

## DSMU

### Backup

#### Backing Up a Data Server

To backup a Pro/INTRALINK Data Server running a Master job script from the command line, you must manually define the information you want the backup session to use.

You must modify the config.backup and Master Job files, divide the List and Master Job files into smaller jobs, and then execute the job.

#### Running the Backup Operation From the Command Line

If you choose, you can run the Master job script for your workstation's command line. Instead of selecting templates from the DSMU user interface, you manually define the templates you want the backup session to use.

Before you can run the Master job script, you must modify the config.backup file and the Master Job file. See [Modifying the Config.Backup File](#).

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## Backup Configuration Parameters

If you do not set the Pro/INTRALINK Data Server in read-only mode using the pull-down menu, the system automatically switches the Data Server into read-only mode to prevent nonprivileged users from modifying datafiles while the backup operation is being performed.

Due to other operations, it may not be possible for the Pro/INTRALINK Data Server to be switched immediately into read-only mode. Therefore, the Backup Configuration parameter, Number of Retries, allows you to specify the number of times you want the Backup operation to attempt to switch the Pro/INTRALINK Data Server into read-only mode. This parameter is evaluated as follows:

Retry Value	Explanation
(any number)	Attempt to switch the Data Server into read-only mode a maximum of (any number) times. After an unsuccessful attempt, the Backup utility waits 10 seconds before attempting another retry.
0	Do not attempt to retry if the first attempt to switch the Data Server into read-only mode fails.

After you have set the Backup Configuration parameters, you can save the settings by clicking Save Config in the Backup Configuration dialog box. The settings are saved in the Backup Configuration file, which is named config.backup. This file is stored at the following location.

"<dataserver\_loadpoint>/intralink/backup\_restore/Logs/".

The backup configuration file must reside in the loadpoint directory of the Pro/INTRALINK Data Server. Other Backup Configuration Parameters:

Tape LabelŠPrefix label of the tape to be associated with the backup. Other information appended to the prefix is the file vault name, backup type (full or incremental), and date (for example, VineyardBackUP\_SYSPool\_F\_9291998).

Backup NameŠThe name used to identify the backup operation (for example, VineyardBackUP\_9291998).

List File PathŠThe path name to the List File, which contains the list of files that need to be backed up per host machine (that is, per file server). The List File resides in the \$oracle\_home/intralink/bin directory.

List File NameŠThe name of the List File. This file contains the list of files that need to be backed up per host machine. The List File is basically a bill of material from the Pro/INTRALINK Data Server and file server that contains the datafile name, port number, host machine, path location, size, and file type (for example, vault). The List File also contains the archive logs and file vault information that will be backed up and later restored.

Backup Script NameŠThe name of the backup script (for example, <dataserver loadpoint>/intralink/backup\_restore/RunCShell.csh).

Number of RetriesŠThe number of times the backup operation attempts to switch the Data Server into read-only mode.

Maximum Tape Capacity (MB)ŠThe maximum capacity of the data. You must review the datafiles and the file vaults to determine the appropriate size. A Maximum Tape Capacity parameter of "0" indicates that the backup utility can handle multiple tapes without any administrative supervision. In cases where the backup request exceeds the maximum tape capacity, the system reduces the job into a series of small batch jobs.

Oracle Archive Log LocationŠThe path to the archive log file. The archive logs record every transaction of the client machines. A successful backup operation transfers the information in the archive log and stores it in the Pro/INTRALINK Data Server.

You can move the archive directory if you choose. It is your responsibility to copy the files to the archive directory's new location. If you move the archive directory and later want to restore files, you must put the archive files back in the location where they were at the time of backup.

Because the archive log directory fills up quickly, it is recommended that you perform daily incremental backups and remove the physical files in the archive logs after a successful backup operation. Archive logs are recorded sequentially (for example, archive1.log, archive2.log).

Note: You are responsible for ensuring that the tape label specified during the Backup operation is the same as the label that is physically encoded on the tape. The Backup operation does not verify or validate existing tape labels. Similarly, the Backup operation does not create a magnetic tape label on the tape or replace any existing magnetic tape labels.

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## Backup/Restore Operation

The Backup/Restore functionality of the Pro/INTRALINK Data Server Management Utility allows you to back up and restore your entire Pro/INTRALINK database (File Server and Data Server, not the Pro/INTRALINK application itself) either in full or incrementally. These operations minimize data loss that may result from computer failures.

