NetDup

Version 205

Reference Manual

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1. Introduction

One of the major benefits of EXPAND is the ability to distribute data and applications between nodes, which is the base for nearly unlimited system sizes.

Another very important benefit is the ability to transfer structured files between nodes.

To transfer files between Tandem systems using EXPAND, the following three things have to be in place:

- the file to be transferred must allow read access
- the target system must grant file create access
- the user, performing the file transfer, must have an
  account on the local and remote system(s)
  remote passwords between the local and remote system(s)

These requirements may collide with your company security policy, where normal users are not allowed to have remote access from e.g. the development system to the production system.
On the other hand: Transferring a ZZSA-file (saveabend file) for error analysis, or supplying a new object file, WITHOUT the need to ask for permission or help is very handy.

The new ShareWare tool NetDup helps to solves the dilemma with the remote passwords: It allows a user to transfer files between systems WITHOUT the need to have remote passwords in place.
All, that still is required, is READ access right on the file to be duped, and create access on the target system.

2. Modes

The NetDup tool runs in two different modes:

1. As SECOM supportive utility (started from SECOM).
   SECOM users can use NetDup as a supportive SECOM utility for free.

2. Outside of SECOM, e.g. started from a TACL.
   This is the case for all NON SECOM users.
   When started from a TACL, NetDup can be used in two execution methods:
   2.1. In batch mode, where all parameters are supplied by the user at start-time.
   2.2. As INLINE process, where the controlling TACL supplies the DUP commands.

   Outside of SECOM NetDup comes in two flavours:
   1. As ShareWare tool, where registering with GreenHouse and paying a license fee would be nice.
   2. As PayWare product, where registering with GreenHouse and paying a license fee is a requirement to use the product.

2.1. *SECOM supportive utility*

The NetDup utility is a SECOM supportive utility. It allows a SECOM user to transfer disk files between EXPANDed nodes without the need to have remote passwords. NetDup has to be started from SECOM to make NetDup aware of this.
NetDup is free of any license for SECOM users.

2.2. *ShareWare & PayWare*

The NetDup utility can be used outside of SECOM, e.g. started from TACL. In this case, it runs as ShareWare tool or PayWare product.
The test phase is two months.
When NetDup is used on a regular basis after the test phase, the user is requested to register with GreenHouse.
Paying a license for the ShareWare tool would be nice, paying a license for the PayWare product is a requirement.

2.2.1. Batch mode

NetDup is started in batch mode from the TACL prompt by supplying all run time parameters and PARAMs. NetBatch does NOT support an interactive imnterface with a product prompt, an FC (fix command) functionality etc.

2.2.2. INLINE process

NetDup can be started as an INLINE process. This makes it more convenient when used multiple times in e.g. a TACL Macro.
When in INLINE mode, NetDup understands these commands:
- INLEOF to orderly shut down the INLINE NetDup
- E or EXIT (not case sensitive) to do the same
- [DUP] <from-file> [,] <to-file> [[,]option] to duplicate a file

3. Licensing NetDup

When NetDup runs as ShareWare, it does NOT needs to be licensed. You can use it as long as you want – without paying anything. But after 63 days, NetDup starts complaining about the missing license and I hope, you find it boring – and buy a license.

The PayWare version refuses from running, when the test time of 63 days is over, and no license to bought.

You can check the license situation easily by executing this command:

```
[run] NETDUP CHECKLICENSE
```

You'll get something like this:

```
$GHS1 NETDUP 25> netdup checklicense
NETDUP will run for the next 62 days.
To apply for a license, please send this string:
   NETDUP;GWTT0GON
by E-mail to Info@GreenHouse.de
$GHS1 NETDUP 26>
```

To obtain a license, send the products purchase price along with the displayed string to GreenHouse, and in return you get the name of a license file, e.g. **OQPJXTC3**. This

file name has to used to create a file in the location in which NetDup resides. A simpel CREATE <filename> from the TACL prompt is sufficient. E.g.:

```
CREATE OQPJXTC3
```

The ShareWare license lasts until the end of the year 2100, the PayWare license lasts until the end of March of the next calender year.

4. Internals

The NetDup utility is a TAL/pTAL program, using a FUP as inline process to perform the data transfer.

The FROM filenames (files to be duplicated) and TO filenames (target names) may contain wild cards, such as:
- "*", addressing any number of characters, and
- "?", addressing exactly one character.

