

Trustee Restore for Netware

Trustee Restore User's Guide

Version 1.00a

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I-1 Ordering Information

Purchasing a license for (or registering) Trustee Restore for Netware, allows you to use the product beyond the 4 week test period. With your registration, you will receive a registration key that upgrades your test version of Trustee Restore for Netware to a full functioning version. Registration also entitles you to free lifetime technical support, free upgrades for identical main versions (e.g.: all program versions starting with 1.xx), priority notification on major new updates and releases.

If requested you will also get an invoice by mail for your files.

Registration costs just \$98.00 (EUR 98,-) per license. But note: A license is only valid for one location. That means e.g.: If the program has been purchased by a company with several buildings you need a license for every location with a different postal address where servers are located on which you use Trustee Restore.

You can use the following convenient order form if you wish:

Trustee Restore for Netware	\$ 98.00	\$	_____
or	EUR 98,00	EUR	_____
	x Quantity		_____
	Subtotal 1	\$	_____
	Subtotal 1	EUR	_____
Shipping (Europe)	\$ 10	\$	_____
or	EUR 10	EUR	_____
(outside Europe)	\$ 25	\$	_____
	EUR 25	EUR	_____
	TOTAL	\$	_____
	TOTAL	EUR	_____

Address: _____

Payment by: ☐ Check/Money Order ☐ VISA ☐ MC

Signature: _____

-iv-

Important note: If you pay by check and your bank is NOT located in Europe, please fill in the amount of money in your home currency. This saves approximately EUR 15.- of bank handling fee.

Save registration via INTERNET !

If you have a credit card (Master, Euro or Visa) you can easily register Trustee Restore by writing an internet mail. This program package includes the credit card number scrambler SCARD.EXE (look at the File INTERNET.DOC for a description of SCARD.EXE) that runs on all Windows platforms above/equal Windows 3.1. This program scrambles your credit card information and puts the result onto the Windows Clipboard. From there the scrambled credit card number can easily be transferred to a mail via <CTRL-V>.

Registration through direct money order

The easiest way to register Trustee Restore in Europe is to pay the fee directly to my account:

Owner: Horst Jelonneck
Account at: Postgiroamt Koeln, Germany
Bank No.: 370 100 50
Account No.: 4584 54-509

Add as comment the product you wish to order, the amount of money and your registration name. If you only need a registration key just send EUR 98,- and your registration name as comment, then you will get a key via electronic mail without extra charge.

If you haven't received any answer for two weeks after your order, please contact me either via post service or electronic mail.

My address:

Horst Jelonneck
Caesariusstr. 109a
53639 Koenigswinter
Germany

electronic mail addresses:

Internet address: **jelonneck@netproducts.de**

How to contact me

Your comments and suggestions are welcome even if you have not registered yet. If you like Trustee Restore but there is something that keeps you from registration (not just the price - which is not expensive at all) please tell me why. Maybe I can do something to change your mind !

First way to contact me

Write a letter to: Horst Jelonneck
 Caesariusstr. 109 a
 53639 Koenigswinter
 Germany

Send a Fax to: 49-2223-912602

Or via electronic mail:

Internet: **jelonneck@netproducts.de**

Where do you find the newest version of Trustee Restore?

The newest version of Trustee Restore for Netware is always available:

- On the INTERNET:

Address: **<http://www.netproducts.de>**

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Why you are here

Ah! Welcome!

You're one of those, loving adventure games, and you have decided in the past to play one on the most exciting and complex adventure games on the market. A game that gives you thousands of hours great entertainment and endless live situations that make your heart run on at least double speed. A game that has the thrill to have riddles in situations you can never think about. A game that has surprises over and over.

And now you are here looking for a joker that helps to solve one of your adventure tasks in an easy way. Your task is: Move files from one Netware server's volume to another one, without losing all the fantastic add on information of the Netware operating system. And you did not know how to. You do not like Novell's relax hint to use your backup system for that task.

Well, here is the solution for you !

Its: **TRUSTEE RESTORE**

This program is able to save and restore **all** Netware specific file information including trustees, file ownership, attributes, long file names, volume space restrictions and much more. Please take a look at all the nice highlights listed below!

Why did I write this program, or the long way to Netware 5.1

Oh yeah!

One year ago I had just the simply task to do. An upgrade of our department server from Netware 4.11 to Netware 5.1. It was really a small server with approximately 750,000 files on it. New hardware was not available (we had to save money). And as usual for such a task, there was only a limited time to do this. A trial to simply upgrade to Netware 5.1 by putting the new Netware CD in failed with an endless amount of errors. Problems, I could not resolve manually. So I decided to build a new system volume with Netware 5.1 on it and migrate the existing volumes to the new server. These trials result in another enormous problem. If you move an existing volume to a new server, then all trustee assignments and owner ships are lost or scrambled. So I moved temporary back to Netware 4.11 to give me enough time to look for a solution.

Next I looked around to see if there was a tool available that saves and restores trustees, to be able to move the existing hard disks to a new server. I didn't find anything except the hint on Novell's support pages to destroy the volumes contents and rebuild it using a backup. This seemed to me too dangerous and time consuming.

Consequently I decided to write the program TRUSTEE RESTORE that saves all the Netware specific file information and restores it later on. So every copy program can be used to copy Netware files.

TRUSTEE RESTORE later adds the missing file information. With this new tool in my hands I retried my simple task to upgrade our department server. Now everything runs well (not talking about the usual trouble you have with Netware doing such things). Mounting the Netware 4.11 volumes onto the new Netware 5.1 server uncovered a further problem. Netware 5.1 complained many invalid DOS file names. These names had embedded German Umlauts and so were renamed to INVALID by Netware 5.1. What a surprise Novell had changed the philosophy for storing DOS names. Now I had volumes with many bad DOS names on it.

The need for a tool that repairs all those INVALID file names was born. What could I do, I simply added it to TRUSTEE RESTORE. With this add on the invalid names could be repaired.

There was also a need for me to support bindery logins. So I had to preserve the SYS:MAIL directories. They needed to be renamed, because the object IDs had changed on the new server. So I also added a MAIL directory rename feature to TRUSTEE RESTORE.

At last I've missed the SUPERVISOR properties of the old server. I need them also on the new one (Another program of mine ABC.NLM complains that its registration key was lost). So I also added the restore function for SUPERVISOR properties to TRUSTEE RESTORE.

At the end I've got the Netware 5.1 server run with all the old data and trustees on it. And the best of all, all of my users could work with it.

But this is not the end of the story. More by coincidence I found out that some of the files backuped by ARCSERVE 6.6 were saved without problem, but could not be restored. These were files with embedded German Umlauts in their name. Because these files could not be restored I've called them the write only files! Also some files are missed from backup. But I could not figure out the reason for these misses.

So I enhanced once again TRUSTEE RESTORE to do some further repairs on the file names. With it I'm able to remove the Umlauts problem. But the miss of several files from backup could not be resolved.

In the last month there was a need to replace all hard disks (without volume SYS:). Now this was really a simply task. I connected the new disks to a temporary server that has been installed in the same NDS tree. I used TOOLBOX.NLM to copy all the files from the old volumes to the new ones. Then I used TRUSTEE RESTORE to save all Netware specific file information that are on the old volumes. Disconnected the old hard disks from the old server and connected the new ones onto the old server. Run once again TRUSTEE restore to restore all Netware specific file information inclusive all Trustees and long names to the new volumes.

It runs. And the best of all, the missing file problem has also gone. **GREAT !!!**

What I've learned about it. Never, never try to upgrade an existing Netware 4.11 server to Netware 5.1. Upgrade only if you really need the new features, and if you need (and I think this is the same when going to the next Netware generation) buy a new hardware, copy the files, restore Netware file specific information. And everything will run fine (with the usual Netware specific problems).

The highlights of TRUSTEE RESTORE

In the following there are the highlights of TRUSTEE RESTORE. I do not know any other tool on the market that has nearly the same functionality and offers an easier way to copy or move Netware volumes.

- Trustee Restore saves and restores all Netware specific file and directory information:
 - For files and directories:
 - file attributes
 - creation date
 - modification date
 - access date
 - archiving date
 - owner ID
 - modification ID
 - archiver ID
 - inherited rights mask
 - trustees
 - LONG, NFS and MAC names
 - Originating name space (type of name space the file was created with)
 - for directories only:
 - space restriction
 - for volumes only:
 - volume space restrictions
 - Bindery (or bindery emulation)
 - SUPERVISOR properties

Trustee Restore:

- Runs on Netware 3.12, 4.x, 5.x, and 6.x.
- Supports bindery and NDS objects (trustees of a bindery server can be moved to NDS server and vice versa).
- Saves all NDS or bindery objects as real names.
- Supports different NDS trees (trustees of one NDS server can be restored to another one in a different tree)
- Supports DOS and LONG names for trustee save and restore.
- Saves and restores SUPERVISOR properties (for all the old but good programs that needs this information)
- Can create a batch file with copy commands for all the files your copy program did copy for what ever reason.
- Repairs DOS file names destroyed by an upgrade process from Netware 4.11 to 5.1 (if LONG names available).
- Renames MAIL directories to reflect the new server IDs.

- Repairs MAIL directory owners IDs and trustees.
- Has many save and restore options.
- Uses one configuration file for save and restore functions.
- Allows copying of complete volume contents without any workstation involved.
- Allows very fast copy operations to remote servers (no double file transfer like using a workstation).
- Is very flexible.
- Has a detailed manual.
- Very easy to install.
- Easy to use (believe me).
- Has been written by a practical expert, not by a pure software designer.
- It's really a professional tool

What trustee restore cannot do:

- Make coffee for you (and unfortunately much more other things)
- Copying files (I think there are enough tools available that can do such things, like TOOLBOX.NLM)
- Save and restore NFS name space specific attributes
- Save and restore MAC name space specific attributes

The Limits of the Demo version

Trustee Restore is not freeware. So if you use it on a regular base you have to purchase it. Read the ordering information above to find out how to get a license and a registration key.

