

HPCx Archiving
User Guide
V1.3

Revision History

Version Number	Date Issued	Reason for Issue	Issued By
1.0	14/01/04	Initial version	Ian Shore
1.1	10/02/04	Added explanation of default “replace” action and added missing GUI archive section.	Ian Shore
1.2	08/03/04	Corrected typos and added extra detail for GUI usage and “-subdir=” option.	Ian Shore
1.3	24/04/06	Amended to show “-filelist” option as per Q.15167	Ian Shore

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1 Introduction

The HPCx archiving system is built upon the Tivoli Storage Manager product set. Archived files are stored on LTO Ultrium tapes with duplicate copies made for off-site Disaster Recovery purposes. The main features of HPCx archiving are:-

- Archives remain in TSM storage until you delete them from storage.
- When you archive files from disk to tape storage, the default behaviour is to remove the files from disk (this can be overridden if required).
- Quotas are applied to tape storage by sub-consortium. When the quota threshold is exceeded, you must either remove files from storage to allow further files to be archived, or apply for your tape quota to be increased.
- Archiving does not affect the behaviour of the daily system backup, i.e. there is a backup copy of all active files in a filesystem.
- You may archive your own files and any other files within /hpcx/home and /hpcx/work that you have appropriate access permissions for. Particular caution should be exercised in archiving others' files, bearing in mind the default of deleting files from disk.
- You can recover/delete individual files from an archive.
- Archive instructions can be included in LoadLeveler scripts.

2 Archive Client Operations

There are two ways to invoke a TSM client – command line and X11 GUI. The sections below provide an explanation of these methods.

You are strongly encouraged to apply meaningful titles to the archives that you create, otherwise an archive name of “Archive Date: <today’s date>” will be auto-generated. This is particularly important when archiving the same file in more than one archive – you need to use the archive description to ensure that you retrieve the version you require.

2.1 Using the command line

rdsmc is a copy of the standard Tivoli client *dsmc*, modified for use in the HPCx environment. In particular it should be noted that the default behaviour has been modified so that files are deleted from the local filesystem once an archive has been created.

If you type in *rdsmc -inter* at the shell prompt, you will start a dsmc interactive session, your prompt changing to “dsmc>”. Alternatively, you can type in *rdsmc* followed by an option directly from the Unix shell prompt, as illustrated in the examples below.

Note :

dsmc options are not case sensitive – you can choose upper or lower case.

Most dsmc options can be abbreviated – in the following examples the corresponding abbreviation will be highlighted in bold.

The order of the processing options (i.e. those beginning with a “-”) is not important.

Ensure that you use the “-subdir=yes” processing option whenever you wish to include the subdirectories of a given directory in an archive operation.

2.1.1 Creating an archive.

To create an archive of user fred’s home directory, type:-

```
rdsmc archive -subdir=yes -description="First Archive" \  
"/hpcx/home/fred/*"
```

2.1.2 Retrieving files.

To restore this archive (perhaps to a different directory, say “archives”), type the following command:-

```
rdsmc retrieve -subdir=yes -description="First Archive" \  
"/hpcx/home/fred/*" archives/
```

The default behaviour if you try to retrieve a file that already exists is to not overwrite the existing file.

2.1.3 Querying archived data

You may wish to check that a file has been archived. This can be achieved by using the *query* sub-option. For example:-

```
rdsmc query archive "/hpcx/home/fred/*.c"
```

You may find that the file is not listed. It may be within a subdirectory:-

```
rdsmc query archive -subdir=yes "/hpcx/home/fred/*.c"
```

This will produce output similar to the following:-

Size	Archive Date - Time	File - Expires on - Description
10,595	01/12/04 16:59:50	/hpcx/home/fred/progs/test1.c Never First Archive
10,629	01/12/04 17:41:33	/hpcx/home/fred/progs/test1.c Never Second Archive
10,595	01/12/04 16:59:50	/hpcx/home/fred/progs/test2.c Never First Archive

2.1.4 Retaining files on disk

Use the processing option **-nodeletefiles** to prevent your files from being removed from disk at the time of archive. This is a non-standard TSM option – you will not find this in any Tivoli documentation.

2.1.4 Deleting files from storage

To delete all of fred’s archived files called “test1.c”, use the following command:-

```
rdsmc delete archive -subdir=yes "/hpcx/home/fred/*test1.c"
```

NB. If you are removing files from storage in order to make space within your tape quota, the space will not be freed until the following day. Note also that you must have at least one remaining tape in your quota allocation that is completely empty in order for reclamation to take place and for space to be freed.

2.1.5 Other useful options

Type “help” within an interactive session for descriptions of all the options available.

NB. Options listed will include backup and other options that do not apply to archiving/retrieval.

Some further options that you may find useful include:-

-showdetail (non-standard) shows Tivoli messages and summary

-filelist=<file> process a list of files listed in <file>. Used with archive, query, retrieve and delete commands.