FROM and TO file name templates are checked for validity before a transfer is initiated.
The file name resolution is done in NetDup, not in FUP.

5. Run Time Consideration

NETDUP has to be started with an ID, that has remote passwords for those systems, involved in the data transfer.
Depending on the usage of NetDup, this is solved differently. Please refer to the explanations below.

In case FROM and TO reside on the same system, the operation is aborted: In this case a local FUP DUP would do the trick in a more performant way.

NETDUP starts the FUP always on the same system where it is running on, with one exception: When TO and FROM do NOT reside on the NetDup system, FUP is started on the TO system.

6. Running NetDup

6.1. Command Syntax

NetDup is a GUARDIAN based program. The command syntax is this:

```
[run] NETDUP [/OUT [<file>]/]  <from> [,] <to> [[,]<option>]
```

where

<file>	Defines the OUT file; an empty OUT suppresses any output. Default is the home terminal.	
<from>	Defines the files to be transferred. Wildcards are allowed.	
<to>	Defines the destination, to which <from> have to be transferred. Wildcards are allowed.	
<option>	Is one or more of:	
	GIVETO <owner>	New file owner. Default is the NETDUP users ID.
	PURGE	Purges existing files in TO when

	necessary.
SECURETO	New file security. Default is the NetDup users default security.
PARTONLY	FUP parameter; allocates extents to any primary and secondary partitions of partitioned files in *from-list*. If a primary partition name is referenced, the extents are allocated only to the primary partition. If you omit PARTONLY, FUP allocates extents to all of the partitioned files in *from-list*. PARTONLY has no effect on nonpartitioned files.

Commas, used as command separators, are optional.

The last modification time stamp is always preserved.

6.2. PARAMs

Beside user supplied run time start-up parameters, NetDup takes the following PARAMs into account:

NETDUPACCESS	BOTH|**GETONLY**|PUTONLY	
	BOTH	allows the transfer in any direction.
	GETONLY	**restricts NETDUP to transfer files from a remote system to the local system.** **Default is: GETONLY.**
	PUTONLY	restricts NETDUP to transfer files from the local system to a remote system

NODEHOPPING	ALLOWED|**DENIED**	
	ALLOWED	Allows the file transfer between nodes, where the local node does not need to be the FROM nor TO node.
	DENIED	**Directs NETDUP to ensure, that either one of the nodes - TO or FROM - is the local node. Default is: DENIED**
REMOTESECURITYnnn	<rwep>|ANY	
	nnn	When present, is a number between 0 and 32767, defining the file code of the addressed file. e.g. REMOTESECURITY100 N***
	<rwep>	GUARDIAN security string, required to be present on the <from> file(s) wildcards are allowed, e.g. N-*-
	ANY	defines that any security on <from> is allowed, as long as it is OK for network access.
Default is:	**REMOTESECURITY "****"**	
SILENT	**ON**|OFF	
	ON	**directs NetDup to display all file and FUP interactions. Default is: ON.**
	OFF	suppresses the display of file and FUP interactions
ALLOWABENDS	ON|**OFF**	
	ON	Causes NetDup to send an: ALLOW ABENDS ON message to its INLINE FUP
	OFF	**No ALLOW ABENDS message is sent to the INLINE FUP. Default is: OFF**

An effective control of PARAMs is only possible when using SECOM as the creating and controlling instance.

6.3. NETDUPACCESS

NetDup can be restricted in its functionality to either

- Export files from the home node to a remote node
- Import files from a remote node to the home node
- Allowing both ways

NetDup is configured that by default it only can import files.

6.4. NODEHOPPING

Normally NetDup either ships files from its home node to a remote system, or imports files from a remote system to its home node. A third transfer method is, that NetDup transfers files between nodes, where its home node is whether the source nor the target node.
This mode is denied by default, but can be allowed using PARAM NODEHOPPING.
Node hopping is denied by default.

6.5. REMOTESECURITY

To access remote files, their GUARDIAN security vector and/or SAFEGUARD ACL have to grant remote access for the user in question.
A GUARDIAN security vector of e.g. "NNNN" would allow any user with access to NetDup to transfer or purge this file. To prevent this, the <from>-file security can be defined that has to exist, otherwise NetDup does not touch the file.
The remote security is defined by two parameters:

1. The file code
2. The required GUARDIAN security setting

The file code is part of the PARAM name, e.g.

