

# TSMManager

The user and installation guide for TSMManager.

Version 5.1

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## What is TSMManager ?

The purpose of TSMManager is to monitor the state and manipulate the objects of TSM servers.

### It consists of :

- A central collector part that is in charge of all communication with up to 30 TSM servers.
- A viewer part that can be installed on multiple PC's and supplies the user interface.
- A web server built into the collector that allows easy access to pulling lists for the vaulting function plus allows access for users without a TSM administrative user.
- An optional Windows agent for manipulating node schedulers and their files.

### TSMManager has several functions :

- Vaulting
- Backupset generation
- Alert/Reporting
- Data gathering (history)
- Manual operations
- Utilities
- Display functions
- Reports
- Web access for non TSM administrators

### Vaulting

The vaulting function of TSMManager is a complete replacement for Tivoli's DRM feature.

It will handle everything necessary with regard to moving tapes out of libraries, producing pulling lists for operators, returning volumes and checking them in to libraries. Everything runs scheduled and without manual intervention. (Except for the physical movement of volumes, of course)

It will handle cypool volumes, primary pool volumes, database backups, both full/incr and snapshot and backupsets.

It will also generate a recovery plan with all needed support files and let you store it in a safe place in case your TSM server dies and needs to be rebuilt.

### Backupset generation

If you think about replacing your monthly archives with backupsets, then it is very easy with this function. It will control retention, scheduling and use parallel streams to generate backupsets from the nodes you choose.

### Alert/Reporting

- Send a daily e-mail notification informing you of exception conditions in your TSM server.
- Show a visual indication of the server's availability, updated every 2 minutes.
- Send you an e-mail immediately if error messages occur.
- Optionally call an external reporting program for each alert.

### Data gathering

- The collector collects 3 types of data :
- 14-day statistic with measurements taken every 15 minutes.
- 2 year statistic with measurements taken every 24 hours.
- Volume statistics. (mounts and read/write errors)

**Manual operations**

- An administrative client type of interface.
- Console mode operation, showing you what happens right now.

**Utilities**

- An editor for client option sets
- An editor for server scripts
- Retrieve dsm.sys, dsm.opt, dsmerror.log and dsmsched.log from any node.
- A database explorer

**Library handling**

- Checkin/checkout control
- Labelling control
- Auditing control

**Display and control functions**

- A graphical overview of the timing aspects of your client and administrative schedules.
- A timing chart showing all server activity for the last 12/24/48 hours.
- A graphical overview over your drive usage.
- How much data was transferred during the last 24 hours.
- How much space each node takes up.
- A summary of all data involving a certain node.
- On which volumes a node has its data.
- Status of all volumes
- Warning window with all abnormal conditions
- Graphic overview of the configuration of your TSM servers.
- An operational view showing you the status of all servers in one view.
- And lots of other views.

**Reports**

- Printed Monthly average reports for all collected data.
- Printed Detailed reports for all collected data.
- Customized reports that you define.
- Scheduling for automatic generation of customized reports

**Commands**

- TSMManager supports more than 200 of the TSM commands.

**Web access**

- Users can be given access to the backup status of a single domain or several domains.
- Controlled via userid/password combinations defined by the TSMManager administrator.
- Data displayed only concerns the backup status, not the internal workings of the TSM server

## How does it work ?

The minimum configuration consists of one viewer, one collector and one TSM server. It can be extended with more viewers and more TSM servers, but there will always be only one collector.

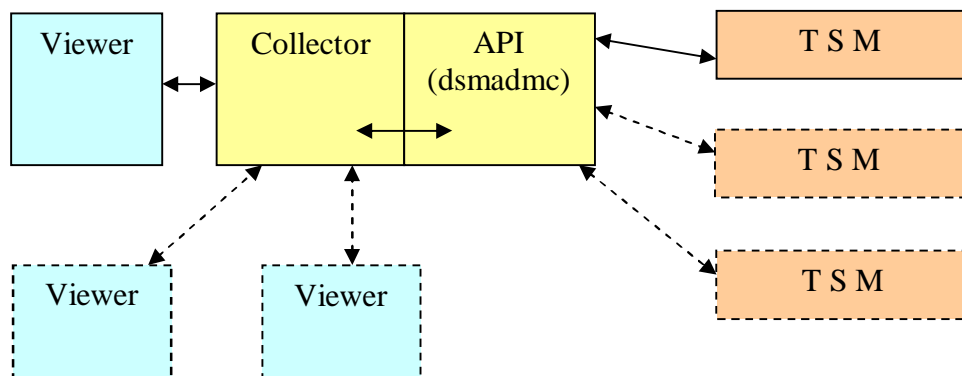
The collector is a Windows service and performs several functions :

- It collects statistical (historical) information.
- It receives and processes requests from the viewer(s) and returns data to them.
- It monitors the TSM server(s) and sends e-mail alerts if configured to do so.

The viewers never contact the TSM servers directly, only through the collector.

The connection from the collector to the TSM servers is through the standard administrative command line program (dsmadm).

The connection from the viewer to the collector is standard TCP/IP on port 1955.

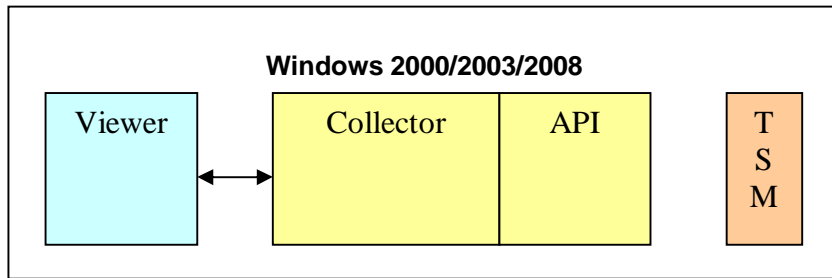


## Installation

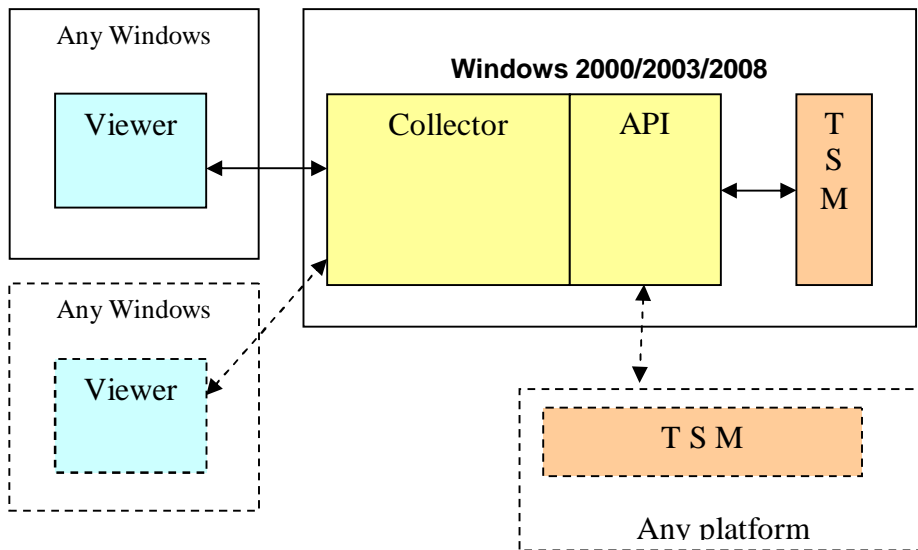
### Possible configurations

The collector and viewer can be installed in different configurations:

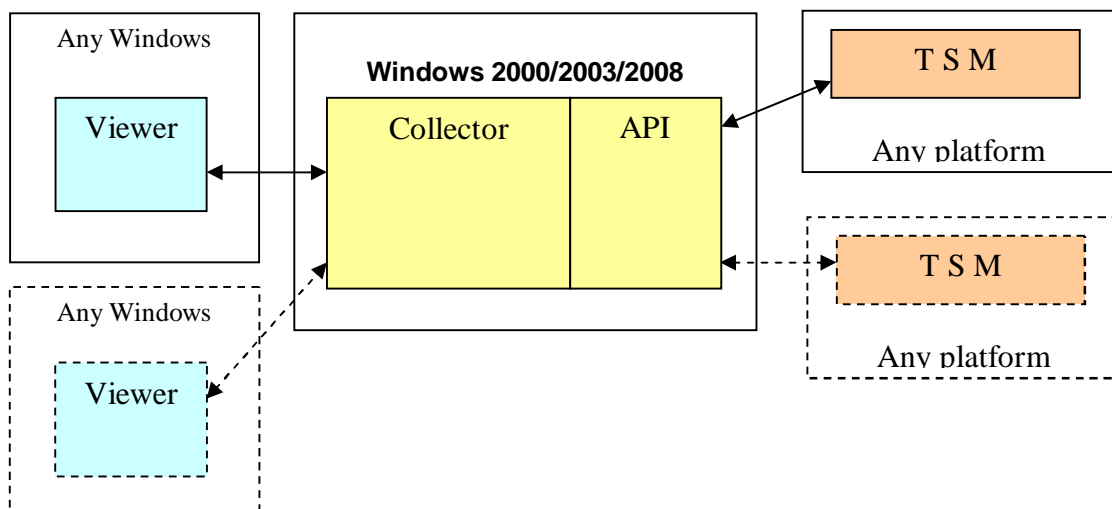
#### Single viewer, single TSM server, all in one server



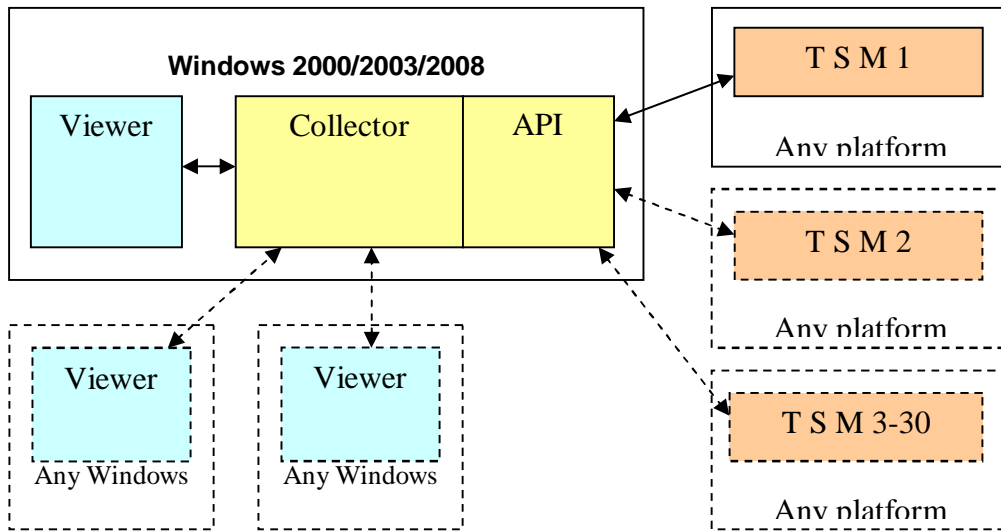
#### Single/multiple viewers, single/multiple TSM servers, collector housed with one TSM server



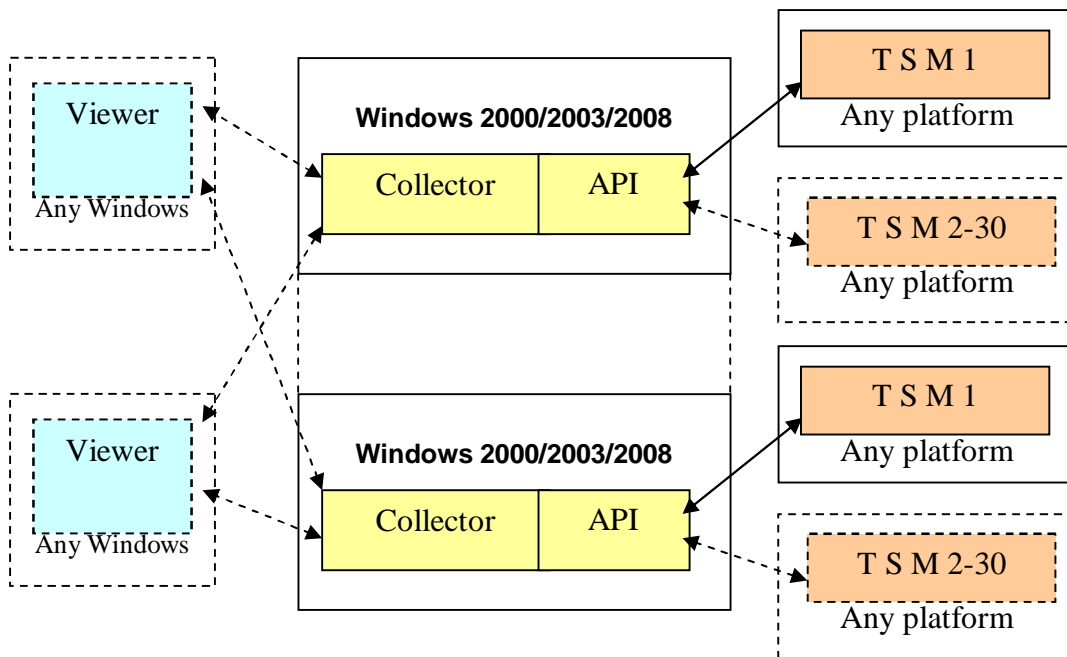
#### Single/multiple viewers, single/multiple TSM servers, collector housed separately



**Single/multiple viewers, single/multiple TSM servers, collector housed with one viewer**



**Single/multiple viewers, multiple TSM servers, multiple collectors**



### **Collector installation**

After downloading the file `tmm_col.exe`, just run it. It will self extract and the install program will be launched. The default installation directory is `c:\program files\jamodat\tmmgr_serv`. It must be installed on a Windows 2000/2003/2008 because it runs as a service.

After installation, you will have an installed Windows service that is started and set to start automatically.

### **Viewer installation**

After downloading the file `tmm_cli.exe`, just run it. It will self extract and the install program will be launched. The default installation directory is `c:\program files\jamodat\tmmgr_viewer`. It can be installed on any Windows platform and you can install the viewer on as many workstations as you like.

You will have an entry in your start menu where you can start the program.

### **Optional Windows agent installation**

After downloading the file `tmm_age.exe`, just run it. It will self extract and the install program will be launched. The default installation directory is `c:\program files\jamodat\tmmgr_agent`. It must be installed on a Windows 2000/XP/2003/2008/W7 because it runs as a service.