The DSMU identifies the datafiles that must be backed up and formats the information so that a third-party software application can complete the actual backup procedure.

Successful operations allow you to back up and restore

- The Pro/INTRALINK Data Server, an Oracle. relational database that contains the metadata about Pro/ENGINEER objects

- All datafiles in file vaults, which contain Pro/ENGINEER objects

- All related Oracle files, including datafiles, control files, and redo logs

### Who Can Perform Backup and Restore Sessions

Only a user—typically, a system administrator—who has access to the protected operating system user account can execute the Backup and Restore operations. This user account must either be the owner of the Pro/INTRALINK Data Server or be a member of the database administrator authorization group.

All backup operations can be executed from the same user account. This allows one user to back up and restore both the Pro/INTRALINK Data Server and the file server(s) that are connected to the Data Server.

### Understanding the Two Types of Operations

Two types of database backup and restore operations are available.

**Full** - this operation either backs up or restores the entire Pro/INTRALINK database, including all system configuration settings and metadata from the Pro/INTRALINK Data Server. The files in all the file vaults are identified.

**Incremental** - this operation either backs up or restores only the changes to the system that have occurred since the last backup operation. Both metadata and file vaults are identified.

### Understanding the Sequence of Backup/Restore Operations

Your first backup session is always a Full Backup operation. Therefore, the second operation can be either full or incremental. If you choose to do an Incremental Backup, your first sequential Incremental Backup will be based on a Full Backup. That is, you will back up only those changes that have occurred since the first Full Backup.

Incremental Backups are numbered sequentially so that Incremental Backup 3 is based on the changes that have resulted since Incremental Backup 2. When you conduct a Restore operation, you must restore the backup tapes sequentially. This means you must restore the full backup first. You then restore, in the same restore session, the incremental backups in the order in which they were created. When you restore backups and then start to use Pro/INTRALINK, you can no longer restore older backups.

Note: To ensure proper maintenance, it is recommended that you perform Incremental Backups daily.

## Prerequisites

In order for the DSMU to properly back up the Pro/INTRALINK environment, the utility must first identify the components within this environment. These components include

- All metadata from the Pro/INTRALINK Data Server. The metadata provides the names, attributes, dates, and release versions of the Pro/ENGINEER objects.

- All datafiles from file vaults on all file servers, both local and remote machines. This includes all replicated datafiles from file vaults on all file servers.

- All Pro/INTRALINK Data Server configuration settings (for example, control files and configuration files)

You can back up your Pro/INTRALINK environment only when

- The Pro/INTRALINK Data Server is operating in read-only mode
- You are connected to the Pro/INTRALINK Data Server as a Pro/INTRALINK Administrator

You can automate the backup job when the following conditions exist:

- All information to be backed up is available on the local system

- All information to be backed up is available on the local system and the remote disk areas that are mounted to the local system

- All information to be backed up is resident on systems (local and remote) that the user has designated as being compatible with their commercially available network backup tool (for example, Legato)

Note: backup operation was not intended to identify files that comprise either the Pro/INTRALINK Client and File Server applications or the Oracle application. Nor is it intended to identify the contents of individual workspaces for inclusion in backup operations.

## Two Ways to Initiate a Backup

You can initiate a Backup operation either from the DSMU application or from a command line script.

The DSMU is a stand-alone tool, independent of the Pro/INTRALINK Client application.

The DSMU creates command line job scripts. These job scripts, which can be executed at the command line level, are compatible with event schedulers such as "cron." The command line scripts enable Backup operations to run unattended on a fixed schedule on Windows NT and UNIX workstations.

Note: As with any backup operation, it is recommended that you run a test backup to determine if your backup information is valid.

The Backup operation allows you to "manage" each Backup operation by

Providing a log of completed Backup sessions

Providing a label for each Backup tape

Recording the date and time of the operation, the size of the backup, the tape labels and number of tapes, as well as the file vaults and Pro/ENGINEER objects that were backed up  
Providing sufficient information to restore all components of a Backup

You use the backup tapes from the Backup session to restore the original data.

