Quick Start - Tru64 File System *i*DataAgent

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Overview - Unix/Linux File System *i*DataAgents

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Linux
Walks you through the process of installing and configuring the File System *i*DataAgent for Linux.

AIX
Walks you through the process of installing and configuring the File System *i*DataAgent for AIX

FreeBSD
Walks you through the process of installing and configuring the File System *i*DataAgent for FreeBSD.
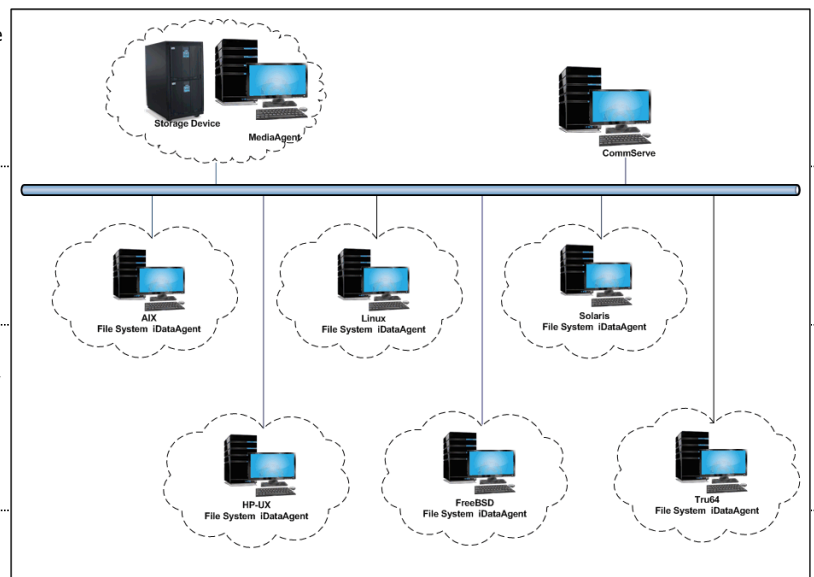
HPUX
Walks you through the process of installing and configuring the File System *i*DataAgent for HPUX.

Solaris
Walks you through the process of installing and configuring the File System *i*DataAgent for Solaris.

Tru64
Walks you through the process of installing and configuring the File System *i*DataAgent for Tru64.

INTRODUCTION

Calypso software provides a simplified end-to-end protection of file system data residing on all the Unix computers in your enterprise. In addition to complete protection of file system data for disaster recovery, it also provides a robust and comprehensive backup and recovery solution 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 Unix File System *i*DataAgents offers the following key features:

SIMPLIFIED DATA MANAGEMENT

The Unix File System *i*DataAgents enables easy management of all the UNIX systems in your environment, by providing a singular approach to manage the data using the same unified console and infrastructure.

POINT-IN-TIME RECOVERY

In the event of a serious system failure, such as the breakdown of hardware, software, or operating systems, the Unix File System *i*DataAgent provides point-in-time recovery of files at any given time.

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.

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

SRM FOR UNIX FILE SYSTEM

SRM is integrated with UNIX File System *i*DataAgent to provide several advanced reporting capabilities for your backups. When enabled, backup jobs collect details on the file systems currently being used or not used, the memory and hardware resources consumed, storage usage, and granular file-level analytics.

SRM reports include detailed information on the state of your file system data, including free space, used space, file count, file sizes, directory structure, and many other useful statistics.

In addition, **SRM summaries** provide a graphical, real-time representation of usage information such as memory and CPU utilization. Optional file-level analytics provides even more granular details at the file-level for optimizing your storage resources.

SRM integration with UNIX File System iDataAgent can be easily enabled with your backups to take advantage of these features.

1-TOUCH

1-Touch recovery helps to recover a crashed system in the least amount of time. By automatically rebuilding the operating system, you can recover systems with defective components such as inaccessible volumes or crashed disks. You don't need to reinstall the individual software packages or operating systems manually.

ONEPASS AGENT

The OnePass Agent is an integrated File System agent which backs up and archives the qualified data. It reclaims backup storage space when files and stubs are deleted on the primary storage.

CONTENT INDEXING AND SEARCH

Content Indexing and Search enables users to content index their data and later search the data from a user-friendly web interface. The users can also perform restore operations or other advanced actions on the searched data.

DESKTOP BROWSE

Desktop Browse enables users to browse and restore data from a Web Browser, which provides the facility to access and restore data from anywhere.