After installation, you will have an installed Windows service that is started and set to start automatically.

### **Installing multiple collectors on the same physical server**

You can install a maximum of 3 collector service instances on one physical server. These instances do **not** share the same license file, each instance is licensed separately as if they were running on separate physical servers.

After installing the collector code the first time, the first instance is installed and running.

If you wish to install instance 2 and 3, go to the directory “`c:\program files\jamodat\tmmgr_serv\multi_instances`”. You will find scripts to install or delete the 2 other instances.

The following table summarizes the setup :

Instance	Home directory	Port for viewer communication	Port for Admin web access	Port for user web access
1	C:\program files\jamodat\tmmgr_serv	1955	1950	1951
2	{instance 1 home}\instance2	1954	1948	1949
3	{instance 1 home}\instance3	1953	1946	1947

License files for the 3 instances must be placed in the respective home directories.

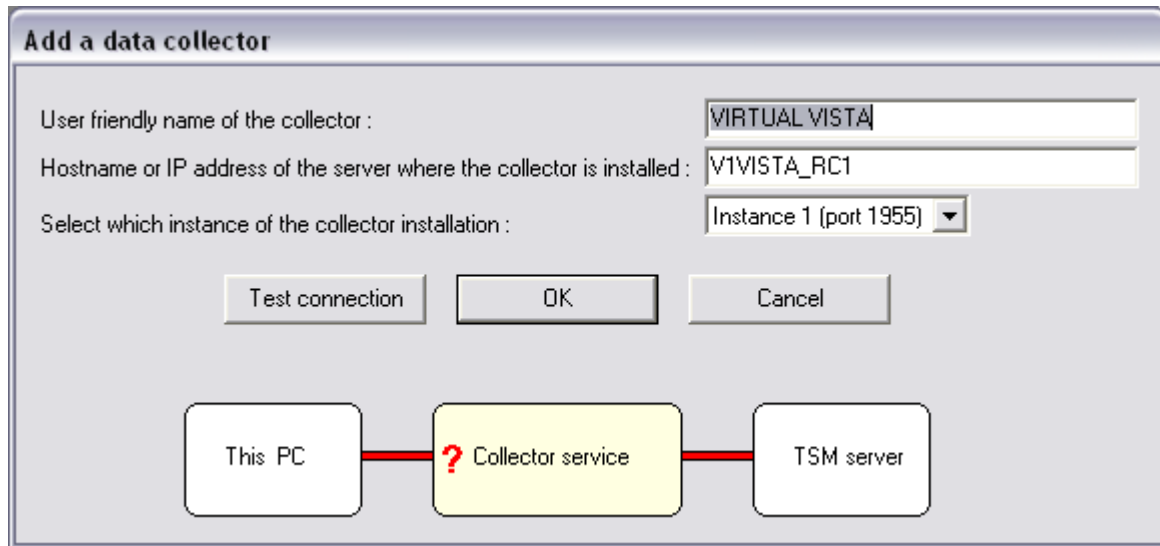
## Configuration

After initial installation you must now perform the following steps :

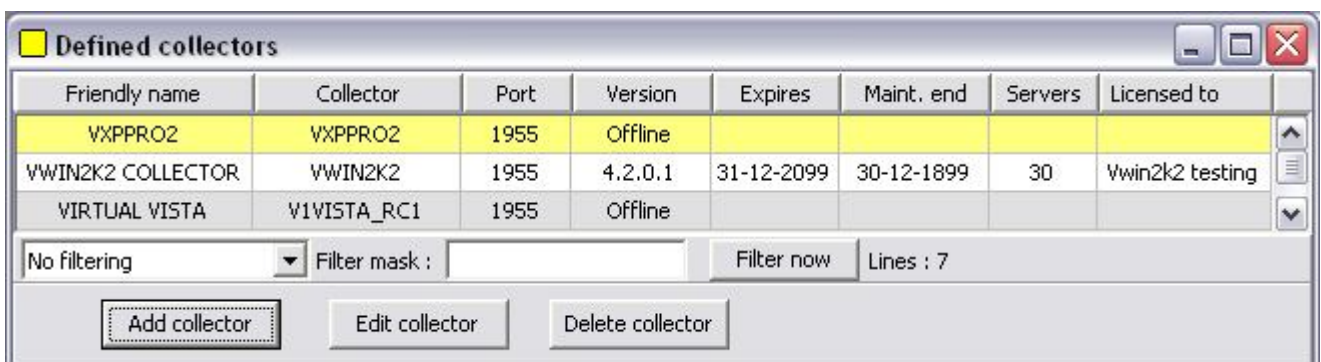
1. Start the viewer.
2. Define the location (IP-address or DNS name) of the collector installation.
3. Go into "configuration/TSM servers" and define your first TSM server.
4. Repeat this for all your TSM servers.
5. Exit the program completely.
6. Start again and do a proper logon.
7. Go into "Configuration/Global settings" and set up the alert/mail system as you wish.

### Define collector

At the first start of the program, you will be presented with a window asking for the collector location. The collector needs to be installed and running at this time and it must be reachable by TCP/IP on port 1955.



If you subsequently need to change the collector data or add more collectors, go into "configuration/collectors" to do it :



### Add/edit/delete TSM servers

Name	IP or DNS name	Port	Admin	Version	OS/390	Show in cross server displays
atasm620	192.168.2.84	1500	janmort	6.2	No	Yes
ferrari	localhost	1500	janmort	5.4	No	Yes
jamo10	192.168.2.110	1500	janmort	6.1	No	Yes
prod_55old	192.168.2.122	1500	janmort	5.5	No	Yes
Prod_55oldSSL	192.168.2.122	1542 SSL	tsmman	5.5	No	Yes
prod_remote	jamodat.dk	1500	janmort	5.5	No	Yes
prod55	192.168.2.112	1500	janmort	5.5	No	Yes
sftptest	192.168.2.191	1500	root	5.5	No	Yes
Test62x	192.168.2.122	1500	janmort	6.2	No	Yes
tsmback	87.49.63.116	1500	tsmman	5.5	No	Yes
vwin200332	vwin200332	1500	janmort	6.2	No	Yes
vxppro4_55	vxppro4	1600 SSL	tsmman	5.5	No	Yes

No filtering Filter mask : Filter now ? Lines : 12 Columns...

Add new server Edit server Delete server SSL certificate handling

Each TSM server to be managed/monitored, must be defined to TSMManager.

You must provide a unique user-friendly name for each server and the information necessary to access it.

If the server resides on OS/390, it is important that you mark it as such. An OS/390 server has no concept of libraries and drives and TSMManager needs to know this.

It is also necessary to let the program know which TSM version the server is. This is because the database structure varies slightly from version to version and this must be taken into account by

**TSM server setup**

User friendly name of the TSM server :

Hostname or IP address of the TSM server :

Port number of the TSM server :

Description :

Use SSL communication :  Prereq's for using SSL

Administrative userid to use :

Password for the administrator :

TSM server level :

This is an OS/390 server

Include this server in cross server displays

This PC — Collector service — ? TSM server

the program. TSMManager tries to automatically detect the version, but you can set it manually, just in case. Any change of TSM server data will be visible on all other viewers. This is because the data is kept centrally on the collector.

There are a many functions in TSMManager that will show data across multiple TSM servers. If you want a server to be part of this you will have to check "Include this server in cross server displays".

You can optionally use SSL protected communication between collector and TSM server :

## How to setup SSL communication

**If you wish to use SSL communication between the collector and one or more of your TSM servers, you must perform these steps :**

1. Install a normal TSM backup client version 5.5 or higher on the collector server. Use "custom install" in order to make sure that the "Administrative Command Line Client" gets installed with it.
2. After defining the TSM server to TSMManager, set it offline by right-clicking its icon and select "Set server offline".
3. In the TSM server overview window, click the button "SSL certificate handling".
4. In this window you must first use the button to create the SSL certification database. This only needs to be done once.
5. Obtain the certificate that was created by your TSM server. It is named "cert.arm" and resides in the server directory.
6. Copy this file to this servers corresponding directory on the collector server. If the TSM server is named "PROD01" and the collector is installed in its default directory, this will be "c:\program files\jamodat\tsmmgr\_serv\PROD01"
7. Now use the button "Add certificate for server" after selecting the correct server in the dropdown list.

You can now set the TSM server online and it should work.

## Connection test

After defining the TSM server, you can test if the setup is OK by entering "Configuration/Test connection".



## Global settings

### Mail server setup

PROD55 : Global settings (13-12-2010 08:47:27)

- Common settings
  - Daily report settings
  - Daily report receivers
  - Mail server setup**
  - Message handling
  - Other settings
  - Periodic checking
  - Additional report text
  - Settings for selected server
  - Web access

SMTP server : jamodat.dk

SMTP port : 25

Authentication

This SMTP server requires authentication

User ID : info

Password : \*\*\*\*\*

Some (not all) SMTP servers demand a heloname to be passed to them before they will send an e-mail. It will typically be the domain of your company, i.e. mycompany.com

Heloname :

Most SMTP servers demand a valid "From address" in a mail to be sent. Enter a valid mail-address in the field below if this is the case.

From address : jan@jamodat.dk

Send test mail

Ok Cancel

Here you enter the address and port of the SMTP (mail) server to be used.

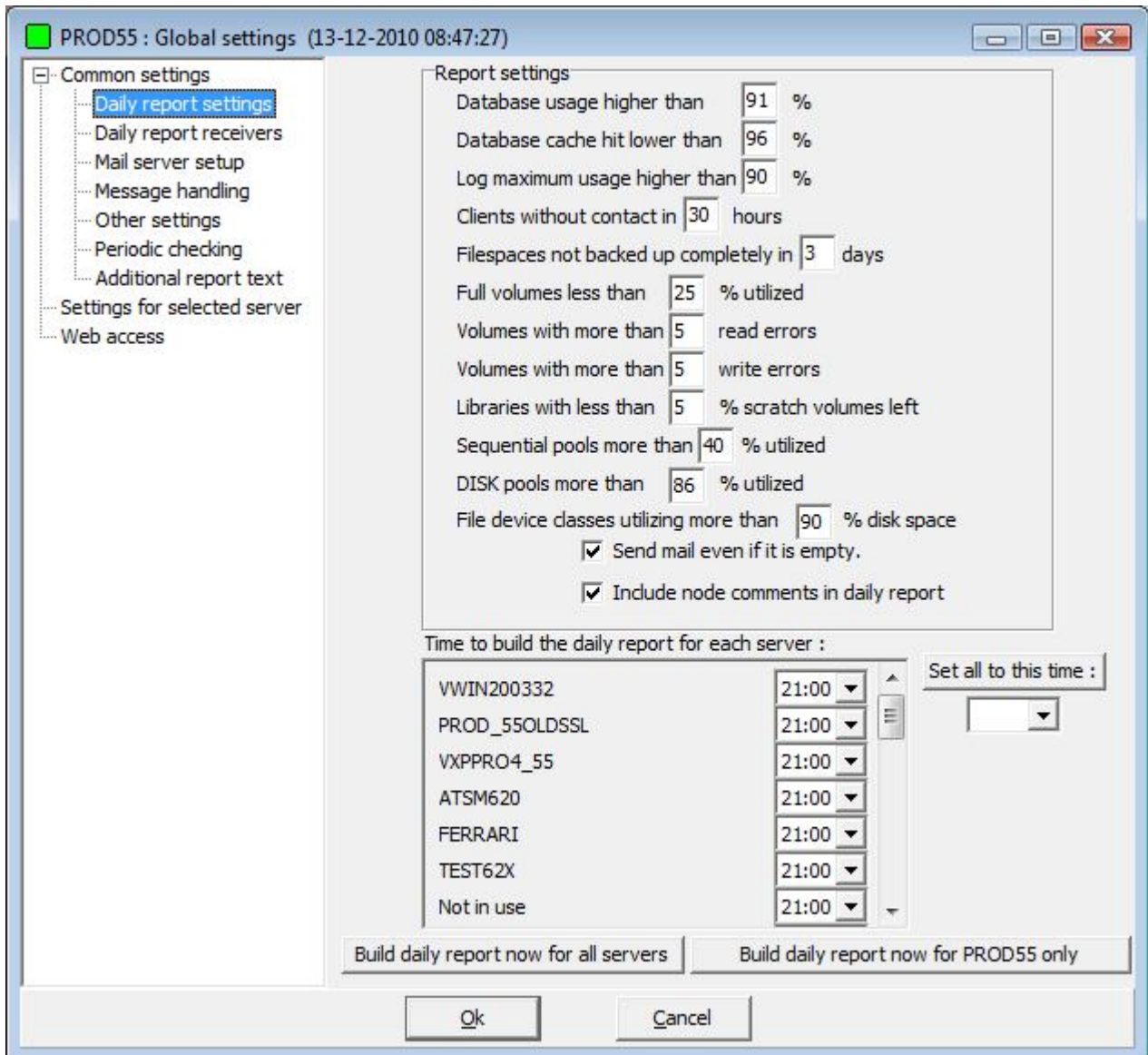
Some, but not all, mail servers demand a valid user id. If yours do, enter the domain name of your company in the user id field, e.g. mycompany.com.

Most mail servers also require a valid from address.

The lower part of the window is a test function designed to help you in case you have problems sending mail.

The diagnostic messages issued should be a help in determining where the problem is.

