



Cristie Bare Machine Recovery

TSM User Supplement

For Windows

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1 Introduction

Purpose

This document is written for users of Cristie Bare Machine Recovery (CBMR) software who are using **IBM Tivoli Storage Manager** (TSM) for the storage of their disaster recovery (DR) backups. It is not self-contained and should be run in conjunction with the CBMR for Windows Quickstart and User Guides. Much of the detail is common to all the platforms on which CBMR runs. This document is subject to changes in the official IBM documentation and should therefore only be used as a guide and not a definition of the the workings of TSM.

If you need guidance in the use or setting up of TSM, then contact your TSM Administrator or IBM.

Versions

The versions used in this document are:

- Tivoli Storage Manager 6.2 Server and Client
- CBMR for Windows 6.3

Limitations

Windows WinPE 2 recovery requires a minimum of 1024 MB RAM.

Document Structure

This document complements other CBMR documents and deals with:

- **Installation** of the TSM client
- **Creation** of the TSM node
- **Backup** to the node
- **Recovery** from the node

There is also a section on [Best Practice](#).

1.1 The CBMR Process

Cristie Bare Machine Recovery (CBMR) will recover your Windows machine in the event of a disaster. It can backup to tape drives, virtual tape drives, IBM Tivoli Storage Manager (TSM) and cascaded devices. Extra modules are available to support tape libraries and autochangers, and Cristie Storage Manager (CSM) devices.

The processes may be run either from the **Command** line or a **GUI** interface. Disaster Recovery (DR) backups can be taken periodically to reflect the changing content of the machine. In order to be able to recover this data, the machine configuration information must also be saved. This includes details of hard disks and network interfaces.

CBMR requires four components for the recovery of any computer. These are:

- **Bootable CBMR CD** - to provide the recovery platform
- **Configuration data** - defining the structure of the machine and its network characteristics

- **DR Backup data** - required to recover the operating system on that structure
- **Application data** - required to recover the applications and user data on top of the basic operating system

Each of the backup elements will change at a different rate and is therefore best run on separate schedules.

The main steps when performing the *DR Backup* are:

- Create a Backup Location
- Perform a DR Backup
- Save Configuration Data

The main steps when performing a *recovery of the operating system* are:

- Boot the recovery OS
- Establish Network connection
- Load Configuration Data
- Recreate the disk structures
- Restore the OS files from the DR Backup
- Reboot to the recovered OS

Thereafter you should recover the Application data.

1.2 Prerequisites

The TSM client software is supplied by IBM. See their specifications for prerequisites.

2 Windows Client Installation

In order to connect to a TSM server with CBMR, it is necessary to install both the **Backup/Archive** client and **API** software for TSM and then install CBMR on the machine that is to be protected.

You should install the TSM Client before installing CBMR because CBMR looks for the client whilst it is installing. If no client is found, then CBMR does not install TSM support.

Check for Installed TSM Client

Check to see if there is a client installed on the CBMR machine. Check the TSM Client version (Refer to the Readme document for a list of the latest supported TSM server versions). This can be done by looking at the version of the file **C:\Program Files\Tivoli\TSM\baclient\dsomagnt.exe** or **C:\Program Files\Tivoli\TSM\api\apienu.dll**. If the TSM client is not one of those that are supported, then you must uninstall the existing client.

Install TSM Backup/Archive client and the TSM API

This step is needed only if you have not already installed a supported version of the TSM client.

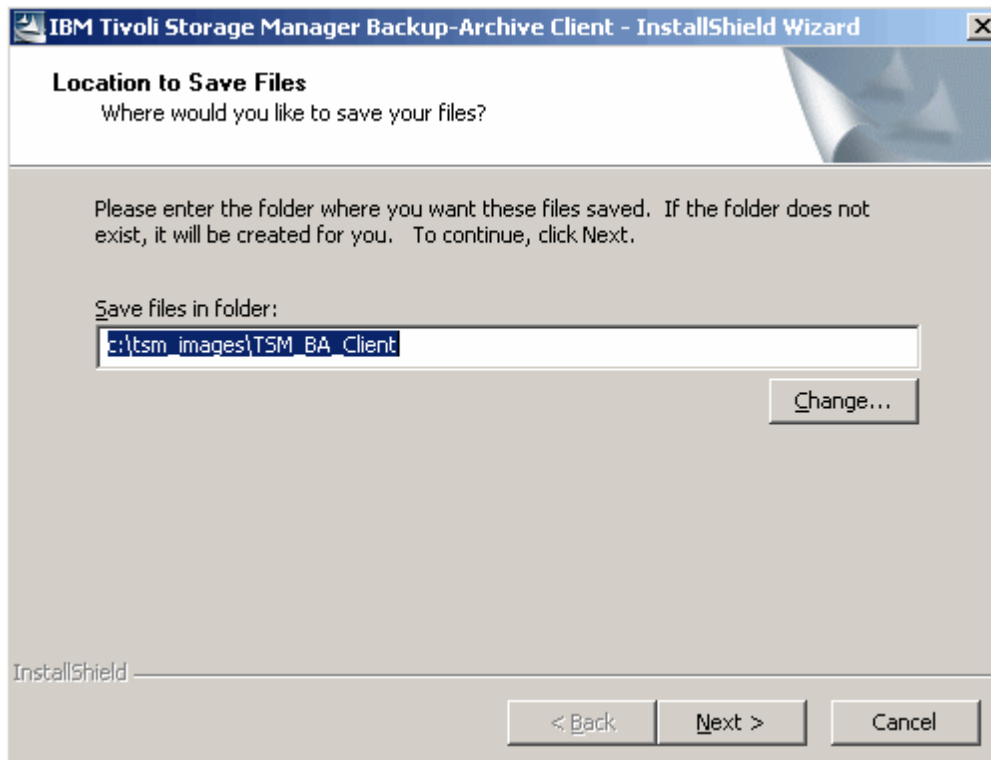
The client software will either be on the TSM CD or stored on a network share. Check with your administrator.

The following description relates to the installation of version 6.2 of the TSM Client. If you are installing a different client version, then seek help from your TSM administrator.

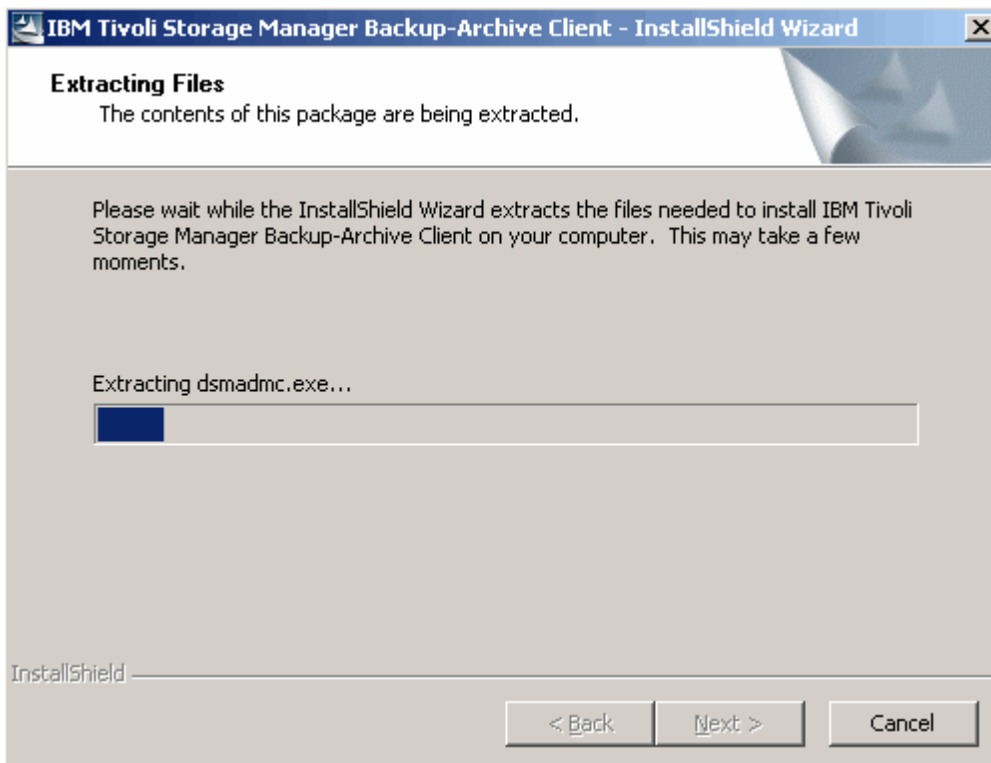
Unpackage to the Client Machine

You may need to unpackage the TSM client to the client machine before running the setup program. This process will copy all the files required for the installation from the CD onto the client machine.

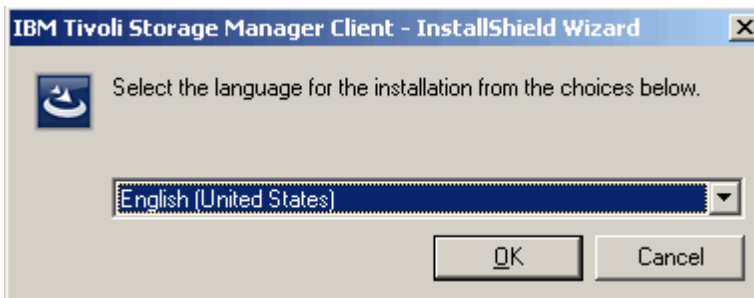
Select the location into which the installation files will be unpacked:



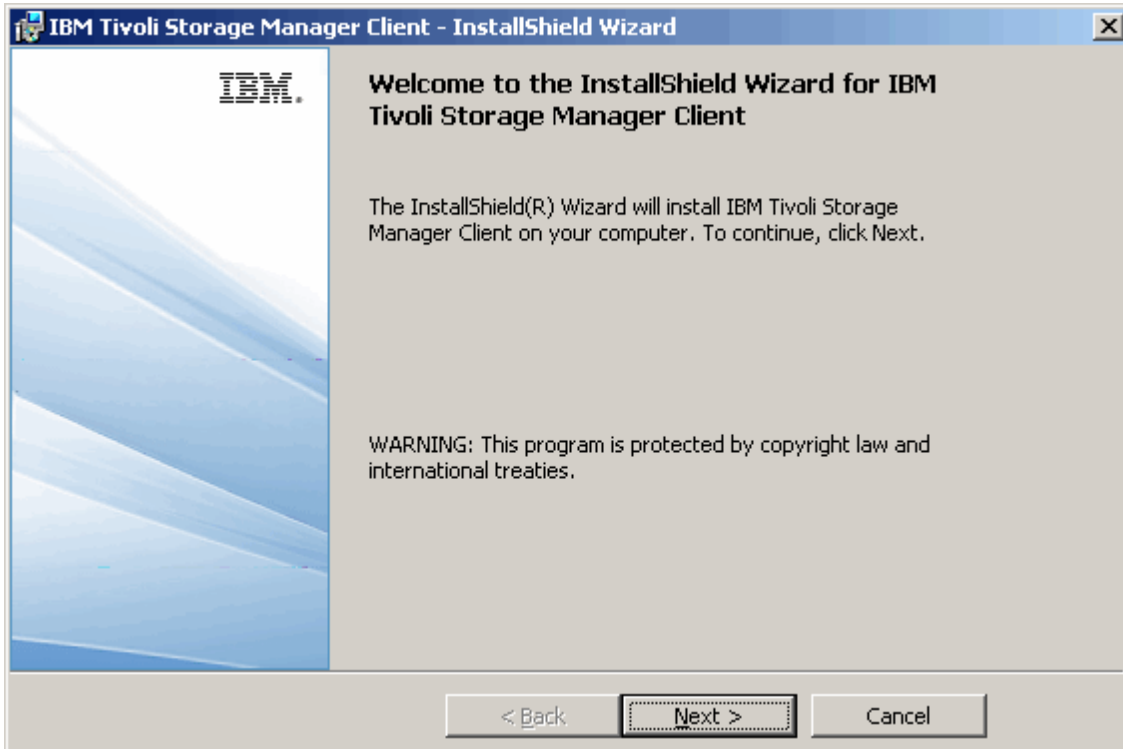
Click on **Next>**. The Wizard will begin extracting the files:



Select your chosen language:

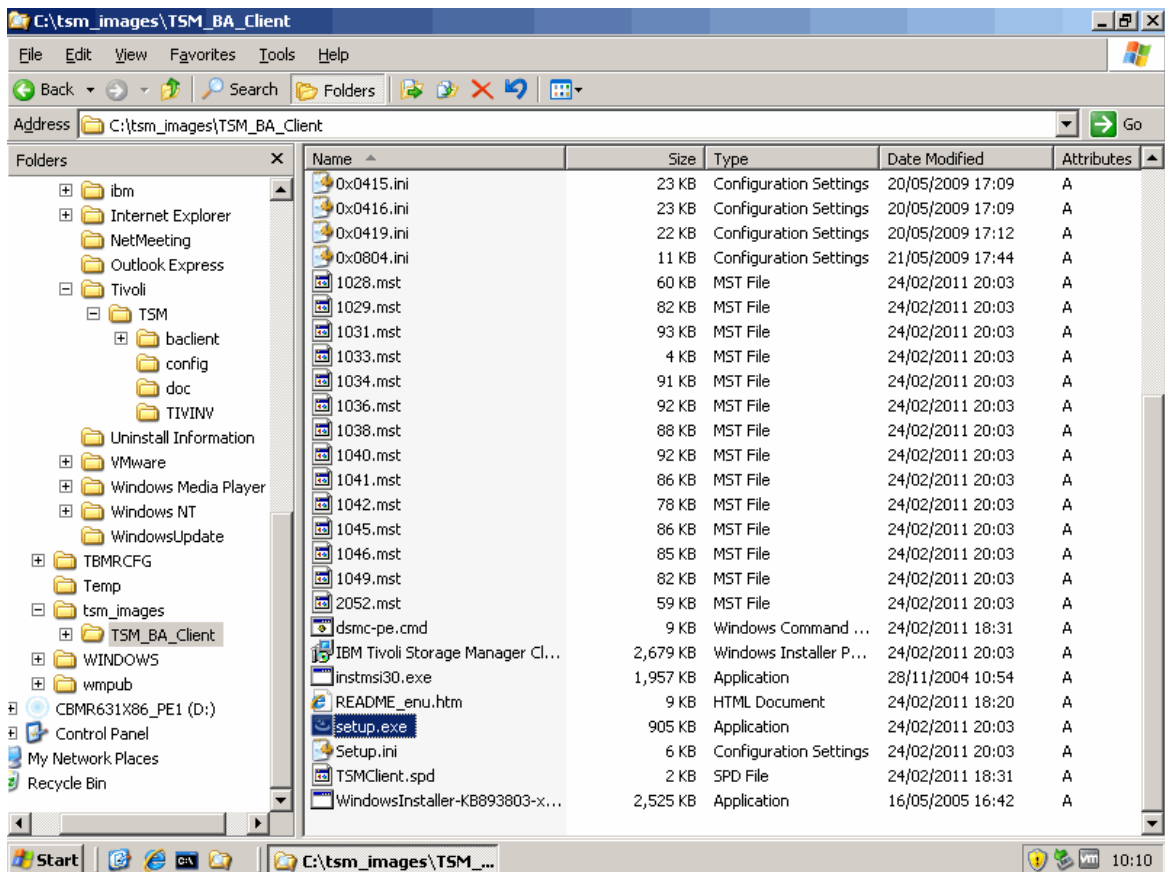


TSM will now be extracted to your chosen location in preparation for installation.