TERMINOLOGY

The Unix File System documentation uses the following terminology:

CLIENT	The computer in which the *i*DataAgent is installed and contains the data to be secured.
BACKUP SET	A group of subclients which includes all of the data backed up by the *i*DataAgent.
SUBCLIENT	The Unix file system data to be backed up.

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System Requirements - Tru64 File System *i*DataAgent

| AIX | HP-UX | FreeBSD | Linux | Solaris | Tru64 | Supported Features |

The following are the requirements for Tru64 File System *i*DataAgent:

OPERATING SYSTEM	PROCESSOR
TRU64 Tru64 OSF1 Release 5.1B-3 or higher	Compaq® (DEC) AlphaServer DS Series computer or higher recommended

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

750 MB minimum of hard disk space for software

100 MB of additional hard disk space for log file growth

500 MB of reserved hard disk space for the Job Results directory

1 GB of temp space required for install or upgrade (where the temp folder resides)

For information on space requirements to install/upgrade the File System and service pack, see Service Pack - System Requirements.

MEMORY

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

Swap space = 2*RAM size

PERIPHERALS

DVD-ROM drive

Network Interface Card

MISCELLANEOUS

NETWORK

TCP/IP Services configured on the computer.

SUPPORTED FILE SYSTEMS

The Tru64 File System *i*DataAgent supports the following file systems:

Unix File System (UFS)

Advanced File System (advfs)

VERITAS File System (VxFS)

VERITAS Cluster File System (VxCFS)

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 - TRU64 File System Deployment

Use the following steps to install the File System *i*DataAgent on a Tru64 computer.

WHERE TO INSTALL

Install the software directly on the computer you wish to protect.

Make sure the computer 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.

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. If you are installing the software from CD, run the following command to mount the CD:

   ```
   mount -t cdfs -o noversion /dev/disk/cdrom3c /cdfs
   ```

   ● 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. 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]

   We found one network interface available on your machine.
   ```

7.	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 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]
8.	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]
9.	Type the number associated with the **Unix File System _i_DataAgent** and press **Enter**.	Install Calypso on physical machine angel Please select the Calypso module(s) that you would like to install. [ ] 1) MediaAgent [1301] [CVGxMA] [ ] 2) UNIX File System iDataAgent [1101] [CVGxIDA] [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
10.	A confirmation screen will mark your choice with an "**X**". Type **d** for **Done**, and press **Enter**.	Install Calypso on physical machine angel Please select the Calypso module(s) that you would like to install. [ ] 1) MediaAgent [1301] [CVGxMA] [X] 2) UNIX File System iDataAgent [1101] [CVGxIDA] [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
11.	Press **Enter**.	Do you want to use the agents for restore only without consuming licenses? [no]
12.	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
13.	Press **Enter**. It is recommended to download the latest Service pack(s). Type **Yes** and press **Enter** to automatically install the available updates during installation.	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]
14.	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]

15.	Press **Enter** to accept the default location.	Please specify where you want to keep Calypso log files.

- 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.

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]

---

16. Type **Yes** and press **Enter.**

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]

---

17. Type the **Group name** and press **Enter**.

Press **Enter** again.

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: sky1

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 "sky1".

Press <ENTER> to continue ...

---

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**.

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]

---

19. 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]

---

20. 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

---

21. 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]

---

22. 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

If you have not created a storage policy, this message will be displayed.

You may not be prompted for user input.

> You can create the Storage Policy later in step 24.

23. Type **3** and press **Enter**.