## Daily report settings.

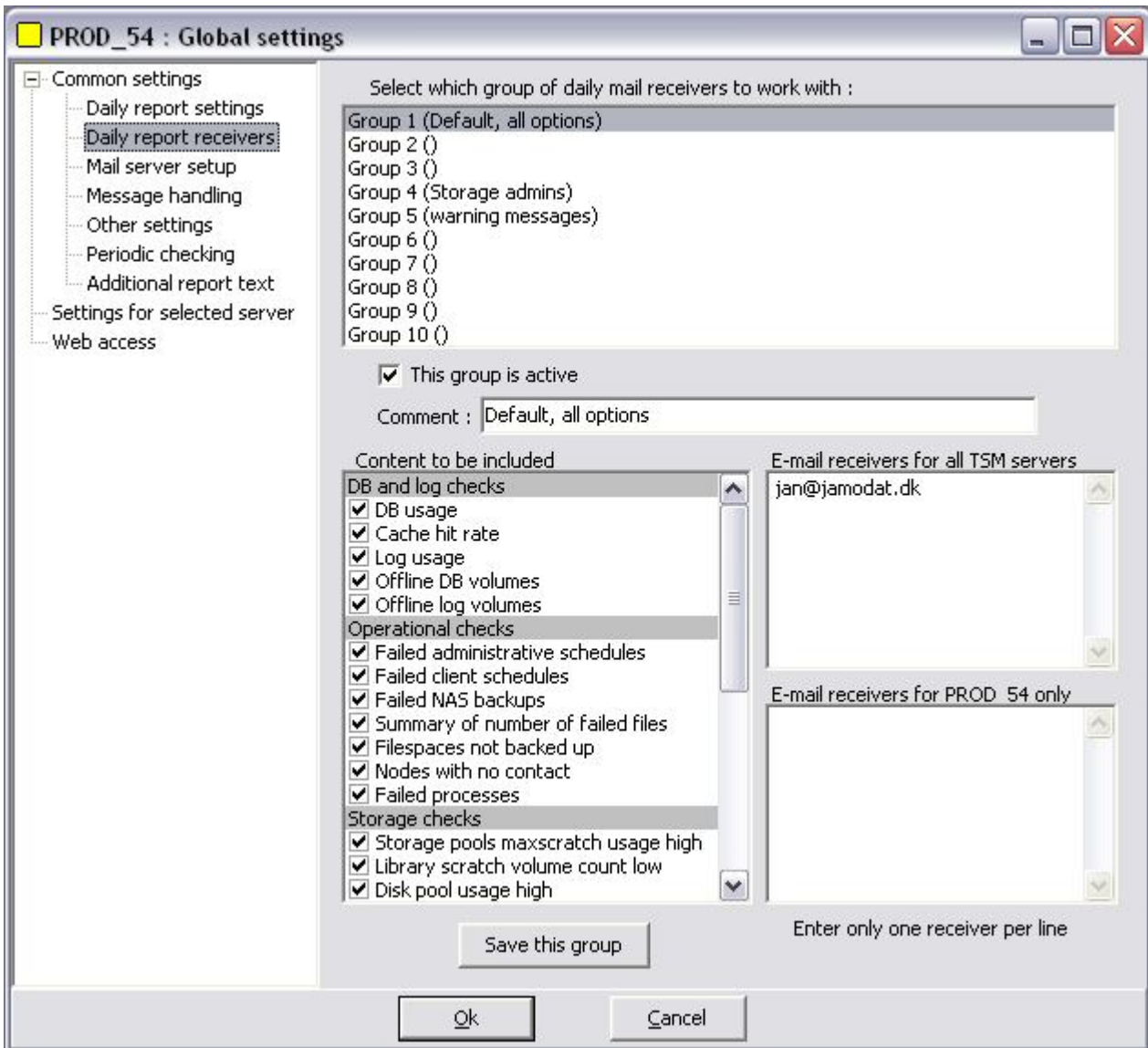


The daily report is built once every 24 hours at a time you decide and with the limits specified by you.

It can be displayed using the viewer and the web interface and it can be e-mailed to some receivers.

After setting it up, you can use the button "Build daily report now" to force the collector to collect data and send them.

### Daily report receivers



The daily report contains a lot of data. You may want to send only part of the report to some receivers and other parts to other receivers.

For this purpose, you can define up to 10 groups.

Each group defines which parts of the daily report to include and who should receive the report.

2 lists of receivers are available. One list for receivers who will receive a report for each defined TSM server, the other list for receivers who should only receive a report for a single TSM server.

## Message handling.

The collector continually monitors all messages generated by the TSM servers. This function will send an e-mail alert to the relevant receivers if certain messages are encountered.

### Note :

Each receiver field can be used for multiple receivers, just separate them from each other with a comma.

You decide how severe a message must be to trigger an alert.

To avoid being overflowed with e-mail in an error situation, you can enter a minimum amount of time that must elapse between sending e-mails.

Some messages may be quite harmless, even if they are in the error category or higher.

By entering them in the white list, they will be excluded and will not trigger an alert.

You also have the option to send e-mail alerts if specific messages occur. I.e., you could send an e-mail to the guy responsible for the database if you receive a message saying “database full”.

Specially highlighted messages are messages that you wish to collect from all defined TSM servers and show in a single window together. Any messages you define in the 4 coloured boxes will be presented in the monitor window with the colour selected under the heading “Special messages”.

### ***Sending alerts to an external reporting program***

TSMManager will allow you to use an external reporting program of your choice. If you have enabled E-mail alerting, then the following will also happen :

When an alert is due to be sent, the program will look for a file named `tmm_alert.cmd` in the directory below the collector installation directory, that is named after your TSM server. (If your TSM server is named ABC, then the directory is `c:\program files\jamodat\tmmgr_serv\ABC`).

If it finds this file, it will then write the alert as plain text to a file named `tmm_alert.txt` (erasing the previous contents of this file) and then call the `tmm_alert.cmd` file.

It is your responsibility to enter something meaningful into `tmm_alert.cmd` that will pass the contents of `tmm_alert.txt` on to your reporting system.

## Settings for selected server

**PROD\_55 : Global settings (08:32:23)**

**Settings for : PROD\_55**

Alert e-mail receivers : (These are in addition to the global receivers)

Receiver-1 :

Receiver-2 :

Nodes that should be excluded from reporting

linux2  
elizabeth  
vlinux1

Individual e-mail messages when a client schedule ends

This function has been moved to "Configuration/Node owner groups"

Periodic checking should report if a library has less than  scratch volumes left (Set to 0 to disable checking)

Ok Cancel

You can specify specific mail receivers for specific TSM servers. This means that these receivers will only receive mail regarding this specific TSM server, not mail for all the others.

You may have certain nodes that are inactive for some reason, but under your control. To avoid having these nodes turn up as exceptions in the daily report, exclude them by writing the nodenames in the list.

### Individual e-mails

See the chapter named "Node owner groups" for this function.

## Periodic checking

**PROD55 : Global settings (13-12-2010 08:47:27)**

Common settings

- ... Daily report settings
- ... Daily report receivers
- ... Mail server setup
- ... Message handling
- ... Other settings
- Periodic checking**
- ... Additional report text
- ... Settings for selected server
- ... Web access

### Periodic checking

These checks can optionally be performed with the selected intervals. If the condition is true, the colored icon representing the TSM server will start flashing and the reason will be displayed in the attention display window. Set the check interval to zero to disable checking.

A Minutes between checks

- 5 DB usage higher than 95 percent
- 20 Log usage higher than 90 percent
- 5 Outstanding requests to be answered
- 30 Any library with less than xx scratch volumes left. xx is set for each server under "Settings for selected server"
- 15 Sessions waiting for more than 10 minutes
- 5 Offline drives
- 5 Offline paths
- 120 I/O errors

A : Should this check trigger an e-mail ?

E-mail receiver(s) : jan@jamodat.dk

Minimum time (minutes) between e-mails about the same type of check : 30

Save

Ok Cancel

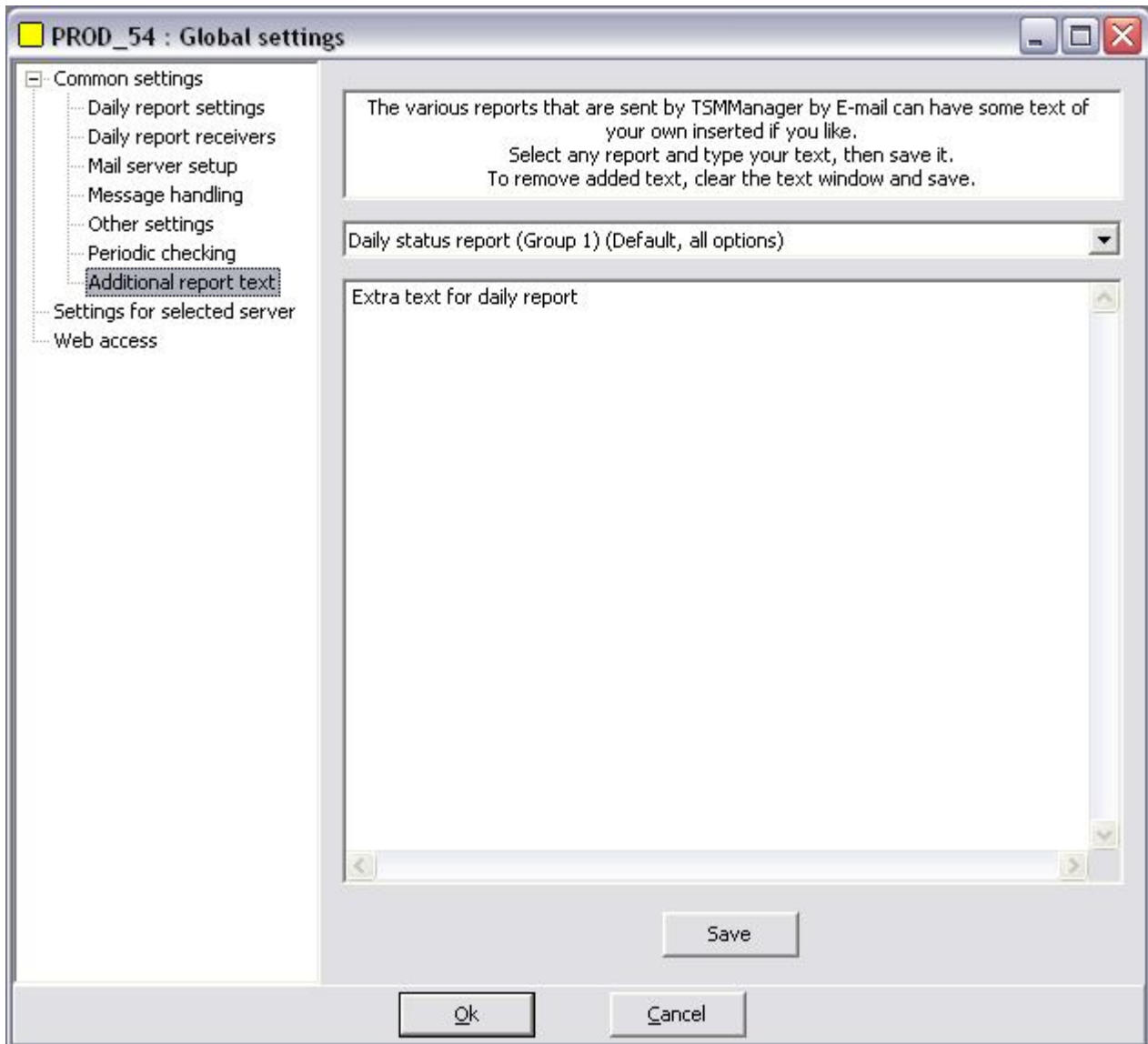
Every xx minutes (xx is set by you), the collector will check if any of the conditions specified are true.

If a condition occurs, the icon representing the TSM server will have an exclamation mark in it and it will flash. Optionally, you can select to receive an e-mail notification.

You will also have a very eye-catching "ATTENTION" sign on your viewer. If you then press the "Show" button beside the attention sign, a window will appear with details about the condition.

The limit for "low scratch" is different for each server as each server may have libraries with different capacities. The limit can be set under the option "Settings for selected server". (See previous page)

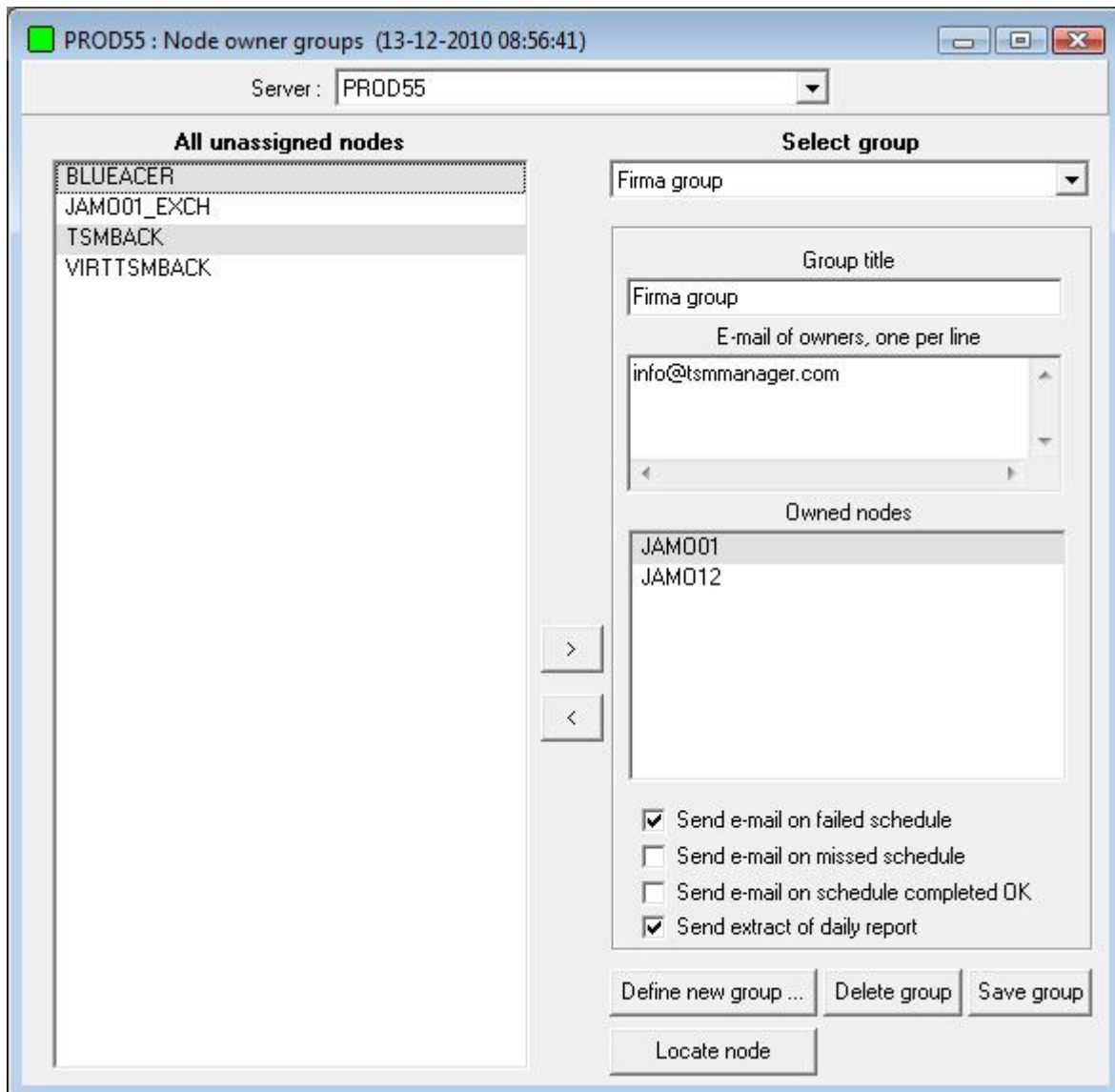
## Additional report text



TSMManager can produce a lot of various reports, daily report, vaulting reports and reports for missed/failed schedules etc. etc...