Install

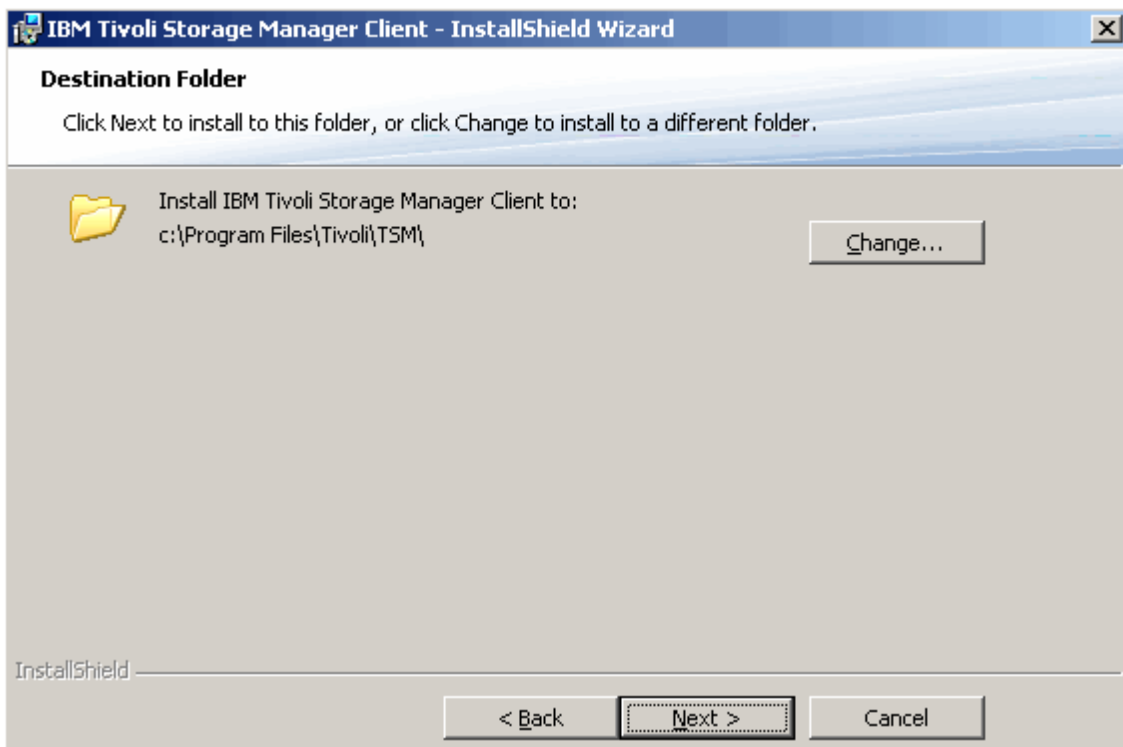
Once it is unpacked, the installation may proceed automatically. If not, locate the unpackaged software and double-click on **setup.exe**.



Double click on **setup.exe**. This will begin extracting the files and the InstallShield Wizard Welcome screen will be displayed:



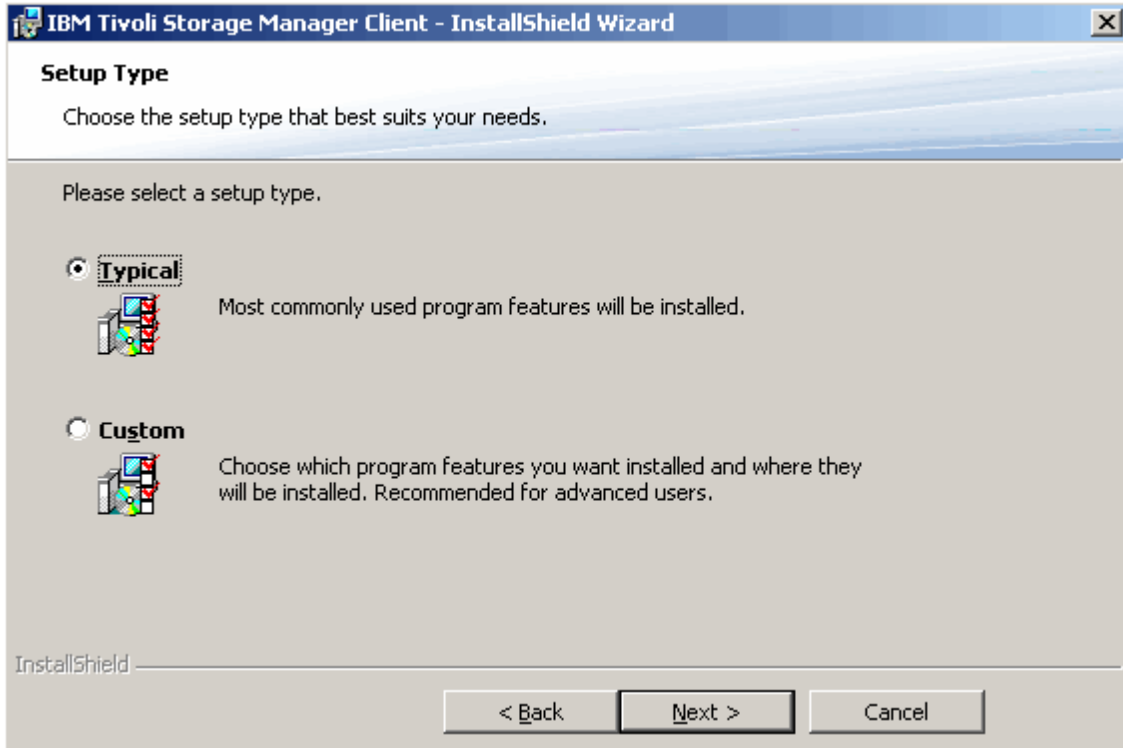
Select the folder into which you wish to install the client. It should default to C:\Program Files\Tivoli\TSM.



Click [Next>](#)

Typical Install Option

The Typical installation of the client includes the Backup Archive (BA) Client and the API.

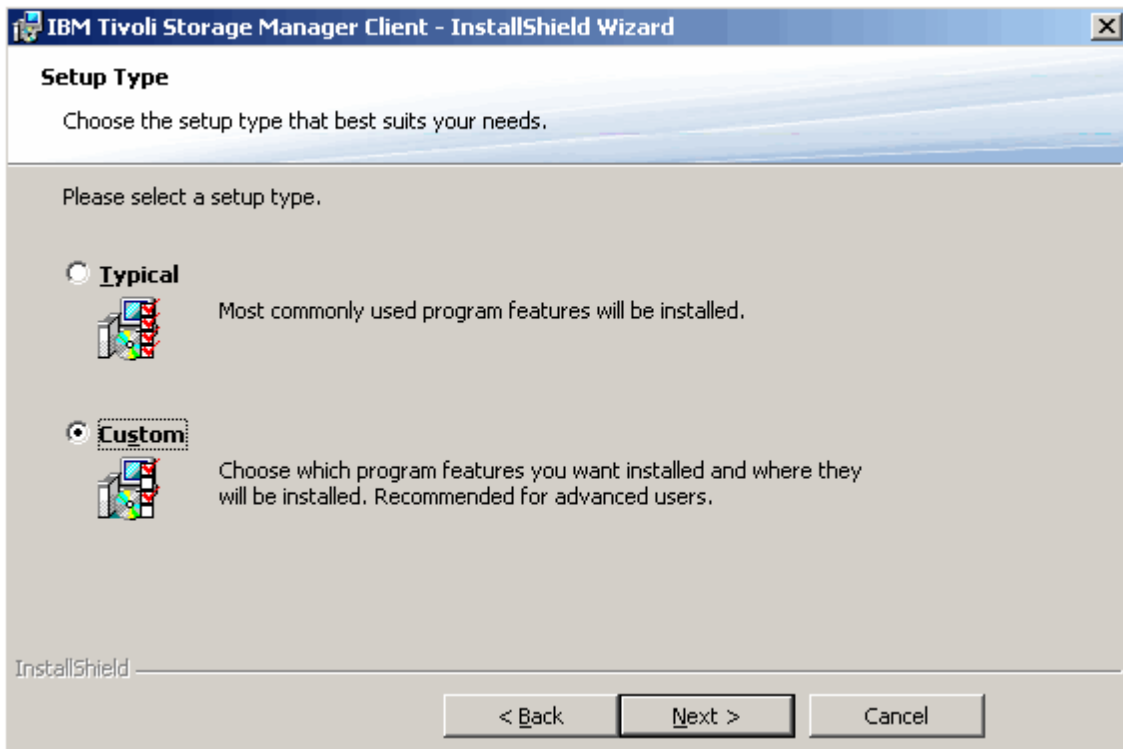


Select the setup type **Typical** unless you wish to use the administrator command line utility on your computer (see following). Click on [Next>](#).

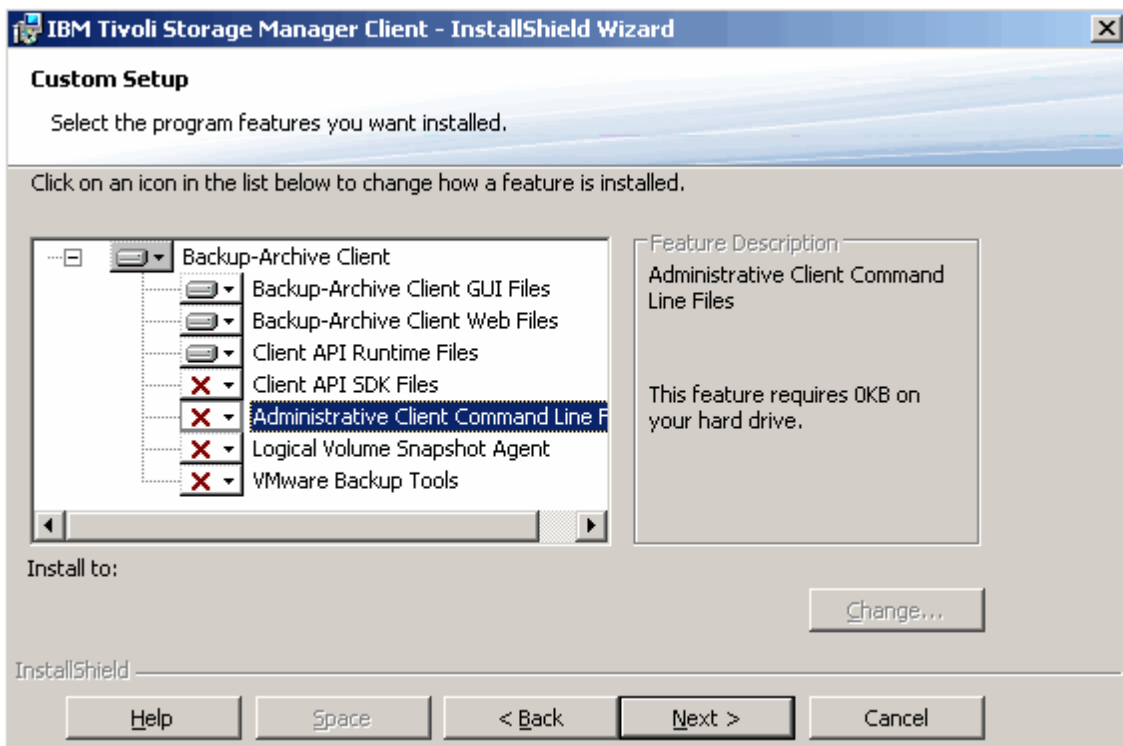
Custom Install Option

You may wish to make the **Administrative Client Command Line** interface available for testing and diagnostic purposes. Provided that you have been given the appropriate privileges to use it, install the software by selecting **Custom Setup** instead of Typical.

Choose the **Custom** install and click [Next>](#):



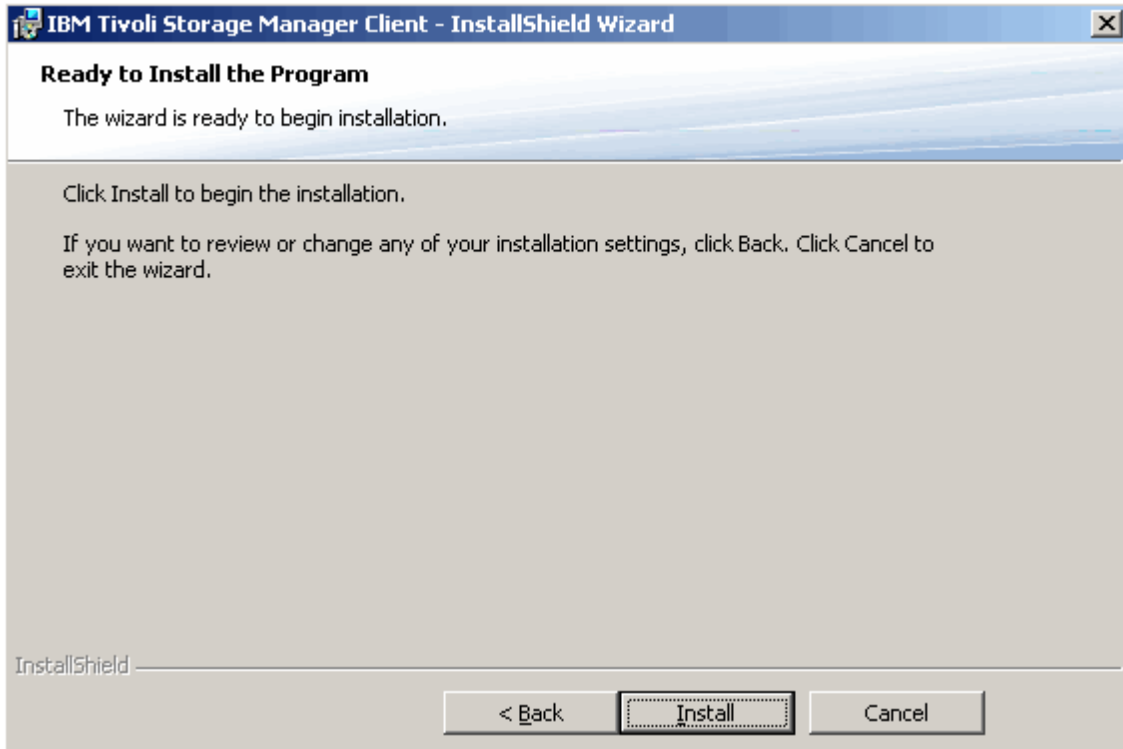
Then install the Administrative Client Command Line Files from the feature list. Select **Administrative Client Command Line Files**:



Then click on **Next>**.