```
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

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]
```

If you already selected a storage policy in step 22, proceed to the Configuration section.

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

24.

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

For sudo users, Service Pack 4B (or higher) must be available in the CommServe cache before performing the install. See Configure Download Software for step-by-step instruction on downloading the latest software or updates.

1. From the CommCell Browser, select **Tools** menu, point to **Add/Remove Software**, and then click **Install Software**.
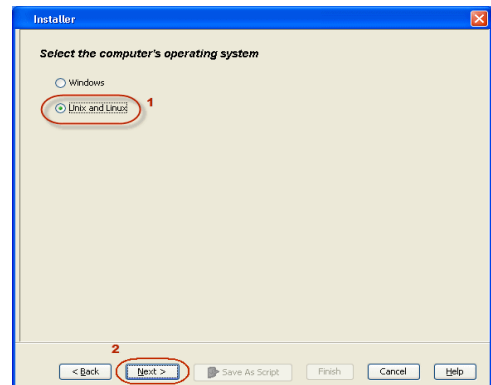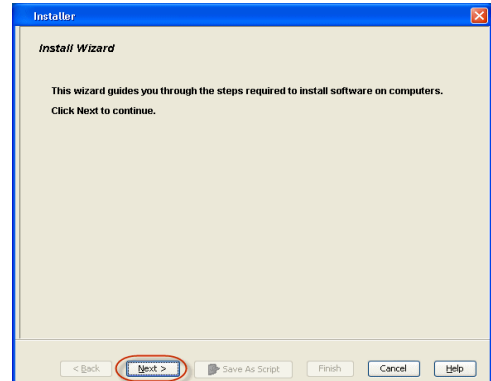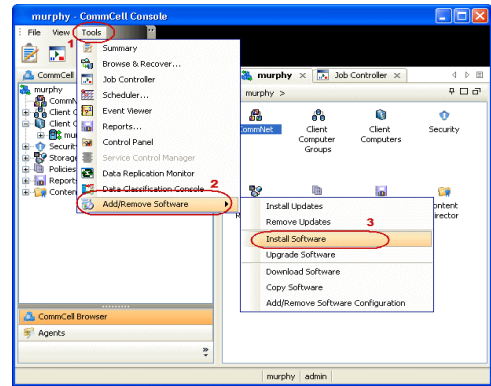
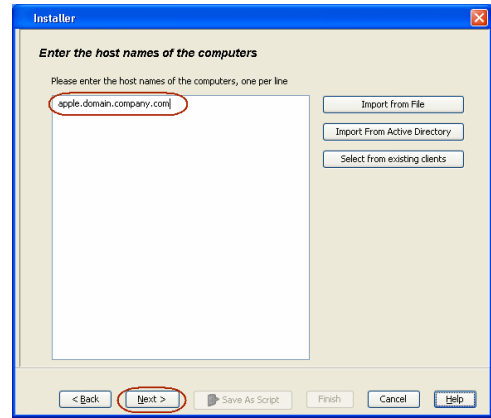2.   Click **Next**.

3.   Select **Unix and Linux**, and then click **Next**.

4.   Select **Manually Select Computers** ,and then 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 **Unix File System *i*DataAgent** will be installed on this client computer.

        Click **Next**.
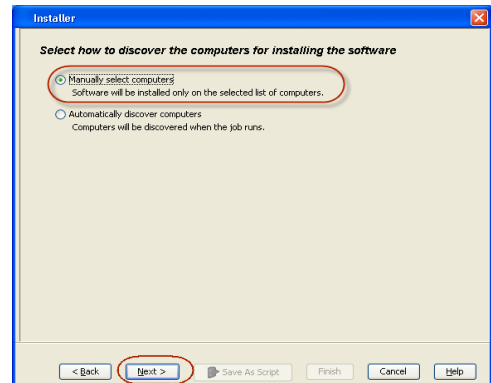
6. Click **Next**.

7. Type the **User Name** and **Password** of client computer who has administrator or sudo privileges.

Click **Next**.

- If a SUDO user has been created for root access then use **visudo** to change **/etc/sudoers**, so that this user can SUDO into ssh without being prompted for the password. Change the **/etc/sudoers** by commenting the following lines.