If you wish to add your own personalized text to any of these reports, this is where you do it.

## Node owner groups



If you have one or more administrators that are responsible for a group of nodes, you can provide them with detailed daily reports for only their nodes without bothering them with data from all other nodes.

Define one or more “Node owner groups”. Such a group specifies the e-mail address of one or more owners and the nodes for which these owners are responsible.

Also give the group a descriptive name, like “AIX group” or...

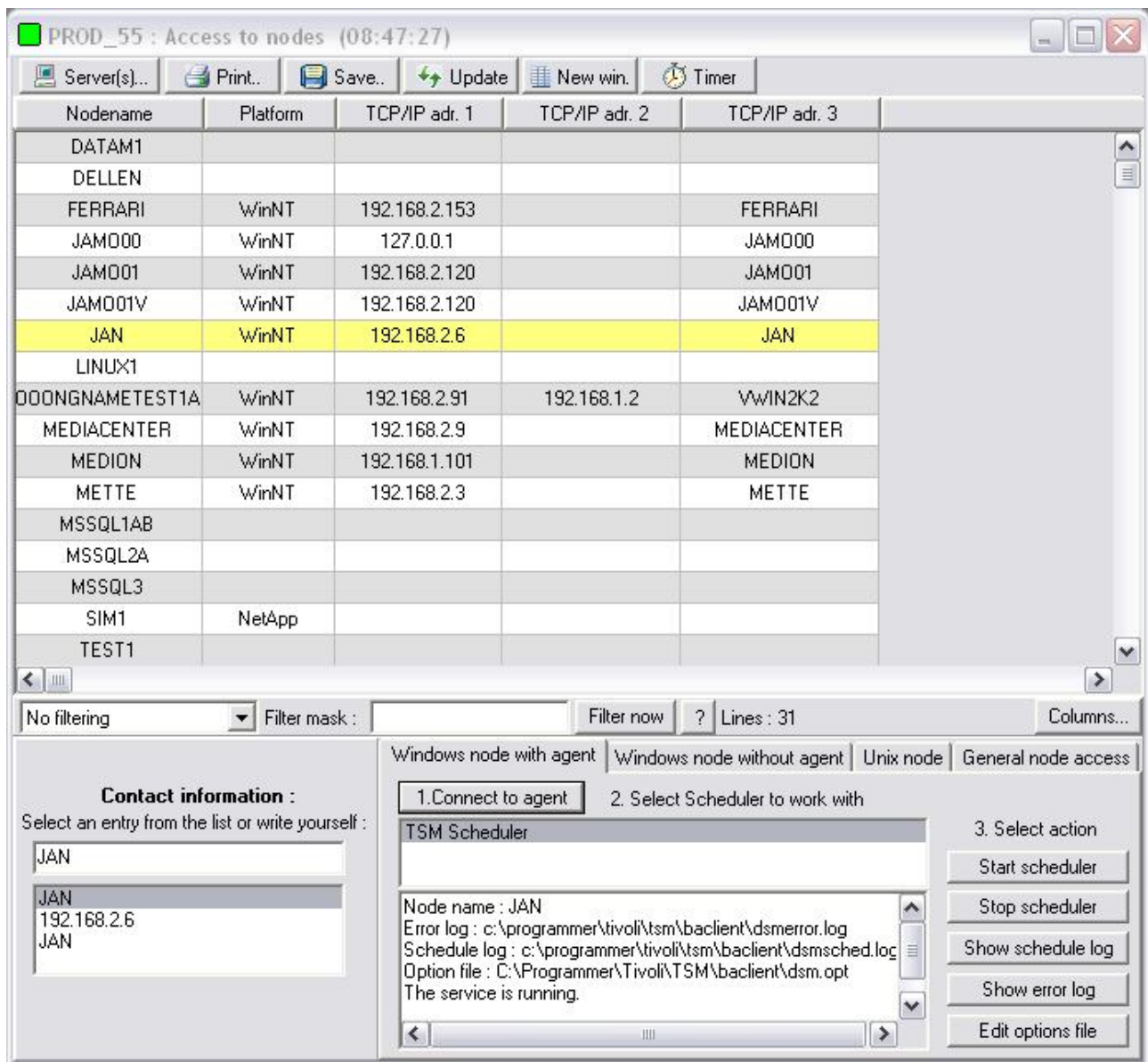
You can then for each group decide the level of information they should get :

- An e-mail when a schedule on their nodes fails or misses. This mail is sent immediately upon the schedule failing or the schedule window timeout.
- An e-mail when a schedule completes OK. This mail is also sent immediately upon schedule completion.
- An extract of the daily report with an overview of schedule status and statistical information for only their nodes. This mail is sent during the daily report generation.

## The optional Windows agent

The Windows agent is a small service program that you can install on your Windows nodes. The TSMManager viewer will communicate directly with the agent on port 1952 and this will give you these possibilities :

- Select which of the installed schedulers you wish to work with.
- Start / Stop the scheduler.
- View the scheduler log file.
- View the scheduler error log file.
- Edit the TSM option file.



Please note that the agent only works on nodes where the TSM scheduler is also installed.

## Header window

The header window has the following functions :

### Exit the program

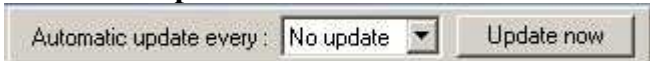


### Load/save your window configuration.



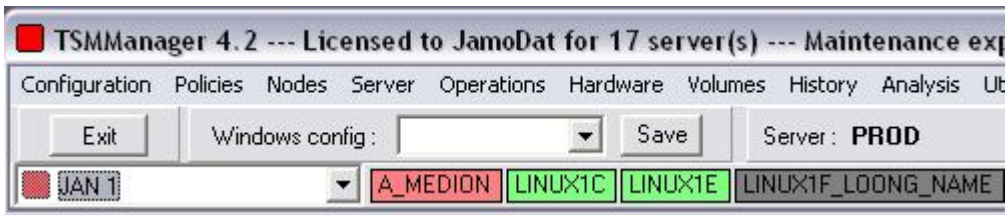
First you open some windows of interest and size and place them the way you like. Then you write a name for this configuration in the field and click the 'save' button. The configuration is now saved and can be retrieved simply by selecting it from the drop down list. There is no limit to the number of configurations you can define.

### Automatic update.



If you start auto update by selecting a timed entry from the dropdown list, the contents of the active windows will be refreshed at the given intervals.

## Health monitoring

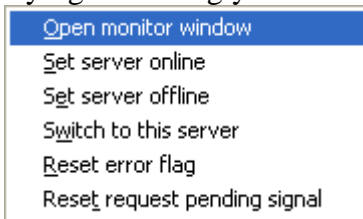


You will have one coloured button for each TSM server. Its status is updated every 60 seconds.

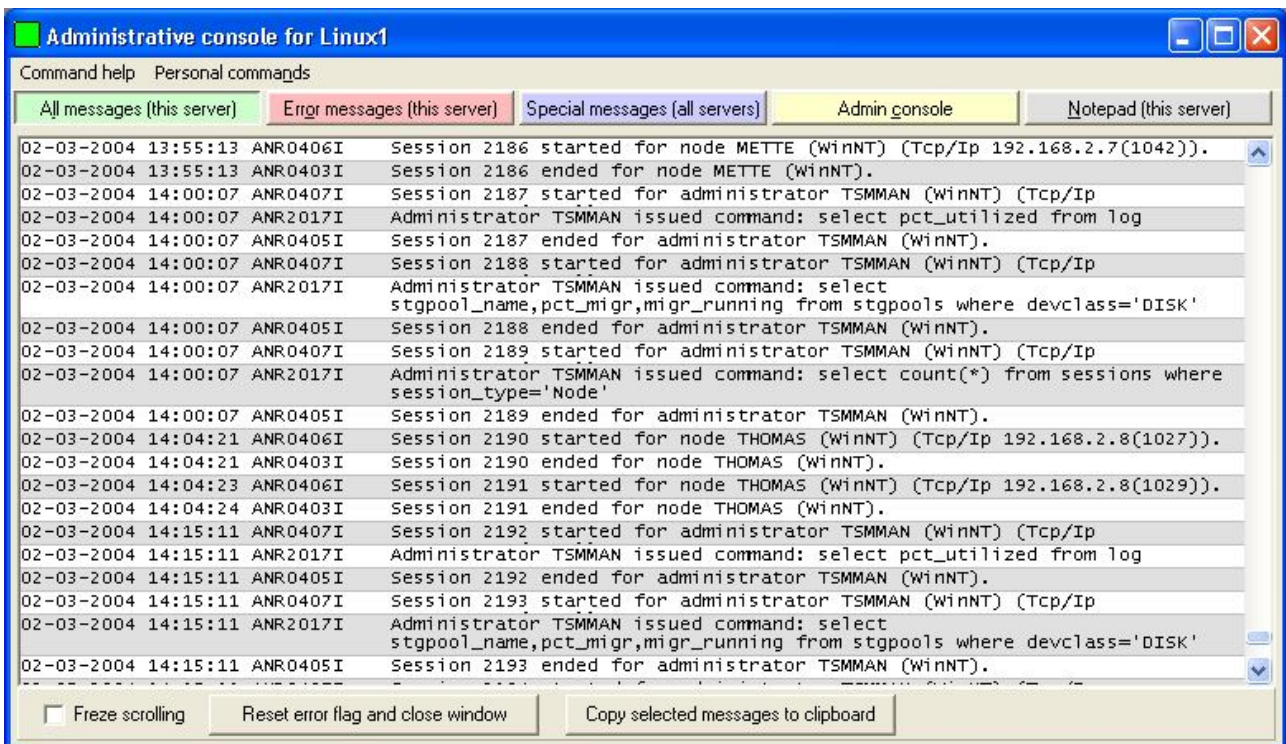
- All is OK
- Error message(s) has been issued
- Admin/password combination entered in this TSM servers definition is invalid
- Server is not responding
- Server has manually been put offline

If a button is flashing, then it means that this server has an attention condition.

By right-clicking your mouse on the buttons you get this popup menu :



By right clicking a button and selection monitor console you get the console window for that server showing you error messages, all messages or the administrative console :



## General usage

### Right click - Right click - Right click !

There are more than 300 different TSM commands and functions "hidden" in the program. Right clicking any window accesses these. By doing so you get a pop up menu with commands that are relevant for the window you are displaying. If some item is disabled, it is probably because it does not fit your TSM server version.

### Window facilities

Most windows can be printed and saved to file. You do this by right clicking the mouse in the window or using the toolbar.

The same goes for all graphs, just right-click and select print or save to file. If saved to file, it can be done as bitmap file or as a wmf file (Windows meta file).

### Lists

In all windows where you have a list with different columns, you can sort by clicking on the column header :



In the bottom of the list you have the filtering and column selection options :

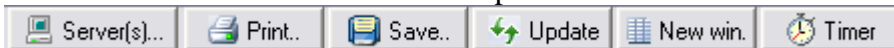


The filtering allows you to limit the number of rows displayed based on some filter that you define. For details of specifying filters, click the button with the question mark on it.

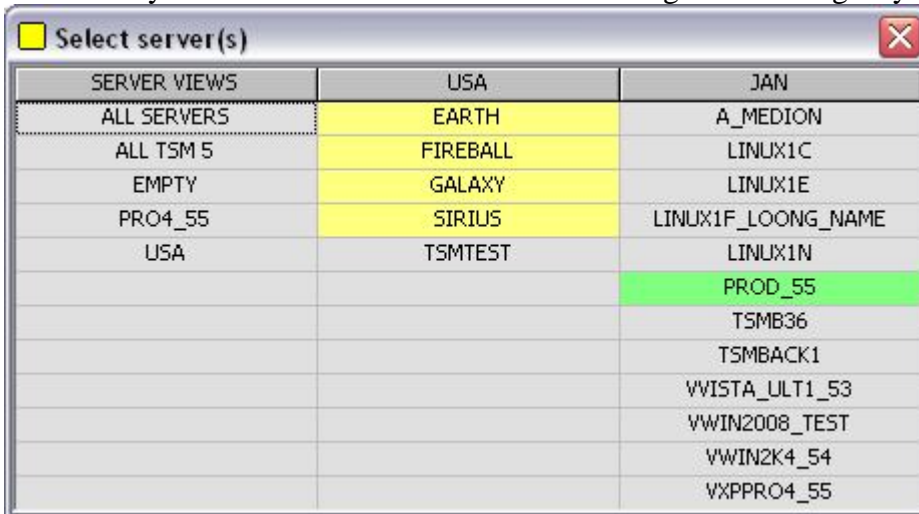
The "columns" button allows you to limit the number of columns you wish to have displayed.

### Toolbar

Most windows have a toolbar at the top with these functions:



**Server(s)** : Note the (s). It indicates whether this window can show data from several servers at once or only data from one server at a time. Clicking this button gets you this :



The left column allows you to select "All servers" or a subset of these, called a "Server view". Server views are defined by you under the menu item "Configuration/Server views".

The other columns each correspond to one installed collector and allow fast switching between servers.

**Print/Save/Update** : Just what you would think.

**New win.** : You can have several windows of the same type open. This button gives you a new copy of the window you are currently viewing. You can then select another server in the new window and thus compare data from multiple servers. A new window can also be opened by selecting the same function again from the main menu.

**Timer** : If you click this button, a one minute timer will start that will refresh (update) this window every 60 seconds until stopped.

## Security

To gain access to the program, you must do a logon. You can use any administrator ID/password to logon. This will then be verified on the TSM server of your choice.

This administrator ID will be used for all functions you perform.

The option to bypass logon is used if it is impossible to gain access to any TSM server to verify the logon. This could be because the TSM server has changed IP-address. In this kind of logon, you only have access to the functions for adding, editing or deleting TSM servers. All other functions are blocked until you perform a logon that has been verified on a TSM server.