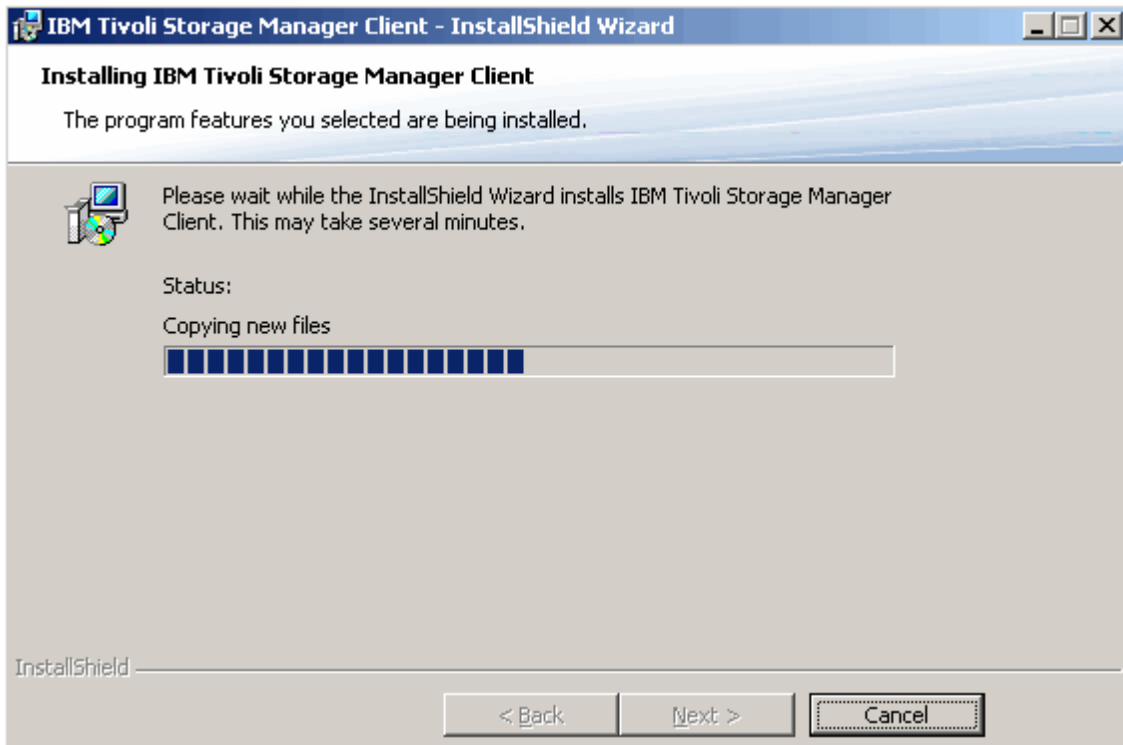
Continue Install

Now that you have completed the **Typical** or **Custom** install options, you can proceed with the installation.



Click [Install](#).

The InstallShield Wizard will display the progress of the installation:

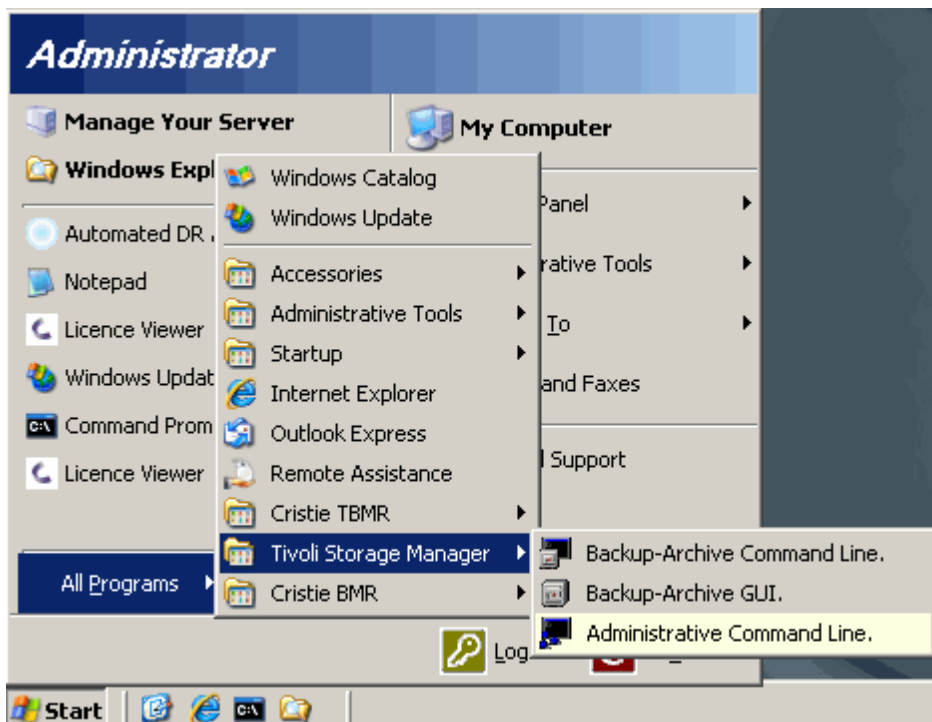


When installation is complete you should get the following screen:

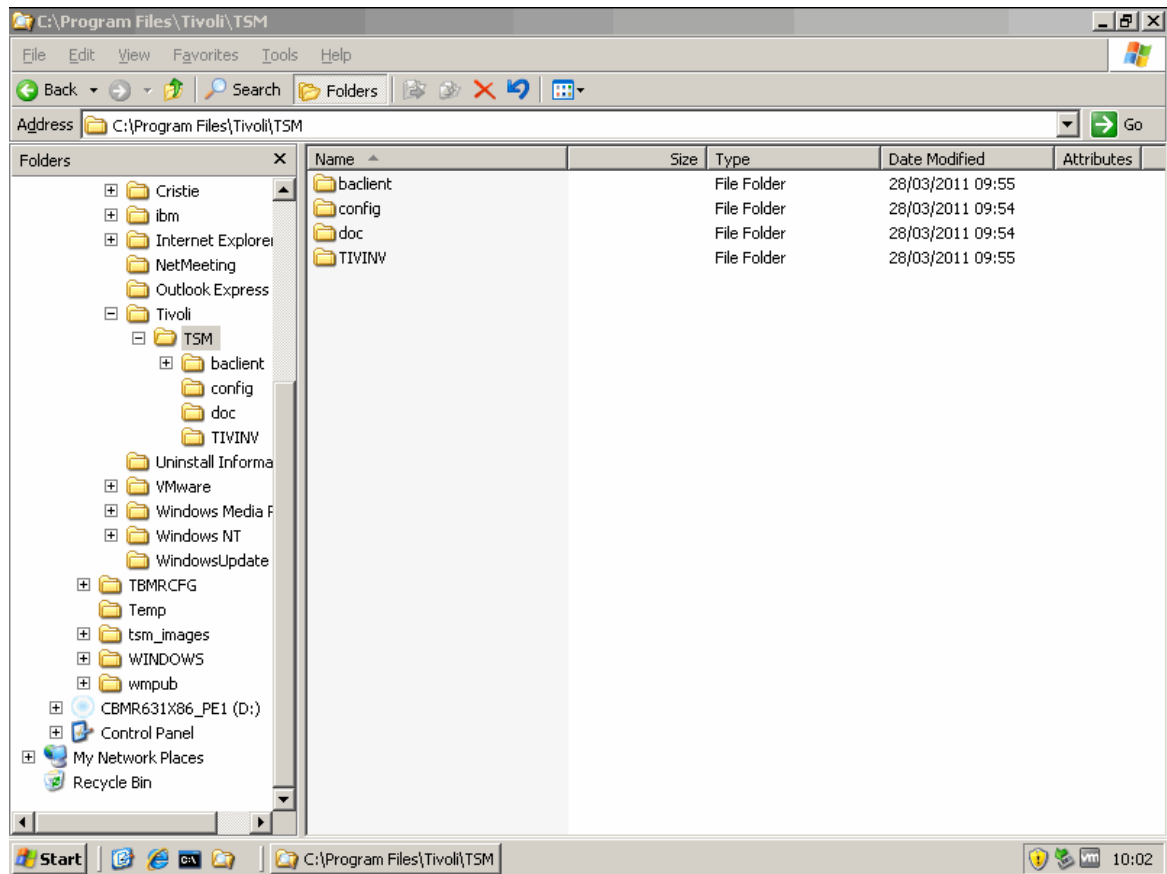


Click on **Finish** to exit the Wizard.

The following shortcuts will be installed in the **Start | Programs** menu:



The TSM client is now fully installed on your system. The relevant files are in the folders `C:\Program Files\Tivoli\TSM`. The API used by CBMR is in the `.\api` folder and `.\baclient` and contains not only the **Backup-Archive Client**, but also many other utilities including the Administrator Console Command Line interface, **dsmadm.exe**.



3 Creating a TSM Node

Several entities must be defined before you can create a node. The node definition relates to:

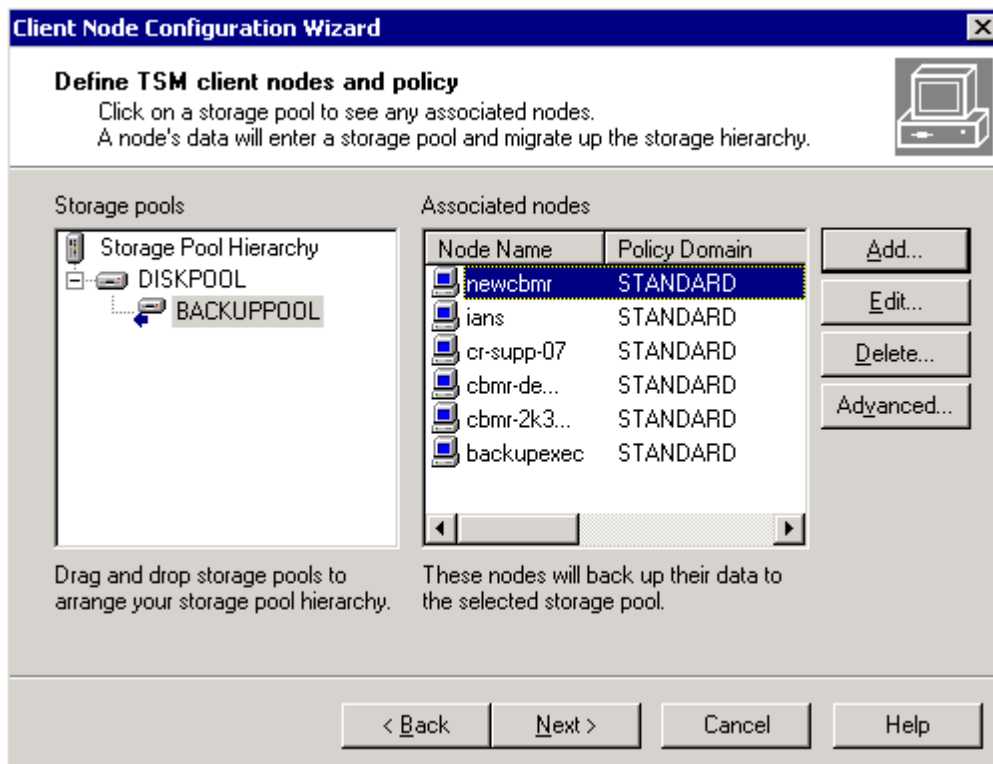
- Policy Domains
- Collocation Groups

both of which must be correctly defined before they can be used for a node.

3.1 Creating a Policy Domain with the Management Console

A new **Policy Domain** may be created via the **Management Console** at the same time as you create a new node.

Select the **Client Node Configuration Wizard** from the Management Console.



Select the node (or add a new node) for which you wish to define the new **Policy Domain**:

Properties for node NEWCBMR

Node information | SAN Disks

Node information

Node name: NEWCBMR

Password: *****

Verify password: *****

Force password reset

TSM policy domain

Policy domain name: STANDARD

New... Edit... Remove

Node data will be sent to pool:
BACKUPPOOL

OK Cancel Apply Help

Give the new Policy Domain a name and identify the **Storage Pool** to which it is attached:

TSM Policy Domain Properties

Policy Information

Policy domain name: NEWCBMRPD

Storage pool: BACKUPPOOL

Number of backup versions to keep

If client data exists: 2 (1..9999) No limit

If client data is deleted: 1 (0..9999) No limit

Length of time to retain extra backup version

Number of days: 30 (0..9999) No limit

Length of time to retain only backup version

Number of days: 60 (0..9999) No limit

OK Cancel Apply Help

You can also change the retention parameters.

Number of backup versions to keep | If client data exists, should be a minimum of 2 and a maximum of 5, depending on the availability of storage.

Number of backup versions to keep | If client data is deleted can be left at 1.

Length of time to retain extra backup version | Number of days will vary depending upon the frequency of backups.

Length of time to retain only backup version | Number of days will be a policy decision. It will only matter when you remove or replace servers.

The default values shown above will be acceptable for many installations.

Once you have set the parameters to your requirements, click on **OK**.