As long as Trustee Restore is not registered it runs in Demo mode. This Demo mode has the following restrictions:

- It displays a registration reminder screen
- The restore function is limited to 10000 files.
- The SUPERVISOR property restore function is completely disabled

All other functions are not limited in any way. So it's possible to use Trustee Restore as an safety anchor for all actions that might corrupt your NDS IDs or your file system. You can save all Netware specific information using the demo version. If you run in trouble, just send me an order and I return a registration key via email in mostly one day.

Quickstart, or how to install TRUSTEE RESTORE

Ah, now you are here and you want to know if Trustee Restore is really easy to use. Yes it is! To make things a little easier and faster in the future, we will call Trustee Restore simply TR.

First of all Trustee Restore (TR) must always run on the server where it has to do a job. So for a trustee save, copy TR.NLM and its configuration file to the server that holds the files which information you want to save. Run it there with the save option. After the run, copy TR.NLM including all files created by TR.NLM to the destination server and run it there using the restore function. That's all!

To install TR do the following:

- Create the directory SYS:TR on the source and destination server.
- Copy TR.NLM and the configuration file xxxxx.CFG to the source server's SYS:TR directory.
- On the source server's console enter: SEARCH ADD SYS:TR (to extend Netware search path)
- Enter: "LOAD TR xxxxx.CFG /S" on the source server's console (without the double quotes) for a save operation
- Copy all files from SYS:TR of the source server to SYS:TR of the destination server.
- On the destination server's console enter: SEARCH ADD SYS:TR (to extend Netware search path)
- Enter: "LOAD TR xxxxx.CFG /R" on the destination server's console (without the double quotes) for restore.

You can omit xxxxx.CFG if the name of the configuration file is TR.CFG

The TR package comes with two pre configured configuration files.

The first one -TR.CFG- saves and restores all Netware specific file information on all volumes it finds on the server. This is a good choice if your destination server has the same volumes installed. Normally use it only if file count per volume is limited to approximately 100,000 files.

I prefer to use the second one called VOLUME.CFG. This configuration has been pre configured to save and restore only the information it finds on the volume with the same name the configuration file has. E.g.: If the configuration file has the file name: DATA.CFG, TR uses the volume: DATA for its operation. So just copy VOLUME.CFG to the new name e.g.: DATA.CFG. Then you can use it to save and restore all Netware specific file information on volume DATA.

The command line parameters of TR

TR has only one command line parameter followed by a switch character. The parameter is just the name of its configuration file. The switch character is either an “/s” or “-s” to run TR in save mode or an “/r” or “-r” (without the double quotes) to run in restore mode.

Example: LOAD TR volume /s ; runs TR in save mode using the configuration file: volume.cfg.

Example: LOAD TR volume /r ; runs TR in restore mode using the configuration file: volume.cfg.

The Restore Test mode

Don't be shy to start TR in restore mode. TR will never start immediately with actions that changes data on your server. The restore mode stops every time at the end of some data pre checks. Here you can interactively decide how to continue. You can either stop further execution, start a test run or start a really restore process. During a test run TR does nothing else than checking if all files for the restore process are available. If enabled in the configuration file it creates also a batch file with copy commands for every restore entry in its files that cannot be resolved in the file system.

Important note:

Before you start now. Do not do your first tries on your highly frequented production server. Use a test server instead. If something goes wrong, there will be no reason to hide yourself from people trying to kill you!!!

The configuration file

The configuration file informs TR how to do a job. It also gives TR the information it needs for a job. The configuration file is the only file that must be present for a Trustee save. For a restore it also needs the files it has created during the save process. (See “Files created by TR” below for further information on created files).

The following chapter gives you a detailed description of all possible configuration settings. The configuration files has been divided into three sections. Section one is for the trustee save function. Section two describes the settings for a trustee restore. Section three gives you some information on the repair functions of TR. The parameters of section 1 are only read by TR at start of trustee save process (“/s”). Section 2 and 3 are read for a restore (“/r”).

Every section has several parameter settings. A parameter setting consists of a keyword followed by an equal sign (=) followed by a parameter value. The keywords are fixed and must not be changed by the user. Only parameter values are settable. All parameter settings are case insensitive. So you can enter either capital or small letters for all parameters.

Section 1: Parameters for a TRUSTEE SAVE

BaseContext

The BaseContext is the reference NDS context taken for all object entries in the file xxxxx.IDS (see “Files created by TR” below for a description of the .IDS file). If all your users’ objects can be found in e.g.: “.usr.dep.company.de” enter this as BaseContext. TR.NLM takes this context as a base for all the real object names it will put into the .IDS file. This can be important if you later restore trustees and owner ID’s to a another NDS tree that has a slightly different structure. If e.g.: all users on the other tree are located in “.usr.dep2.comp.us” then enter this as “BaseContextUsedForRestore” below. TR.NLM is now able to restore the saved trustees and owner ships on the other tree.

You can leave this entry blank if you like. In this case TR.NLM uses an absolute syntax for every object name it enters into the .IDS file.

Example:

BaseContext = usr.dep.company.de

NDSLoginName and NDSPassword

NDSLoginName and NDSPassword are the authenticating entries to the NDS. Because TR.NLM runs as an .NLM on a local server it has almost all the rights it needs for its job. Therefore you only need to enter NDSLoginName and NDSPassword if TR.NLM runs on an NDS server without a replica, with very restricted NDS scan rights, and with "ScanContext" (see below) enabled. It is also only used on a TRUSTEE SAVE process. The reason for authenticating is, that if NDS scan rights are needed without an available local replica, also an .NLM has to login first if no public scan rights exists in the NDS. This is really a very rare situation. So I think you can try first to leave this parameters blank.

Note: NDSLoginName must be entered relative to BaseContext or absolute (with a leading dot).

Example:

NDSLoginName = MyLoginName
NDSPassword = MyPassword

ServiceUsedForSave

ServiceUsedForSave selects if either NDS or Bindery entries shall be written into the .IDS file. If left blank TR.NLM automatically selects NDS for Netware versions ≥ 4.00 , and bindery for all Netware versions below. Leave it blank except if you have special reasons for setting it manually. Enter: “Bindery” to use bindery emulation on a Netware version ≥ 4.00 .

Example:

ServiceUsedForSave	=	NDS
ServiceUsedForSave	=	bindery

ScanContexts

ScanContexts must only be filled out if you want to save all NDS objects with their corresponding IDs in the .IDS file, regardless if they are used for a TRUSTEE SAVE or not. If left blank only NDS objects that can be found in the file system are saved. There are two entry formats available: (either relative to BaseContext or absolute), separated by a comma (.). For a relative entry that represents the BaseContext enter either an asterisk (*) or a hyphen (-).

Example:

ScanContexts	=	*, ., printers, .de
--------------	---	---------------------

reads all objects and their corresponding IDs from the NDS and stores them in the .IDS file that can be found in “.usr.dep.company.de”, “.dep.company.de”, “.printers.dep.company.de” and in “.de”. This sample assumes that BaseContext has been set to “.usr.dep.company.de”

ScanBindery

ScanBindery can be set to YES or NO. If set to YES and Bindery is selected then all bindery entries with their corresponding IDs are written to the .IDS file regardless if they are used for the trustee save and restore process or not. If set to NO only Bindery entries that can be found as owner or trustee objects in the file system are written to the .IDS file.

Example:

ScanBindery	=	no
-------------	---	----

NameOfTRFiles

With NameOfTRFiles the volume:/directory/filename name for the files created by TR.NLM can be set. If no directory is specified, all files will be created in the same directory where this .CFG file exists. TR.NLM creates the following files: xxxxx.IDS, xxxxx.TRU, xxxxx.REF xxxxx.PRP, xxxxx.LOG and xxxxx.BAT where xxxxx is the NameOfTRFiles.

If left blank, the name of the .CFG file (without extension) is used as name specification.

Note: The length of "NameOfTRFiles" name is limited to 8 characters and must be given without extension.

Examples:

NameOfTRFiles = volsys

forces TR.NLM to create the following files:

VOLSYS.IDS, VOLSYS.TRU, VOLSYS.PRP, VOLSYS.PRP, VOLSYS.LOG, VOLSYS.BAT, if enabled. All files can be found in the same directory, where also the configuration file exists.

NameOfTRFiles = sys:mysave/volsys

forces TR.NLM to create the following files:

VOLSYS.IDS, VOLSYS.TRU, VOLSYS.PRP, VOLSYS.PRP, VOLSYS.LOG, VOLSYS.BAT, if enabled and writes them into the directory "sys:mysave".

Note: The directory must exist or the creation will fail.

NameOfTRFiles =

forces TR.NLM to create the following files:

TR.IDS, TR.TRU, TR.PRP, TR.PRP, TR.LOG, TR.BAT. if enabled.

All files can be found in the same directory, where also the configuration file exists. This sample assumes that the name of the configuration file is: TR.CFG.

EnableWriteOFTrusteesFile

EnableWriteOFTrusteesFile can be set to YES or NO. If set to YES then all file system entries with their corresponding trustee and owner ID's and file attributes are written to the file xxxxx.TRU during a TRUSTEE SAVE. If set to NO the .TRU file will NOT be written.

Note: The .TRU file is important for the Trustee Restore process. If disabled TR.NLM cannot restore any file specific information. Disable this only if you don't need it. E.g.: you need only the .IDS or .PRP file.

Example:

EnableWriteOfTrusteesFile = yes

VolumesAndDirsUsedForSave

VolumesAndDirsUsedForSave specifies which volumes:/directories and their corresponding subdirectory entries are read from the Netware volumes and then written to the .TRU file. VolumesAndDirsUsedForSave accepts a list of Volumes:/directories entries, separated by a comma (.). If only an asterisk (*) is specified, then all file entries on all currently mounted volumes will be written to .TRU file.