- For Sudo users with restricted privileges, in order to gain privilege to install the software remotely, you need to have **/bin/sh** added to the permission section in the sudoers file.

On SuSE Linux:

- `Defaults targetpw # ask for the password of the target user i.e. root`
- `ALL ALL=(ALL) ALL # WARNING! Only use this together with 'Defaults targetpw'!`

On Red Hat Enterprise Linux/CentOS:

- `Defaults requiretty`

8. Select **Unix File System *i*DataAgent**.

Click **Next**.
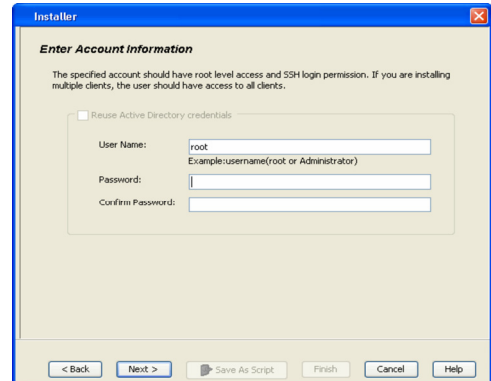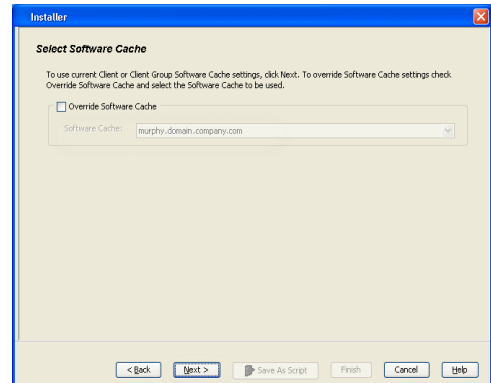
9.
- Select **Client Group** from **Available** and click **Add**.
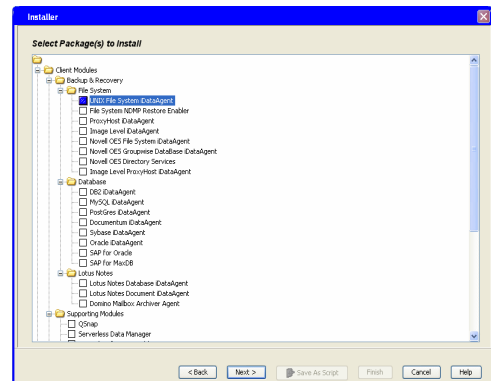
Do not add more than one Client Group.

- 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. Click **Next**.
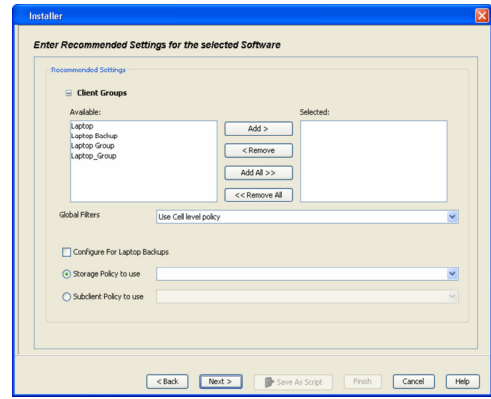
11. Select **Immediate**.

Click **Next**.
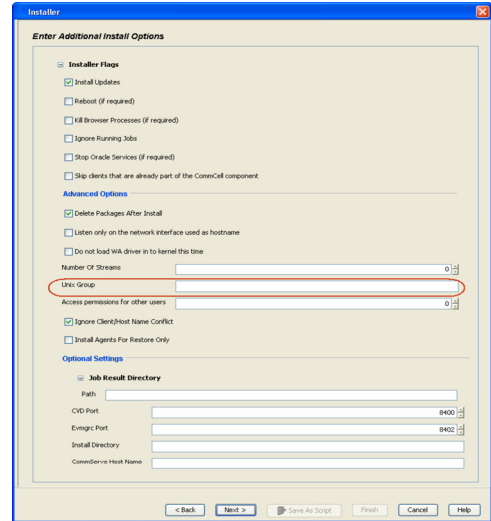
12. Click **Finish**.
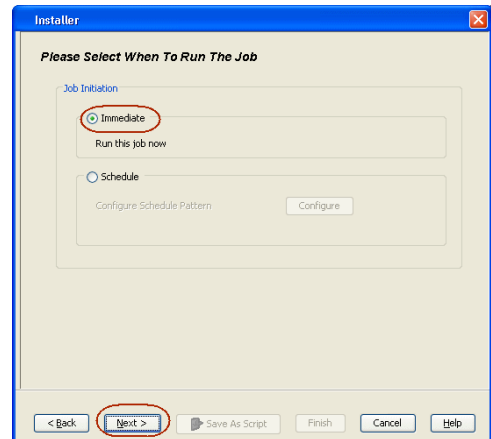
13.   You can track the progress of the job from the **Job Controller** or **Event Viewer** window.
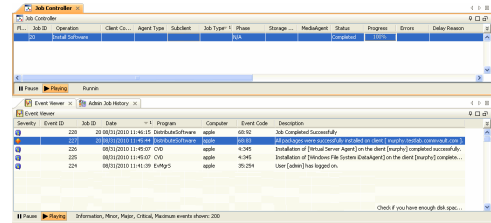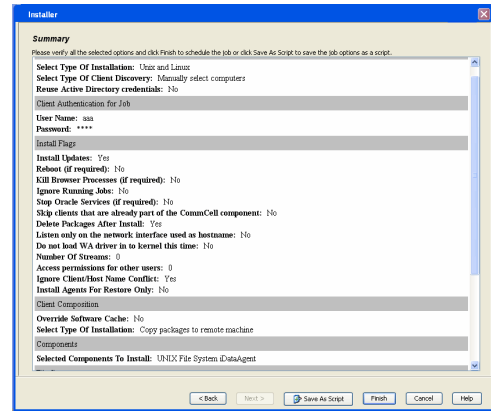
Getting Started - Tru64 File System Configuration

CONFIGURATION

Once installed, follow the steps given below to assign a storage policy with the default subclient.

1.
- From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**.
