTES**
- Ensure that the CommServe is accessible before typing the name; otherwise the installation will fail.
22. Press **Enter**.

"/var/log/calypso/Log_Files".

Log Directory: [/var/log]

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 "dba" 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 "dba" group.

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

Access Permissions for Other Users

Installer will assign full access rights to root user and its belonging group for all installed Software 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 Software 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:

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 "dba" group here.

Group name: dba

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 "dba".

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 : [8600]

Port Number for EVMgrC: [8602]

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

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:

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.

23. Type the number of a Client Group and press **Enter**.

A confirmation screen will mark your choice with an "X". Type **d** for done with the selection, and press **Enter** to continue.

NOTES

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


24. Enter the number corresponding to the storage policy through which you want to back up the External Data Connector 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 26.

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

The installation is now complete.

 If you already have a storage policy selected in step 24, click the Next button available on the bottom of the page to proceed to the Configuration section.

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

- 26.
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:
 - o Select the Storage Policy type as **Data Protection and Archiving** and click **Next**.
 - o Enter the name in the **Storage Policy Name** box and click **Next**.
 - o 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.
 - o From the **MediaAgent** list, click the name of a MediaAgent that will be used to create the primary copy and then click **Next**.
 - o For the device streams and the retention criteria information, click **Next** to accept default values.
 - o Select **Yes** to enable deduplication for the primary copy.
 - o From the **MediaAgent** list, click the name of the MediaAgent that will be used

- 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]