Note: NO file names, NO wildcards allowed. Only DOS directory path names.

If left blank the name specified in "NameOfTRFiles" is used as volume name without a directory specification.

Example:

VolumesAndDirsUsedForSave = *

forces TR.NLM to write all file entry information of all mounted volumes to the xxxxx.TRU file

VolumesAndDirsUsedForSave = sys:java, data:user/meyer, box:files

forces TR.NLM to write all file entry information of all files and directories including all subdirectories of SYS:JAVA, DATA:USER\MEYER, BOX:FILES to the .TRU file.

SaveAllNameSpaceNames

SaveAllNameSpaceNames can be set to YES or NO. If set to YES, all name space names supported by a volume are saved in the .TRU file. Supported name spaces are: DOS, LONG/OS2, NFS, MAC. If set to NO, only DOS and LONG/OS2 names are stored in the .TRU file.

A need for setting "SaveAllNameSpaceNames" to YES exists only if your source and destination volume has also NFS and MAC name spaces enabled and if you want to copy the NFS and MAC file names to a destination. LONG/OS2 names can be restored even if "SaveAllNameSpaceNames" was set to NO. TR.NLM tries to recreate NFS and MAC file names, even if they have not been saved previously. For that it gets the LONG file name and copies it as MAC name. NFS names are also taken from the LONG name. But they are set to lower case before restored to the file system.

Example:

SaveAllNameSpaceNames = yes

SaveSupervisorProperties

SaveSupervisorProperties can be set to YES or NO. If set to YES and bindery or bindery emulation is enabled on the source server then all properties that belong to the SUPERVISOR are stored in the xxxxx.PRP file. These settings can be restored later on a destination server. (Some older programs have stored e.g.: registration information here). If set to NO, no SUPERVISOR properties will be saved.

Example:

SaveSupervisorProperties = no

Section 2: Parameters for a TRUSTEE RESTORE

BaseContextUsedForRestore

BaseContextUsedForRestore takes the NDS base context for the restore process. It must only be filled out if the source base context stored in the .TRU file differs from that for restore. E.g.: use it if trustees shall be moved to a different NDS tree structure, or the base context has been renamed or moved in the meanwhile. If save and restore base context are identically (even on different trees) leave it blank.

Example:

BaseContextUsedForRestore = usr.dep2.comp5.de

ServiceUsedForRestore

ServiceUsedForRestore can be either NDS, Bindery or blank. If left blank, then the same service used for save will be used for restore. You should only specify a different service if absolutely necessary.

Note: The file xxxxx.TRU must be possibly manually edited if you change the service type for restore.

Examples:

ServiceUsedForRestore = NDS
ServiceUsedForRestore = bindery
ServiceUsedForRestore =

DefaultNDSObjectUsedForRestore

DefaultNDSObjectUsedForRestore specifies which NDS owner and trustee object shall be written to the file system if the original NDS or bindery object is not available either on the source or destination server. TR.NLM has no ability (due to Netware function limits) to set the owner or trustee ID to “No Owner (ID 0)” Therefore this entry MUST NOT be empty and it has to exist on the destination server. You can use the default below because it fits for the most purposes.

Note: DefaultNDSObjectUsedForRestore is only used in NDS mode.

Example:

DefaultNDSObjectUsedForRestore = .[Supervisor]

DefaultBinderyObjectUsedForRestore

DefaultBinderyObjectUsedForRestore specifies which bindery owner and trustee object should be written to the file system if the original object is not available or does not exist on the destination server. This entry must not be left blank and must exist on the destination server. You can use the default below because it fits for the most purposes.

Note: DefaultBinderyObjectUsedForRestore is only used in bindery mode.

Example:

DefaultBinderyObjectUsedForRestore = SUPERVISOR

VolumesAndDirsUsedForRestore

VolumesAndDirsUsedForRestore specifies the Volume:/directories where TR.NLM finds the files for the trustee restore. You only have to fill it out if the source volume or directory path differs from that on the source server. For every entry in "VolumesAndDirsUsedForSave" an entry separated by a comma (,) must be set in "VolumesAndDirsUsedForRestore". A hyphen (-) in the entry list indicates that the original Volume:/directory entry should be used. If the list in "VolumesAndDirsUsedForRestore" is shorter than in "VolumesAndDirsUsedForSave" the Volume/directories from the source are used for the missing entries.

Note: TR.NLM saves always the complete directory path in the .TRU file. So "VolumesAndDirsUsedForRestore" can only be used if the volume name has changed, or if the files of a volume have been copied to a subdirectory of a volume. VolumesAndDirsUsedForRestore is used only as a prefix to the previously saved path. Also note that directory names must correspond to the name space used for restore.

Example:

VolumesAndDirsUsedForRestore = data:\box, data:\sys

This example assumes that the contents of volume: BOX has been copied to DATA:\BOX and that the contents of volume: SYS has been copied to DATA:\SYS

NamespaceUsedForRestore

NamespaceUsedForRestore specifies if DOS or LONG/OS2 file names should be used to find the file entries on the destination file system. The use depends on how files have been transferred to a new volume. If you have used a copy program that only can handle DOS file names as e.g.: TOOLBOX.NLM when copying to a different file server, use DOS for NamespaceUsedForRestore. If LONG file names have been copied then use LONG here. There is a special case when migrating a file system from Netware 4.11 to 5.x. In this case use always LONG if available.

Examples:

NamespaceUsedForRestore	= long
NamespaceUsedForRestore	= dos

DisableWriteOfREFFile

DisableWriteOfREFFile disables the writing of the xxxxx.REF file if set to YES. The .REF file contains the old ID's to new ID's translation table. It serves for informational purposes only. There is no use for the trustee save and restore process. If you don't need it you can disable the creating of .REF file here.

Example:

DisableWriteOfREFFile	= no
-----------------------	------

RemoveUmlautsWhenDOSNameSearchFails

RemoveUmlautsWhenDOSNameSearchFails can be set to YES or NO. If set to YES TR.NLM tries to remove German Umlauts (e.g.: Ü → U, ö → o) from DOS file names stored in the .TRU file if it cannot find the file name in the file system during the restore process. This feature has been added because Novell has changed the handling of DOS file names on Netware 5.xx. This new handling does not allow Umlauts in DOS names on USA country code settings.

Example:

RemoveUmlautsWhenDOSNameSearchFails	= yes
-------------------------------------	-------

CreateCopyBatchForMissingFiles

CreateCopyBatchForMissingFiles can be set to YES or NO. If set to YES TR.NLM creates a batch file with copy commands for every file name it cannot find during restore process. E.G: TOOLBOX.NLM has some problems copying files if the file name contains multiple dots, starts with a dot or embeds German Umlauts in LONG names.

Example:

CreateCopyBatchForMissingFiles = yes

NameSpaceUsedForBatchFile

NameSpaceUsedForBatchFile specifies which type of Name Space (DOS or LONG/OS2) shall be used in the Copy Batch file. If Workstations are available that support LONG names use always LONG here.

Example:

NameSpaceUsedForBatchFile = long
NameSpaceUsedForBatchFile = dos

CopyBatchSourceDriveName

CopyBatchSourceDriveName shall be set to the drive letter that is mapped to the copy source later in the copy process. You can enter either a single letter or a volume name. This depends on how your workstation copy program can handle such entries.

Examples:

CopyBatchSourceDriveName = y
CopyBatchSourceDriveName = sys

Example 1 creates a copy commands like: copy y:\dir1\dir2\filename z:\dir1\dir1\filename

Example 2 creates a copy commands like: copy sys:\dir1\dir2\filename z:\dir1\dir1\filename

CopyBatchDestDriveName

CopyBatchDestDriveName shall be set to the drive letter that is mapped to the copy destination later in the copy process. You can enter either a single letter or a volume name. This depends on how your workstation copy program can handle such entries.

Examples:

CopyBatchDestDriveName	= y
CopyBatchDestDriveName	= data

Example 1 creates a copy commands like: copy y:\dir1\dir2\filename z:\dir1\dir1\filename

Example 2 creates a copy commands like: copy sys:\dir1\dir2\filename data:\dir1\dir1\filename

How to use this batch file?

Before running this batch file on a DOS or windows workstation, you have to map first the drive letters you have chosen above to a Netware volume:/directory. This can be done either with the MAP command (located in sys:public) or with the Windows Explorer. Go to Extras → connect network drives and follow the instructions in the window. When using MAP don't forget to map the drives as root. E.g.:

MAP root y:=sys:java.

EnableRestore

EnableRestore can be set to YES or NO. When set to YES all sub information (trustees, file attributes, several dates and times, owner IDs, inherited rights, originating name spaces, volume space restrictions, and additional name space names) enabled below are written to the file system. If set to NO none of the these information is written during restore process.

Note: EnableRestore acts as a global YES, NO switch for all the switches below.

Example:

EnableRestore = yes

RestoreTrustees

RestoreTrustees enables the restore of file and directory trustees when set to YES. The trustee ID will be changed to a new value if the object ID differs from that on the source server. If set to NO, no trustees are restored.

Example:

RestoreTrustees = yes

DeleteOldTrustees

DeleteOldTrustees enables the deletion of old file and directory trustees when set to YES and when 'RestoreTrustees' is also enabled. When set to NO new trustees will be added to the existing ones without affecting the old ones.

Example:

DeleteOldTrustees = yes

RestoreFileAttributes

RestoreFileAttributes enables the restore of ALL file and directory attributes when set to YES. The file attributes are a collection of flags that indicates e.g.: if a file is read only, transactual and so on. If set to NO the current file attributes are not changed.

Example:

RestoreFileAttributes = yes

RestoreCreationDateAndTime

RestoreCreationDateAndTime enables the restore of the creation date and time for files and directories when set to YES. If set to NO the old creation date and time are retained.