Properties for node NEWCBMR

Node information | SAN Disks

Node information

Node name: NEWCBMR

Password: *****

Verify password: *****

Force password reset

TSM policy domain

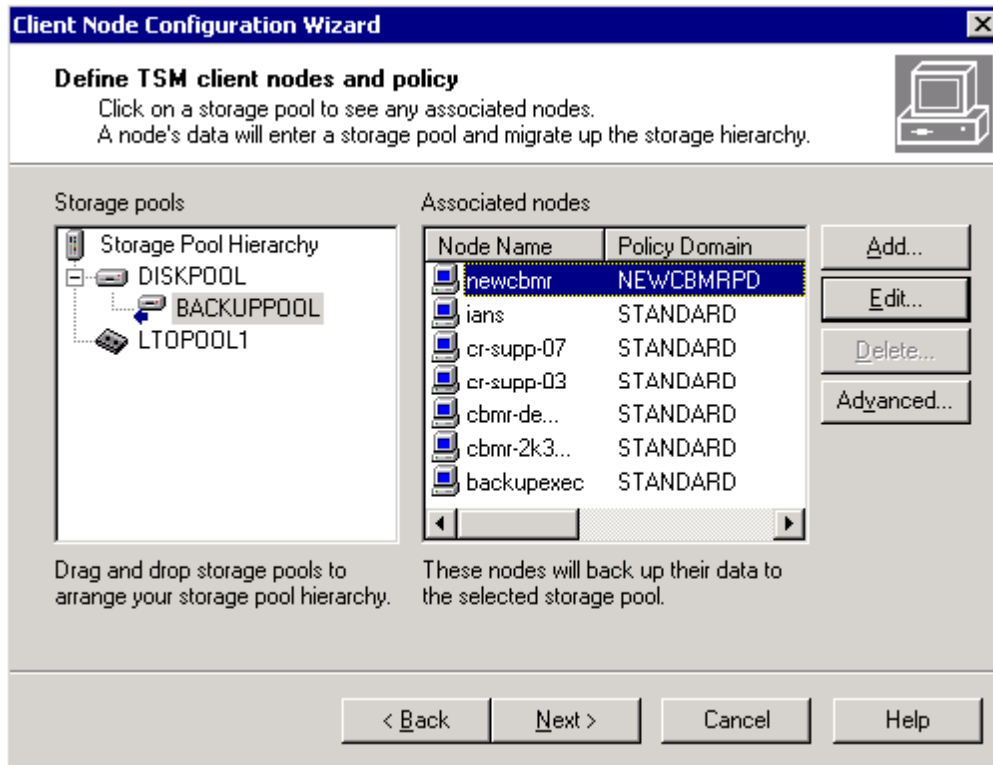
Policy domain name: NEWCBMRPD

New... Edit... Remove

Node data will be sent to pool: BACKUPPOOL

OK Cancel Apply Help

Your new **Policy Domain** has now been assigned to your node. Click on **OK**.



Check that the **Policy Domain** is set correctly and proceed with **Next** or **Cancel**.

3.2 Creating a Policy Domain from the Command Line

You can create a new Policy Domain from the Command line. The results will be the same as using the Management Console, but there are more steps and there is more flexibility. The process has six steps:

1. Define Policy Domain Name
2. Define Policy Set
3. Create Management Class
4. Assign Default Management Class
5. Validate Policy Set
6. Activate Policy Set

Start the Administrator Console **dsmadmc.exe** and use the following commands with the following syntax:

```

DEFine Domain <PolicyDomainName> DESCRIPTION="<Description>"
DEFine Policyset <PolicyDomainName> <PolicySetName> DESCRIPTION="<Description>"
DEFine Mgmtclass <PolicyDomainName> <PolicySetName> <ManagementClassName>
DEFine Copygroup <PolicyDomainName> <PolicySetName> <ManagementClassName> DESTINATION=<Storage>
DEFine Copygroup <PolicyDomainName> <PolicySetName> <ManagementClassName> Type=Archive DESTINATION=<Storage>
ASSign DEFMGmtclass <PolicyDomainName> <PolicySetName> <ManagementClassName>
VALidate Policyset <PolicyDomainName> <PolicySetName>

```

```
ACTivate Policyset <PolicyDomainName> <PolicySetName>
```

So in order to create the same Policy Domain as shown for the Management Console, you would issue the following commands:

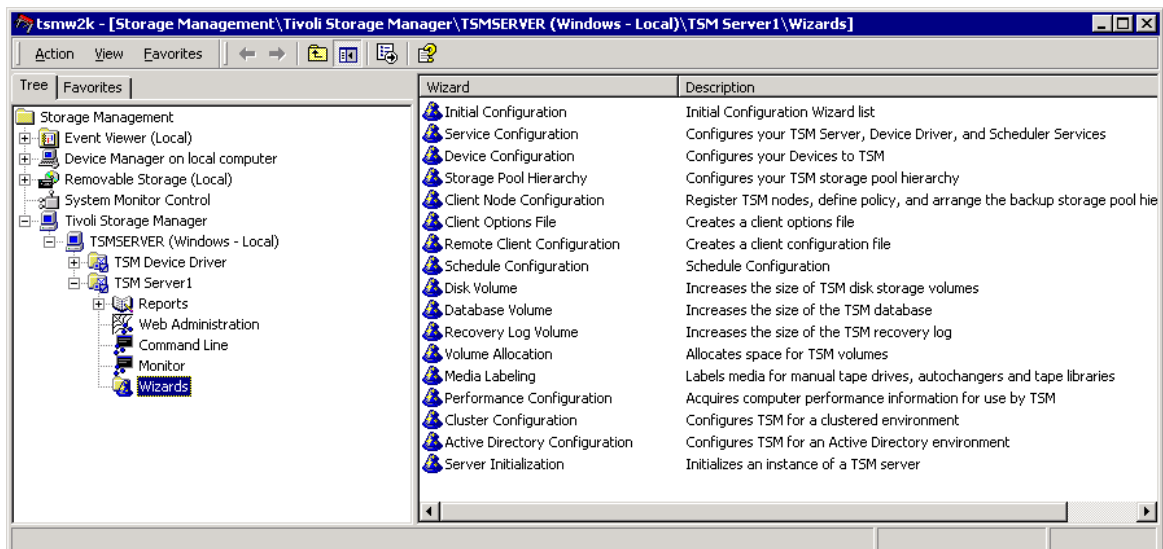
```
def domain NEWCBMRPD desc="New CBMR Policy Domain"
def policyset NEWCBMRPD NEWCBMRPS desc="New CBMR Policy Set"
def mgmt NEWCBMRPD NEWCBMRPS NEWCBMRMC
def copy NEWCBMRPD NEWCBMRPS NEWCBMRMC dest=BACKUPPOOL verexists=2 verdel=1 retex=30 retonly=6
def copy NEWCBMRPD NEWCBMRPS NEWCBMRMC type=ARCHIVE dest=ARCHIVEPOOL retver=365 retmin=90
assign defmgmt NEWCBMRPD NEWCBMRPS NEWCBMRMC
valid policyset NEWCBMRPD NEWCBMRPS
activate policyset NEWCBMRPD NEWCBMRPS
```

Now that you have defined the Policy Domain, you can now register new CBMR nodes in that domain.

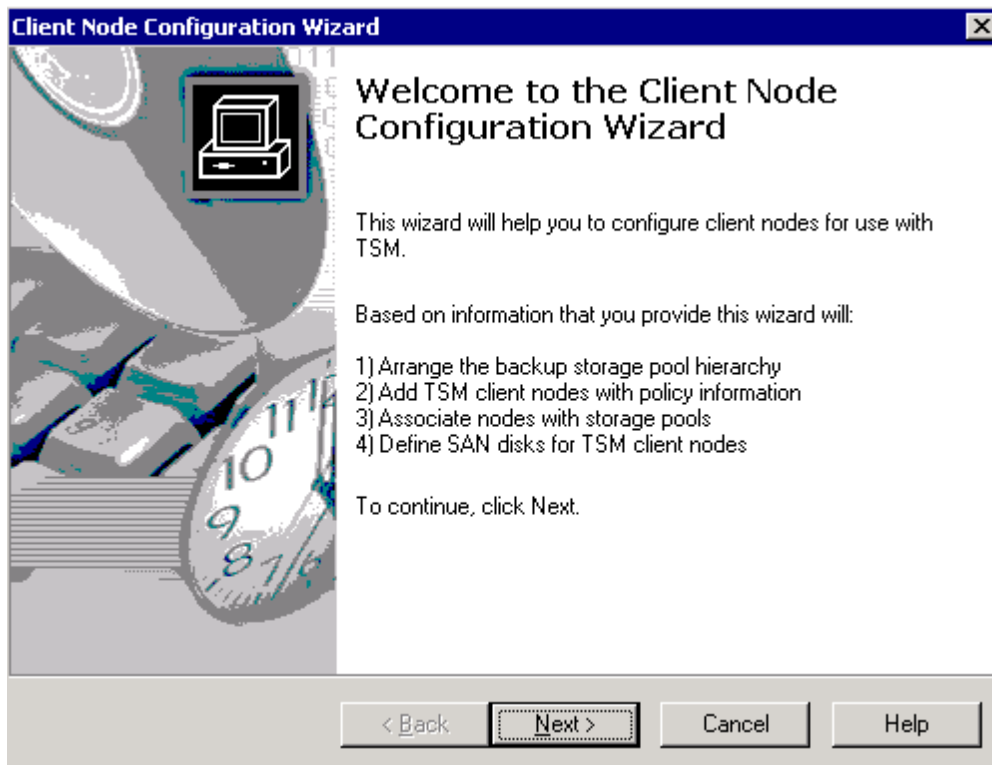
3.3 Creating a Node with the Management Console

You need to create a node for sole use by CBMR that will **NEVER** be accessed by the BA Client. You cannot share the node that you originally created for backing up files with the BA Client with CBMR.

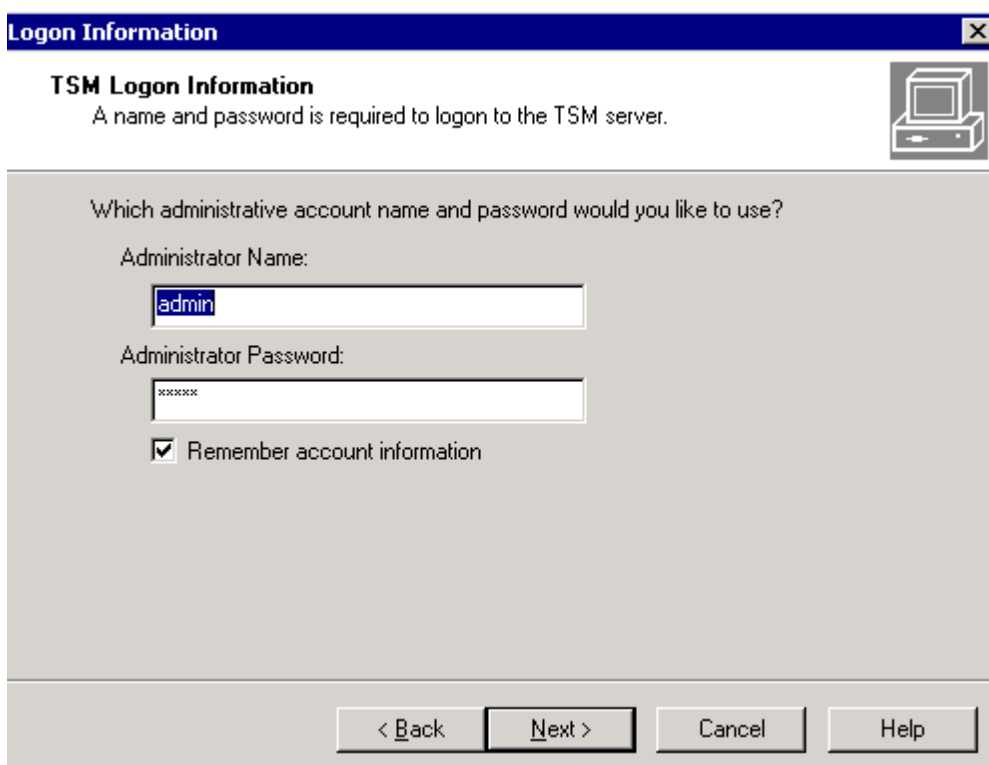
To create a node with the Management Console, run **Wizards**:



In the list of Wizards you will find **Client Node Configuration**. If you click on this you will get the following form:

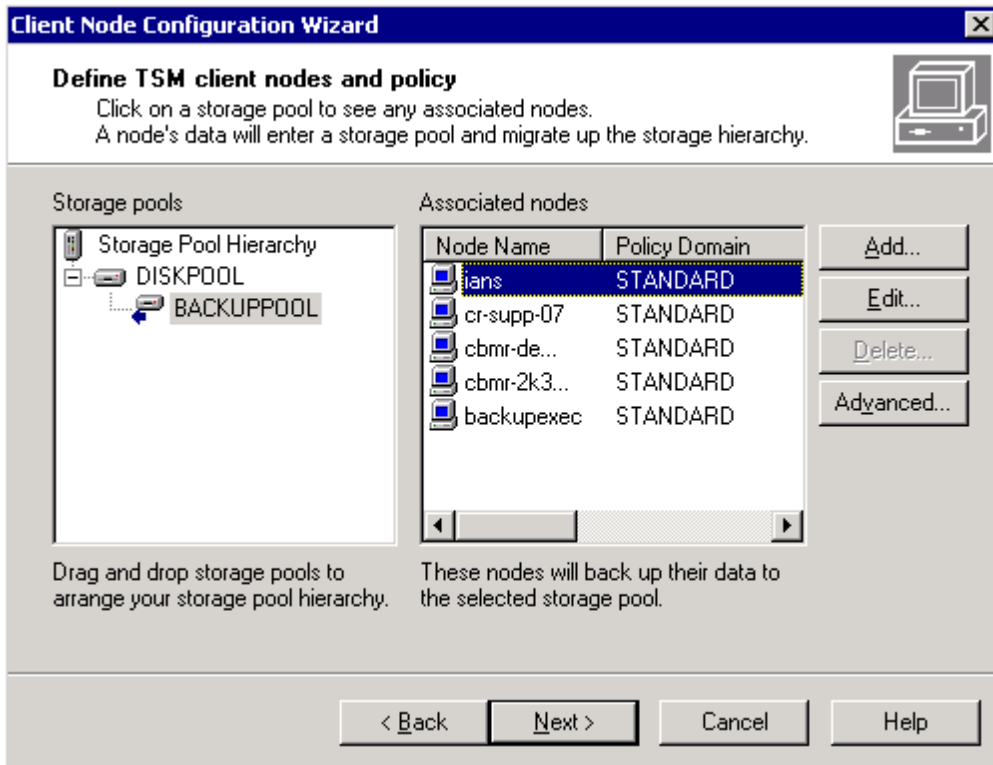


Click [Next>](#).