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. The selected group(s) will be marked (X) and can be deselected if you enter the same number again. After you are finished with the selection, select "Done with the Selection".

```
[ ] 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: 2

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..
Adjusting modes and permissions of files

Successfully installed Calypso

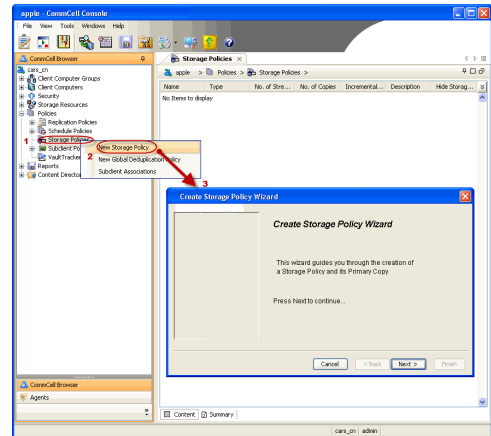
Certain Calypso packages can be associated with a virtual IP, or in other words, installed on a "virtual machine" belonging to some cluster. At any given time the virtual machine's services and IP address are active on only one of the cluster's servers. The virtual machine can "fail-over" from one server 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 stone.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 stone.company.com
- 2) Install Calypso on a virtual machine
- 3) Exit

Your choice: [1]



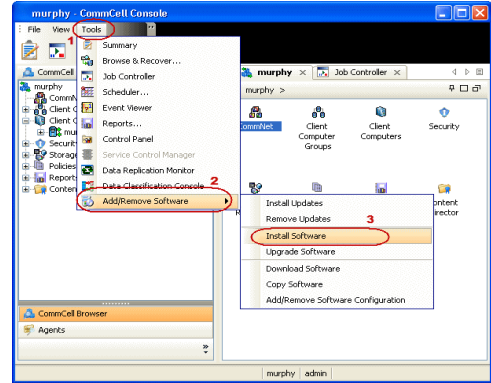
to store the Deduplication store.

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**.

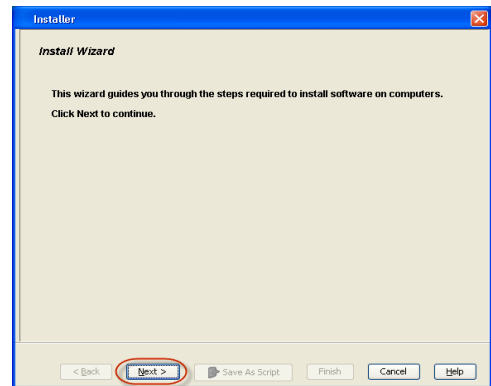
- o Review the details and click **Finish** to create the Storage Policy.

METHOD 2: INSTALL SOFTWARE FROM COMMCELL CONSOLE

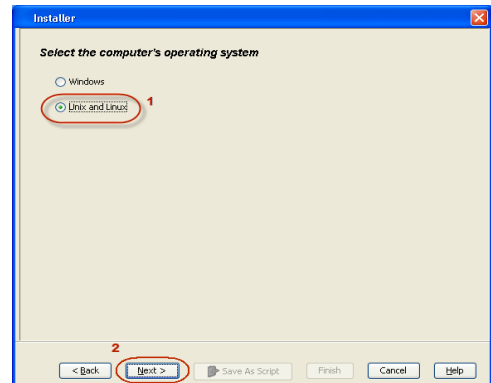
1. From the CommCell Browser, select **Tools | Add/Remove Software | Install Software**.



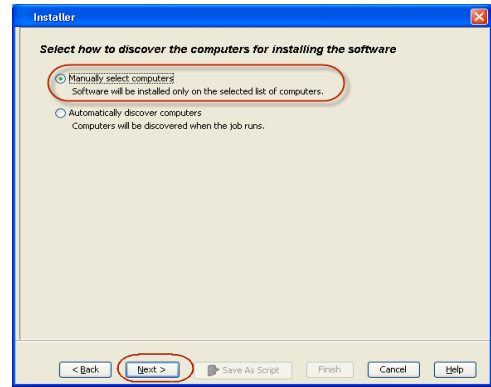
2. Click **Next**.