Example:

RestoreCreationDateAndTime = yes

RestoreModificationDateAndTime

RestoreModificationDateAndTime enables the restore of the modification date and time for files and directories when set to YES. If set to NO the old modification date and time are retained.

Example:

RestoreModificationDateAndTime = yes

RestoreLastAccessedDate

RestoreLastAccessedDate enables the restore of the last accessed date for files and directories when set to YES. If set to NO the old accessed date is retained.

Example:

RestoreLastAccessedDate = yes

RestoreArchiverDateAndTime

RestoreArchiverDateAndTime enables the restore of the archiver date and time for files and directories when set to YES. If set to NO the old archiver date and time are retained.

Example:

RestoreArchiverDateAndTime = yes

RestoreCreatorOwnerID

RestoreCreatorOwnerID enables the restore of the Creator's Owner ID for files and directories if set to YES. The ID will be changed to a new value if the object ID differs from that on the source server. If set to NO the old ID is not changed.

Example:

RestoreCreatorOwnerID = yes

RestoreUpdaterOwnerID

RestoreUpdaterOwnerID enables the restore of the Updater's Owner ID for files and directories if set to YES. The ID will be changed to a new value if the object ID differs from that on the source server. If set to NO the old ID is not changed.

Example:

RestoreUpdaterOwnerID = yes

RestoreArchiverOwnerID

RestoreArchiverOwnerID enables the restore of the Archiver's Owner ID for files and directories if set to YES. The ID will be changed to a new value if the object ID differs from that on the source server. If set to NO the old ID is not changed.

Example:

RestoreArchiverOwnerID = yes

RestoreInheritedRights

RestoreInheritedRights enables the restore of inherited rights filter flags for files and directories if set to YES. If set to NO the old flags keep unchanged.

Example:

RestoreInheritedRights = yes

RestoreVolumeSpaceRestrictions

RestoreVolumeSpaceRestrictions enables the restore of volume space restrictions for specific objects (users) if set to YES. The object ID will be changed to a new value if the object ID differs from that on the source server. If set to NO the old ID is not changed.

Example:

RestoreVolumeSpaceRestrictions = yes

DeleteOldVolumeSpaceRestrictions

DeleteOldVolumeSpaceRestrictions enables the deletion of existing volume space restrictions before the saved ones are restored if set to YES and if RestoreVolumeSpaceRestrictions is also enabled. The old restrictions are kept and only the new ones are added if DeleteOldVolumeSpaceRestrictions is set to NO.

Example:

DeleteOldVolumeSpaceRestrictions = yes

RestoreDirSpaceRestriction

RestoreDirSpaceRestriction enables the restore of space restrictions for directories if set to YES. If set to NO the directory's space restrictions are not changed.

Example:

RestoreDirSpaceRestriction = yes

DeleteOldDirSpaceRestriction

DeleteOldDirSpaceRestriction enables the deletion of space restrictions for all directories that have an entry in the .TRU file if set to YES and if RestoreDirSpaceRestriction is also enabled. After the deletion new spaces restrictions will be added as specified in the .TRU file.

Example:

DeleteOldDirSpaceRestriction = yes

RestoreOriginatingNameSpaces

RestoreOriginatingNameSpaces restores the originating name type for files and directories when set to YES. The originating name space specifies the name space type a file was created in (DOS, LONG/OS2, NFS or MAC). Set it always to YES if also additional name space file names are restored (see below). When RestoreOriginatingNameSpaces is set to NO the originating names space type keeps unchanged.

Example:

RestoreOriginatingNameSpaces = yes

RestoreLONGFileNames

RestoreLONGFileNames enables the restore of LONG file names when set to YES. This function subsequently adds LONG names to a file system if those have not been copied during copy process. E.g.: TOOLBOX.NLM cannot copy LONG file names if source and destination volumes are on different servers.

If RestoreLONGFileNames is set to NO LONG names will not be restored.

Note: Set "RestoreLONGFileNames" only to YES if "NameSpaceUsedForRestore" has been set to DOS.

Example:

RestoreLONGFileNames = yes

RestoreNFSFileNames

RestoreNFSFileNames enables the restore of NFS file names when set to YES. This function subsequently adds NFS names to a file system if those have not been copied during copy process. E.g.: TOOLBOX.NLM cannot copy NFS file names.

If RestoreNFSFileNames is set to NO NFS names will not be restored.

Example:

RestoreNFSFileNames = yes

RestoreMACFileNames

RestoreMACFileNames enables the restore of MAC file names when set to YES. This function subsequently adds MAC names to a file system if those have not been copied during copy process. E.g.: TOOLBOX.NLM cannot copy MAC file names.

If RestoreMACFileNames is set to NO MAC names will not be restored.

Example:

RestoreMACFileNames = yes

End of switches that are affected by: EnableRestore

RestoreSupervisorProperties

RestoreSupervisorProperties can be set to YES or NO. If set to YES and the bindery or bindery emulation is available on the destination server all SUPERVISOR properties are restored on the new server. So Bindery applications (like ABC.NLM) are able to run.

Example:

RestoreSupervisorProperties = no

DeleteOldSupervisorProperties

If DeleteOldSupervisorProperties is set to YES and also RestoreSupervisorProperties is enabled, old (maybe invalid) SUPERVISOR properties are removed from the bindery before the saved ones are restored.

Example:

DeleteOldSupervisorProperties = yes

Section 3: Repair functions

The repair functions have been added to correct some of the things that might go wrong during a copy or a Netware version upgrade. TR.NLM runs them only in restore mode (load: TR.NLM with /R switch). As with all repairs use it only with care and only if needed. There is always a danger that a repair does things in a way you have not expected.

Below you find the description of all available repair functions:

ResetModifyFlags

ResetModifyFlags can be set to YES or NO. If set to YES TR.NLM resets the modify flag in the attributes entries of files and directories. It has been implemented for TOOLBOX.NLM, because TOOLBOX does not reset the modify Flag after copying files. (This is only a cosmetic repair).

Example:

ResetModifyFlags = no

VolumesAndDirsUsedForResetFlags

VolumesAndDirsUsedForResetFlags specifies the Volume:/directories for this repair. As in "VolumesAndDirsUsedForSave" a list of Volume/directory entries can be specified. All list elements have to be separated by a comma (,).

If just an asterisk (*) is specified all files on all currently mounted volumes will be repaired.

If left blank the name specified in "NameOfTRFiles" is used as volume name without a directory specification.

Note: Only DOS file names allowed (no LONG/OS2 specifications).

Examples:

```
VolumesAndDirsUsedForResetFlags    =  
VolumesAndDirsUsedForResetFlags    = *  
VolumesAndDirsUsedForResetFlags    = sys:, data:restore, data:newdata/alldata
```

Example 1: uses the volume name extracted from “NameOfTRFiles” file name for the repair

Example 2: repairs all files found on all currently mounted volumes.

Example 3: repairs all files on volume SYS:, the files found on DATA:/RESTORE (including all subdirectories) and the files found on data:/newdata/alldata (also including all subdirectories).

RepairDOSFileNames

RepairDOSFileNames can be set to YES or NO. If set to YES then DOS file names that have been set to INVALID during a migration process from Netware 4.xx to Netware 5.x are set back to valid names. This is done by renaming the LONG file names to a temporary name and then back to the original name.

Example:

```
RepairDOSFileNames                  = no
```

RepairOnlyFilesWithCharsGT127

If RepairOnlyFilesWithCharsGT127 is set to YES then only files that have LONG names that embeds ASCII characters greater than 127 are repaired. This is a special feature for GERMAN users who have created file names with Umlauts or any other special characters.

Example:

```
RepairOnlyFilesWithCharsGT127      = no
```

VolumesAndDirsUsedForDOSRepair

VolumesAndDirsUsedForDOSRepair specifies the Volume:/directories for that repair. As in "VolumesAndDirsUsedForSave" a list of Volume/directory entries can be specified. All list elements must be separated by a comma.

If just an asterisk (*) is specified then all files on all currently mounted volumes will be repaired.

If left blank the name specified in "NameOfTRFiles" is used as volume name without a directory specification.

Examples:

VolumesAndDirsUsedForDOSRepair	=
VolumesAndDirsUsedForDOSRepair	= *
VolumesAndDirsUsedForDOSRepair	= sys:, data:restore, data:newdata/alldata

Example 1: uses the volume name extracted from "NameOfTRFiles" file name for the repair

Example 2: repairs all files found on all currently mounted volumes.

Example 3: repairs all files on volume SYS:, the files found on DATA:/RESTORE (including all subdirectories) and the files found on data:/newdata/alldata (also including all subdirectories).

RenameMailDirectories

RenameMailDirectories can be set to YES or NO. When set to YES all MAIL directories found in SYS:MAIL are renamed so that they reflect the new user ID's in their directory names. This is important if you are still using DOS clients with bindery logins.

Note: Do not run RenameMailDirectories more than once, or unpredictable results may occur !

Example:

RenameMailDirectories	= no
-----------------------	------

RepairMailDirectoriesOwnerIDs

If RepairMailDirectoriesOwnerIDs is set to YES then the owner ship of all files beneath a mail directory are set to the corresponding owner. This only has to be done if the owner ships of the mail directories are corrupted on the source server too.

This repair may run more than once if necessary.

Example:

RepairMailDirectoriesOwnerIDs = no

RepairMailDirectoriesTrustees

If RepairMailDirectoriesTrustees is set to YES then file trustees for the mail directory structure is reset to their default state. This is write access for everyone and normal access rights for the mail directory owner.

This repair may run more than once if necessary.

Example:

RepairMailDirectoriesTrustees = no

A bit of technical background, or what is an object ID ?

If you already know the purpose of an object ID just skip this paragraph. If not read it to for what object ID's are needed.

When creating an object (a user or any other object) in the NDS or (for older Netware versions) in the bindery also an object identification number (ID) is created and stored in the NDS or bindery. This ID is just a 32 bit binary number that represents exactly one object. So if you know the object ID, you can look up in the NDS or bindery which object belongs to it.