The screenshot shows a 'Logon' dialog box. At the top, it says 'Logon will be verified against :'. Below this are four input fields: 'Collector' (dropdown menu with 'VWIN2K2 COLLECT'), 'Server' (dropdown menu with 'win2k2'), 'Userid' (text box with 'admin'), and 'Password' (empty text box). At the bottom, there are three buttons: 'Logon', 'Exit program', and 'Bypass logon, gives only limited function'.

## Display functions

This manual is not going to show a screenshot for all the display functions. Most are quite obvious and easy to understand.

### Node info

- All node overview
- Client schedule status
- Client schedule timing
- Disk space status
- Running sessions
- Occupancy
- Backup client activity for the last 24 hours
- Single node summary
- Single node session summary
- 30 day schedule status
- TDP client activity for the last 24 hours

Except for the "30 day schedule status", these are all online "here and now" displays. Data is collected at the time the window is shown on the screen.

The "30 day schedule status" is a very useful display showing the status for all schedules on all nodes for the last 30 days. It is based on the daily data collection done at appx. 00:05 hours. At this time a "query event" command for the last 24 hours is issued. If some schedules are running at the

time the command is issued, they will show up as either "pending" or "started" and will be marked with a blue colour. This is not an error condition, but simply a result of the way data is collected.

### ***Policy info***

- Associations
- Client schedules
- Management classes
- Domains
- Policy sets

### ***Server info***

- Administrators
- Administrative schedules
- Device classes
- Options/status
- Storage pool data
- Configuration
- Database and log status
- Storage agents and other servers

These are all online "here and now" displays. Data is collected at the time the window is shown on the screen.

### ***Operations***

- Administrative schedule status
- All timing overview
- Drive usage
- Migration/Reclaim status.
- Process timing
- Processes running
- Process summary
- Operational status
- Mounts

### ***Hardware***

- Drives
- Libraries
- Paths

### ***Volume info***

- Backupsets
- DB and log volumes
- Database backup
- DRM
- Library volumes
- Private volumes
- Volumes used per node
- Volume history

- Volume statistics
- Reclaim analysis

## History

### ***How is it collected ?***

The collector collects the historical data in 2 different ways. The data for the "14 day history" is collected every 15 minutes and kept for 14 days. The "2 year history" is collected once a day at appx. 06:30 hours and are kept for 2 years. The time (06:30) can be altered in the "Global settings" under the option "Other settings".

The data are stored in a database on the collector server and totally managed by the collector. The viewers only have facilities for displaying or printing the data.

### ***14 day history***

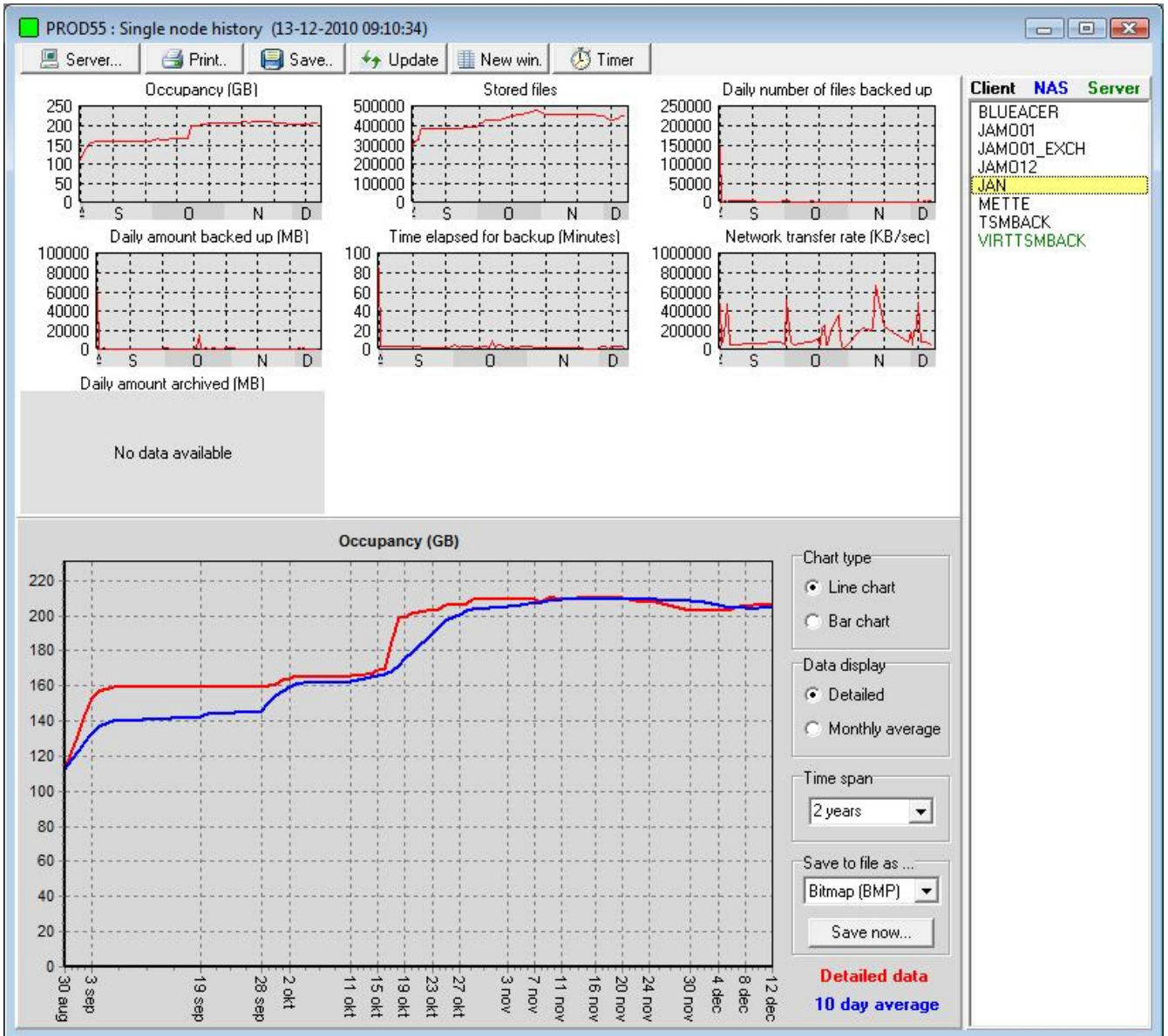
- Disk pool usage
- Number of sessions running
- Log usage

### ***2 year history***

The following data is collected daily and can be shown/printed as a graph :

- Database usage
- Total amount of data stored on the TSM server
- Total data amount stored per tapepool
- Occupancy (data space taken up on the TSM server) for each node
- Daily number of files backed up for each node
- Daily amount of data backed up for each node
- Time elapsed for the daily backup for each node
- Network transfer rate for each node
- Total number of volumes used
- Number of volumes used per tapepool
- Daily total data amount backed up
- Daily total data amount archived
- Daily total data amount restored
- Schedule success rate
- And more ...

No data will be present when you have just installed the program, you must let at least 2 days elapse to allow the collector to collect some data before you will see any meaningful graphs. Below you see an example of how it may display :



### Multi server data

If you are running multiple TSM servers, these functions will allow you to compare the servers for :

- Data stored per server
- Total data stored on all servers
- Daily data amount backed up per server
- Daily data amount archived per server
- Daily data amount restored per server
- Total data backed up daily

## Utilities

### Warnings

A summary of all non-normal conditions in the TSM server at this moment.

### Tape functions

This gives you nice GUI functions for doing :

- Checkin of volumes
- Checkout of volumes
- Audit library
- Audit volumes
- Label volumes

**Node access** allows you to access dsm.sys, dsm.opt, dsmerror.log or dsmsched.log from any Windows or Unix node you have. This function is called automatically when you click on a missed schedule in the schedule status windows.

**Database explorer** is used to peek inside the database.

## Backupsets

### What is a backupset ?

A backupset is a snapshot of the active files for a single node. It is generated fully on the server and does not involve the node. The backupset can be retrieved directly from the server by the node over the LAN or it can be placed on a medium that the node can read and thus be restored to the node locally without involving the server.

### Backupsets versus archives

The backupset is often considered a replacement for doing archives, but both has both positive and negative features :

	Positive	Negative
<b>Backupsets</b>	<ul style="list-style-type: none"> <li>Generated on the server, does not put a load on client and LAN.</li> <li>Can be restored locally on the node if a common media is used.</li> <li>No time dependency, all the week can be utilized to generate the backupsets.</li> <li>Writing is directly to tape, no front-end diskpool is necessary.</li> <li>Practically no impact on database size.</li> </ul>	<ul style="list-style-type: none"> <li>Each backupset occupies at least one full volume.</li> <li>Generating backupsets can be a very slow process.</li> <li>Single file restore can only be done using the command line client and you must know the filename beforehand.</li> <li>No support for backupsets in TSM's scheduling mechanism.</li> <li>No central overview over which generations ran OK and which did not.</li> </ul>
<b>Archives</b>	<ul style="list-style-type: none"> <li>Single file restore is easy because you can see the file tree displayed graphically.</li> <li>Full support for archives in TSM's scheduling mechanism.</li> </ul>	<ul style="list-style-type: none"> <li>Puts a load on both clients and LAN.</li> <li>Big installations will often not be able to finish the complete archiving within the time span of a weekend.</li> <li>Many archiving schedules will report 'Failed' due to locked files even though they ran OK.</li> <li>Generating many archives simultaneously requires a diskpool as front-end to the tapepool.</li> <li>Can make your database grow a lot !</li> </ul>

### What can be done to improve the usability of backupsets ?

#### Each backupset occupies a full volume.

- If you store the backupset on a VTS, no space is wasted.
- If you are running more than one TSM server, then you can store backupsets as virtual volumes on another server. This way each backupset is considered an archive file on the target server and multiple backupsets can be stored on each physical volume.

- It is possible to use virtual volumes on a single TSM server. This requires the DRM feature, but could be an excellent solution if Tivoli made a few improvements. See appendix A for an example of how to do this.

### **Scheduling the generation of backupsets.**

One way of scheduling backupsets is by inserting a number of “generate backupset...” commands into a server script and schedule the execution of this script. If you have 4 or more drives available, you can utilize more than one script and thus run the processes in parallel. But, it is your responsibility to keep the scripts updated with new nodes and balancing the nodes between scripts to best utilize your drives.

### **Using backupsets for disaster recovery**

If you only use backupsets as a replacement for archives, then skip this chapter, but if backupsets are your prime medium of restore in a disaster situation, then there are some point to be aware of.

If you create a backupset that contains ALL the files from a node, then by restoring this set completely, you will overwrite the system part of your node. (c: for windows, rootvg for AIX etc. etc.)

This is probably not what you want. In a disaster restore situation, you will normally restore the system files from an image backup or through normal OS installation.

Afterwards you want to restore ALL OTHER files.

You CAN do this using a backupset, but if you want to restore only part of a backupset, you will have to run the complete retrieval process for each desired file system. Each invocation of "restore backupset" can only hold one file spec and will require a full read of the entire backupset, even though you are restoring only a few Mbytes.

It may take several hours to run through a large backupset, so if you have to do this 10 times, because you want to restore 10 different file systems, the time involved may be just too much !

There are two solutions to this :

1. When you generate the backupset, specify all the desired file systems on the "generate backupset" command. This way you only get the file systems you want and can restore them all in one restore pass. BUT, it requires a lot of discipline to maintain the "generate backupset" commands. Whenever a server has a new file system added to it, you must go into your script or wherever you keep the generate command, and update it. Can you be sure that you are always notified about the new file systems added to your servers and can you be sure that the backupsets will really contain ALL the file systems needed for disaster recovery ?

2. Logically split each server that you backup into two nodes. Backup all the system files using one nodename (nodeA) and backup all other data using another nodename (nodeB).

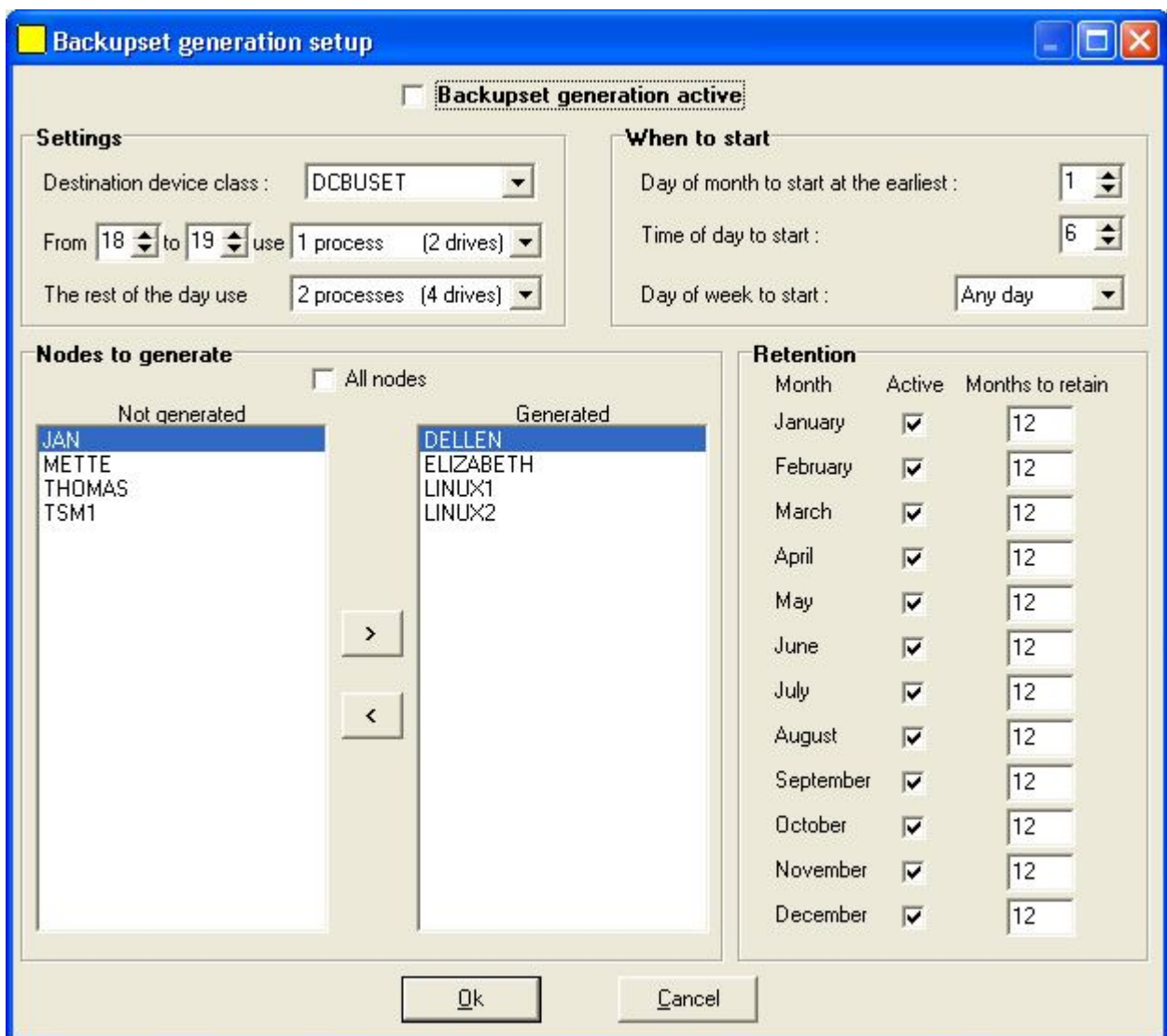
Now, when you generate the backupset, generate it for all file systems (\*) for nodeB only. The backupset will then contain all non-system files and can be restored in one pass.