-fromdate=<MM/DD/YYYY>

-fromtime=<HH:MM>

-ifnewer
-pick (only to be used interactively)
-replace (only to be used interactively)
-todate=<MM/DD/YYYY>
-totime=<HH:MM>
-verbose

2.2 Using the X11 client.

NB. The default action when archiving using the GUI is NOT to delete files from disk storage.

On the login node:

i) Set the following environment variables :-

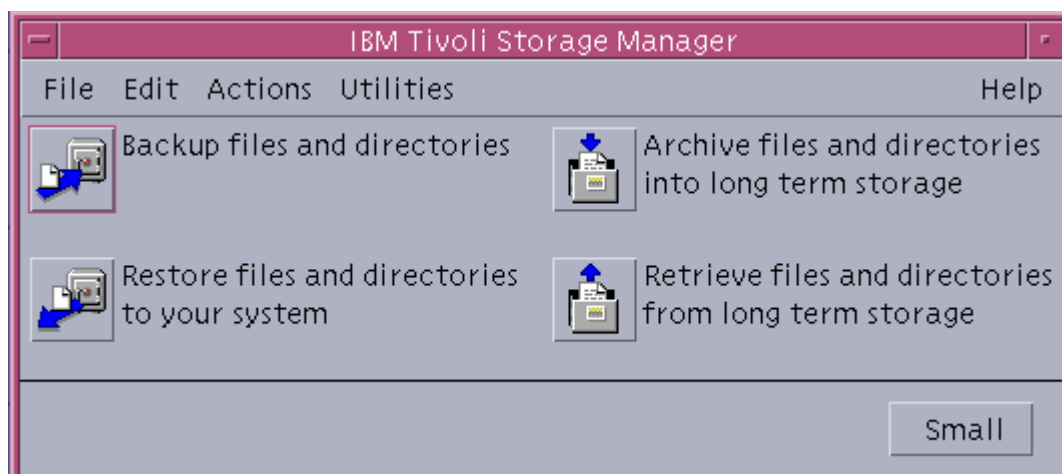
```
DSM_DIR          /usr/tivoli/tsm/client/ba/bin_archive
DSM_CONFIG       /usr/tivoli/tsm/client/ba/bin_archive/dsm.opt
```

ii) Export your DISPLAY, if not already set. Alternatively, enable X11 forwarding within your ssh configuration. Refer to <http://www.hpcx.ac.uk/support/FAQ/totalview> for further information.