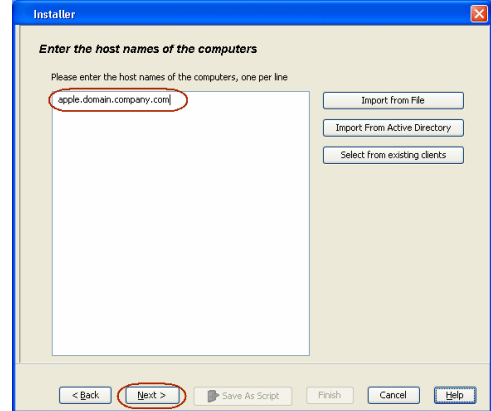
3. Select **Unix and Linux**.
Click **Next**.



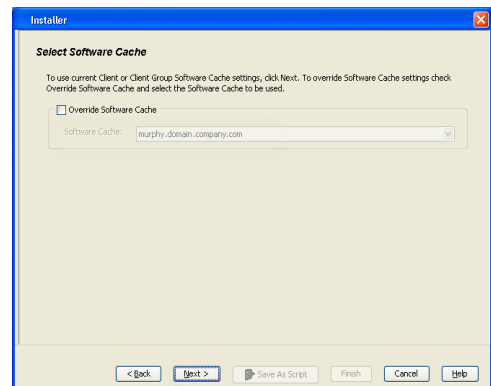
- 4. Select **Manually Select Computers**.
Click **Next**.



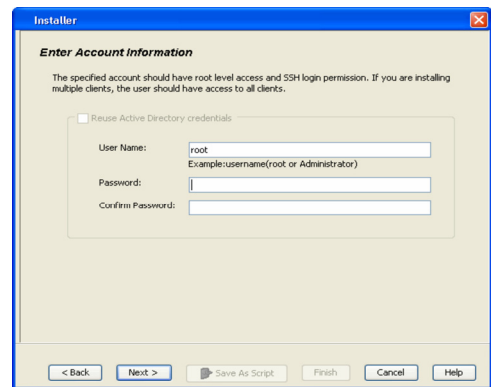
- 5. Enter the fully qualified domain name of the computer in which you wish to install.
For example: apple.domain.company.com
The SAP for MaxDB iDataAgent will be installed on this client computer.
Click **Next**.



- 6. Click **Next**.

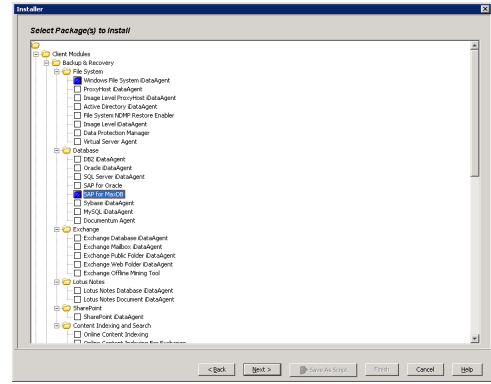


- 7. Specify **UserName** and **Password** of client computer.
Click **Next**.

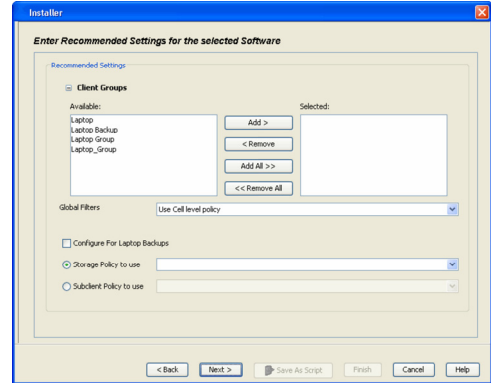


- 8. Select **SAP for MaxDB** .
Click **Next**.

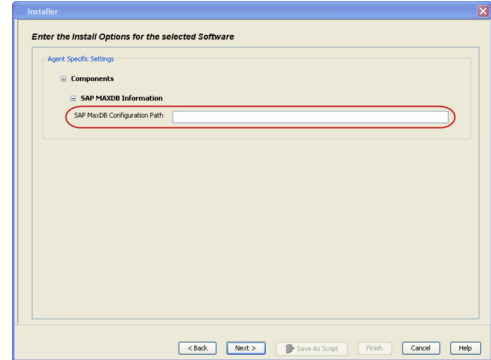
9.
 - Select **Client Group** from **Available** and click **Add**.
Do not add more than one Client Group.
 - Select a **Storage Policy** from the drop-down list. Click **Next**.



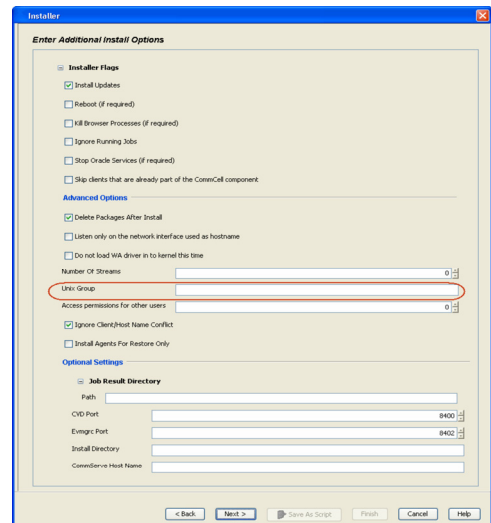
10. Type the **SAP MaxDB Configuration Path**.
Click **Next**.



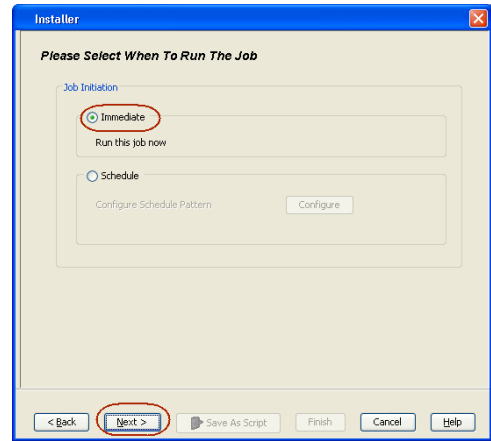
11. Click **Next**.



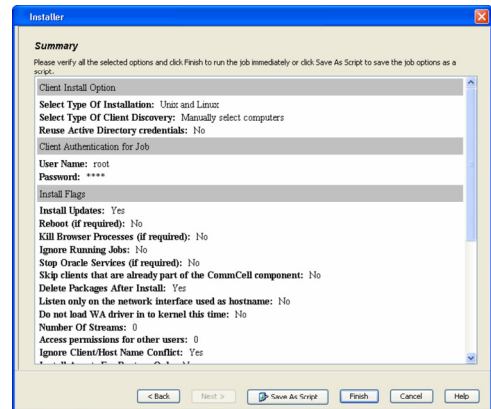
12. Select **Immediate**.
Click **Next**.



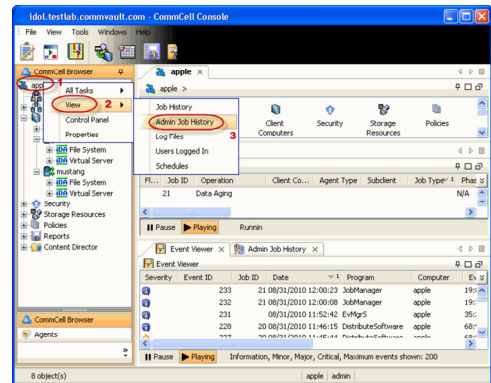
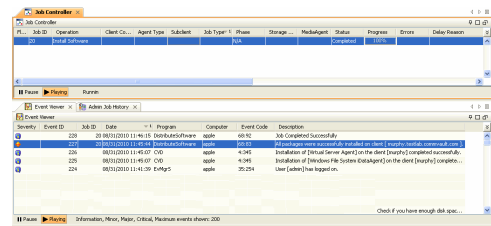
13. Click **Finish**.



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



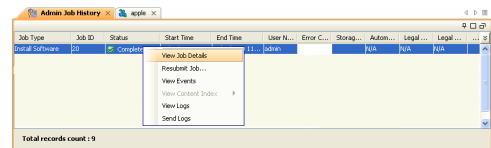
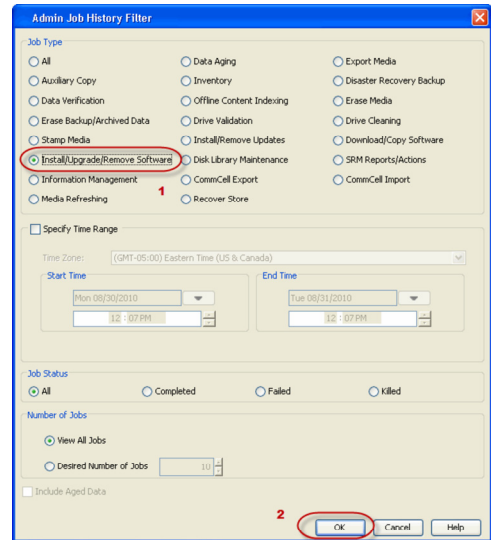