## How can TSMManager help you in using backupsets ?

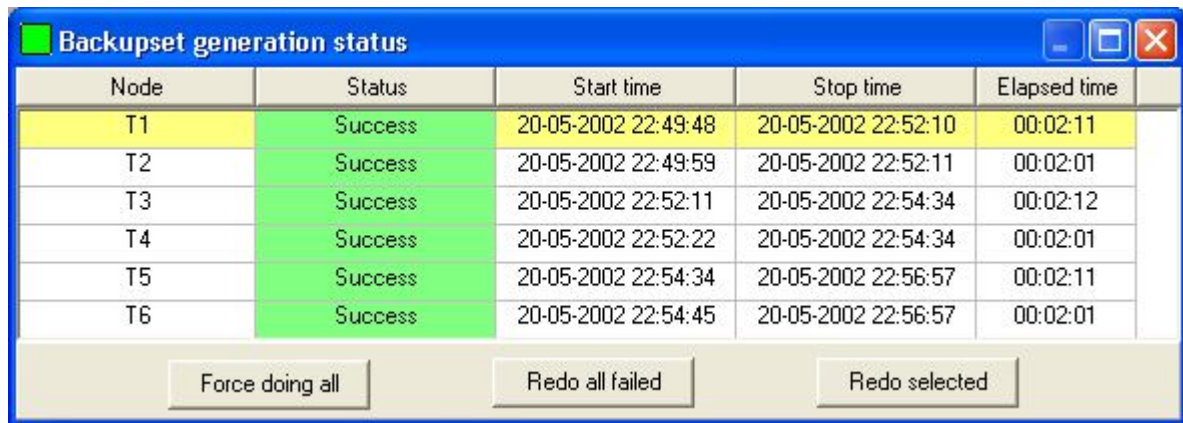
It can :

- Schedule the process of backupset generation. Either do ALL nodes or let you decide.
- Dynamically utilize your drives to the fullest.
- Control retention based on which month it is. This means that you can set it up to retain the backupsets from January for maybe 60 months, and the backupsets for the other months for maybe 12 months or any other combination you may wish for.
- After each monthly run, it will generate a status report showing what went OK and what did not.
- Restart all failed backupsets
- Restart a single backupset.

Here you see the setup window for backupsets :



As you can see, it is pretty straightforward. We designed it with one monthly run in mind. If you wish to create backupsets more often than that, then you can disable the automatic generation and do it manually from the backupset status window seen below :



Node	Status	Start time	Stop time	Elapsed time
T1	Success	20-05-2002 22:49:48	20-05-2002 22:52:10	00:02:11
T2	Success	20-05-2002 22:49:59	20-05-2002 22:52:11	00:02:01
T3	Success	20-05-2002 22:52:11	20-05-2002 22:54:34	00:02:12
T4	Success	20-05-2002 22:52:22	20-05-2002 22:54:34	00:02:01
T5	Success	20-05-2002 22:54:34	20-05-2002 22:56:57	00:02:11
T6	Success	20-05-2002 22:54:45	20-05-2002 22:56:57	00:02:01

Force doing all      Redo all failed      Redo selected

The data in this screen shot is not realistic, it is a result of our test with a lot of small test nodes doing 2 backupsets in parallel.

## Vaulting

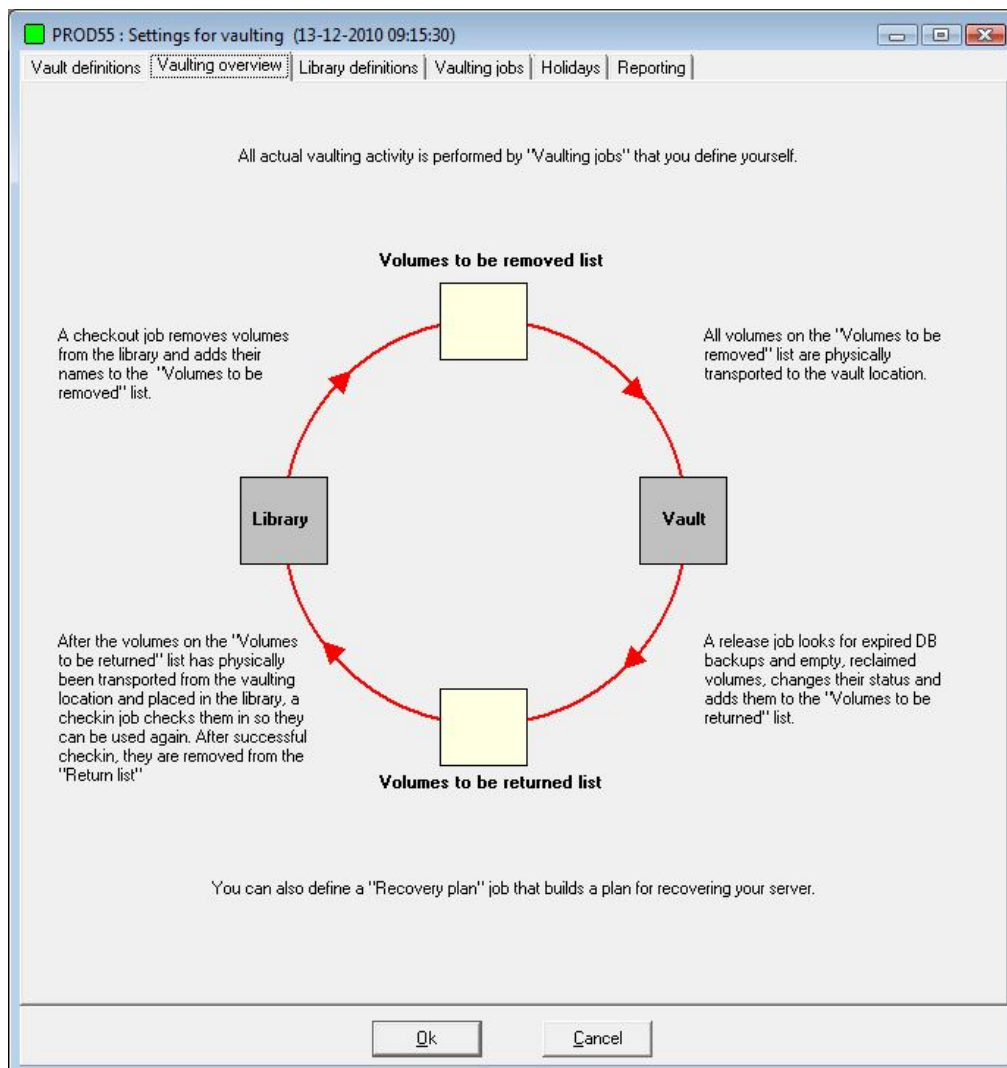
### *What is vaulting ?*

**Please note that vaulting is NOT supported for ACSLS libraries !**

Vaulting is the process of removing volumes from libraries, moving them to a safe place (vault), waiting for them to become empty and then return them to the libraries for renewed use.

This requires several functions :

1. Identify which library volumes are eligible for movement to the vault.
2. Checkout these volumes from the libraries.
3. Inform the operator about these volumes so he/she can remove them from the library and physically move them to the vault.
4. Identify which volumes that are currently in the vault have become empty and should be returned for other use.
5. Inform the operator about these volumes so he/she can retrieve them from the vault and bring them back onsite.
6. Check the returned volumes into the libraries.



The above functions are needed for the daily movement of volumes, but it is not enough.

In case of a disaster wiping out your TSM server and library, you need certain information to enable you to rebuild your TSM server.

Information like :

- The placement and size of database volumes.
- The placement and size of log volumes.
- Which volume contains your last database backup.
- Which licenses were enabled.
- How where your libraries and drives defined.
- And a lot more...

TSMManager collects all this information automatically and will print and/or e-mail this information for you.

## ***What should be vaulted ?***

### **Database backup volumes, full and incremental.**

#### **Database snapshots.**

Whether you use regular DB backups or snapshots backups or both, it is essential to have a copy of the database in the vault. Without the database to describe the contents of the rest of the volumes, they are worthless.

#### **Coppool volumes.**

Of course !

#### **Optionally volumes from primary storage pools.**

In some situations it makes sense to vault primary volumes. It could be an archive pool with data kept for many months. It could also be volumes from a storage pool containing large backups from databases that are to be kept for a long time. In both cases vaulting could be a good idea, either to free space in the library or simply because volumes are safer in a vault.

#### **Optionally backupset volumes.**

Backupsets are typically kept for a long period, and like primary pools containing archive data, it could be sensible to keep them in the vault.

## ***How often should vaulting occur ?***

Whether you vault 7 days a week, only Monday to Friday or maybe only once a week, is up to you. The more often you do it, the more up-to-date data you have in case of a disaster. TSMManager provides the scheduling mechanism you need to implement this.

## ***When should vaulting occur ?***

You will have to decide on two points of time during the day.

The first is the time when you have finished copying your primary pools to the coppools and you have done a database backup. This is the time when volumes should be checked out and moved to the vault. At the same time a list is generated, showing which volumes to return from the vault.

The second time is the time when you are certain the operator has fetched the volumes from the vault and placed them back into the library, either in the I/O door or directly into the library. At this

time, TSMManager will perform a checkin of these volumes and delete them from the “*get from vault*” list.

## How is vaulting implemented in TSMManager ?

The best way of describing this is to go through the various Windows of TSMManager and refer to the chapter above.

### The vault status window :

The screenshot shows the 'PROD55 : Vaulting (27-10-2011 14:44:54)' window. It features a central circular diagram illustrating the vaulting process:

- Library**: Volumes are checked out and put in offsite status.
- Checkout log**: Contains 'Show' and 'Print' buttons.
- Logical vault**: Volumes are moved to the vault.
- Volumes to be returned**: Volumes are released from the offsite status.
- Checkin status**: Volumes are checked into the library. It shows 'Total volumes to be checked in : 0' and 'Waiting for next job to start'.
- Checkout status**: Shows 'Waiting for next job to start' and a 'Cancel checkout' button.

Additional controls include 'Show the vaulting log' and 'Print the vaulting log' buttons.

Vaulting jobs	Checkout log	Checkin log	Vault contents	To be returned	Iron Mountain
Description	Job type	Active	Saved in file	Next run	
Checkin thursday	Checkin	Yes	VA_3907282.job	03-11-2011	
Checkout on the 15th.	Checkout	Yes	VA_7039869.job	Script controlled	
Iron mountain test release	Release	Yes	VA_5139943.job	Script controlled	
Make recovery plan	Recovery plan	Yes	VA_3737668.job	Script controlled	

At the bottom, there is a filtering section with 'No filtering' selected, a 'Filter mask' field, 'Filter now' button, 'Lines : 4', and a 'Columns...' button.

This window is really not needed !

When vaulting has been setup correctly, TSMManager will generate the lists and the recovery plan and perform all needed actions without intervention. BUT, it is nice to be able to see what happens and which volumes are located where. This is the purpose of the vault status window.

With the buttons on this window you can .

- Show/print which volumes are inside the library and are eligible to be checked out.
- Show/print the current list of volumes to be removed from the library and moved to the vault. The list you see here will cover today and several days backwards. The list that gets generated automatically only shows the volumes of the day. In case a removal day is bypassed (sickness, holiday, server down...), you can use this list to catch up on which volumes should be removed.
- Show/print the list of volumes currently located in the vault.
- Show/print the list of volumes that should be removed from the vault and placed back in the library.
- Show/print the vaulting log. Everything done by the vaulting mechanism is logged in a log file.
- See what has been sent to Iron Mountain if you enabled this feature.
- Manually initiate the actions, which constitute the vaulting mechanism. The vaulting scheduler normally does these actions automatically, but you can do them manually if you wish.

All the lists are maintained by TSMManager and should NEVER be edited directly by you, but sometimes it may be necessary to delete a volume manually from the return list, i.e. if the volume was destroyed.

To do so, display the "Volumes to be returned" tab and right click the volume in question. That will allow the deletion.

## Vaulting setup

### Vaulting jobs

PROD55 : Settings for vaulting (27-10-2011 14:50:04)

Vault definitions | Vaulting overview | Library definitions | Vaulting jobs | Holidays | Recovery plan | Reporting

Description	Job type	Active	Saved in file	Next run
Checkin thursday	Checkin	Yes	VA_3907282.job	03-11-2011
Checkout on the 15th.	Checkout	Yes	VA_7039869.job	Script controlled
Iron mountain test release	Release	Yes	VA_5139943.job	Script controlled
Make recovery plan	Recovery plan	Yes	VA_3737668.job	Script controlled

No filtering Filter mask : Filter now ? Lines : 4 Columns...

New job Delete job

Description : Job name : VA\_7039869.job

Checkout | Release | Checkin | Recoveryplan

**Copypools to vault**

Vault all copypools  Only vault FULL copypool volumes

Existing copypools: COPYDLT, COPYNAS, COPYOFFSITE

Copypools to vault: COPYDLT

**Primary pools to vault**

Existing primary pools: ACTPOOL, FILEPOOL, PROGDATA

Primary pools to vault:

Only vault FULL primary pool volumes

Vault full/incr database backups  Report volumes to Iron Mountain

Vault database snapshots

Vault backupsets

Wait time between checkouts (to empty i/o slots) 3 minutes

This job is active

Save job

Vaulting is accomplished by defining "jobs" that perform the various vaulting functions.