- Right-click the default subclient and then click **Properties**.
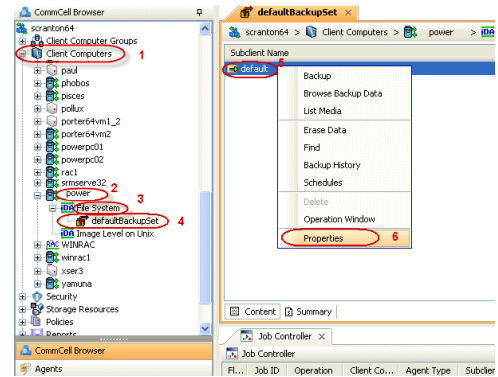
2.
- Click the **Storage Device** tab.
- In the **Storage Policy** box, select a Storage Policy name.
- Click **OK**.

Click Next ▶ to continue.

If you do not have Storage Policy created, follow the step given below to create a storage policy.
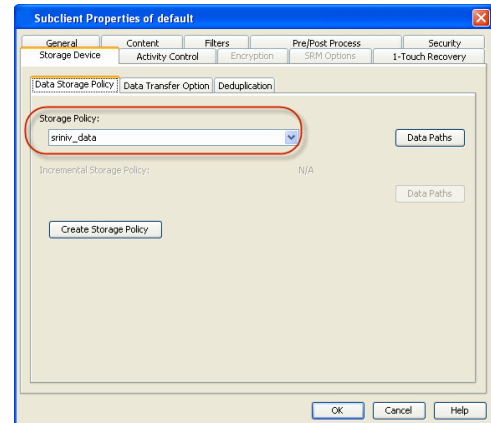
3.
1. Click **Create Storage Policy**.

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.

Getting Started - Tru64 File System Backup

WHAT GETS BACKED UP	WHAT DOES NOT GET BACKED UP
FILE SYSTEMS Unix File System (UFS) Advanced File System (advfs) VERITAS File System (VxFS) VERITAS Cluster File System (VxCFS)	By default, the following file systems are automatically skipped during backups: ● nfs ● nfs3 ● cdfs ● floppy ● lofs ● tmpfs ● proc ● ctfs
FILE SYSTEM ELEMENTS Files with holes Files with Advisory Locks Files with names containing non-ASCII characters as long as the appropriate locales are set Symbolic links that are browsed or manually added to the data contents Shares with Macintosh File System data	Files with mandatory locks - these files are not backed up by default. See Configuring Backups For Locked Files to backup files with mandatory locks. Files for which the file path or file name contains more than 1024 characters

PERFORM A BACKUP

Once the storage policy is configured, you are ready to perform your first backup.