15. Once the job is complete, right-click the **CommServe** computer, click **View** and then click **Admin Job History**.



16. Select **Install/Upgrade/Remove Software**.
Click **OK**.

17. 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



Getting Started - SAP for MaxDB Configuration

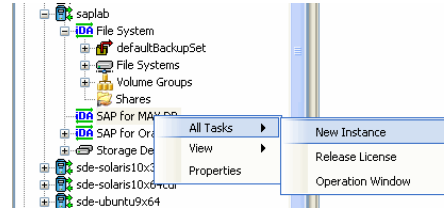
◀ Previous Next ▶

CONFIGURATION

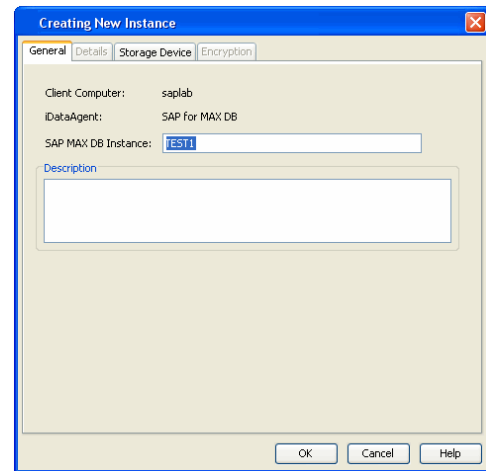
Once the SAP for MaxDB iDataAgent is installed, you need to configure an Instance and associate the SAP MaxDB database with the iDataAgent to facilitate backups. Each instance references a MaxDB database.

The following sections provide the necessary steps required to create and configure these components for a first backup of a MaxDB database.

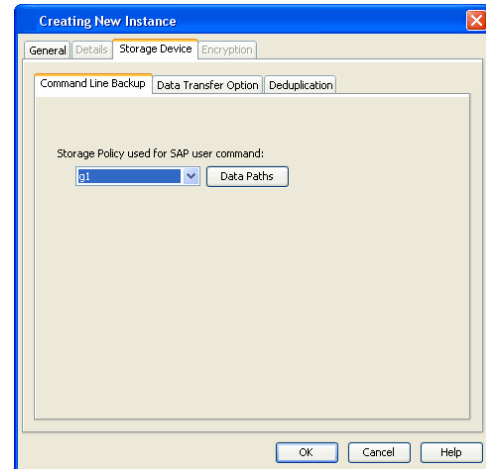
- From the CommCell Browser, navigate to **Client Computers | <Client> | SAP for MaxDB**.
 - Right-click SAP for MaxDB | All Tasks** and click **New Instance**.



- Enter the Instance name in **SAP MaxDB Instance** text field
 - Enter a description about the instance.



- Click the **Storage Device** tab, and then click **Command Line Backup** tab to select the storage policy for backups from the list of existing storage policies.



- Click **OK** to save the instance.

6. Configure the backup device:

Configure the backup device as a medium and define the path for stream/pipe that is used for the storage media.

For Windows Client :

Log in to the database and run the following command from the dbm client interface:

```
dbmcli -d <database name> -u <UserName,Password>
```

Enter the commands for defining the path of stream/pipe.

Windows pipes must be specified in the form `\\.\pipe\[pipe name]`

Example:

```
dbmcli -d cert1 -u DBM,DBM
wherein cert1 = Database name
DBM,DBM = UserName,Password
```

```
medium_put BackData2\mem1
```

```
\\.\pipe\pipe_mem1 PIPE DATA 0 0 NO NO '' BACK
```

For Unix Client:

Log in to the database using the following command from dbm client interface:

```
dbmcli -d <database name> -u <UserName,Password>
```

Enter the adjacent commands for defining the path of stream/pipe.

You can specify any file path as a pipe and create the pipes in the operating system.

7. Associate the SAP MAXDB database:

For Windows Client :

Run the command from the dbm client interface to associate the SAP MAXDB database with the product software.

For Unix Client:

- Run the commands from dbm client interface to associate the SAP MAXDB database with the product software.
- Configure the shared library path in the .profile file from the root directory.

8. Configure the parameter file:

Ensure to include the `CvInstanceName` parameter name followed by the name of the instance. Include the `CvClientName` parameter, followed by the name of the client. Also, ensure to set the number of streams for the backup. For Selective Online Full Backups, include the `SelectiveOnlineFull` parameter in the parameter file and set the parameter value to **1** to enable a selective online full backup from the client. To disable this capability, set the parameter value to **0**.

For Windows Client:

The parameter file is located under the SAP MAXDB config file directory that you provide during installation.

For Unix Client

The parameter files is located under the

```
medium_put BackPages2\mem1
\\.\pipe\pipe_mem3 PIPE PAGES 0 0 NO NO '' BACK
medium_put BackLog\mem1
\\.\pipe\pipe_mem5 PIPE LOG 0 0 NO NO '' BACK
medium_put CompleteF\mem1
\\.\pipe\pipe_mem5 PIPE File 0 0 NO NO '' BACK
-- wherein BackData2,BackPages2,BackLog,CompleteF =
backup devices
```

Example:

```
bird:/opt/sdb# dbmcli -d cert1 -u DBM,DBM
wherein cert1 = Database name
DBM,DBM = UserName,Password
medium_put BackData2\mem1
/space/sdb/data/cert1/files/pipe_mem1 PIPE DATA 0 0
NO NO '' BACK
medium_put BackPages2\mem1
/space/sdb/data/cert1/files/pipe_mem3 PIPE PAGES 0 0
NO NO '' BACK
medium_put BackLog\mem1
/space/sdb/data/cert1/files/pipe_mem5 PIPE LOG 0 0
NO NO '' BACK
medium_put CompleteF\mem1
/space/sdb/data/cert1/files/complete FILE DATA 0 0
YES
-- wherein BackData2,backPages2,BackLog,CompleteF =
backup devices
dbm_configset -raw BSI_ENV
<software install path>\SapMaxDbAgent\backint.conf
```

```
dbm_configset -raw BSI_ENV
/<software install path>/SapMaxDbAgent/backint.conf
dbm_configset -raw set_variable_0 LD_LIBRARY_PATH=
/<software install path>/Base
dbm_configset -raw set_variable_1 SHLIB_PATH=
/<software install path>/Base
```

For AIX and HP-UX:

```
SHLIB_PATH=/<software install path>
/Base:/<software install path>/Base64
export SHLIB_PATH
```

For Linux and Solaris:

```
LD_LIBRARY_PATH=/<software install path>
/Base:/<software install path>/Base64
export LD_LIBRARY_PATH
```

For Example:

```
numstreams (Modify "numstreams" for Multiple streams
backup)
1
CvInstanceName
Instance001
CvClientName
magnum_SN
SelectiveOnlineFull
```

(To Enable Selective Online Full give its value as 1. To disable

<software_install_folder>/SapMaxDbAgent.

0)

1

CV_restCopyPrec (To enable a restore from a secondary copy,

add the **CV_restCopyPrec** parameter followed by the copy precedence number to 2)

2



Getting Started - SAP for MAXDB Backup

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PERFORM A BACKUP

After configuring your Instance, BACKINT interface, and parameter file, you are ready to perform your first backup.

WHAT GETS BACKED UP

The SAP for MAXDB iDataAgent backs up the following types of data:

- All the database files.
- Log Files.
- Configuration Files which include Parameter files (param file).

WHAT DOES NOT GET BACKED UP

The SAP for MaxDB iDataAgent does not backup the MaxDB application files associated with the MaxDB installation.

The following section provides step-by-step instructions for running your first full backup:

PERFORM OFFLINE (COLD) FULL BACKUP

1. Open the DBM Command line Interface and verify the status of the database.

```
#> dbmcli -d CERT1 -u dbm,dbm -uUTL
dbmcli on CERT1>db_state
OK
State
ADMIN
```

2. For offline backup, MAXDB should be in admin (cold) state. If DB is not in this mode, execute the following command

```
#> dbmcli -d CERT1 -u dbm,dbm db_cold
```

3. Type the command to execute the offline full backup

```
#> dbmcli -d CERT1 -u dbm,dbm -uUTL -c backup_start BackData2 Migration
```

4. The backup should complete without any errors.

```
ok
```

```
Return Code      0
```

PERFORM ONLINE (WARM) FULL BACKUP

1. Open the DBM Command line Interface and verify the status of the database.

```
#> dbmcli -d CERT1 -u dbm,dbm -uUTL
dbmcli on CERT1>db_state
OK
State
ONLINE
```

2. For online backup, MAXDB should be in online (warm) state. If DB is not in this mode, execute the command

```
#> dbmcli -d < DBsid > -u dbm,dbm db_warm
```

3. Type the command to execute the online full backup

```
# dbmcli -d CERT1 -u dbm,dbm -uUTL -c backup_Start BackData2 Recovery
```

4. The backup should complete without any errors.

```
ok
```

```
Return Code      0
```

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Getting Started - SAP for MaxDB Restore

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PERFORMING A RESTORE

It is recommended that you perform a restore operation immediately after your first full backup to understand the process.

You can perform a basic restore operation to restore and recover an entire database. The following section provides step-by-step instructions for running your first basic restore:

1. Open the DBM Command line Interface and verify the status of the database.
2. MAXDB should be in admin (cold) state to perform a basic restore operation. If the database is in online (warm) mode, execute the command.
3. Type the command to check all backup IDs. The command should return OK.
4. Type the command to list all the External Backup ID's. The command should return OK and display a list of all External Backup ID's.