Each job can only perform one thing, either checkout, release, checkin or recoveryplan, but you can define multiple jobs of each type, i.e. several different checkout jobs for different storage pools.

Ok Cancel

**Vaulting is performed by “vaulting jobs”.**

There are 4 types of job :

**Checkout** : Volumes eligible for vaulting are checked out of the library and a list of the volumes is printed/e-mailed so they can be collected and sent to the vault.

**Release** : Empty volumes are detected and released from vaulting status and pull list is printed/emailed for retrieval of the volumes from the vault.

**Checkin** : Volumes returned from the vault are placed in the library and a checkin is performed so the volumes can be put to use again.

**Recoveryplan** : All relevant recovery data for the TSM server is collected and printed/emailed.

You can have more than one job of each type. For instance : You may select to checkout your cypool and database backup volumes daily, but then have another job that checks out one or more primary pools weekly, maybe after running archives during the weekend.

The absolute minimum is 3 jobs : one checkout, one release and one checkin.

Each job has its own schedule, but you may optionally select to start a job from a server script. This can be useful if you have some actions that need to finish before you want to start vaulting.

### **Checkout job setup :**

#### **Vault all cypools**

If this is checked, the manual selection is overridden and all present and future cypools are automatically vaulted. If it is unchecked, you must manually select which cypools you want to include in vaulting, using the “add” and “remove” buttons.

#### **Primary pools to vault**

Select the primary pools you wish to vault (if any) by using the “add” and “remove” buttons.

#### **Database backups/Backupsets**

In the bottom part you decide which database and backupset volumes you wish to vault.

#### **Report volumes to Iron Mountain**

If you check this option, then a file will FTP’ed to Iron Mountain at a time you decide. The file contains a list of volumes for Iron Mountain to pick up.

### **Release job setup :**

#### **Days to retain**

Database volumes must be deleted from the volume history after a number of days. This is the only way to release them for reuse. With this setting you in fact decide how many versions of your database backups you want to keep.

If you set the setting to zero, then TSMManager will NOT delete your database backups, you must do it manually or by an administrative schedule.

#### **Report volumes to Iron Mountain**

If you check this option, then a file will FTP’ed to Iron Mountain at a time you decide, recalling the released volumes.

### **Checkin job setup :**

Each library needs its own checkin job.

There are 4 different ways of checking in and you must select one or more of them.

## Library handling

In order to make the best use of the facilities of your library, TSMManager needs some information about how to handle it. So, for EACH library that you use, select it in the list and set the appropriate settings for that particular library.

### Number of I/O slots in library

If the library has an I/O door (bulk), indicate here how many slots are available in this door. When TSMManager starts checking out volumes, it will assume that the I/O door is empty.

### This is a client library

A client library cannot perform checkout/checkin commands. TSMManager has to know this so these commands can be routed to the library manager and be performed there.

### How to handle checkout of volumes

These are self-explanatory, select the one, which suits you best.

PROD55 : Settings for vaulting (13-12-2010 09:23:03)

Vault definitions | Vaulting overview | Library definitions | Vaulting jobs | Holidays | Reporting

In order for the "Checkout jobs" to function, you need to provide information about each library that you have.

LIBDLT

Number of I/O slots in library : 0

This is a client library :

**How to handle checkout of volumes**

- Fill I/O slots and continue, leaving the rest inside the library
- Stop checkout when all I/O slots are filled
- Do not use I/O slots, just leave volumes inside the library

Ok Cancel

## Generate recovery plan

PROD55 : Settings for vaulting (27-10-2011 14:50:04)

Vault definitions | Vaulting overview | Library definitions | Vaulting jobs | Holidays | Recovery plan | Reporting

In order to generate a full recovery plan, the collector needs access to the files dsmserve.opt, devcnfg.out and volhist.out. These files are normally located in the TSM server installation library. Below you must provide the needed input, in order for the collector to be able to access these files.

**Access to input files needed for recovery plan**

UNIX server

FTP user :  Test access

FTP user password :   Use FTP  Use SFTP

Installation directory :

Windows server

Share name of installation directory :  Test access

**Recovery plan destination**

Send recovery plan as e-mail to :

Receiver-1 :

Receiver-2 :

Print recovery plan to printer

Ok Cancel

### Access to input files...

It is VITAL that the following files are saved as part of the recovery plan:

- DSMSEV.OPT, which is the server option file.
- VOLHIST.OUT, which contains information about the last database backups.
- DEVCNFG.OUT, which describes your hardware environment.

All 3 files are located in the server installation directory and you must provide the information necessary to access them.

The TSM server generates VOLHIST.OUT and DEVCNFG.OUT if you have the appropriate statements in your DSMSEVRV.OPT. You must have two statements as follows:

**devconfig devcnfg.out**  
**volumehistory volhist.out**

After entering the required information, use the "Test access" button to verify that the collector part of TSMManager is able to access the files.

### Volume list reports and Iron Mountain support.

The screenshot shows a window titled "PROD55 : Settings for vaulting (27-10-2011 14:50:04)". The window has a menu bar with "Vault definitions", "Vaulting overview", "Library definitions", "Vaulting jobs", "Holidays", "Recovery plan", and "Reporting".

The main content area is divided into two sections:

- Volume list reports**:
  - Send volume list reports as e-mail to : (with a dotted border around the checkbox)
  - Checkout report : [text input field]
  - Checkin report : [text input field]
  - Print volume list reports to printer
- Iron Mountain support**:
  - FTP site: [text input field with value "192.168.2.120"]
  - Logon user: [text input field with value "download"]
  - Logon password: [text input field with value "\*\*\*\*\*"]
  - Customer number: [text input field with value "12345678"]
  - Time to send report: [dropdown menu with value "11:00"]
  - The file will only be sent if it contains data, then it is cleared.
  - Each checkout and release job specifies separately whether its results should be added to the file.
  - [button: Send file to Iron Mountain now]

At the bottom of the window are "Ok" and "Cancel" buttons.

### Volume list reports

The daily reports, telling the operator which volumes to remove from the library and which volumes to retrieve from the vault, can be e-mailed to a receiver and/or printed.

**Iron Mountain support**

If you enable this functionality in your checkout and release jobs, then a daily file will FTP'ed to Iron Mountain, specifying the volumes to be picked up or returned from them.

The format of the file is this:

comma delimited format

column 1 = customer number

column 2 = volume name

column 3 = action, P=Pick up, R=Return

column 4 = customers name for originating server

**A note on printing !**

Printing is performed by the collector part of TSMManager. The collector runs as a Windows service, by default under the system account. The system account does not have a printer defined and is also not able to have it, so it cannot print.

In order for the printing to work, you must run the collector service under a windows user that has a default printer assigned to it.

## The vaulting mechanism

To achieve correct vaulting, the states of the various volume types are changed as follows :

<b>Volumes to be moved from library to vault</b>		
<b>Volume type</b>	<b>Detection</b>	<b>Action</b>
Copypool volumes	select volume_name from volumes where (stgpool_name=copypool and access<>'OFFSITE')	upd vol <i>volume</i> acc=offsite loc=OFFSITE
Primary volumes	select volume_name from volumes where (stgpool_name=primarypools and access<>'UNAVAILABLE')	upd vol <i>volume</i> acc=unavail loc=OFFSITE
Database backup	select volume_name, type, location, location from volhistory where ((type="BACKUPFULL" or type="BACKUPINCR") and location is NULL)	upd volh <i>volume</i> devc=deviceclass lo=OFFSITE
Database snapshot	select volume_name, type, location, location from volhistory where (type='DBSNAPSHOT' and location is NULL)	upd volh <i>volume</i> devc=deviceclass lo=OFFSITE
Backupsets	select volume_name from volhistory where (type='BACKUPSET' and location is NULL)	upd volh <i>volume</i> devc=deviceclass lo=OFFSITE

<b>Volumes to be moved from vault to library</b>		
<b>Volume type</b>	<b>Detection</b>	<b>Action</b>
Copypool volumes	select volume_name from volumes where (stgpool_name=copypools and access="OFFSITE")	upd vol * acc=readw whereacc=of wherest=emp wherestg=copypools
Primary volumes	select volume_name from volumes where (stgpool_name=primarypools and access='UNAVAILABLE')	upd vol * acc=readw loc="" whereacc=unavail wherest=emp wherestg=primarypools
Database backup	select volume_name, type, date_time, backup_series from volhistory where ((type='BACKUPFULL' or type='BACKUPINCR') and location like 'OFFSITE%')	del volh t=dbb todate=-xx
Database snapshot	select volume_name, type, date_time, backup_series from volhistory where (location like 'OFFSITE%' and type='DBSNAPSHOT')	del volh t=dbs todate=-xx
Backupsets	select volume_name, type, date_time, backup_series from volhistory where (type='BACKUPSET' and location like 'OFFSITE%')	Action is taken automatically by TSM during expiration

When building the list of volumes to be returned from the vault, the following is done :

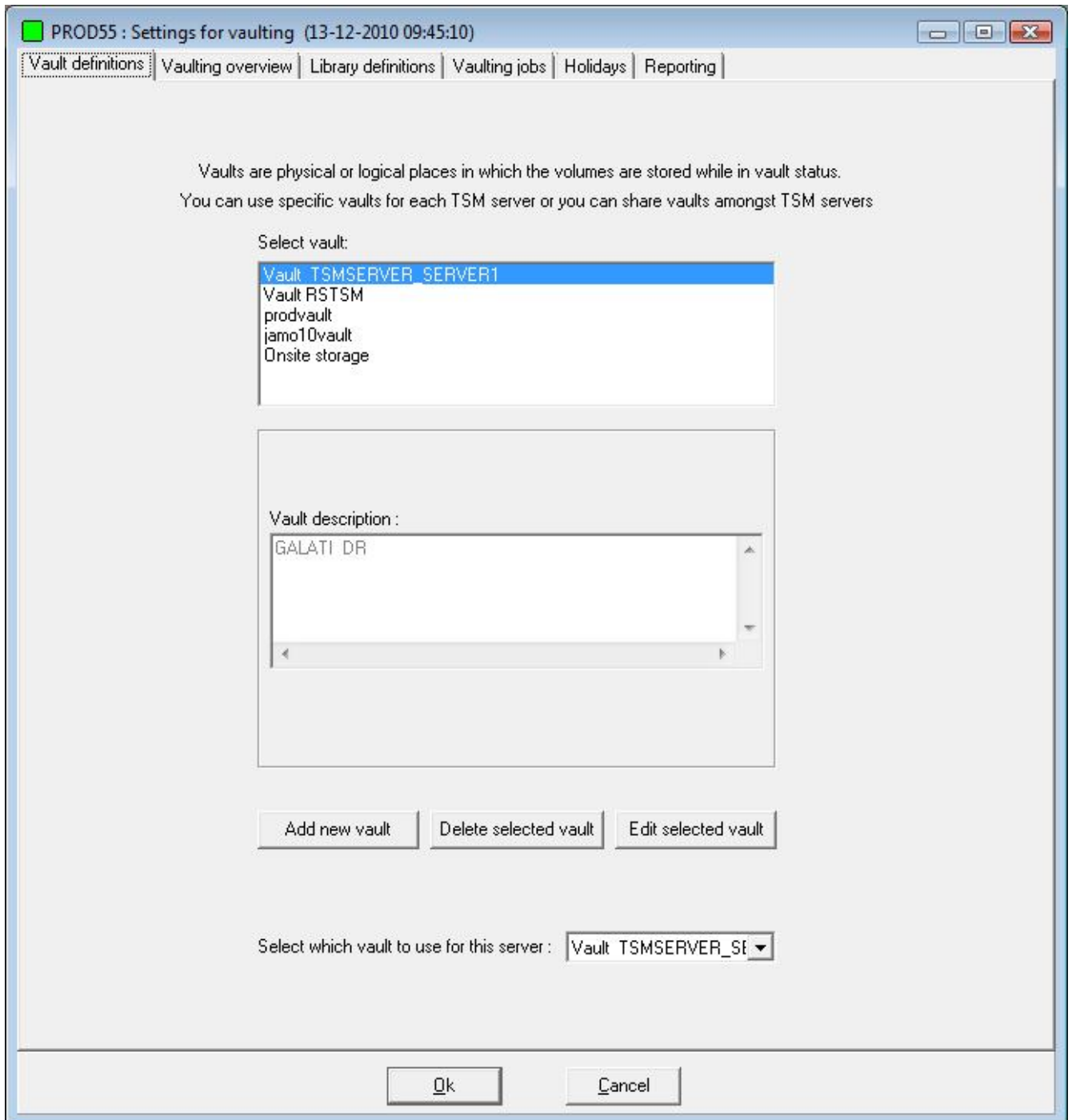
- The vault content list is queried. (built)
- The action is taken, thus changing the relevant status.
- A new vault content list is queried (built).
- The delta between the first list and the second list is the list of volumes to be returned.

## ***Vault inventory handling***

It is very nice to have all your offsite volumes in an offsite location (vault), but if there are several hundred or maybe thousands, how do you keep track of their location within the vault ? TSMManager will do this for you.