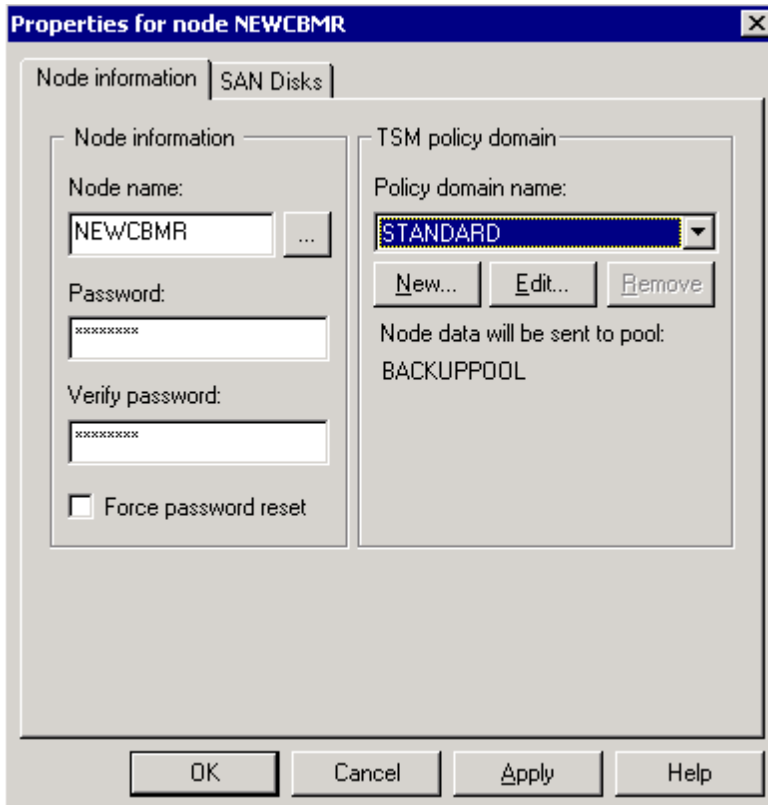
After you have entered the administrative account name and password, click [Next](#).

Existing nodes will be displayed. First select the appropriate **Storage Pool** and then click on [Add...](#)

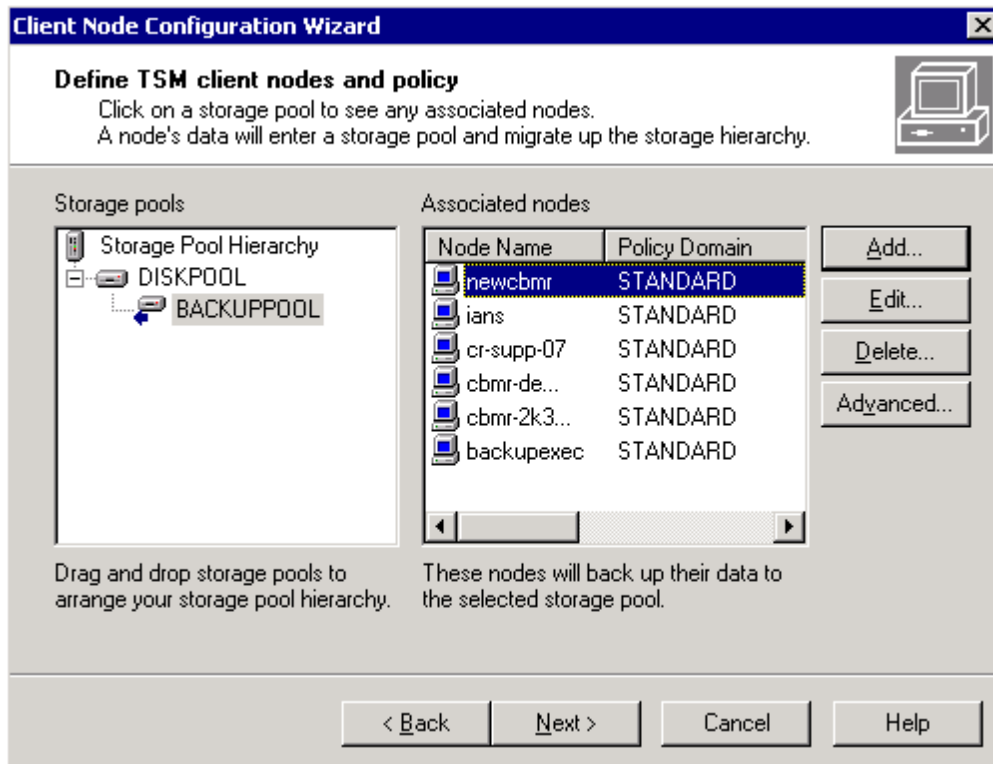


Enter the **Node Name**, the **Password** and the **Verify** password (by copying the Password). Do **not** tick **Force password reset** as the password must remain constant. Make certain that you select the correct Policy domain for the node.

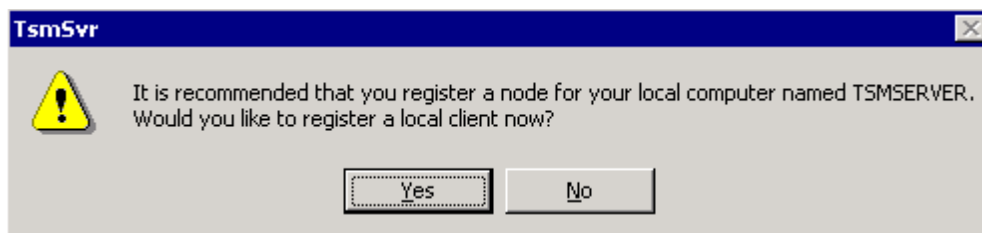
Click [Next>](#).



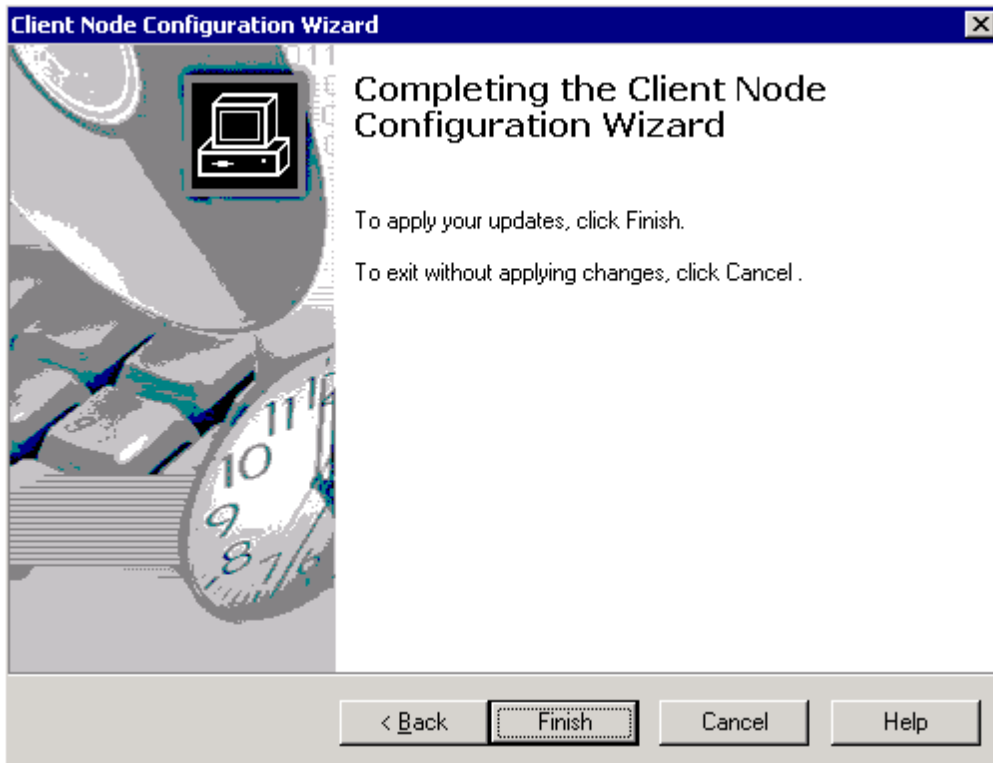
The new Node ("newcbmr") now appears in the list. The initial information used to create the node is quite sparse and a number of default values have been created. You need to change one of these before the node can be used for CBMR.



The following warning may be displayed if you have not created a node for use with the BA Client. Remember this is a completely separate node from the one used by CBMR. Choose the appropriate response.

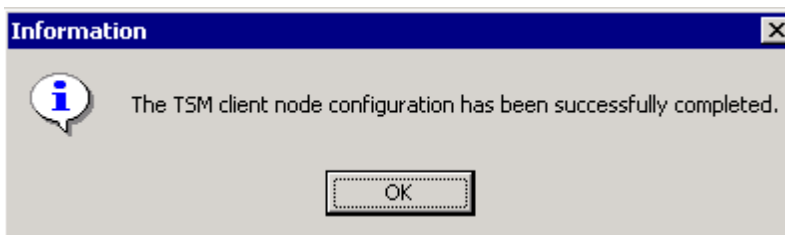


Click [Finish](#).

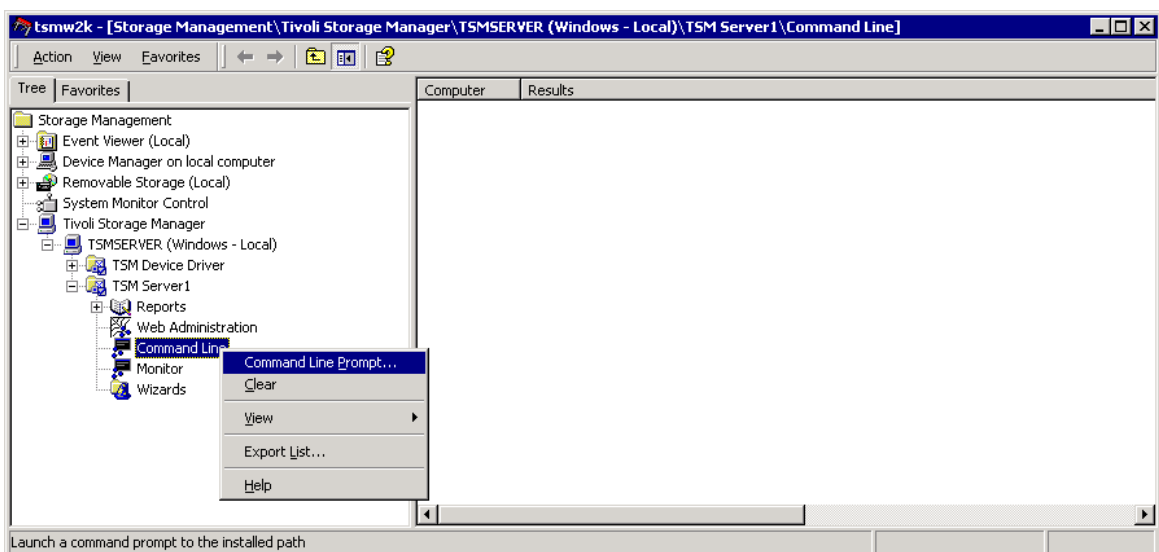


You have now created the node. One of its characteristics needs to be changed.

Click [OK](#).

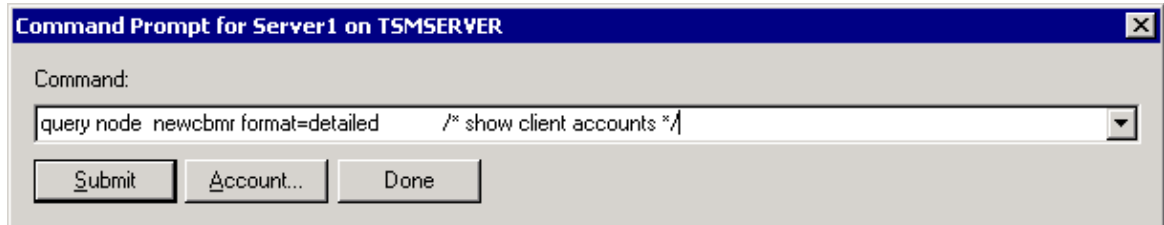


You can see all of the parameters associated with the node by using the [Command Line](#) from the Management Console:

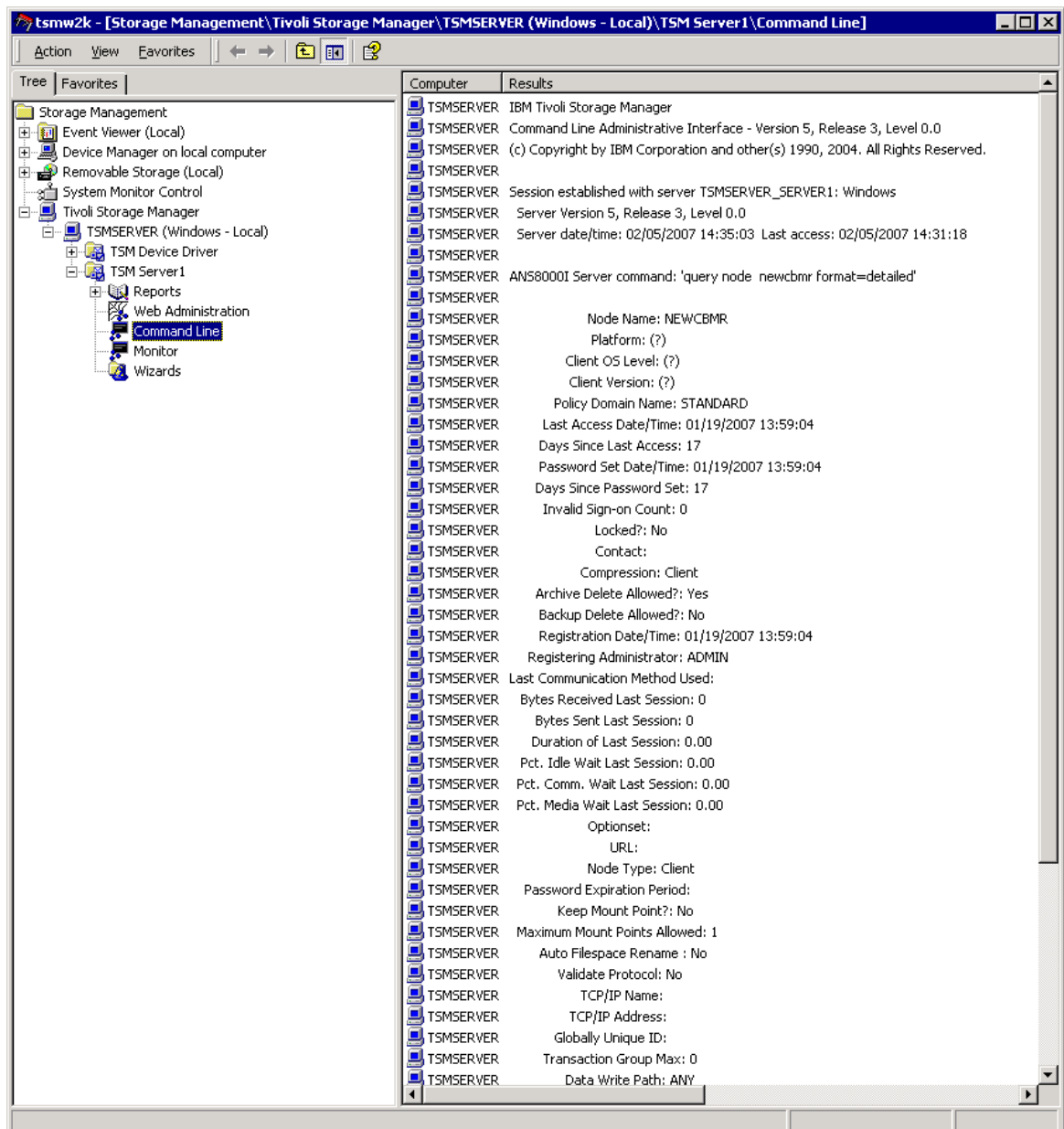


Select the **Command Line Prompt**.