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

1.
   - From the CommCell Browser, navigate to **Client Computers | <Client> | File System | defaultBackupSet**.
   - Right-click the default subclient and click **Backup**.
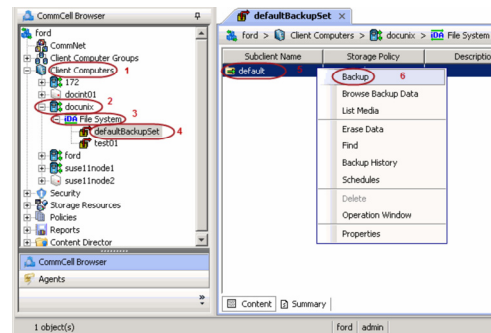
2.
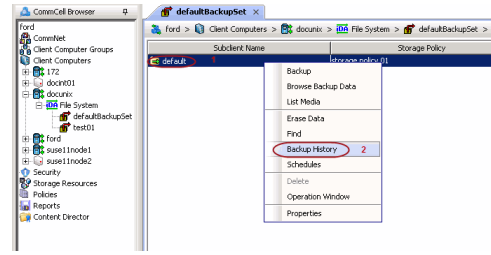   - Click **Full** as backup type and then click **Immediate**.
   - Click **OK**.
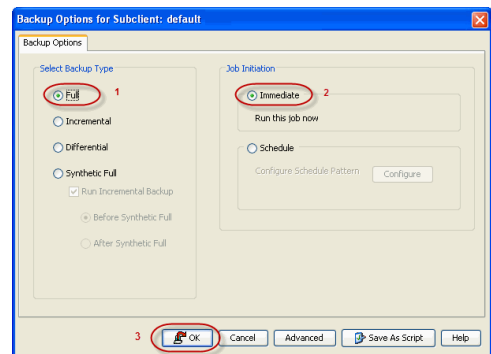
3. You can track the progress of the job from the **Job Controller** window of the CommCell console.
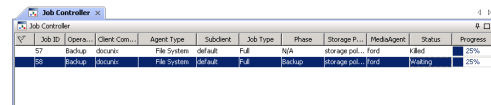
4. Once the job is complete, view the job details from the **Backup History**. Right-click the **Subclient** and select **Backup History**.

5.   Click **OK**.

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

- Items that failed during the job
- Items that succeeded during the job
- Details of the job
- Events of the job
- Log files of the job
- Media associated with the job
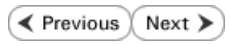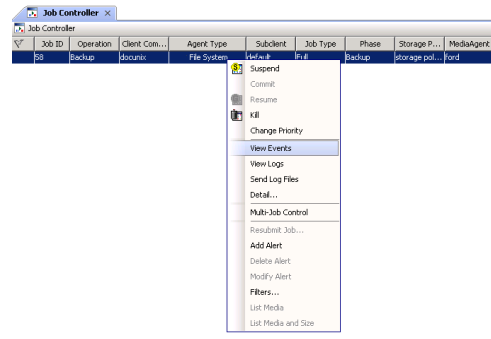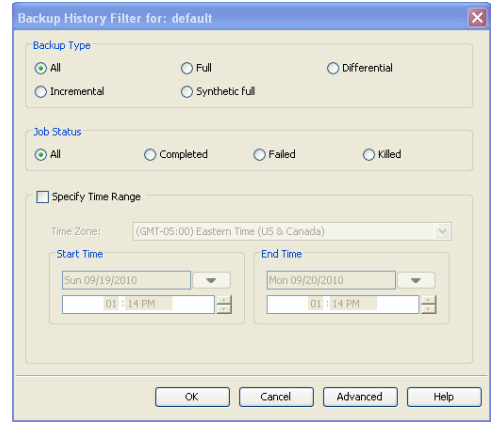
Getting Started - Tru64 File System Restore

PERFORM A RESTORE

It is recommended that you perform a restore operation immediately after your first full backup to understand the process. The following section explains how to restore the **etc** folder to a new location.

1.
   - From the CommCell Browser, navigate to **Client Computers| <Client>** | **File System | defaultBackupSet**