But now there's the clue. Every server holds its own object IDs. That means: If you ask server A about an specific object ID it may return e.g.: 0x22220000. If you ask server B about the same object it will return an ID of e.g.: 0x12340000.

These server specific object ID's are now used in the file system to store trustees or owner ships. So if you take a look into the file system to find out who has trustees on a directory or file, the program that will do this for you (e.g.: NWADMIN) reads the object ID along with the belonging rights. Instead of displaying the object ID as binary value it asks the NDS or bindery for the real object name that is represented by the ID. So you just see the real name and the corresponding trustee.

If you now move a hard disk from server A to server B the trustees and owner ships are still stored in the file system. But they do not longer correspond to the object IDs that are stored in the NDS of the new server. So file trustees and owner ships are lost or belong now to other NDS or bindery objects.

Therefore after a disk move it is necessary to convert the "old" IDs in the file system to the "new" ones that represent the same objects as on the old server.

TR does this by storing for every ID it needs the corresponding real object name during save process. For the restore process it asks the NDS or bindery for the new IDs using the real name and replaces the currently stored IDs in the file system by the new ones.

Because real object names are stored by TR.NLM it's also possible to move bindery trustees and owner ships to an NDS server.

When to use DOS or LONG names for a restore ?

Please read the following paragraph carefully because it contains important information for the copy and Trustee Restore process.

TR stores during a trustee save operation always the DOS and -if also available - the LONG/OS2 file names in the .TRU file. If a volume does not contain LONG file names TR saves the DOS names at the locations for the LONG/OS2 names instead. So there is a double entry of the DOS file name in the .TRU file. Because LONG names are neither available on the source nor on the destination volume it doesn't matter if you set "NameSpaceUsedForRestore" to DOS or to LONG for the restore process.

If you copy files with a program that support long file names (like all newer Windows versions and TOLLBOX.NLM in local mode) then only the long file names will be created on the destination volume. Because Netware needs the DOS names for most of its internal routines it creates DOS names from the just created long file names by itself.

This is no problem as long as the long file name contains not more than 8 characters and don't have more than 3 characters for the file extension. If the long name contains more characters, Netware (like Windows) truncates the long file name to a DOS name that is limited to 8.3 characters. Netware uses a fixed algorithm for that process, but this process depends also on the sequence of file creation and on the deletions later on. (If you want to know more about the algorithm Netware uses for creating DOS names from LONG names see TID: 10054410 and TID: 2950101 on the Novell support pages).

Because DOS file names are created from long file names by Netware on the copy destination there is a big chance that not all created new DOS names are identical to the DOS names on the copy source. Therefore it's important for the Trustee Restore process that you choose LONG for the "NameSpaceUsedForRestore" parameter in the .CFG file otherwise TR isn't able to find all files on the destination. If you are not sure what to use for the restore process, try anything by starting TR in TEST restore mode and watch the TR screen for error messages.

The other situation occurs if your copy program supports only DOS file names (like a DOS workstation, TOOLBOX.NLM when used for copying files to a remote server or when TOOLBOX.NLM has been loaded with the /NL parameter). In this case only DOS names are available on the destination and therefore "NameSpaceUsedForRestore" must be set to DOS. You can restore the not copied LONG names by TR if you set "RestoreOriginatingNameSpaces" and "RestoreLONGFileNames" to YES in the .CFG file.

The big advantage of copying files using only DOS names and let TR restore the long names later on is that you will get an identical copy of the file structure of the source volume on the destination volume.

But note: Use this procedure only on identical Netware versions. Never use it to copy files from Netware 4.xx to 5.xx or above. Novell has changed the algorithm for the creation of DOS file names from LONG names on Netware 5.xx and above. These new Netware versions also do not accept DOS names with special characters or German Umlauts in it if country code is set to US . So files with these special characters will fail the DOS copy process.

Files created by TR.NLM

This chapter gives you some information on the files that are created during trustee save and restore process. It gives you also some hints on how to manipulate this information to adjust it to your restore requirements.

First of all: All files are pure ASCII files. You can use every editor that can handle big files to manipulate them as long as the editor stores it in the DOS specific file format. That means every line must be delimited by a CR/LF pair.

Please note: When manipulating the files `xxxxx.IDS`, `xxxxx.TRU` and `xxxxx.PRP` keep the exact file and line format or unexpected results may occur.

The file xxxxx.IDS

First of all: The name for the .IDS file is taken from the "NameOfTRFiles" parameter in the configuration file.

The file xxxxx.IDS contains all object ID's and their corresponding real object names that are needed for a trustee, object owner and volume restriction restore.

You can force TR not only to store the IDs it finds in the file system by setting "ScanContexts" to an NDS containers it shall completely scan, or by setting "ScanBindery" to YES in the .CFG file. If you do all IDs and the corresponding real names it finds during NDS or bindery scan and the ID's in the file system are stored in the .IDS file.

Example of an .IDS file:

```
;
; This file holds the original (source) IDs and the real object names
; of the server whose files should be transferred to another location.
; This file is also taken for the trustee restore. So all changes made
; here have impact on the restore process.
;
; The single characters in front of each line do mean:
;
; B = Base Context (specified in the config file) or <Bindery Mode> if bind
; ery
;     mode is used for the trustee save.
; R = Owner IDs used for restore. All other entries are from global ID scan.
;
; You can modify these entries as necessary as long as you keep the exact
; format of the file. Not doing so may give unexpected results.
;
B  ".JELO"
;
;   Old ID   Real object name
;
R  33800000 "Admin"
R  3a800000 "UNIX Service Handler"
   c9810000 "HP_PS_1_PO"
R  1b800000 "ALF_1.PETER"
   98810000 "LDAP Server - ALF_1.SUB"
```

The example above shows a part of a typical .IDS file. All lines starting with a semicolon (;) are comments and are ignored by TR. The first character on each line is used as a flag to tell TR the different meaning for the rest of the line.

“B” specifies the NDS base context that is used for the real object names below. It was taken from the “BaseContext” parameter in the .CFG file. This entry can also be: <Bindery Mode>. In this case all entries are bindery object names (from a bindery server or if “ServiceUsedForSave” in the .CFG file has been set to bindery).

Lines starting with a blank character or an “R” are the assignments between object ID’s found on the “saved” server and the real object names. The real object names given here are relative to the NDS base context. If base context is empty all entries will be given in absolute format.

The single letter “R” specifies that the ID has been also found in the file system and is therefore needed for the restore process.

Reasons to modify this file

There may be several reasons to modify this file:

1. You want to move file owner IDs and trustees to other objects.

This can be easily done by replacing the real object names in this file to the new names. During a trustee and file owner restore these modified entries will be used. Please do not alter the “old” object IDs or this entry is no longer valid for the restore process.

Example: You need to move owner and trustees from object Admin to object .[SUPERVISOR]. All what you have to do is to replace the entry of Admin in the .IDS file to .[SUPERVISOR].

2. Trustees and owner ships of a bindery server shall be moved to an NDS server.

After you have saved the old Trustees and IDs of the Netware 3.x server by using TR.NLM you have to do the following modifications to the .TRU file:

Modify the NDS base context from <Bindery Mode> to the base context where the migrated bindery objects can be found in the new NDS. E.g.: if all 3.x bindery objects have been moved to: .myold.company.de then enter for the “B” line: B “.myold.company.de”. Copy the 3.x files to the new server. Copy TR.NLM files to the new server. Run restore functions of TR.NLM. That’s all!

If you don’t like to modify the .IDS file you can modify the .CFG file instead. Set “ServiceUsedForRestore” to NDS and “BaseContextUsedForRestore” to “myold.company.de” (without the double quotes (“”)), which results in the same.

3. Moving trustees to a different tree:

The movement of trustees to another NDS tree is no problem if the structure of the new tree is identical to the old tree. Just do nothing special. If all objects can be found in another context just change the base context in either the .IDS file or change “BaseContextUsedForRestore” parameter in the .CFG file.

E.g.: if old user objects can be found in: “usr.dep4.company.de”, and the new ones are located in “newusr.dep5.comp.de” then modify the “B” line in the “IDS” file to “.newusr.dep5.comp.de ” or modify the “BaseContextUsedForRestore” parameter in .CFG file to “newusr.dep5.comp.de”. That’s all!

If the objects have be distributed to different contexts then it’s the best to set the base context in the .IDS file to the NDS context that best matches the current object names contexts. After that you have to modify the real object names in the .IDS file as necessary. You can start TR.NLM on the destination server in /R mode to check if all objects in the .IDS file can be found in the new tree. Look into the file xxxxx.REF to see which entries cannot be resolved. Maybe you have to add the missing objects to your destination NDS first before you proceed.

The file xxxxx.REF

As for the .IDS file the name of the .REF file is taken from the "NameOfTRFiles" parameter in the configuration file.

The file xxxxx.REF contains all the old ID's, the new ID's and their corresponding real object names. This file is for informational purposes only and is not used by TR. The file is created during the startup of a trustee restore process. So you can check if all real object names can be found in the new server environment and how old IDs are replaced by the new ones. After this file has been written by TR it interrupts further execution and you can decide if you like to continue or do some correction to the system first.