#### Backup Output

When you initiate a Backup operation the following activity takes place:

The DSMU reads the backup configuration file

The DSMU is set to archive log mode

The DSMU is set to read-only mode

The DSMU generates a List File, which contains all of the files that need be backed up by whichever backup utility you decide to use

The DSMU generates a Master job script file based on information you supply in the Backup Command Template form

The DSMU executes the Master job script file, which dictates which files need to be backed up

The DSMU returns the Pro/INTRALINK Data Server to read-write mode

The DSMU records the backup type (full or incremental) and metadata about the backup session in a packet file

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## Before Running a Restore Session

If you have complete system failure, you must perform the following steps before running a restore operation.

1. Reinstall Pro/INTRALINK from the original CD-ROM. The Data Server software components need to be installed in the same path as before.
2. Recreate any missing file server loadpoints.
3. Ensure that all required kernel settings are correct.

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## Dividing the List File

To divide the large List File into smaller lists, first call RunSplit.tcl. This executable divides the main list of backup files into smaller separate files based on the machine's hostname. The RunSplit.tcl executable contains file information related to the specific host machine.

For example, if you have a file vault named SYSPOOL on host machine, Zen, the RunSplit file will create Zen\_SYSPOOL.tpl, which contains the file name and full path to SYSPOOL. This output file, with the TemplateName file, can create small job files that can be used by a thirdparty backup tool.

Notes: Dividing the List File is an optional task because your database might be on one machine only.

The RunSplit.tcl executable takes two inputs: The first input is the List File, including the whole path (for example, /temp/backuparea/backup.lst). The path and filename are defined in the config.backup file. The second input is the disk capacity. You should monitor your largest vault/server size during the backup operation to ensure that the backup process runs smoothly.

The syntax of the RunSplit.tcl executable is:

```
$tclExe $tclDir/RunSplit.tcl $1 $2
```

where

\$1 is the List File

\$2 is the disk capacity, in kilobytes

For example:

```
$tclExe $tclDir/RunSplit.tcl /temp/backuparea/backup.lst 400000
```

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### Example: List File Example:

The list file contains the list of all files that should be backed up for a particular Backup operation.

The column order of this list will not change within a major release of Pro/INTRALINK (1.0, 1.1, 1.2, 2.0, and so on). Between major releases, the number of items in the list file may grow as new columns are added after the last existing column.

### List File Example: Database File Backup Information for Full Backup

Name (Port)	Host	Path	Size(MB)	Type
SYSPOOL 7777	saint.ptc.com	/disk30/fil evault/adt ranz_tann a/ilink_va ult0	3e+03	File Vault
libpool 7777	saint.ptc.com	/disk30/fil evault/adt ranz_tann a/ilink_va ult1	73+01	File Vault
addpool 7777	~~~	~~~	#	~~~
addlib 7777	~~~	~~~	#	~~~
addpool 7777	~~~	~~~	#	~~~
Server	~~~	~~~	#	~~~



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## Executing a Job Using a C-Shell Script

To execute the job, complete the following step.

Note that the C-shell script is the default thirdparty backup tool.

If you are using a third-party utility, format instructions will vary.

Refer to the system administration information in your third-party software documentation.

1. In the Master Job file, add this line:

```
/bin/csh $OutputFileName
```

where OutputFileName is a file that contains all the files that need to be backed up.

If you have multiple output files, add the aforementioned line multiple times, sequentially (for example, \$OutputFileName1, \$OutputFileName2).

The information is written to the backup.log file, which resides in

\$PROI\_HOME//backup\_restore/Logs.

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## Finding Information

To facilitate using the backup and restore operations in a noninteractive mode, the various components are organized in easy-to-find locations, similar to the following:

- <Backup Loadpoint>
- Templates (directory)
- Jobs (directory)
- Logs (directory)

The Backup components are organized as follows:

## Component Function

<Backup Loadpoint> Saved copies of all PTC provided

## Backup Command

Templates, marked as readonly to prevent accidental modifications.

Templates Tar Backup Command  
Template

NT Backup Command  
Template

Legato Backup Command  
Template

(any other customer-provided  
Backup Command  
Templates)

Note: Command templates tell the Data Server Management Utility to use a customer provided tool, such as Tar, in execution of backup or restore operations.