   - Right-click the default subclient and then click **Browse Backup Data**.
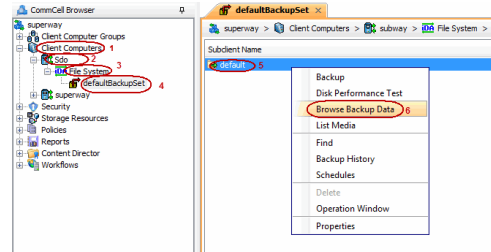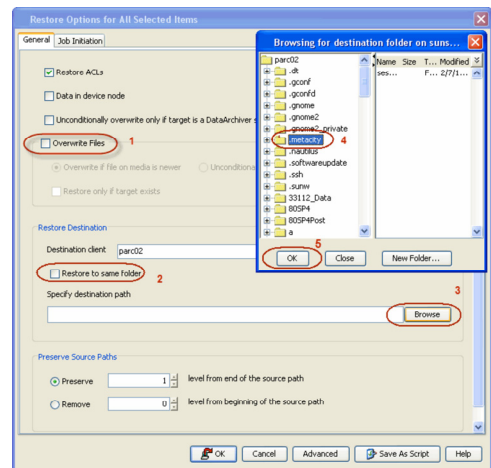
2. Click **OK**.
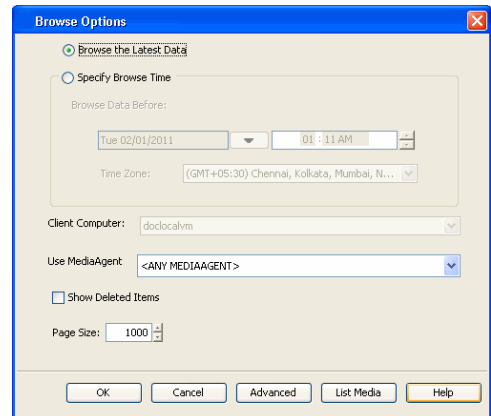
3.
   - Expand the **defaultBackupSet** and navigate to **etc** folder.
   - Select the **etc** folder.
   - Click **Recover All Selected**.
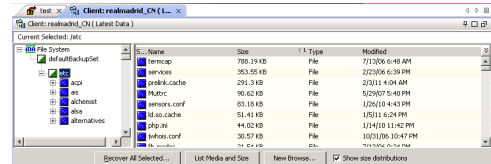
4.
   - Clear the **Overwrite Files** and **Restore to same folder** options.
   - Specify the destination path by clicking **Browse** button.

     This will ensure that the existing files are not overwritten.
   - Click **OK**.

5.
   - Click the **Job Initiation** tab.
   - Select **Immediate** to run the job immediately.
   - Click **OK**.

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

**7.** Once the restore job has completed, right-click the **defaultBackupSet** , point to **View** and then click **Restore History**.

8. Click **OK**.

9. 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

10. Once the File System is restored, verify that the restored files/folders are available in the restore destination provided during step 4.
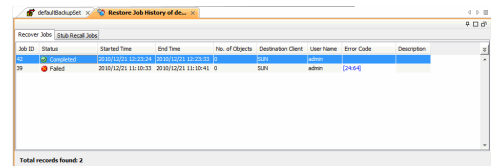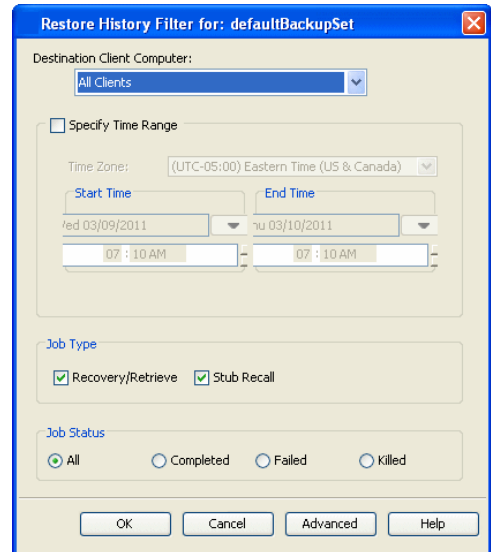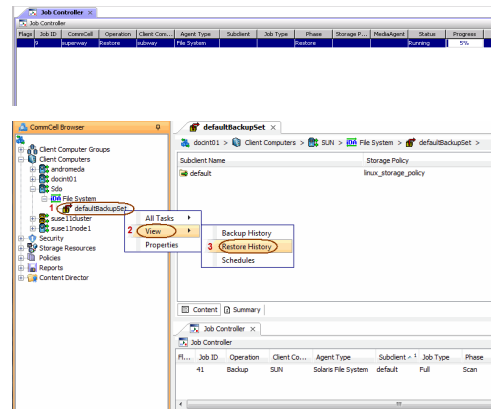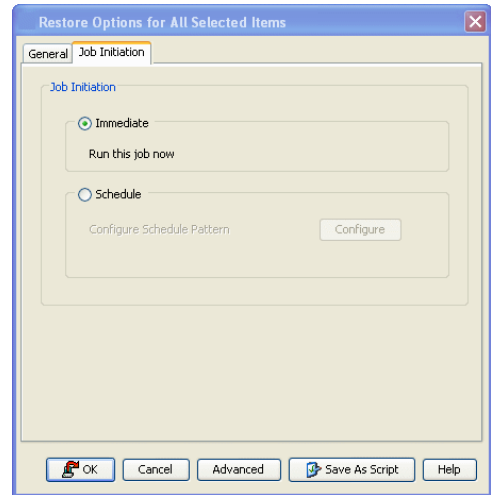
```
[parc02] # ls /.metacity
etc
```

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.