Example to a .REF file:

```
;
; This file holds the object IDs and real object names of both servers
; (the source server and the destination server). This file is created
; only for informational purposes and not used for restore. The first
; hex value on each line indicates the source ID, the second one repre-
; sents the destination ID.
;
; The single characters in front of each line do mean:
;
; B = Base Context (specified in the config file)
; S = Supervisor entry. All files that do not belong to a specific object
;     will get this owner assignment after restore.
; R = Object IDs used for restore. All other entries are from global ID
;     scan.
; U = Unresolved entry. This object name existed on the old server but can-
;     not be found on the new one.
;
B  ".DEP4.JELO"
S  00000001 "[SUPERVISOR].."
;
;   Old ID   New ID   Real object name
;
4e800000 9f810000 "UNICON MANAGER."
    4f800000 a0810000 "UNICON SERVICES MANAGER."
    2f800000 39800000 "UNICON USER/GROUP MANAGER."
R  29800000 33800000 "Admin."
RU 39800000 00000001 "angel."
    38800000 48800000 "Backup."
R  36800000 4d800000 "Binduser."
R  3b800000 49800000 "GUEST."
    41800000 50800000 "ISDN."
R  35800000 46800000 "Jelo."
R  3a800000 4c800000 "MAILBOOT."
U  3e800000 00000001 "Meyer."
```

The example above shows a part of a typical .REF file. As in the .IDS file all lines starting with a semi-colon (;) are treated as comments. The first and second character on each line are flags that tell you something about the status of the entry.

“B” specifies the NDS base context that is used for the real object name below. It is taken from the “B” entry of the .IDS file or from the “BaseContextUsedForRestore” parameter in the .CFG file. This entry can also be: <Bindery Mode>. In this case all entries are bindery object names.

“S” is the supervisory entry. For all file system entries that have currently no owner, an invalid owner ID, or if an object cannot be found either on the old or new server this supervisor object is used as new owner or trustee ID.

Lines starting with a blank character or an “R” are the assignments between old object ID, new object ID and real object names. The real object names given here are relative to the NDS base context. If base context is empty all entries will be given in absolute format.

The single letter “R” tells you that the ID has also been found in the file system and is therefore needed for the restore process.

The single letter “U” marks an unresolved entry. This entry cannot be found in the new server’s environment. As seen above this ID will be replaced by the supervisory entry.

The file xxxxx.TRU

As for the other files created by TR the name of the .TRU file is taken from the “NameOfTRFiles” parameter in the configuration file.

The file xxxxx.TRU contains all the Netware specific volume, directory and file information for every volume, directory and file entry it has scanned during the Trustee Save process. All these entries are used for the restore process on the destination server. Because this file contains a line for every volume, directory and file entry it has saved it can become very long. A realistic value for a directory or file entry is about 200 bytes. If a volume contains about 1,000,000 files this file can grow easily up to a length of 200 MB and more. So check your free disk space before you start a trustee save.

This file contains the following information:

- object (user) specific volume space restrictions
- for directory and files
 - trustees
 - all file attributes
 - creation date and time
 - last modification date and time
 - last accessed date
 - archived date and time
 - owner ID
 - updater ID
 - archiver ID
 - inheritance rights filter mask
 - LONG file name (if available on the source volume)
 - DOS file name
 - MAC file name (if available on the source volume)
 - NFS file name (if available on the source volume)
 - directory space restrictions
 - file owner as real name (just for information, not used for restore)

Example of a .TRU file:

```
;
; This file holds the complete information of directories or file entries.
; These entries are necessary to restore all the Netware specific file
; system information onto another server, after a Netware operating system
; upgrade,
; or after a disk move.
;
; The single characters in front of each line do mean:
;
; A = Additional entries for LONG, NFS and MAC NS (NS=name space) names
;     enabled
; N = Volume name (DOS  name space)
; L = Volume name (LONG name space enabled for volume)
; V = Volume space restriction for a specified object (in 4K Blocks/Hex)
; D = Directory entry
; F = File entry
; T = Trustee entry
; S = Space restriction of a directory (in 4K Blocks/Hex)
;
; You can modify these entries as necessary as long as you keep the exact
; format of the file. Not doing so may give unexpected results.
;
; Note: All real object names stored in this file are for informational
;       purposes only and are not used for the restore process of: TR.

A

L  "SYS"

V  48800000 000016e6 "Backup"
V  4d800000 0000552c "Binduser"
V  4b800000 000056b8 "Meyer"
V  49800000 0000157c "GUEST"

;                               Path: SYS:\JAVA

D  40000010 2c706221 2e790af5 00003000 3c410000 8e810000 00000000 a9810000
   ffff 04 "java" "JAVA" "java" "" "" "DerTolleUser101.Peter"
T  a9810000 01e3 "java" "JAVA" "GR_IVAR2"
T  a3810000 00d9 "java" "JAVA" "Gr_Ivar"
T  65800000 00d3 "java" "JAVA" "gr_hell"
T  64800000 004b "java" "JAVA" "gr_backup"
S  000009d0 "java" "JAVA"
F  00000000 2e231002 2cc75132 2e6a0000 00000000 1b800000 1b800000 00000001
   ffff 04 "java\copyright" "JAVA\COPYRI~1" "copyright" "" "" "ALF_1.PETER"
F  00000000 2e231004 2cc75141 2e720000 00000000 1b800000 1b800000 00000001
   ffff 04 "java\license.txt" "JAVA\LICENSE.TXT" "license.txt" "" ""
   "ALF_1.PETER"
F  00000000 2e231025 2cc75182 2e720000 00000000 1b800000 1b800000 00000001
   ffff 04 "java\readme.txt" "JAVA\README.TXT" "readme.txt" "" ""
   "ALF_1.PETER"
D  00000010 2c706221 2e790af2 00000000 00000000 00000001 00000000 00000001
   ffff 04 "java\bin" "JAVA\BIN" "bin" "" "" "[Supervisor]."
```

```

F 00000000 2e230f72 28789a61 2e720000 00000000 1b800000 1b800000 00000001
fff 04 "java\bin\jncp.nlm" "JAVA\BIN\JNCP.NLM" "jncp.nlm" " " " "
"ALF_1.PETER"
F 00000000 2e231001 2cc75130 2e720000 00000000 1b800000 1b800000 00000001
fff 04 "java\bin\agent_g.nlm" "JAVA\BIN\AGENT_G.NLM" "agent_g.nlm" " " " "
"ALF_1.PETER"

```

The example above shows a part of a typical .TRU file. As already described with the other files all lines starting with a semicolon (;) are treated as comments. The first character on each line are flags that are used by TR to figure out the purpose for the rest of the line.

“A” indicates that the .TRU file also contains entries for additional name spaces (LONG, NFS, MAC).

“L” or “N” tells TR that this line contains the name of the volume that shall be used for all entries below. I.e.: Volume space restrictions, directory and file entries. This entry must exist or all further lines below are ignored for the restore process as long as TR finds an valid “L” or “N” entry in the .TRU file. You can modify this entry or set “VolumesAndDirsUsedForRestore” to the new volume name if the Restore shall run on another volume.

“V” indicates an entry for an object dependant volume space restriction. The rest of the line specifies the following detail information: Object ID, space restriction in 4 KB blocks and the real object name (the real object name is not used for restore).

“D” or “F” indicates a directory or file entry. The rest of the line specifies the following detail information: File attributes, creation date and time, modification date and time, last accessed date and time, last archived date and time, owner ID, updater ID, archiver ID, inherited rights mask, LONG file name, DOS file name, LONG name space name, NFS name space name, MAC name space name (LONG, NFS and MAC entries are available only if “A” is found in the .TRU file) and the real owner object name (the real object name is not used for restore).

“T” indicates a TRUSTEE entry. The rest of the line specifies the following detail information: Trustee ID, trustee rights, LONG file name, DOS file name and the real trustee object name (the real object name is not used for restore).

“S” indicates a directory space restriction. The rest of the line specifies the following detail information: Directory space restriction in 4 KB blocks, LONG file name and DOS file name.

Reasons to modify this file

I think there is only one reason to modify this file. If you like to limit the restore process to some directories or files only. If possible restrict the trustee save by entering specific directories names for the “VolumesAndDirsUsedForSave” parameter in the .CFG file. If this is not possible, you can subsequently cut the part of entries from the .TRU file using an ASCII editor and insert it to another file. If you do please don’t forget to move the “L” or “N” entry also, so that it precedes the other entries. Note: Without a volume definition the restore process will not run.

In the next step rename the old .TRU file to something else and rename the new .TRU file to the original name. If the restore shall run on another volume, modify either the “L” or “N” entry or the “VolumesAndDirsUsedForRestore” parameter in the .CFG file to reflect the new volume name.

The file xxxxx.PRP

As for the other files the name of the .PRP file is taken from the "NameOfTRFiles" parameter in the configuration file.

The file xxxxx.PRP contains the supervisor properties of a bindery or bindery emulation. It is created only if "SaveSupervisorProperties" in the :CFG file has been set to YES during a save process. It is used to move this special information to another server. You only need this if you still run programs that need the information stored here (like ABC.NLM for example).

Example of a .TRU file

```
;
; This file holds the properties of the bindery object SUPERVISOR.
; With it all subentries of SUPERVISOR can be restored if necessary.
;
; The single characters in front of each line do mean:
;
; P = Property base information.
;   The column in each entry does mean:
;   1 = property flags
;   2 = property security
;   3 = property name
;
; S = Set entry.
;   The column in each entry does mean:
;   1 = ID of member (just for information - not for restore)
;   2 = object type of member (1 = User, 2 = Group, ...)
;   3 = property name
;   4 = member name
;
;
; B = Binary entry.
;   The column in each entry does mean:
;   1      Segment number of property entry
;   2      0 = no further 128 byte segments, FF = more 128 byte segment(s)
;   3 - 34 Binary value
;   35     property name
;
; You can replace these entries as necessary as long as you keep the exact
; format of the file. Not doing so may give unexpected results.

P 02 32 "SECURITY_EQUALS"
S 5b00001a 0002 "SECURITY_EQUALS" "SUPERVISORS"
S 00000001 0001 "SECURITY_EQUALS" "SUPERVISOR"
P 00 32 "LOGIN_CONTROL"
B 0001 00 00000000 000000ff 0000ff00 0000ffff ffffffff ffffffff ffffffff ffffffff
  ffffffff ffffffff ffffffff ffffffff ffffffff ffffffff 650a090b 12200000 7fffffff
  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
  00000000 00000000 00000000 00000000 00000000 00000000 "LOGIN_CONTROL"
```

The example above shows a part of a typical .PRP file. As already described with the other files all lines starting with a semicolon (;) are treated as comments. The first character on each line are flags that are used by TR to figure out the purpose for the rest of the line.