Jobs Backup Configuration file Backup Jobs created by combining the Backup Configuration, one or more Backup Command Templates, and the Backup Files List.

Logs Results from Backup operations Backup Files Lists

Note: For best results, be certain to run the Missing Objects report after conducting the Restore operation.

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## Guidelines for Renaming and Relocating Datafiles

Described here are the various aspects of renaming and relocating datafiles, including:

Renaming and Relocating Datafiles for a Single Tablespace

Renaming and Relocating Datafiles for Multiple Tablespaces

You can rename datafiles to change either their names or locations. Oracle 8.1.6 provides options to make the following changes:

Rename and relocate datafiles in a single offline tablespace (for example, FILENAME1 and FILENAME2 in TBSPACE1) while the rest of the database is open.

Rename and relocate datafiles in several tablespaces simultaneously (for example, FILE1 in TBSP1 and FILE2 in TBSP2) while the database is mounted but closed.

Note: To rename or relocate datafiles of the SYSTEM tablespace, you must use the second option, because you cannot take the SYSTEM tablespace offline.

Renaming and relocating datafiles with these procedures only change the pointers to the datafiles, as recorded in the database's control file; it does not physically rename any operating system files, nor does it copy files at the operating system level. Therefore, renaming and relocating datafiles involve several steps. Read the steps and examples carefully before performing these procedures.

In order to rename datafiles in a single tablespace you must have the ALTER TABLESPACE privilege, to do this you will require the "system" password.

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## Modifying the Config.Backup File

In your config.backup file, which resides in the

\$PROI\_HOME/intralink/backup\_restore/Logs directory, complete the following steps:

1. Replace the \$ORACLE\_HOME with the actual path to the Oracle loadpoint.
2. If you choose, you can modify the Retry parameters. The defaults are MAXLOOP 1 and REPEAT SECONDS 10.
3. If you choose, you can modify the maximum total vault size. The default is set to MAXIMUMSIZE 400000 MB.
4. If you choose, you can modify the Archive Log directory. On UNIX operating systems, the default of the Archive Log directory is \$ORACLE\_HOME/dbs/arch. On NT systems, the default of the Archive Log directory is \$ORACLE\_HOME/database/arch.
5. You must define the Master job script name, including the full path,

\$PROI\_HOME//backup\_restore/Jobs/RunCShell.csh.

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## Modifying the Master Job File

In your Master Job file, the location of the TCL executable file is listed. For example,

```
set tclExe="$PROI_HOME//tools/bin/tclsh"
```

The location of the TCL source file is also listed. For example,

```
set tclDir="$PROI_HOME//backup_restore/TCL"
```

Modifying your Master Job file requires three steps:

1. Dividing the large List File into smaller lists based on the name of the host machine or file server
2. Using the Replace.tcl file to divide the Master job file into smaller jobs based on the templates you selected previously
3. Executing the job. Note: You may receive a warning message about possible broken lists in your Workspaces.

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## Running an Incremental Backup Operation

The backup functionality, either incremental or full, can be used when you have single or multiple file servers operating. An incremental backup operation backs up only those changes recorded from the most recent back up.

1. Start the Data Server Management Utility.
2. Click the Server button in the top bar.
3. Click Connect Dataserver.
4. Type the default password (that is, manager). If you changed the password during installation, you must use the assigned password.
5. Click OK.

You have now accessed the first level of authorization. After you have connected to the Pro/INTRALINK Data Server, a fourth command, Connect Intralink Admin, appears on the Server pull-down menu. To attain the second level of authorization, you must connect as a Pro/INTRALINK Administrator.

Note: The second level of authorization, Pro/INTRALINK Administrator, gives you access to the Backup/Restore and Vault functionality.

6. Click the Connect Intralink Admin button (optional). You are prompted for the Pro/INTRALINK Administrator's login name and password.
7. Type the Pro/INTRALINK Administrator Login Name (default is INTRALINK).
8. Type the Pro/INTRALINK Administrator Password (default is INTRALINK).
9. Click OK.
10. From the Backup/Restore pull-down menu, choose Back Up Database > Incremental.
11. In the Backup Configuration dialog box, specify the configuration parameters.
12. Click OK when you are done.