iii) Start the X11 Motif client as follows:-

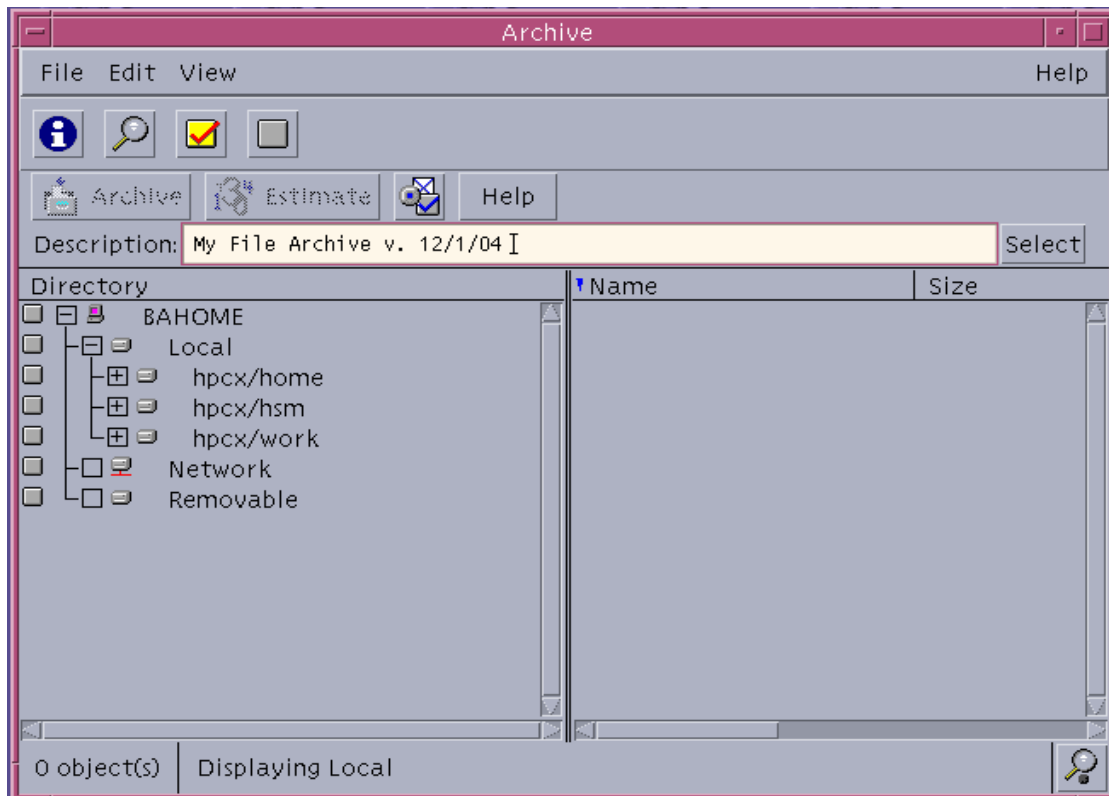
```
dsm
```

and the GUI will appear as below :-



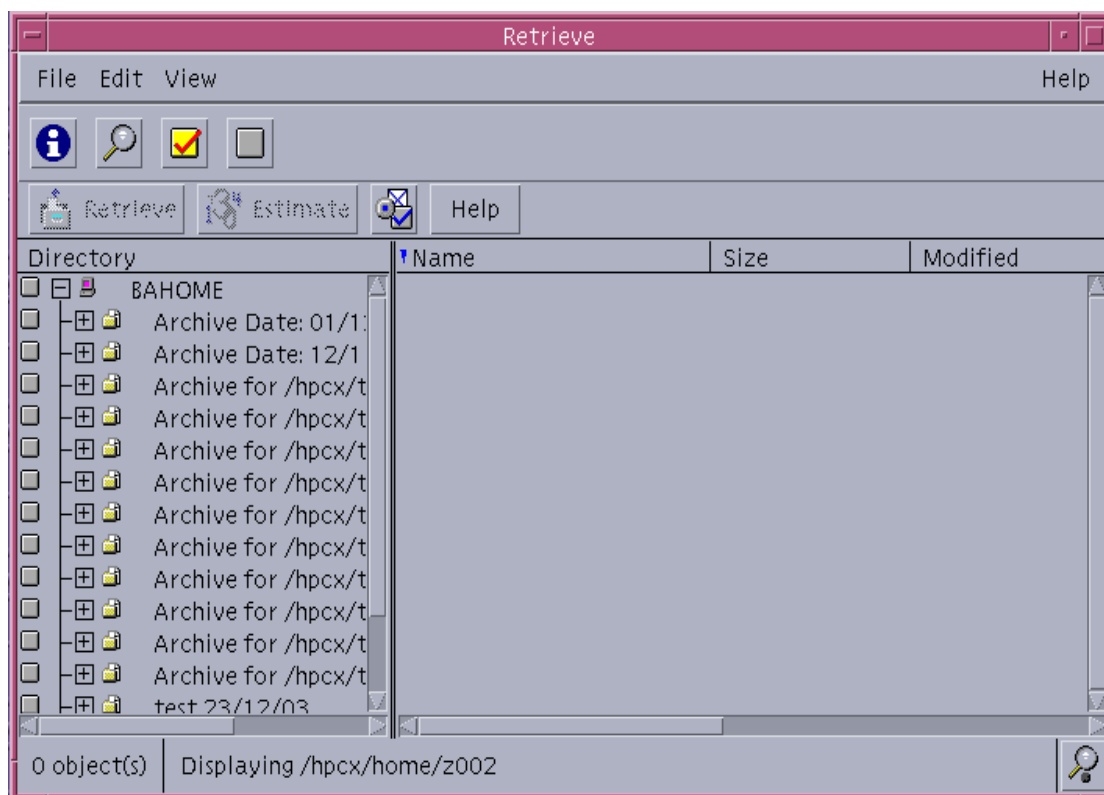
NB. There is a problem with the Help Menus within the GUI that will result in a fatal error/core dump if you try to select them.

Do not use the options “Backup files and directories” or “Restore files and directories to your system”. These options are for backups rather than archives. To create an archive, click on “Archive files and directories into long term storage”. You will be presented with a window similar to the following:-



Expand the “Local” section to view all directories/files that you have access to. Use the disk and folder icons to view contents of directories and the checkboxes to the far left of directories/files to select the objects that you wish to include in the archive. A tick will appear in the checkbox to acknowledge that this directory/file has been selected for archival. In the “Description” section, add a meaningful name for your archive. Once you have selected items for archival, the previously greyed-out “Archive” button will be available for you to select.

To retrieve files from an archive, from the main menu click on “Retrieve files and directories from long term storage”. This will take you to a screen showing the archives that are available to restore from, listed by archive description:-



From here, you can expand each archive to show all the files/directories that are part of the selected archive. Click on the grey checkboxes to the left of the objects that you wish to restore. A tick will appear in the checkbox to acknowledge that this directory/file has been selected for retrieval. When all files that you wish to retrieve have been selected, click on the “Retrieve” icon. From here, you can choose to retrieve to the original location or to another directory. The “Task List” window now appears which provides an update on the status of the retrieval. It may take a while before the retrieve commences, during which time you may think that the application has crashed – please be patient! Eventually a new window will pop up indicating that the retrieve operation is complete.

An alternative GUI that you may prefer to use is the Java GUI “dsmj”, available on the login node. As with “dsm”, you need to export DSM_DIR and DSM_CONFIG. The *dsmj* application will supersede *dsm* from version 5.3 of TSM onwards.

3 Further Reading

There is a wealth of different options available in the TSM client program, therefore this is not intended to be the comprehensive guide; for that, you should use the help system within an interactive dsmc session or refer to one of the many TSM User Guides that are available on the Web.