- REMOTESECURITY100 defines all non native object files
- REMOTESECURITY101 defines all EDIT type files

When REMOTESECURITY is defined without any numeric attribute, it defines all files.

The security vector is similar to the GUARDIAN security attributes. It is enhanced with Wildcards, such as "*" and "?"

- The "R" or "E" attribute (R = remote, E = Expand), defining any remote attribute (N,C,U)
- The "L" attribute (L = Local), defining any local attribute (A,G,U,-)

e.g. RLLL is anything between NAAA and U---

Up to 10 REMOTESECURITY attributes can be defined.

Example 1:
The following REMOTESECURITY PARAMs are defined:

- REMOTESECURITY100 "NLLL"
- REMOTESECURITY700 "NLLL"
- REMOTESECURITY101 "NLL-"

This directs NetDup to transfer only files with the three mentioned file codes (100,700 and 101), matching the given security templates. All other file are NOT transferred.

Example 2:
The following REMOTESECURITY PARAMs are defined:
- REMOTESECURITY18248 "NLLL"
- REMOTESECURITY "NLL-"

This causes NetDup to transfer only files with code 18248 when they match "NLLL" and all other files, when they match "NLL-".

6.6. SILENT

The SILENT PARAM is implemented to display internal messages while NETDUP is active.
The normal case is, that only a limited type of messages, such as error messages, is displayed.

6.7. ALLOWABENDS

NetDup uses its own INLINE FUP to do the physical work of duplicating the file(s). Sometime it does make sense to allow FUP to ABEND when encountering a problem. This can be enforced with this PARAM.

7. Product delivery

The NetDup software comes in a ZIP type file, containing:
- Two version of the NetDup program: A native and a non native object file
- This Documentation in PDF format.

7.1. Internet

NetDup is available from the ShareWare section of the GreenHouse Internet page at: http://www.GreenHouse.de

7.2. Product CD

NetDup is available on the GreenHouse product CD in two places:
1. In the GeneralTools folder of the SECOM product
2. In the ShareWare folder

8. Installation

Upload the ZIP file onto your workstation and unzip it.
Upload the NetDup object file, that can run on your system:
- NetDup.100 is the non native object file in accelerated format;
  it runs on any version of GUARDIAN Dxx and Gxx
- NetDup.700 is the native object file;
  it requires D40 or better or Gxx

8.1. SECOM users

- Transfer the file in any place and name it e.g. NETDUP.
- Use FUP to set the file code to 100 or 700 respectively.
- Set the owner to the owner of the SECOM system. This normally is SUPER.SUPER.
- Set the GUARDIAN security to "OOAO", or an equivalent SAFEGAURD setting.
- License the object file.
- Do NOT set the PROGID flag: NetDup refuses from running PROGIDed when started from SECOM!

- Configure a SECOM command, where
  - NETDUP is the resource, and the used
  - SECOM-ID is an ID with remote passwords.
- Configure command specific PARAMs when necessary.
- Use command type
  - BAT for qualified NetDup usage
  - INT for a flexible usage.

8.2. ShareWare users

- Transfer the file in any place and name it NETDUP.
  Best is to put it into the search path.
- Use FUP to set the file code to 100 or 700 respectively.
- Set the owner to an ID that has remote passwords between the systems.
- Set the GUARDIAN security to "OOAO", or an equivalent SAFEGAURD setting.
- Set the PROGID flag.
- License the object file.

9. When you are a ShareWare user...

... you have the right to use NetDup for a two month period for free.
When you decide to use the product on a regular basis, you are requested to register with GreenHouse, and to pay a fee for each NSK system you are going to install NetDup on, which is:

- 1.300,00 US$ per NSK system for non European users
- 1.000,00 € per NSK system for European users

Registered users get a LicenseToken that suppresses the

"**** This copy of NetDup is NOT licensed ***"

message, displayed when using NetDup after two months.

10. Using FTP to transfer ENSCRIBE type files to a Tandem system

FTP allows a transfer of ENSCRIBE structured files. This can be done by using the ASCII mode.