Note: You are responsible for ensuring that the tape label specified during the Backup operation is the same as the label that is physically encoded on the tape. The Backup operation does not verify or validate existing tape labels. Similarly, the Backup operation does not create a magnetic tape label on the tape or replace any existing magnetic tape labels.

## Dataserver Read-Only Mode

If you do not set the Pro/INTRALINK Data Server in read-only mode using the Backup/Restore > ReadOnly Mode menu, the system automatically switches the Data Server into read-only mode to prevent non-privileged users from modifying datafiles while the backup operation is being performed.

See Backup Configuration Parameters for more info.

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## Running the Full Backup Operation

The backup functionality, either full or incremental, can be used when you have single or multiple file servers in operation. A full backup your entire Pro/INTRALINK system. You must keep one file server running at all times.

Note: If you do not set the Pro/INTRALINK Data Server in read-only mode using the Backup/Restore > ReadOnly Mode menu, the system automatically switches the Data Server into read-only mode to prevent non-privileged users from modifying datafiles while the backup operation is being performed.

1. Start the Data Server Management Utility.
2. Click the Server button in the top bar.
3. Click Connect Dataserver.
4. Type the default password (that is, manager). If you changed the password during installation, you must use the assigned password.
5. Click OK.

You have now accessed the first level of authorization. After you have connected to the Pro/INTRALINK Data Server, a fourth command, Connect Intralink Admin, appears on the Server pull-down menu. To attain the second level of authorization, you must connect as a Pro/INTRALINK Administrator.

Note: The second level of authorization, Pro/INTRALINK Administrator, gives you access to the Backup/Restore and Vault functionality.

6. Click the Connect Intralink Admin button (optional). You are prompted for the Pro/INTRALINK Administrator's login name and password.
7. Type the Pro/INTRALINK Administrator Login Name (default is INTRALINK).
8. Type the Pro/INTRALINK Administrator Password (default is INTRALINK).
9. Click OK.
10. From the Backup/Restore menu, choose Back Up Database > Full.
11. In the Backup Configuration dialog box, specify the configuration parameters.
12. Click OK when you are done.

Note: You are responsible for ensuring that the tape label specified during the Backup operation is the same as the label that is physically encoded on the tape. The Backup operation does not verify or validate existing tape labels. Similarly, the Backup operation does not create a magnetic tape label on the tape or replace any existing magnetic tape labels.

## Dataserver Read-Only Mode

Server in read-only mode using the Backup/Restore > ReadOnly Mode menu, the system automatically switches the Data Server into read-only mode to prevent non-privileged users from modifying datafiles while the backup operation is being performed.

See Backup Configuration Parameters for more info.

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## Starting the Backup Operation

After you have set the parameters in the Backup Configuration dialog box, you can begin the backup session.

1. To start the backup operation, click Begin Backup. You are prompted for the Oracle user 'internal' password.
2. Enter the Oracle password (the default password is "internal")
3. Click OK to confirm that you want to set the Data Server in read-only mode. Or, click Cancel.

The DSMU checks each host machine and generates the list of files that need to be backed up; and stores them in a List File. There may be a delay before the Pro/INTRALINK Data Server switches into read-only mode.

When read-only mode is activated, you see the Backup Command Template Selection dialog box. A template is generated for each host machine (that is, for each file server) that connects to the Pro/INTRALINK Data Server.

Each Backup Command Template has five columns.

Host Name Lists the individual file server, which contains the file vaults and datafiles.

Location Provides the full paths to the file server and file vaults.

Method Gives you three options for backing up the data on the host machine: local (default), network, and mount. Network is recommended when use you a third-party software application, such as Legato, to complete the backup procedure.

A local backup of disk areas is done on the local system

A commercially available network backup tool is used (for example, Legato, Cheyenne)

Remote disk areas are mounted to the local system so that they appear to be locally accessible

Note: If you specify one or more mounted disk areas, the system attempts to access these areas to verify that they are accessible. If any errors result, an error message is generated and the Backup operation is halted. You return to the primary Backup screen.

Backup Template Lists the name of the template type (for example, Legato.tpl or Tar.tpl). This field tells the Pro/INTRALINK Data Server Management Utility which application, for example, the Legato utility, will inherit the backup List File. The DSMU then creates a job script file that is compatible with the third-party application. If you do not have a third-party software backup utility, you can use an application common to your environment (for example, Tar).