“P” indicates a property base information. This information consists of: Property flag (static, dynamic item and binary or set entry), property security and the property name.

“S” indicates an set entry. It consists of: Member ID, object type (1 = user, 2 = group,...), property name and member name.

“B” indicates a binary entry. It consists of: Segment number of property entry, flag for further 128 byte entries, 32 binary values and the property name.

Reasons to modify this file

I think the only reason to modify this file is if you want to limit the restore to a part of the information stored here. This easily can be done by removing unused entries using a standard text editor. But note: A “P” and “S” entry or a “P” and “B” entry are a pair of information that must NOT be deleted separately.

The file xxxxx.BAT

As for the other files the name of the .BAT file is taken from the "NameOfTRFiles" parameter in the configuration file.

The file xxxxx.BAT contains standard command line make directory and copy commands for all directory and file entries in the .TRU file that cannot be found on the hard disk during a restore process. It is created only if the "CreateCopyBatchForMissingFiles" parameter in the .CFG file is set to yes. It is used to help you copying files that your copy program did not copy. You can force the creation of this file without restoring anything if you run the TR restore process in test mode.

The "NameSpaceUsedForBatchFile" parameter defines which kind of file names are used for the copy commands. If set to LONG, long files names are used, if set to DOS, DOS file names are used. If you have workstations that support long file names use always long here.

Example of a .BAT file

```
@echo off
REM This batch file contains COPY and MD commands for all the files and
REM directories that TRUSTEE RESTORE has not found during the restore
REM process.
REM
REM It can be used to copy the missing files from the source to the new
REM destination.
REM
REM Just do the following: MAP root 'Z' to the source volume
REM                               MAP root 'Y' to the destination volume
REM
REM e.g.:                        MAP root Z:=Server1/Vol1:
REM                               MAP root Y:=Server2/Vol2:/<BaseDir1/...>
REM
REM Run this batch file in a COMMAND line window. That's all !
REM
REM                               Name Space: DOS   Volume: DATA
REM

md      "Y:\IVAR"
copy "Z:\IVAR\LANGERNA" "Y:\IVAR\LANGERNA"
copy "Z:\IVAR\OWNER.BAK" "Y:\IVAR\OWNER.BAK"
copy "Z:\IVAR\OWNER.REF" "Y:\IVAR\OWNER.REF"
copy "Z:\IVAR\OWNER.TRU" "Y:\IVAR\OWNER.TRU"
copy "Z:\IVAR\PAULA.TXT" "Y:\IVAR\PAULA.TXT"
copy "Z:\IVAR\TBOX$ACT.LOG" "Y:\IVAR\TBOX$ACT.LOG"
copy "Z:\IVAR\TTS$LOG.ERR" "Y:\IVAR\TTS$LOG.ERR"
copy "Z:\IVAR\VOL$LOG.ERR" "Y:\IVAR\VOL$LOG.ERR"
copy "Z:\IVAR\VR000001.FIL" "Y:\IVAR\VR000001.FIL"
```

I think this batch example talks for itself !

Reasons to modify this file

I think there might be a reason to modify this file if you like to use another command processor or another program to do the file copy. Just use a standard text editor to make all necessary changes.

The file xxxxx.LOG

As for the other files the name of the .LOG file is taken from the “NameOfTRFiles” parameter in the configuration file.

The file xxxxx.LOG contains a collection of all messages that TR displays on its own screen during a save or restore process. This file shall help you to figure out the reason when something went wrong during a TR run. New messages are always appended at the end of the existing file .LOG file, so that all information created on previously runs is still available.

Example for a :LOG file:

Start of TRUSTEE RESTORE at: 25.03.03 0:35:45 !

Serial Number: 1

Registered to: Horst Jelonneck

ERROR: 'SaveSupervisorProperties' cannot run because bindery is not enabled

Start writing Trustees to: 'SYS:\TEST\JAVA.TRU'

Finished writing Trustees to: 'SYS:\TEST\JAVA.TRU' !

1 volume, 279 directories, 4518 files, 0 errors !

Start writing IDs to: 'SYS:\TEST\JAVA.IDS'

Finished writing IDs to: 'SYS:\TEST\JAVA.IDS' - 53 IDs written !

End of TRUSTEE RESTORE at: 25.03.03 0:35:48 Errors: 1 !

Serial Number: 1

Registered to: Horst Jelonneck

Start reading IDs from: 'SYS:\TEST\JAVA.IDS'

Finished reading IDs from: 'SYS:\TEST\JAVA.IDS' - 53 IDs - 0 error(s) !

Start writing IDs to: 'SYS:\TEST\JAVA.REF'

Finished writing IDs to: 'SYS:\TEST\JAVA.REF' - 53 IDs written !

All preparation steps have been made !

Please verify the following config parameters for correctness:

EnableRestore = YES

ResetModifyFlags = NO

RepairDOSFileNames = NO

RenameMailDirectories = NO

RepairMailDirectoriesOwnerIDs = NO

RepairMailDirectoriesTrustees = NO

RestoreSupervisorProperties = NO

Also check the file: 'SYS:\TEST\JAVA.REF' for proper ID replacement values

What to do next ?

Stop further execution (type: <ESC> or <return>)

Do a test run (type: T + <return>)

Start restore and repair (type: START + <return>)

Your selection (<ESC>/T/START): START

Start of Trustees RESTORE from file: 'SYS:\TEST\JAVA.TRU' !

WARNING: Cannot restore LONG name space file names when:

'NameSpaceUsedForRestore' is set to LONG in config file.

LONG names are already available - NO restore necessary !

Finished Trustees RESTORE from file: 'SYS:\TEST\JAVA.TRU' !

1 volume, 279 directories, 4518 files, 0 errors !

End of TRUSTEE RESTORE at: 25.03.03 1:23:43 Errors: 0 !

Some helpful hints

Nothing is as easy as it seems! And when I've told above that TR is really easy to use and there are absolute no problems and requirements, then this is not the complete truth. There are some things you should be aware of.

If you save Netware specific file information it doesn't matter if the files are currently in use by other applications. For the restore process it's essential that the files affected by the restore process are currently not in use. To have all files closed on volumes other than SYS: is not so difficult to resolve. On SYS: there are always some files open by the operating system. Also print servers that have logged in hold permanently files open. For a Trustee Restore it's now important to force the closing of all files. It is not a disaster if some files are open during a restore run, but this files will fail the modification process.

How to run TR /R on SYS?

If you have to run a Trustee RESTORE on volume SYS it's the best to have nearly all files closed. You will need a little trick to do this. The easiest way would be to restart the server without running AUTOEXEC.NCF. So only essential files are loaded that do not lock more files than absolutely necessary. This great idea has the small disadvantage that directory services will not run properly as long as no LAN drivers are loaded and bound to a protocol. Therefore we need a minimal configuration described below.

To restore trustees on volume SYS use the following procedure (tested on Netware 5.1):

- Configure TR for a Trustee RESTORE run on volume SYS.
- Copy all necessary files for a trustee restore to SYS:TR.
- Extend search path by entering SEARCH ADD SYS:TR on the server console.
- Start a test restore by loading TR.NLM with the /R parameter (:LOAD TR <configuration file> /R)
- Run the test using the "T" command on TR screen and check if there are errors.
- Resolve possible errors !
- Using the 5 lines beneath the "disable login" command below as a sample and copy the equivalent commands from **your** SYS:SYSTEM/AUTOEXEC.NCF and SYS:ETC/NETINFO.CFG file to a new file called SYS:SYSTEM/MIN.NCF. Discard the 5 sample lines.

```
disable logins
file server name xxxxxx
ipx internal net yyyyyyy
load <landriver> frame=eeeeeeeeeeeeee slot=z
bind ipx to <landriver> net=nnnnnnnnn
load remote <password>
load rspx
search add sys:tr
```

Note: This minimum configuration file allows the use of remote console.

- If you do not find a "bind ipx to" command in your files modify line 5 so that it fits to your load <landriver> command. Please to not use TCPIP because this protocol loads per default many additional programs that will lock some files on SYS.
- Down your server and restart it on the DOS command line with: SERVER -na. This will load SERVER.EXE without running AUTOEXEC.NCF.
- When the Netware prompt appears run MIN.NCF.
- If the server cannot connect to other servers ignore it.
- Start TR with: LOAD TR <configuration file> /R
- Start restore process by entering "START" at the verify prompt of TR.
- After TR has finished its restore process, restart the server in normal mode.

How to copy volume SYS using TOLLBOX.NLM and TR.NLM?

The following procedure is a quite unusual but fast and save way to copy volume SYS to another maybe bigger new volume. If something goes wrong just mount the old volume instead of the new one. This procedure has been tested with Netware 5.1

- Connect a new hard disk to your server.
- Create a new volume named SYSNEW and mount it. Note: The new volume should be big enough to hold all file of volume SYS.
- Create the subdirectory SYS:TR
- Copy TR.NLM and an unmodified version of VOLUME.CFG (that comes with TR) to SYS:TR.
- Rename VOLUME.CFG to SYS.CFG.
- Using an editor modify the "NameSpaceUsedForRestore" parameter in SYS.CFG to DOS.
- Enter SEARCH ADD SYS:TR on the server's console.
- LOAD TR sys /S (this starts a trustee save for all files on volume SYS)
- After TR has finished :LOAD TOOLBOX /NL
- LOAD INSTALL.NLM (Netware 4.x) or NWCONFIG.NLM (Netware 5.x).
- Dismount volume SYS.
- Change to INSTALL or NWCONFIG screen. Select: Standard Disk Options → Netware Volume Options". Select SYS and press enter. Rename volume SYS to SYSOLD.
- Mount SYSOLD. Ignore the error that this isn't possible.
- On the Netware console enter: COPY SYSOLD:*. * SYSNEW: /s /d
- After the copy has finished enter: COPY SYSOLD:_NETWARE SYSNEW:_NETWARE
- Dismount SYSOLD and SYSNEW
- Go back to INSTALL or NWCONFIG screen and rename SYSNEW to SYS
- Select "mount volumes selectively" on the next menu and mount **ONLY** volume SYS (do **NOT** mount SYSOLD).
- Check if your AUTOEXEC.NCF contains a MOUNT ALL command. If yes disable it.
- Follow the instructions found above under "**How to run TR /R on SYS**" and restore trustees to SYS:
- Remove volume SYSOLD. If you cannot remove it erase it, but at minimum do not mount it or you get some trouble with NDS.
- After reboot check if volume SYSOLD is mounted. If yes dismount it.
- LOAD DSREPAIR, go to "Advanced option menu → Check volume objects and trustees". Run it.
- Using NWADMIN remove SYSNEW from NDS
- That's all, you have finished!