The syntax for transferring structured files is:

get remote-file [local-file] [,attribute-list]

where attribute-list is:

[[filetype],[filecode],[primary],[secondary],[maxextents],
[record-len],[pri-key-len],[key-offset],[index-blk-len]]
(you MUST keep this order!)

remote-file
specifies the name of the remote file to be copied. Specify remote-file as required by the remote system.

local-file
specifies a name for the local file. If you omit local-file, FTP uses the name of the remote file for the new file name, after modifying the name according to the current settings of the case, ntrans, and nmap commands. If you specify a hyphen (-) as the local file, the file will be displayed on the screen only (not locally saved).

attribute-list
is a list of file attributes for a HP NonStop file. You can specify these attributes only if the local file system is a Guardian.
You must specify the attributes in the order indicated, using commas as place holders and omitting spaces. Issue the FUP INFO remote-file, DETAIL command to obtain detailed information about the file to be copied.

filecode
indicates the file code of the local file. filecode is a number from 0 through 32767. When FTP is in binary transfer mode, the default file code is 0. When FTP is in ASCII transfer mode, the default file code is 101. This attribute will override the current setting of the filecode command.

primary
indicates the primary extent size in pages (2048-byte units) of the local file. primary is an integer from 1 through 65535. The default is determined internally.

secondary
indicates the secondary extent size in pages (2048-byte units) of the local file. secondary is an integer from 1 through 65535. For structured files, the default size is 16 pages. For unstructured files, the default is determined internally.

maxextents
indicates the maximum number of extents of the local file. maxextents is an integer from 1 through 978. The default value is 978 extents. When your command specifies a maxextents value lower than 16 but greater than 0, FTP sets the maxextents value to 16.

filetype
for structured file transfer, indicates the type of file:

record-len
indicates the length of the records in a structured file. You must obtain this information using the FUP INFO command with the DETAIL option (see the Note below).

pri-key-len
indicates the primary key length in a structured file. You must obtain this information using the FUP INFO command with the DETAIL option (see the Note below).

key-offset
indicates the key offset in a structured file. You must obtain this information using the FUP INFO command with the DETAIL option (see the Note below).

index-blk-len
indicates the index block length in a structured file. You must obtain this information using the FUP INFO command with the DETAIL option (see the Note below).

Note. When you are transferring a large file, you can improve performance by specifying larger extent sizes allowing the system to allocate fewer extents while the file is being copied. e indicates an entry-sequenced file k indicates a key-sequenced file r indicates a relative file

Restrictions compared to NetDup:

- You still need an account on the local as well as remote system.
- Structured files with binary data, representing a CR/LF sequence, can not be transferred without corrupting the data.
- File structures, such as alternate key entries in the file label, are NOT transferred.

In this case it may seem easier to use PAK/UNPAK along with FUP to transfer the data fully functional.

11. External product links

cs-software has a product that allows a direct data transfer from/to a Tandem system from/to any other platform, as long as it supports FTP.
Visit one of the following links:
German: www.cs-software-gmbh.de/Deutsch/Katalog/Produkte/produkte_3.html
English: www.cs-software-gmbh.de/English/Catalogue/Products/products_3.html

12. Correction by Bert van Es

Carl,

Your last remark about FTP/Netdup is not true about the CR/LF. When in STRU R(ecord) mode, Binary or ASCII are no settings. As I remember the Binary and Ascii commands are not allowed at all when in STRU R mode. The setting is in fact Binary implicitly, because the records may contain any binary data. The EOL is not a sequence of characters as in ASCII mode, but system defined at the file access layer and at the FTP protocol level indicated with a record length indicator. So the record may contain anything.

FTP in STRU R (with binary implicitly) mode will not send any structures of the file itself. The internal file structures are (re-)constructed at the receiver end on the fly as with a FUP COPY command, when receiving the data. So key structures of a key sequenced file are reconstructed by DP2 during the receive of STRU R data. In fact the FTP in STRU R mode works like a FUP CREATE and a FUP COPY command together.

Secondly you can do a FTP from node A and send a file from node B to C directly. Almost nobody uses it but it is described in the standards of FTP and implemented on every FTP implementation.

Hope this helps as well.

And yes you are right about the AK files, but you can doubt if you really want that, because you are sending the data twice. Loading an alternate key file is probably much quicker.

Best regards,

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CS-FTP-DB requires the TCP/IP protocol to be installed on your NonStop system.

Please report any error and/or request for enhancements to:

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