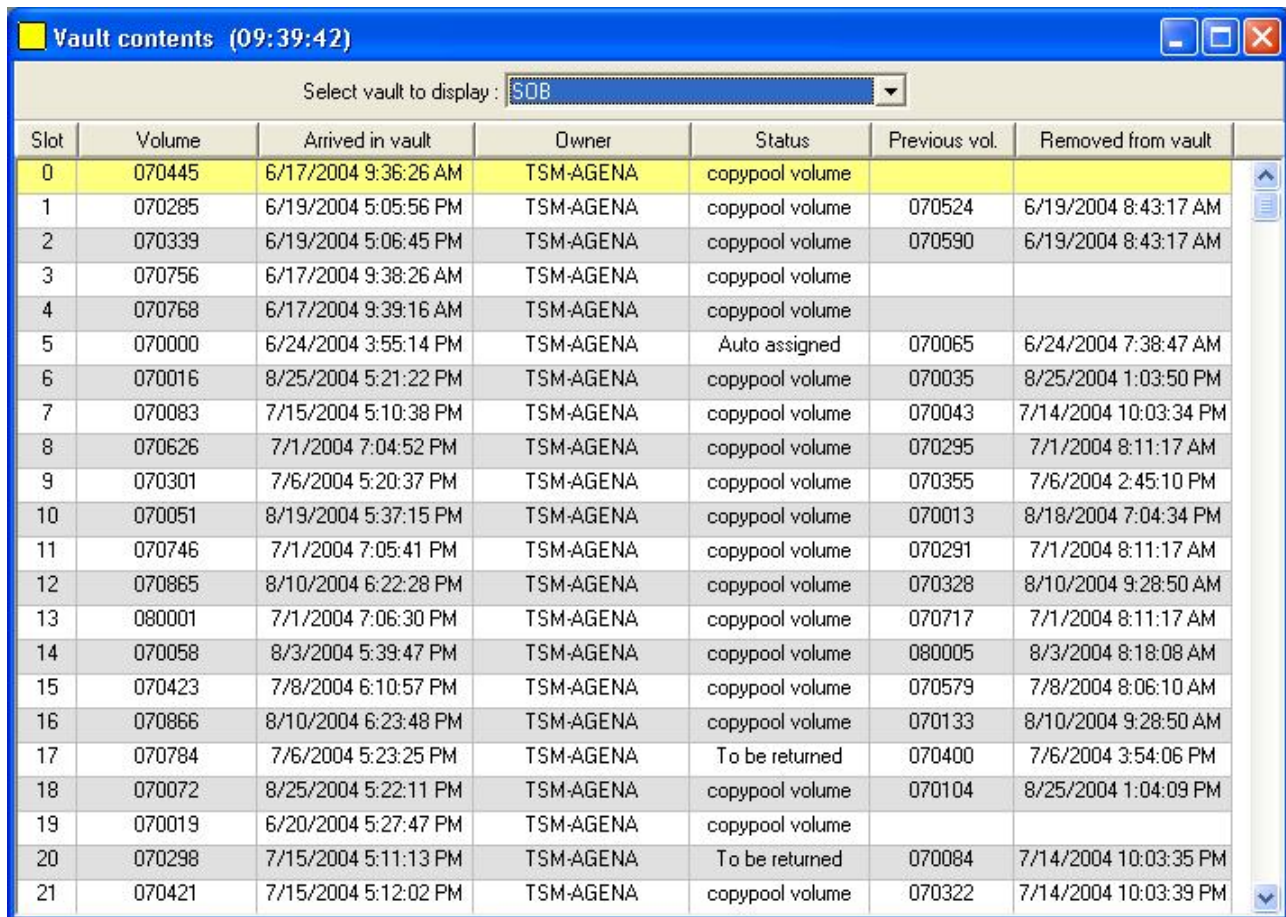
There are some ground rules :

- You can define up to 30 different vaults. (Offsite locations where your tapes are stored)
- Each TSM server can only use one vault plus the “Onsite storage” vault.
- Several TSM servers can share a single vault.
- You can combine this, so that some TSM servers run with their own vault and some others share a vault.
- TSMManager comes with one default vault location that is used if you do not specify anything else plus a predefined “Onsite storage” location. This is used for the volumes which you take out of the library (maybe because of capacity limits) and store onsite, but not in a vault.
- The volume locations within the vaults are called "slots" and are numbered from zero and upwards. TSMManager will assign slot positions to your offsite volumes and tell you where to put them.



This is the window for defining vaults. You can just use the default vault provided by TSMManager or you can define up to 29 of your own.

Here is a typical display of the contents of a vault :



The screenshot shows a window titled "Vault contents (09:39:42)" with a dropdown menu set to "SOB". Below the menu is a table with the following columns: Slot, Volume, Arrived in vault, Owner, Status, Previous vol., and Removed from vault. The table contains 22 rows of data, with the first row (Slot 0) highlighted in yellow.

Slot	Volume	Arrived in vault	Owner	Status	Previous vol.	Removed from vault
0	070445	6/17/2004 9:36:26 AM	TSM-AGENA	copypool volume		
1	070285	6/19/2004 5:05:56 PM	TSM-AGENA	copypool volume	070524	6/19/2004 8:43:17 AM
2	070339	6/19/2004 5:06:45 PM	TSM-AGENA	copypool volume	070590	6/19/2004 8:43:17 AM
3	070756	6/17/2004 9:38:26 AM	TSM-AGENA	copypool volume		
4	070768	6/17/2004 9:39:16 AM	TSM-AGENA	copypool volume		
5	070000	6/24/2004 3:55:14 PM	TSM-AGENA	Auto assigned	070065	6/24/2004 7:38:47 AM
6	070016	8/25/2004 5:21:22 PM	TSM-AGENA	copypool volume	070035	8/25/2004 1:03:50 PM
7	070083	7/15/2004 5:10:38 PM	TSM-AGENA	copypool volume	070043	7/14/2004 10:03:34 PM
8	070626	7/1/2004 7:04:52 PM	TSM-AGENA	copypool volume	070295	7/1/2004 8:11:17 AM
9	070301	7/6/2004 5:20:37 PM	TSM-AGENA	copypool volume	070355	7/6/2004 2:45:10 PM
10	070051	8/19/2004 5:37:15 PM	TSM-AGENA	copypool volume	070013	8/18/2004 7:04:34 PM
11	070746	7/1/2004 7:05:41 PM	TSM-AGENA	copypool volume	070291	7/1/2004 8:11:17 AM
12	070865	8/10/2004 6:22:28 PM	TSM-AGENA	copypool volume	070328	8/10/2004 9:28:50 AM
13	080001	7/1/2004 7:06:30 PM	TSM-AGENA	copypool volume	070717	7/1/2004 8:11:17 AM
14	070058	8/3/2004 5:39:47 PM	TSM-AGENA	copypool volume	080005	8/3/2004 8:18:08 AM
15	070423	7/8/2004 6:10:57 PM	TSM-AGENA	copypool volume	070579	7/8/2004 8:06:10 AM
16	070866	8/10/2004 6:23:48 PM	TSM-AGENA	copypool volume	070133	8/10/2004 9:28:50 AM
17	070784	7/6/2004 5:23:25 PM	TSM-AGENA	To be returned	070400	7/6/2004 3:54:06 PM
18	070072	8/25/2004 5:22:11 PM	TSM-AGENA	copypool volume	070104	8/25/2004 1:04:09 PM
19	070019	6/20/2004 5:27:47 PM	TSM-AGENA	copypool volume		
20	070298	7/15/2004 5:11:13 PM	TSM-AGENA	To be returned	070084	7/14/2004 10:03:35 PM
21	070421	7/15/2004 5:12:02 PM	TSM-AGENA	copypool volume	070322	7/14/2004 10:03:39 PM

**Note :**

If you upgraded to this function from a previous version that did not have vault management, how do you get started organizing all the volumes that you currently have in your vault ?

- Go to the "vaulting" window.
- Click the tab "Logical vault content" to display what is currently in the vault.
- Right click the list and select "Auto assign slot numbers" from the popup menu.
- All volumes presently in vault status will get a slot assigned to them. You can then arrange them accordingly in your vault and you have a good start.

## Report generation

These reports can be generated in various formats, pdf, rtf, xls, csv, e-mail and print. You have control over the display format, the time period involved and how much detail should be included. The report definition can be saved either locally on your PC, for your personal use only, or they can be saved globally, meaning on the collector PC. Globally saved report definitions have two advantages :

- They can be used by anyone from any viewer
- They can be scheduled for automatic execution by the collector scheduler.

Optional title of the report :

**1 Report selection**  
 Server reports    
 Select one or more reports :  
 Database usage  
 Number of nodes  
 Total daily archive amount  
 Total daily backup amount  
 Total daily HSM migrate amount  
 Total daily HSM recall amount  
 Total daily restore amount  
 Total daily retrieve amount  
 Total node disk capacity  
 Total node disk in use  
 Total number of volumes used  
 Total schedule success rate  
 Total TSM space used

**2 Selection criteria**  
 Libraries :    
 Storage pools :    
 Schedules :    
 Nodes :

**3 Order of report generation**  
 Order by report  
 Order by entity (node, library, server...)  
 New page after each report/entity

**4 Servers to report**  
   
 linux1f\_loong\_name  
 linux1n  
 Prod  
 TSM53  
 tsmb36  
 TSMback  
 tsmp1  
 vwin2k2\_53  
 vwin2k4\_54  
 VXPpro1

**5 Date range to include**  
 Last    
 From    
 to

**6 Output format**  
 Formatted numbers  
 Raw data

**7 Output detail**  
 Detailed (day per day)  
 Monthly average

**8 Output destination**  
   
 Email receiver(s) :

**9 Printer options**  
 Font size :    
 Number of graphics horizontally :    
 Portrait  Landscape

**10 Chart appearance...**

**11 Build report now**

1. Load a predefined report (A or B) or go through steps 1 to 10 to define a new report.  
 2. If the report is to be run automatically, define a schedule in step A.  
 3. If you wish to use the report definition later, save it. (A or B)  
 4. Build the report in step 11.

***Scheduled execution of globally saved reports.***

The purpose of this function is to have globally saved reports generated on a weekly or monthly basis automatically.

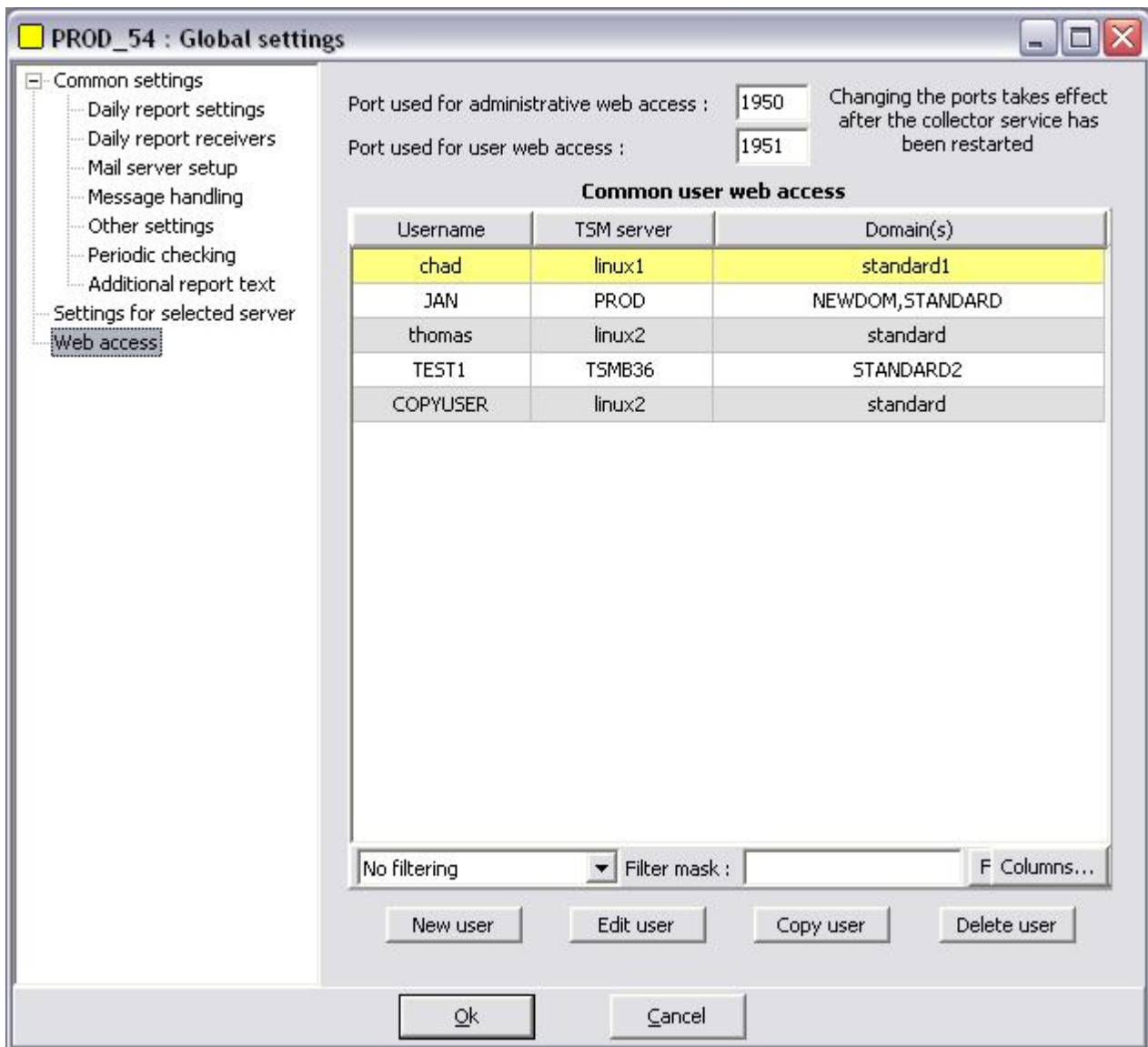
As defined in the report definitions, output can be e-mailed, printed or saved to disk in various formats.

When a report is saved to disk, it is given a unique name including the date and timestamp. This prevents overwriting of reports from previous runs.

All reports are saved in the directory "myfiles" which is located below the collector installation directory. (c:\program files\jamodat\tsmmgr\_serv), but the location can be changed in "Global settings".

As these reports are generated by the collector process, you need to let the collector service run under a user account with a default printer defined if you wish to have printed reports. If the collector is running under the system account (which is the default), then no printed reports can be generated as this account is unable to print.

## Web access



There are 2 types of web access :

1. Access for TSM administrators that need a quick status display.
2. Access for users that need the backup status for their servers, but who are not allowed to access the TSM server itself.

### **Administrator web**

This access is protected by admin userid/password.

The data displayed is global for one TSM server.

To access this, start a web browser and go to <http://yourcollectorpc:1950>

## Customer web

As a TSM administrator, you have "customers". These may be real customers for whom you provide backup facilities or the customers may be the different I/T departments within your own organization that are responsible for their individual servers.

Such "customers" often wish to be able to follow up on the backup status of their servers, but it is not desirable to let them have direct access to the TSM server.

TSMManager provides the following functionality :

The TSMManager administrator can define any number of userid/password combinations. Each userid will have web access to the status of backups and statistics for a single or multiple domains on a single TSM server. To access multiple domains, list them all separated by commas.

To access this, start a web browser and go to <http://yourcollectorpc:1951>

The user will be presented with a login window, and after successful login the user can access various data for their domain(s) only.