```
#> dbmcli -d CERT1 -u dbm,dbm -uUTL
```

```
dbmcli on CERT1>db_state
```

```
OK
```

```
State
```

```
ADMIN
```

2. MAXDB should be in admin (cold) state to perform a basic restore operation. If the database is in online (warm) mode, execute the command.

```
#> dbmcli -d CERT1 -u dbm,dbm db_cold
```

3. Type the command to check all backup IDs. The command should return OK.

```
# dbmcli -d CERT1 -u dbm,dbm -uUTL
```

```
dbmcli on CERT1>backup_ext_ids_get BackData2
```

```
OK
```

4. Type the command to list all the External Backup ID's. The command should return OK and display a list of all External Backup ID's.

```
dbmcli on CERT1>backup_ext_ids_list
```

```
OK
```

```
END
```

```
AVAILABLE|CERT1 SAP_0_46
```

```
/space/sdb/data/cert1/files
```

```
/pipe_mem1|DATA MIGRATION|2005-11-05 16:11:49|
```

```
AVAILABLE|CERT1 SAP_0_46
```

```
/space/sdb/data/cert1/files
```

```
/pipe_mem2|DATA MIGRATION|2005-11-05 16:11:49|
```

5. Type the command to execute the restore of entire database.

```
dbmcli on CERT1>
```

```
recover_start BackData2
```

```
DATA ExternalBackupID "CERT1 SAP_0_46
```

```
/space/sdb/data/cert1/files/pipe_mem1,
```

```
CERT1 SAP_0_46
```

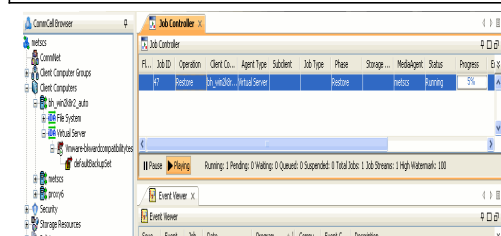
```
/space/sdb/data/cert1/files/pipe_mem2"
```

```
dbmcli on CERT1>exit
```

```
OK
```

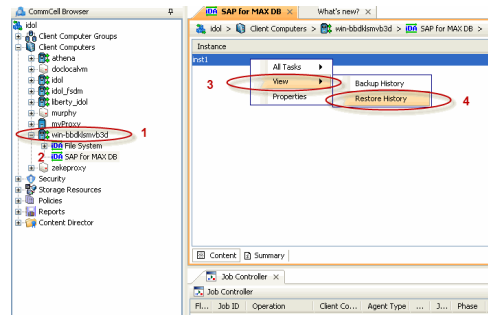
The restore should complete without any errors.

6. You can monitor the progress of the restore job in the **Job Controller** or **Event Viewer** window of the CommCell Console.

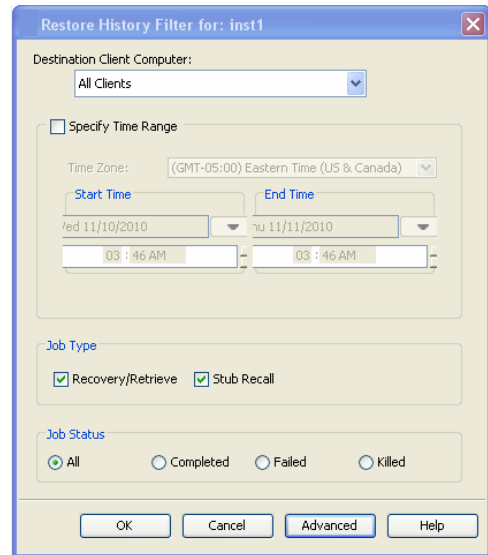


- Once the restore job has completed, right-click the entity (e.g. agent, instance) and click **View | Restore History**.

If the entity chosen is the client computer, click **View | Job History**.



- Click **OK**.



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.