Enter the command 'query node <nodename> format=detailed'. (<nodename> is 'newcbmr' in the example)

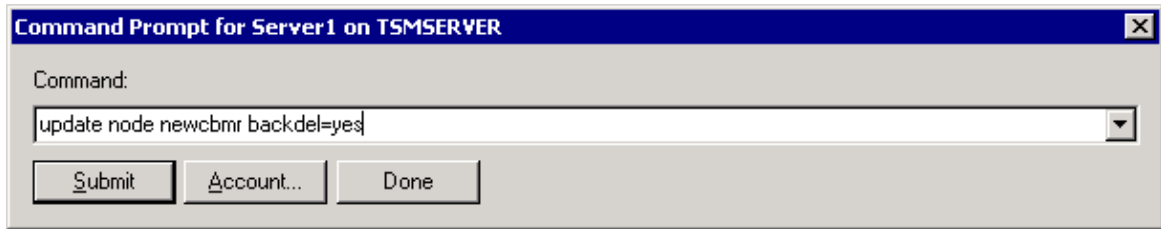


This will display all of the parameters relating to the node:

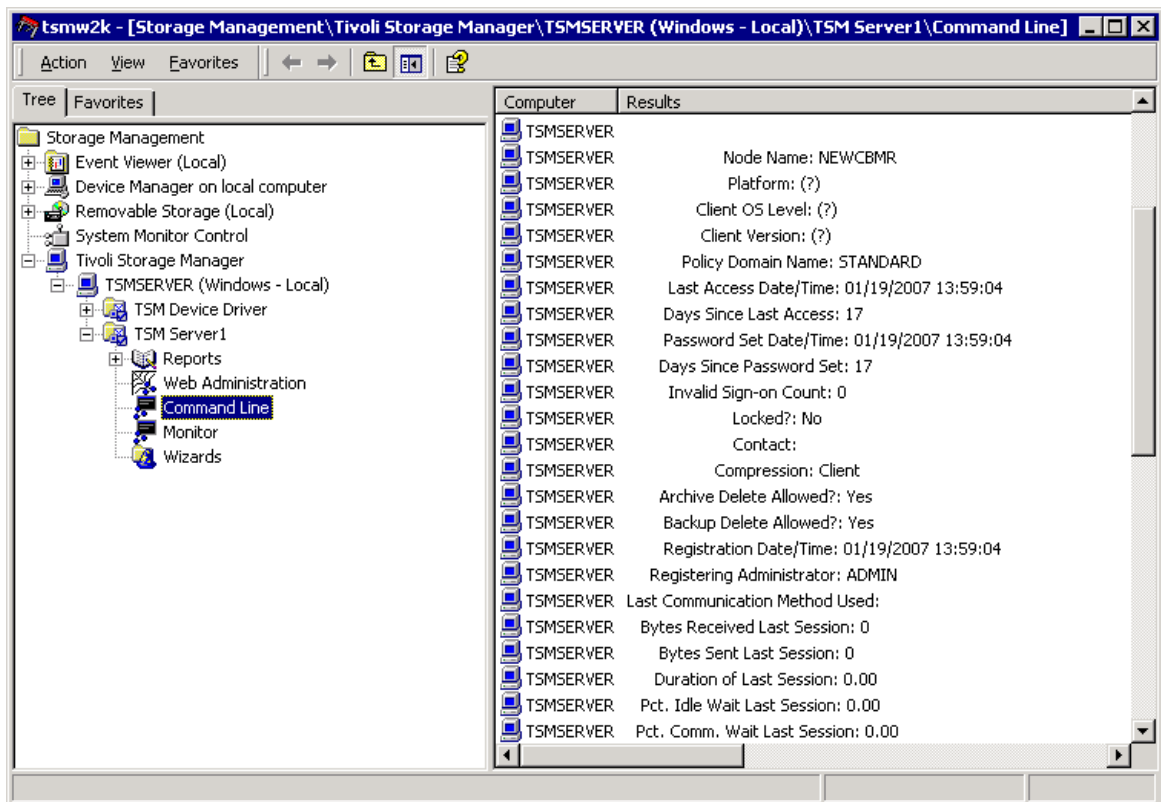


You can see that the **Backup Delete Allowed** parameter is initially set to 'No'. This needs to be changed to 'Yes'.

Change this parameter from the command line with `update node <nodename> backdel=yes`



The update can be confirmed with the 'query node' command as follows:



Now the node may be accessed by CBMR. Remember, do **NOT** access it from the TSM Backup/Archive client - all of the filespace within the node would become inaccessible to CBMR, leaving you unable to perform a disaster recovery.

3.4 Creating a Node from the Command Line

Note: you need to create a node for sole use by CBMR that will NEVER be accessed by the BA Client. You cannot share the node that you originally created for backing up files with the BA Client with CBMR.

In order to create a node from the Command Line, you need to have access to a Command Line processor. You can do this from the server you are protecting by installing the **Administrator Console Command Line Files** (see installation). The command line utility is **dsmadm.exe**.

Before creating the node itself, you need to be certain that you have a policy domain correctly defined.

The syntax for the command to create a node is:

```
REGister Node <NodeName> <Password> BACKDELeTe=yes PASSExp=0 DMain=<policydomain>
```

Using the command on the local machine gives the following:

```
register node NEWCBMR PASSWORD backdel=YES passexp=0 domain=NEWCBMRPD
ANR2060I Node NEWCBMR registered in policy domain NEWCBMRPD.
ANR2099I Administrative userid NEWCBMR defined for OWNER access to node NEWCBMR.
```

4 DR Backup to TSM

4.1 Creating the TSM Backup Location/Storage Device

CBMR can backup to tape drive, library, virtual tape (file) and a TSM node. It is possible to configure CBMR to work with multiple instances of all or any of these. Each instance is given a definition which is currently termed a **Backup Location** (was Storage Device). Each Backup Location is given a unique local Name to differentiate it from other Backup Locations.

A **TSM node** is a port to a network storage system. Currently CBMR treats a node as though it were a tape. This means that there are some restrictions of the way in which CBMR can be configured and used with TSM. The following describes the method of creating a Backup Location for each of the CBMR products.

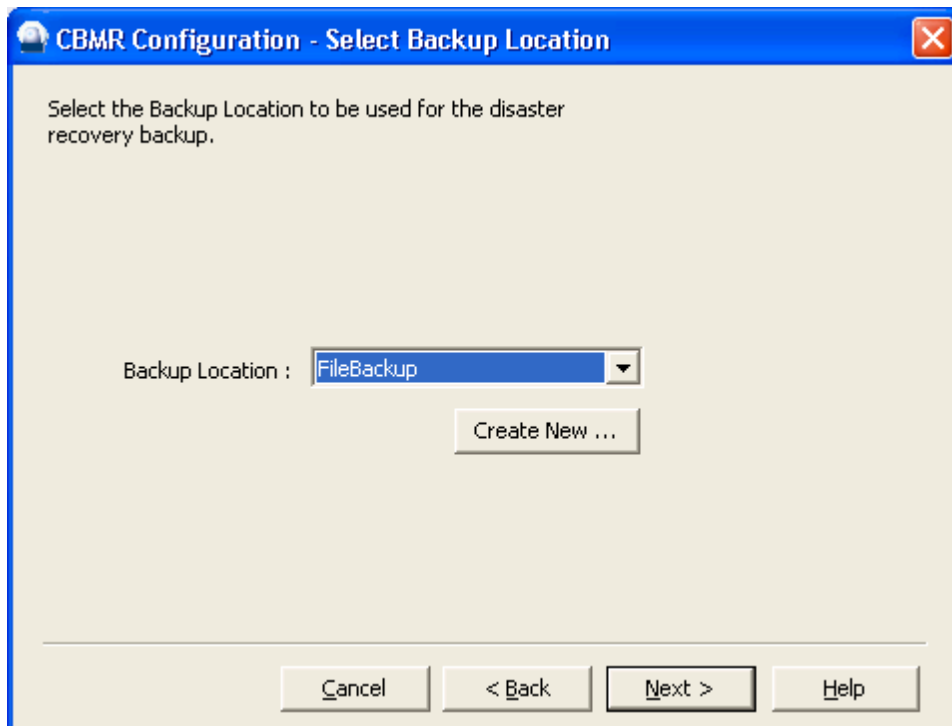
4.1.1 Windows TSM Backup Location

There is one method of creating a TSM Backup Location in CBMR for Windows, but there are two possible starting points.

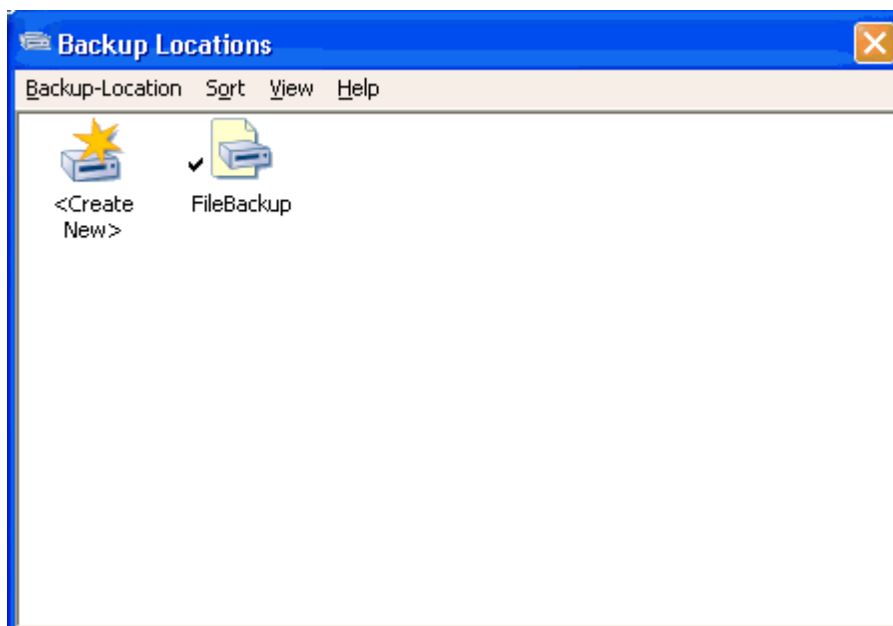
The first starting point is in the **Backup Locations** from the **Configuration** menu.



The second starting point occurs when you are using the **Setup Disaster Recovery Configuration Wizard**. When you arrive at the point of choosing a Backup Location, you may also create a new one:

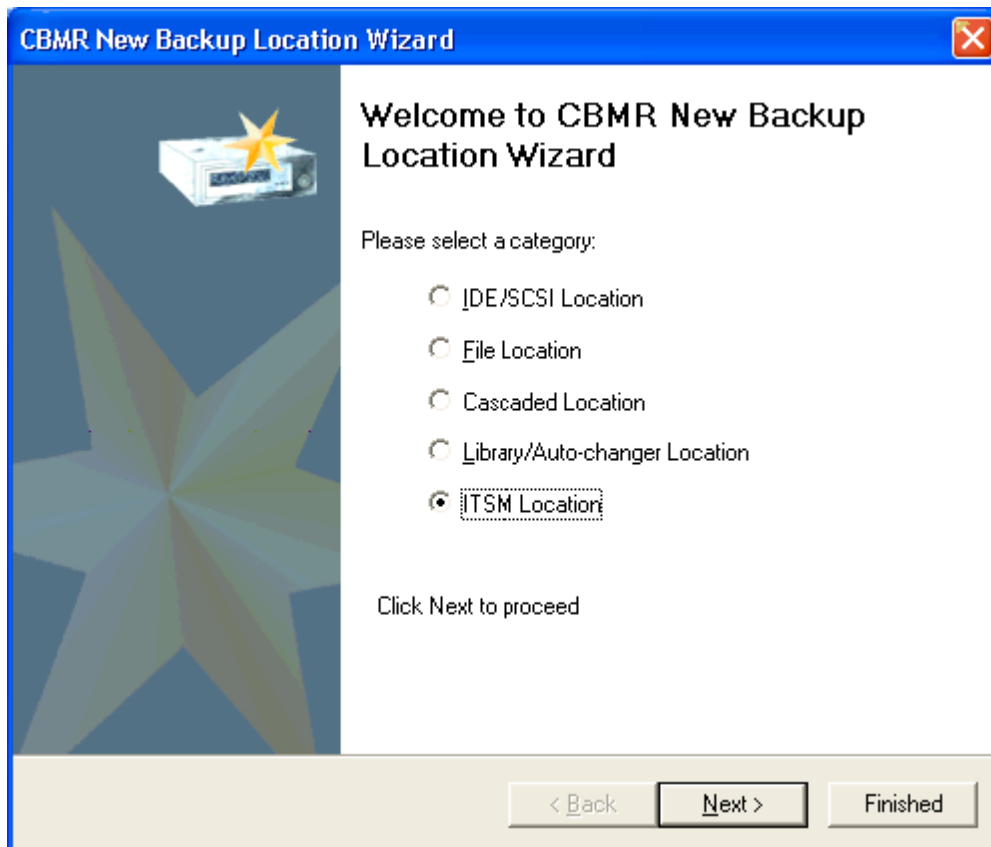


[Create New...](#) will take you to the following window:

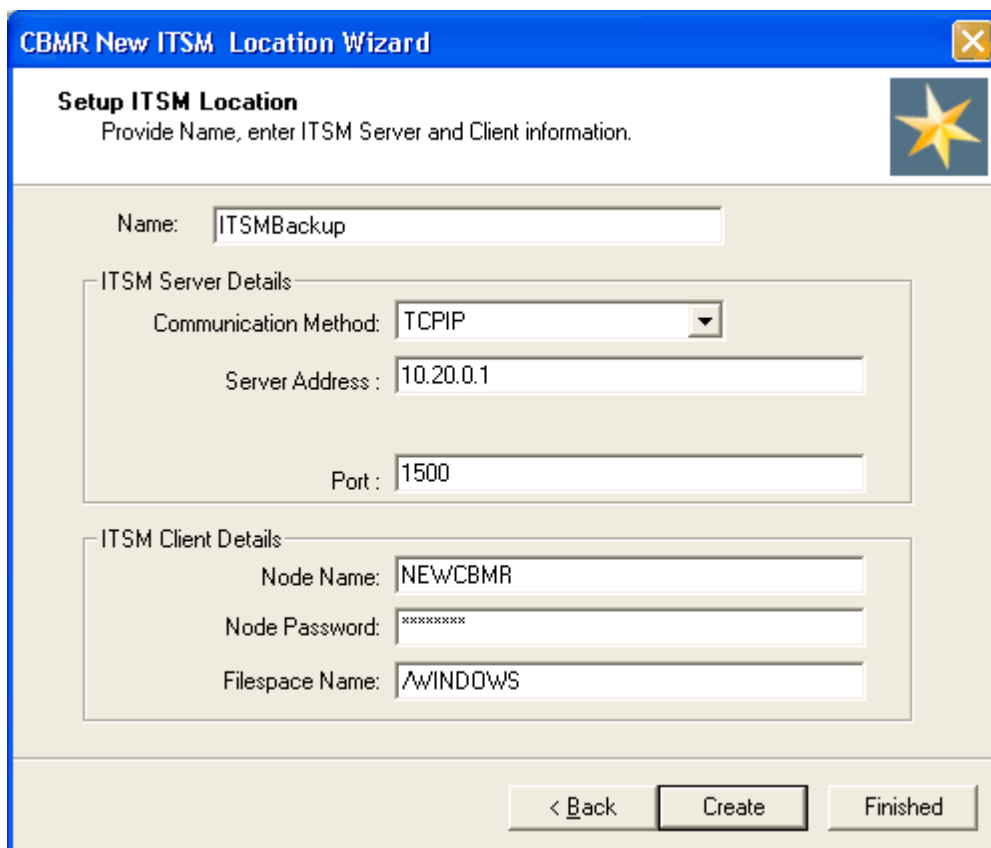


You need to create a new TSM Backup Location.

Select the [Create New](#) icon.



Select TSM Location

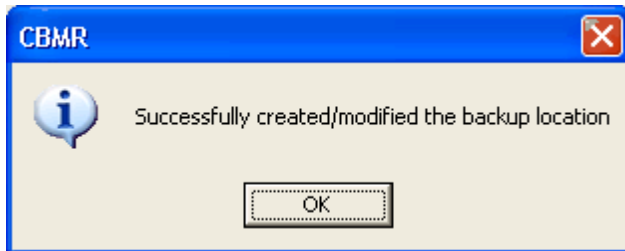


Now define the TSM Location by specifying the parameters on the form. The **Name** is the local name by which the Backup Location will be known to CBMR. The **Communication Method** is **always** TCPIP. The **Server Address** is the IP address of your TSM server and the **Port** is the TCP/IP port number that clients use to access the server (Your TSM Administrator will tell you which to use; 1500 is the default value, but you will not be able to connect to it if the actual value is different).

Specify the **Node Name** and password and the **Filespace Name**.

Note: all filesystems start with '/', so if you do not enter it, CBMR will prepend it for you.

Click on **Create**.



At this point there has been no check to validate the node name or password - this will be done on the first backup.

4.2 Scheduling DR Backups with TSM

In order to set up a TSM schedule, you need four components.

1. A Schedule on the server
2. A Command File on the client to run the job
3. A dsm.opt file on the client to control connection to the TSM server
4. A schedule on the client which will respond to the prompt from the server

Before you set up the schedule, you should ensure that the job you have defined will run outside the schedule.

On the TSM Server

Create a Schedule for a Command File eg. C:\CBMR.CMD

```
def sch <policy domain> <schedulename> desc='Cristie BMR Backup'
act=command obj=' "C:\CBMR.CMD"' startd=today startt=14:00 day=SUN
```

In response to the command you should get the following message:

```
ANR2500I Schedule CBMR_SCHED defined in policy domain <policy domain>.
```

Assign the node to the scheduler

Use the command

```
Def assoc <policy domain> <schedulename> <CBMR Nodename>
```

In response to the command you should get the following message:

ANR2510I Node CBMR associated with schedule CBMR_SCHED in policy domain <policy domain>.

On the Windows Client

On the client machine you will have installed CBMR in the folder `C:\Program Files\Cristie\CBMR`, defined below as <CBMR path>. You will also have installed the BA Client in `C:\Program Files\Tivoli\TSM\baclient` (defined here as <TSM Path>\baclient).

Create the CBMR Command file and check that it works

For example

```
REM  CBMR.CMD

@echo off

"C:\Program Files\Cristie\CBMR\pcbax.exe" disrec /b
```

The parameter **disrec** is the name of the backup script generated by CBMR (full name is `disrec.scp`).

Modify DSM.OPT to define the schedule

Modify DSM.OPT under `C:\Program Files\Cristie\CBMR\` so that it defines Prompted mode scheduling. This will mean that the timing of the job is initiated by the server.

Note: all the parameters after Compression Yes (see below) are required by the scheduler. Windows will override relevant values with those that have been defined for the Backup Location; they should be identical.

Example DSM.OPT File. The note at the top of the file, which is provided with CBMR, refers to the way in which CBMR treats the contents of the file. However the file is also used by the scheduler and will use parameters that CBMR ignores.

```
*=====
* Note: This file is provided with PC-BaX/CBMR TSM support module.
*
* IMPORTANT:
*
* The parameters nodename, commmethod, tcpserveraddress and
passwordaccess
* can not be set using this file!
*
*=====
```

```
COMPRESSION YES
NODENAME <CBMR Nodename>
TCPCLIENTPORT 1500
QUERYSCHEDPERIOD 1
SCHEDMODE PROMPTED
PASSWORDACCESS GENERATE
TCPCLIENTADDRESS <Client IP>
TCPSEVERADDRESS <TSM Server IP>
```

Create the Client Schedule Service

Using the `dsmcutil` utility in the BA Client (<TSM Path>\baclient) folder, type the following at the command prompt:

```
DSMCUTIL INST /NAME:"TSM CBMR Scheduler" /NODE:<CBMR Nodename> /  
PASSWORD:<password> /CLIENTDIR:"<TSM Path>\baclient" /OPTFILE:"<CBMR  
path>\DSM.OPT" /AUTOSTART:YES
```

As a result of the command, you will be able to see the new service **TSM CBMR Scheduler** under the Windows services.

5 Recovery using the DR Backup

The steps required for a successful disaster recovery are as follows:

- **Boot** into recovery operating system
- **Connect** to the network
- **Load** the configuration data
- **Recover** the DR Backup files
- **Install** dissimilar hardware drivers
- **Reboot**
- **Restore** Application data


The configuration data includes a definition of the backup location which is used when you start the recovery of the DR Backup files. If the configuration data is stored along with the DR backup data, then the process has to be modified slightly - the backup location has to be defined **manually** before the configuration data can be loaded.







5.1 Recovery using WinPE 2

This is not a full description of the recovery process, but a description of that part which is relevant to TSM ie. the connection to the TSM server for recovery of the DR backup.

When you boot the WinPE 2 DR environment, you will see the **Recovery Console Main Menu** as below:


CBMR Recovery Console



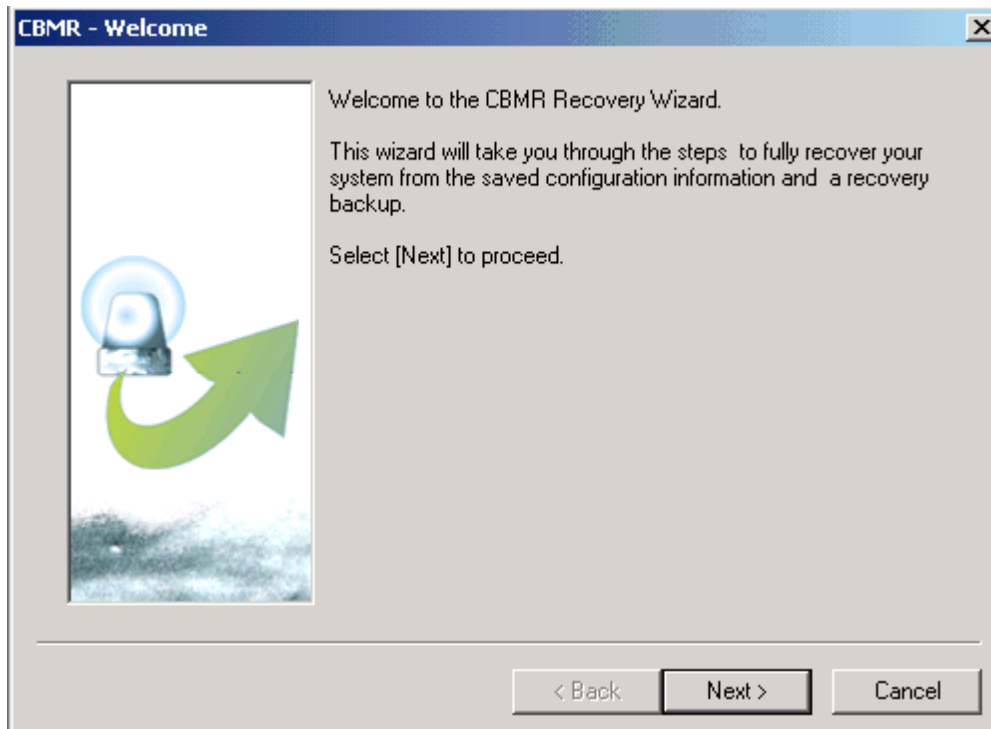
| | |
|---|---|
|  | Starts the automatic recovery wizard which will take you through the steps necessary to recover your system. |
|  | Starts the manual recovery wizard which will let you do individual recovery steps. |
|  | Lets you run various tools relevant to the recovery. |
|  | Shows a list of log and error report files from which individual ones can be selected for viewing in notepad. |
|  | Lets you copy all the log and error report files to a removable media or network location for support purposes. |
|  | Will close this console and reboot the system. |

Set the timezone and time - 8/5/2010 3:51:47 PM US

CBMR Recovery Console Version 6.3 Build 151
 Copyright (C) 2006 - 2010 Cristie Software Limited
 United Kingdom
<http://www.cristie.com>

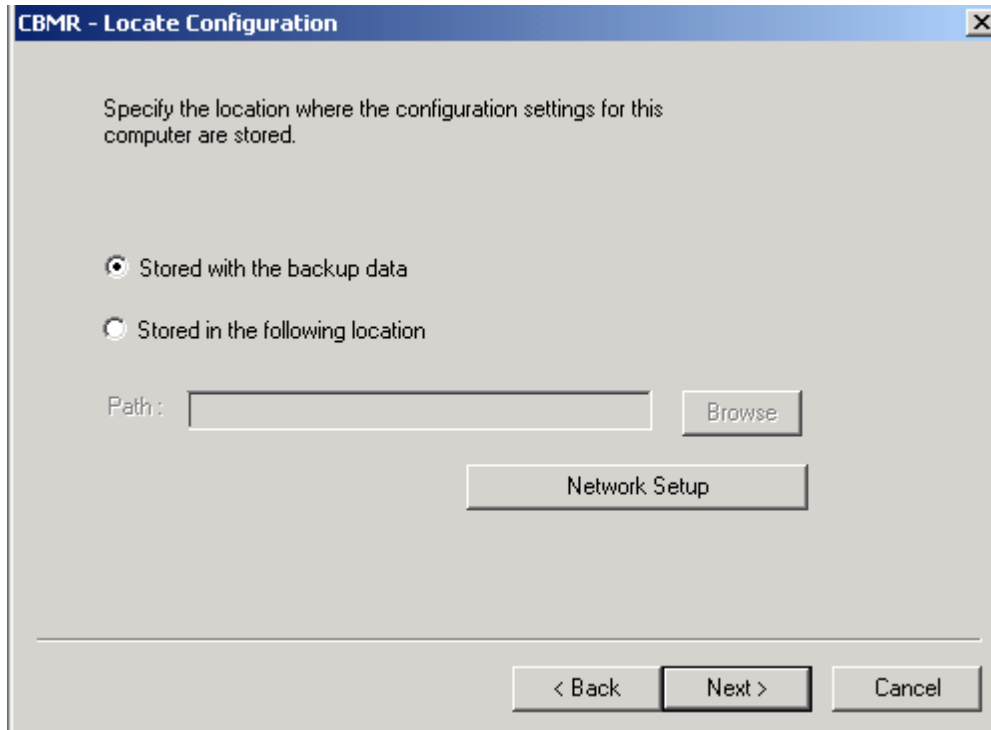


Select the **Recovery Wizard** by clicking the first command button:

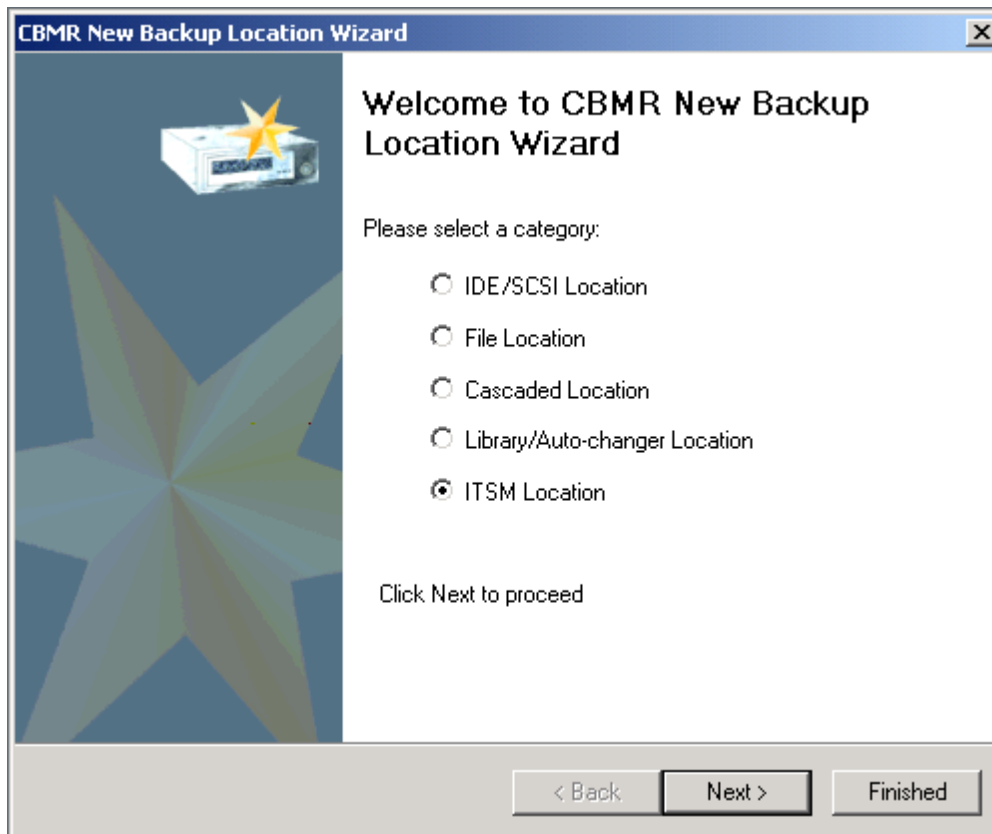


Press **Next>** to proceed to the first step of the sequence. Press **Cancel** to abort the recovery sequence at this point or **Help** to display context sensitive help.