How to replace hard disks on a production server?

Replacing hard disks on a production server is always a time critical and risk full task. A task that normally doubles your blood pressure. I prefer you use the following procedure assuming that SYS has not to be copied or is copied separately using the instructions above.

My personal server concept differs a little bit from the mostly used ones. If the server has a RAID hard disk system I prefer to have the DOS boot partition and volume SYS on normal IDE hard disks that have been mirrored in a classical way. The advantages of this concept are: If something goes wrong with your RAID system you are still able to boot Netware. And if the RAID system has to be replaced due to a space upgrade you can use the concept below to do this in an easy way.

OK, here is my way to replace your data hard disks:

- Connect your new hard disks to a non production server. If you have none use a workstation to create a temporary Netware server and connect the hard disks there.
- Install this temporary server into your production NDS.
- Create new volumes using NWCONFIG.NLM or INSTALL.NLM that have the same names as the volumes on your production server.
- Create the subdirectory SYS:TR on your production server
- Copy TR.NLM and an unmodified version of VOLUME.CFG (that comes with TR) to SYS:TR.
- Using an editor modify the "NameSpaceUsedForRestore" parameter in VOLUME.CFG to DOS.
- Rename VOLUME.CFG to <volume name>.CFG (<volume name> is the name of the first volume to copy).
- Copy the just renamed file to a new name so that it has the same name as the next volume to copy.
- Repeat step above for every volume you want to copy.
- Enter SEARCH ADD SYS:TR on your production server's console.
- Run a trustee save for every volume using the .CFG files just created.
- LOAD TOOLBOX on the temporary server.

- Using an standard editor create the following copy commands:

```
COPY ProdServer/vol1:*. * TempServer/vol1: /sd
COPY ProdServer/vol2:*. * TempServer/vol2: /sd
And so one...
```

- Store this file on the temporary server using the name SYS:SYSTEM/CP.NCF.
- Enter DIR ProdServer/SYS: on the temporary server's console and check if TOOLBOX can authenticate to NDS and to your production server.
- When your users have gone start CP.NCF file on the temporary server (I think this is an overnight job).
- If you have print servers that use one of the volumes you have to copy, DISABLE LOGINS on the production server's console and discard all connections that are not needed for the copy process using MONITOR .NLM.
- Enter SEARCH ADD SYS:TR on the temporary server's console.
- When the copy has finished run a TR **TEST RESTORE** on all volumes on the temporary server. That checks if the overnight copy had some problems.

- Add DISABLE LOGINS to the start of AUTOEXEC.NCF on your production server.
- Down both servers, exchange hard disks (move disks from temporary to the production server and vice versa).
- Boot production server.
- Mount all volumes.
- Restore all Netware specific file information including long file names by: LOAD TR <VOLNAME> /R.
- Repeat step above for every volume.
- LOAD DSREPAIR, go to “Advanced option menu → Check volume objects and trustees”. Run it.
- Enable LOGINS!
- Remove DISABLE LOGINS command from AUTOEXEC.NCF.
- Remove the temporary server and its volumes from NDS.
- That’s all!

How to copy volume SYS over the wire, or SYS is also part of my RAID SYSTEM

Hmm....

Hmm....

Hmm.... not so easy

Maybe suicide is a better solution for you!

OK! You can try the following way. But note: I haven't checked it out completely:

- Create a volume with a name of SYSNEW on the temporary server and mount it. I hope you have an extra SYS that runs your temporary server.
- Create the file MIN.NCF as described under "How to run TR /R on SYS?" and store it on SYS:SYSTEM/MIN.NCF on your production server.
- Save trustees of volume SYS using TR.NLM on the production server.
- Restart your production server in minimum configuration as described in: "How to run TR /R on SYS?".
- Enable IPX protocol on your temporary server if not already done.
- LOAD TOOLBOX.NLM on your temporary server.
- Check if both servers have a connection to each other. This can be done easily by entering: DIR ProdServer/SYS: on the temporary server's console.
- If you have a connection DISABLE LOGINS on the production server and discard all connections using MONITOR.NLM that are not used for the copy process.
- On the temporary console enter: COPY ProdServer/SYS:*.* TempServer/SYSNEW: /sd
- When copy has finished LOAD TOOLBOX /NL on the production server.
- Create a directory on production SYS: with the name of SYS:NDS
- On the production console enter: UNLOAD DS.
- Enter: COPY SYS:_NETWARE SYS:NDS on the production console (ignore the error message that SERVCFG.xxx could not be opened. There is a copy of this file on c:\nwserver)
- On temporary server create also a directory with the name: SYSNEW:NDS
- Enter: COPY ProdServer/SYS:NDS TempServer/SYSNEW:NDS on the temporary server.
- UNLOAD TOOLBOX on the temporary server and reload it with the /NL parameter.
- Enter: COPY SYSNEW:NDS SYSNEW:_NETWARE
- Add DISABLE LOGINS to the start of SYSNEW:SYSTEM/AUTOEXEC.NCF
- Down both servers, exchange hard disks (move disks from temporary to the production server and vice versa).
- Restart production server and ignore the boot failure.
- LOAD NWCONFIG.NLM or INSTALL.NLM. If any of both is on SYS:SYSTEM mount SYSNEW.
- Using NWCONFIG or INSTALL rename SYSNEW to SYS and do NOT mount volume.
- Restart production server with minimum configuration.
- Restore Netware specific file information including long file names using TR.NLM in restore mode.
- Repeat the step above for all additional volumes if more volumes have also been moved.
- Remove DISABLE LOGINS command from AUTOEXEC.NCF.
- Restart server.
- LOAD DSREPAIR, go to "Advanced option menu → Check volume objects and trustees". Run it.
- Ready again!

How to copy DOS partition over the wire, or DOS is also a part of my RAID

Oh yes!

I've heard these virtual question!

OK! I think more and more... Suicide shall be the best solution for ME!

Let's try it!

I assume you have already installed a DOS on your RAID DOS partition. And now you want to know how to move c:\NWSERVER from your production server to the new hard disks.

I think that's easy !

- LOAD TOOLBOX on your production server.
- Create a directory named DOS onto a Netware production volume that will be copied later to the temporary server.
- Enter: COPY C:\NWSERVER <VOLUME>:DOS /sd on your production server.
- Copy the volume contents to the temporary server (see above).
- On the temporary server create a directory named C:\NWSERVER (MD C:\NWSERVER)
- Copy <VOLUME>:DOS to C:\NWSERVER (copy <VOLUME>:DOS C:\NWSERVER /sd)
- That's it.

How to copy mail directories to another server

If you need to copy SYS:MAIL directories to another server it is also necessary to rename these copied directories. The reason for that is: A mail directory name reflects the local object ID of an owner as hexadecimal value. If you move a mail directory to another server its name does not longer reflect the owner's object ID because the new server holds other ID values for the same object.

To let TR rename the mail directories, it needs the IDs from the old server and the corresponding real object names. This old IDs, the real names and the IDs of the new server are necessary to build a translation table for the rename process.

The renaming of the mail directories is only one step. The other important step is to copy trustees and owner ships of the mail directory structure. To execute all these steps do the following. Please use the file TR.CFG that comes with TR as a base for this procedure:

- Copy the mail directory structure to the destination server into SYS:MAIL.
- Copy TR.NLM and TR.CFG to the source server's directory SYS:TR.
- Change the "VolumesAndDirsUsedForSave" parameter in TR.CFG to SYS:MAIL.
- Change the "ServiceUsedForSave" parameter to BINDERY.
- Change the "ScanBindery" parameter to YES.
- If the source server runs a Netware version equal / above 4.00 check if "Bindery context" is set to all containers that contain objects with a mail directory.
- Run the trustee save using .CFG file TR.CFG (:LOAD TR /S).
- Copy files in SYS:TR to destination server.
- Run a Trustee Restore on the destination server (:LOAD TR /R).
- If it runs well set "Enable Restore" in .CFG file to NO and set "RenameMailDirectories" to YES.
- Restart TR on destination server with /R parameter. Use the TEST option to check if TR would be able to rename all mail directories. If not check what went wrong and correct the errors.
- If yes restart TR with /R parameter and start the mail directories renaming.

Important: Do not run the mail rename process more than once or some of the new directory names will be renamed again to a wrong name!

Check if mail directories trustees and owner ships are OK. If not run a mail directory repair. For that do the following:

- Change the "RenameMailDirectories" parameter in TR.CFG to NO.
- Change the "RepairMailDirectoriesOwnerIDs" parameter to YES.
- Change the "RepairMailDirectoriesTrustees" parameter to YES.
- Run TR with /R parameter.
- Enter Start at the verify prompt.
- You have finished!

The last words

Did you recognize something? We have done this really special work without the use of any workstation. No need for absolute over engineered badly running windows software. And I think so it must be !!!