Edit Lets you edit the template directly with the text editor. The text is case-sensitive. If you change the defaults, go to the File menu and click Save.

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3. Upon completion, click Done. The backup script appears in the text editor.

4. To execute the script, choose File > Execute.

The DSMU now formats the script so that you can run a backup operation with the tool you specified (for example, Tar).

5. To save the script to use later, choose File > Save.

6. Or, to cancel, choose File > Exit. Your work is not saved.

Upon completion of an executed script, the Pro/INTRALINK Data Server returns to read-write mode.

Note: If multiple machines are in use during the backup operation, you must provide a Backup Command Template for each host machine. The system uses the templates to back up the information contained on each host machine or file server.



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## System-generated Output From a Backup Operation

After completion of a Backup operation, the system generates

The list of files that need to be processed by this backup operation.

This list is stored in a file known as the Backup Files List. The Backup utility creates a formatted text file that describes the completed backup session. The information in the text file is designed to provide input to a third-party software application.

One or more backup jobs by combining the Backup Command Template(s), the Backup Configuration file, and the Backup Files List. The system generates a combined backup job containing all of the information that needs to be backed up.

A collection of system-specific backup jobs containing the information that needs to be backed up. You can manually copy each system-specific backup job to each individual system and perform the portion of the backup that applies to that system, on that system.

The system ensures that each system-specific backup job does not specify a quantity of information to be backed up that exceeds the Maximum Tape Capacity parameter specified in the Backup Configuration. If an individual backup job contains information that exceeds this parameter, the backup job is divided into smaller backup jobs. These smaller backup jobs comprise all of the information that needs to be backed up.

Note: If the backup job is divided into smaller backup jobs because of insufficient tape capacity, you can decrease the size of the backup configuration parameter to make more, smaller backups. This will enable you to execute the small backup jobs one after another. You will be prompted to change tapes before the next small backup job can be executed. The system allows you to switch the Pro/INTRALINK Data Server into read-write mode so that normal operation can resume.

You are informed when the backup job has been completed, and you are provided with the complete path name to the backup job. The system retains backup jobs to be used in subsequent backup operations.

Note: For environments where the manual method was selected (that is, when you used the Backup Template Selection dialog box), a warning message indicates that The (Backup type) Backup for this system has not been completed. You should use the following backup jobs to perform this backup at the earliest possible time.

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Once you have completed the backup session, you may resume normal operation by enabling read-write mode in the Pro/INTRALINK Data Server. From the Backup/Restore menu, click ReadWrite Mode.

The list of backup jobs (described previously) is provided.

The system automatically switches the Pro/INTRALINK Data Server to read-write mode.

(Backup processing for these environments ends). You can use the Backup/Restore menu to toggle between read-only and read-write modes.

The system reports any problems identified by a backup tool.

### System Validation

The system validates the Oracle Archive Log that was restored from the backup session and applies this Archive Log to the Oracle database system. The system then validates the results of this restore operation.

You can select another backup session that you wish to restore by clicking Continue. After the restore operation and validation of all the selected backup Sessions have been completed, and you press End Restore, the system validates the integrity and consistency of the entire Pro/INTRALINK system, including the Data Server and all file servers.

The DSMU restarts the Pro/INTRALINK Data Server so that normal operations can resume.

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### Using the Replace.tcl File

You use the Replace.tcl file to create sub jobs for each sub list. Replace.tcl combines the TemplateName file and the List File to create an Output File. After Replace.tcl executes, you must then execute each output file that is created.

You must run Replace.tcl for each sub list created by the RunSplit.tcl command. Runsplit.tcl creates 1 sub list per server and 1 sub list per file vault.

The syntax for the Replace.tcl command is:

```
$tclExe $tclDir/Replace.tcl $TemplateName $ListFileName $OutputFileName
```

where

\$TemplateName is the full path to the template

\$ListFileName is the full path to the list file

\$OutputFileName is the name of the output file to create

For example:

```
$tclExe $tclDir/Replace.tcl
```

```
/oracle/ptc/dataserver/intralink/templates/tar_unix.tpl
```

```
/temp/backuparea/zen_syspool.tpl output
```

The output creates one job file. This job file identifies the third-party software that completes the actual backup procedure and provides the list of files that are backed up.