For this example, we will assume that the configuration data is stored with the DR backup data. This means that we have to create the definition of the TSM node manually rather than have it already defined elsewhere.

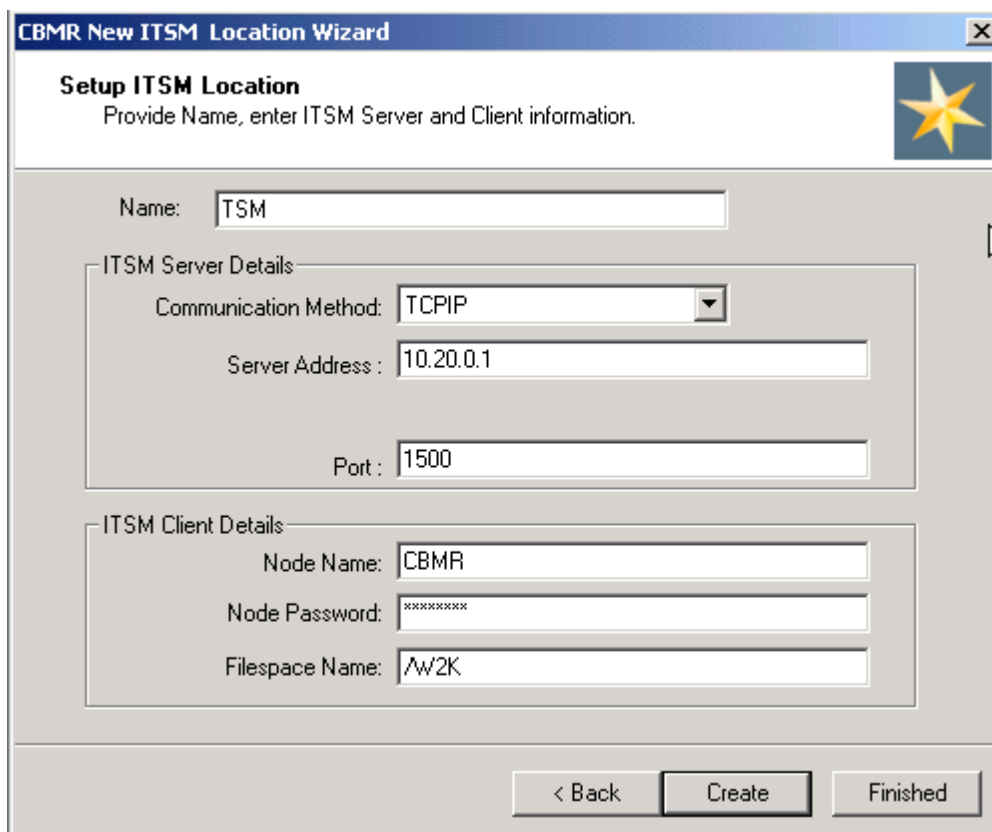


Click **Next>** to start the definition of the Backup Location.



Choose the TSM location and click [Next>](#).

Now define the parameters required to access the TSM server node:



The Name TSM is arbitrary and only used to define the location and identify the definition where there may be a number of different ones.

The TSM Server Details are sufficient to communicate with the TSM Server:

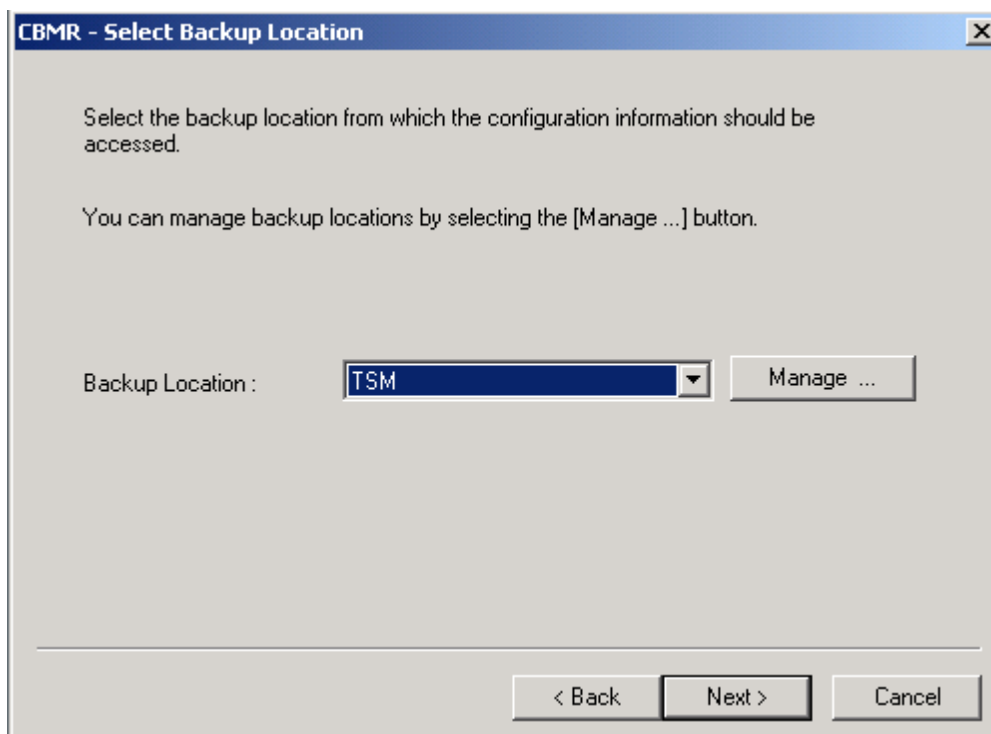
- **Communication Method** is always TCPIP
- **Server Address** should be the IP address of the server. Even when DNS is available on the network, it is always safer to use the IP address rather than the Netbios name
- **Port** defaults to 1500, but you should confirm this with your TSM Administrator

The TSM Client Details define the connection parameters for the TSM server:

- **Node Name** is defined on the server. There must be no spaces in the name
- **Node Password** is as defined
- **Filespace Name** is a division within the node. All filespace names begin with '/'

Click **Create** to save the definition.

The Name now appears in the Backup Location selection:



Click **Next>** and CBMR will attempt to connect to the TSM Server.

If there is anything wrong with the parameter definitions you may well see the screen below:

Specify the restore settings like the version of backup to restore and the dataset here.

Backup Location :

Multiple versions of backup is available in this location. Select a version to restore :

Dataset number to restore :

< Back Next > Cancel

You can click [<Back](#) to return to the previous screen and amend the parameters.

Note: if you need to amend the definition then click on [Manage...](#) and select the backup location to amend the parameters. You will need to [Cancel](#) and start the Wizard again in order for the new parameters to be used.

If you successfully connect to the TSM Server node, you will be shown a lookup of the DR Backup versions that are available for recovery. If your configuration data was held on a network share or floppy disk, and the configuration parameters give you a successful connection to the TSM Server, then you will also select your backup using the following screen:

Specify the restore settings like the version of backup to restore and the dataset here.

Backup Location : TSM

Multiple versions of backup is available in this location. Select a version to restore :

Backup done on Mon Mar 19 22:15:31 2007

Dataset number to restore : 0

< Back Next > Cancel

Select the version that you want from the list. Provided that these are DR Backups, and you have not prepared your own backup, then you should leave the Dataset number as 0.

If you have used other backup features within CBMR to create your own script, then you need to be more careful. If, for example, you have done a full backup of the C: drive and included *System State*, then you will need to use Dataset number 1 for the recovery.

Click [Next>](#) to read the configuration data and to begin the recovery.

This is the end of the TSM specific information.

6 Obtaining Information from the TSM Server

During the CBMR processes it is often helpful to get information from the TSM Server to help you diagnose problems or check details. This section contains a list of the commands that have been found useful with CBMR.

The commands may be entered via the **Management Console** on the TSM Server or via the Administrator Command utility **dsmadm.exe**, which you can find in the Tivoli baclient directory of the TSM client installation, if you chose to install it.

Note: if you have not used dsmadm.exe or the Backup/Archive Client on this client installation before, you will need to set up a dsm.opt file in the Tivoli baclient directory which links you to the TSM server.

| | |
|---|--|
| query actlog | a summary of the events on the system |
| query associations | a list of schedule names, their node and policy domain |
| query sched | a list of schedules by policy domain |
| query sched <policydomain> format=detailed | details of the schedule for the policy domain |
| query node <nodename> format=detailed | all of the node parameter values |
| query occupancy <nodename> | the space used by all of the filespace within the node |
| query stgpool | space utilisation of each storage pool |
| query session | current state of each active session |

7 Best Practice

Best Practice is a definition of the choices and decisions that need to be addressed when you are using CBMR with TSM.

There will always be exceptions to the rule and reasons why you might not follow the guidance. Some of the guidance is mandatory and necessary to make CBMR function with TSM; some of it is optional. Where it is mandatory then this is explicitly indicated.

If you ignore mandatory practice then we are unable to support your implementation.

7.1 Storage Pools

(Recommended)

It is recommended that your Primary Storage Pool is a disk pool. This means that you initially backup to disk. The reason for this is that the DR Backup cannot be guaranteed to be complete unless you have a Verify pass after the backup. If your primary Storage Pool is tape, the attempt to verify may timeout while the tape is rewinding (depending upon capacity). This will cause a failure to be reported by TSM and no guarantee that the last file was completely written to the node.

7.2 Nodes and Filespaces

(Mandatory)

Always remember that a node must be reserved for the sole use of CBMR and must not be shared with the BA Client. Any use of the BA Client on a CBMR node will render all of the Filespaces in that node inaccessible.

When designing your CBMR/TSM interface, you can choose to set up either a single node with separate filesystems for each CBMR client, or separate nodes for each CBMR client. It is recommended that you always use a separate node for each CBMR client. The main reasons for this is safety. By having many nodes you limit the damage that can be caused by inadvertently using the BA Client on the node. Every filesystem would become inaccessible. The remedy would be to remove the node and recreate it and then to run all of the DR Backups again.

(Mandatory)

When you create a node remember that:

- The Policy Domain that you reference must always use the Standard Management Class
- Backup Delete Allowed (backdel) must always be set to yes so that CBMR can control the backup filesystems
- Ensure that the node password does not expire (passexp=0). Although CBMR could handle changes with the DR Backups, there is no secure way to recover a backup in the disaster recovery situation when the password has changed. It may be possible to reset the password via the server.

7.3 Management Class

(Mandatory)

Only the Standard Management Class may be used in any Policy Domain.

7.4 DR Backup

Verify after DR Backup

(Recommended)

Always have a verify pass. This will obviously impact your backup strategy, but a verify pass is the only way to guarantee that the backup completed. Instances have been noted where backups were incomplete and yet no error has been reported. The only way to be certain that the last frame of the last transmission was actually processed and terminated correctly is to begin a verify pass.

Use DR Backup and NOT a Full System Backup (Windows)

(Mandatory)

The tools within CBMR for Windows allow you to backup every drive and the system state. Although you could use the tools to create an equivalent script for performing DR Backups, if you make a mistake you may find that you cannot recover the data. The Wizards available in CBMR for Windows will do it correctly and will also generate a backup script for the operation.

Keep DR Backup separate from Application Backup

(Recommended)

Although you can use CBMR for backing up the whole server at once, this is a waste of network bandwidth. TSM performs a progressive backup of individual files from the server. This is ideal to keep network bandwidth down to a minimum and for performing a daily backup. The DR Backup is ideal for creating a coherent snapshot of operating system files. It deals with all of the files as a whole, not individual files, and therefore requires more runtime and network bandwidth.

Schedule regular DR Backups

(Recommended)

The operating system ought not to change very often. When you recover a server, you need to ensure that it is reasonably up to date and will be a suitable basis for the recovery of your Application and Data backup. It is therefore recommended that DR Backups be scheduled regularly, probably weekly.

8 Cristie Technical Support

If you have any queries or problems concerning your Cristie Bare Machine Recovery product, please contact **Cristie Technical Support**. To assist us in helping with your enquiry, make sure you have the following information available for the person dealing with your call:

- CBMR Version Number
- Windows OS and Version Number
- Any error message information (if appropriate)
- Description of when the error occurs

Contact Numbers - Cristie Software (UK) Limited

Technical Support +44 (0) 1453 847 009

Technical Support Fax +44 (0) 1453 847 003

Toll-Free US Number 1-866-TEC-CBMR (1-866-832-2267)

Sales Enquiries +44 (0) 1453 847 000

Sales Fax +44 (0) 1453 847 001

Email cbmr@cristie.com

Web www.cristie.com

Support Hours

05:00 to 17:00 Eastern Standard Time (EST) Monday to Friday

Out-of-Hours support available to customers with a valid Support Agreement - Severity 1 issues* only

UK Bank Holidays** classed as Out-of-Hours - Severity 1 issues only.

**Severity 1 issues are defined as: a production server failure, cannot perform recovery or actual loss of data occurring.*

***For details on dates of UK Bank Holidays, please see www.cristie.com/support/*

Cristie Software Limited are continually expanding their product range in line with the latest technologies. Please contact the **Cristie Sales Office** for the latest product range. Should you have specific requirements for data storage and backup devices, then Cristie's product specialists can provide expert advice for a solution to suit your needs.