

BackBox® E4.07 Upgrade Procedure

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1. INTRODUCTION

This document describes the upgrade procedure of a BackBox/BackPak E4.07.

If no changes are required in the virtual tapes configuration, the update can be done entirely by the BackBox administrator with very little disruption.

In case of any change in the configuration or emulation parameters of virtual tape drives, the product support should be contacted.

PLEASE READ THIS DOCUMENT BEFORE PERFORMING THE UPDATE

The introduction presents an overview of version identification and compatibility. The [NonStop Upgrade](#) presents the upgrade activities in the sequence they must be accomplished in order to upgrade the domain. The next section documents the procedure to be run for the [Peripheral Nodes Upgrade](#). The chapters [VTC Upgrade](#) and [User Interface Upgrade](#) document the steps to be performed in order to update the Virtual Tape Controller and the User Interface. The [Post-Upgrade](#) section describes the services that have to be restarted after the upgrade and the tests to be run in order to verify if the installation has been correctly done. The [Appendix](#) describes the drivers required for the upgrade, the installation macro samples, and the legacy SSL Protocols.

The upgrade consists of updating (in this specific order) the domain and its peripheral node(s), the VTC, and the User Interface. Prior to proceeding with the upgrade:

1. get the BackBox package for the new version (see the table below with the components);
2. stop all the running BackBox processes;
3. upload the NSK package to the NSK (INSEx.xx as a text file and BBEx.xx as a binary file).

BackBox Upgrade Package

Upgrade Components	Files	Version xxx
NSK Package	binary file BBEx.xxx macro text file INSEx.xx	E4.07
 Upload the PAK binary file (ex: BBE) and the macro text file INSE in a sub-volume different from the current BackBox sub-volume.		
User Interface Package	UI-Ex.xx.nnn	E4.07
VTC Application	VTC-Ex.xx.nnn	E4.07

Product Naming and Version Identification

A package is identified by its release number. There are several release dates per version; each contains all the fixes, improvements, and changes made to its release date. All releases of the same version are functionally equivalent and are forward and backward compatible.

On the NonStop VPROC BBSV program gives the version type and number:

```
$DATA15.ETIH407.BBSV
Binder timestamp: DDMMYYYY hh:mm:ss
Version procedure: T0955V04_21MAY2018_BPAKHP_AAL
Version procedure: T8432H04_30JUN2015_CCPLMAIN
TNS/E Native Mode: runnable file
```

Compatibility and Components

All BackBox software on NSK nodes of a single domain must be of the same version.

To have an operational BackBox application, the following components are required:

- BackBox NSK component (latest available version)
- User Interface (UI) E current version
- VTC current version

Notes on software compatibility:

Notes on license compatibility:

- After the upgrade, it is recommended to request and use the E4.07 version license key, in order to avoid any version conflict and to take advantage of the new features, such as **Advanced Pool Management** and **Copy Pool Sync**, which are free for all E4.07 licenses.



Different versions of the NSK software can be installed on the same NSK node, but for different domains and for different VTCs.

Notes on data compatibility:

- Backups written by any older version can be restored by any V4.xx version.
- Backups written by any V4.xx version cannot be restored by versions older than V4.00.
- Backups written by V4.02 and up using the light compression, cannot be restored by V4.00.
- The Install macro handles the conversion of the BackBox data files, if required.
- The VTC internal configuration files from versions older than V4.00 have not been converted. VTC internal configurations must be reapplied using configuration tool.

Notes on VTC Server OS compatibility:

- OS prior Windows Server 2008 R2 cannot be migrated to any V4.xx
- VTC Server using Server 2008 R2 needs to install the following Microsoft Framework to migrate to V4.02 and upper.



Download and use the Windows Management Framework 4.5 before starting the migration. The package can be downloaded from Microsoft Download Center .

2. GENERAL CONSTRAINTS

- Backups written by any old version can be restored by a newer version (but not the reverse because the format of virtual volumes that changed with the version).
- All components of a domain, NSK and Windows software, must be at the same version level and type; therefore, they have to be upgraded at the same time.
- Different versions of the NSK software can be installed on the same NSK node, but for different BackPak domains and for different VTCs.

Recall about multiple BackPak domains configurations

- In shared NSK, each domain runs its own EMS Extractor(s)
- In shared VTC, all domains must be included in the Domain List page displayed by the UI Client started on this VTC.



A single version of the software can be installed on a VTC Windows server. The installation has to be managed when a VTC is shared by several domains. Disable the VTC in the domains that are not at the same level as the VTC.

On a site with several VTCs, consider withdrawing a VTC from regular use for testing a new major version in a distinct domain. This can be done without losing the configuration, by disabling the VTC in the production domain.

On a complex configuration, especially when each VTC is connected to several NSK nodes, it might be useful to have a printed copy of the overall tape drives configuration before having made the changes required for the upgrade.

3. NONSTOP UPGRADE

BackBox processes

Follow the procedures described below to make sure that the processes are stopped:

1. Exit any BackBox User Interface

Exit and stop any BackBox User Interface that can maintain/restart an IP session with the Domain manager (such as restarting new executions of the program BBSV). Some UI pages can automatically generate requests to the domain manager that would prevent the proper re-installation of the new domain program.

For the following operations use a Guardian user ID in the SUPER group.

2. Stop the Tape Applications, Disable TMF Audit Dump

Stop/freeze tape activity, disabling the TMF audit dumping, holding the backup/restore jobs.

3. Stop the EMS Extractor

Verify OBB017 is not running in batch.

Depending on whether the EMS Extractor was started by an OBEY file or as a permanent process in the in SCF.

STOP \$BBEXT or SCF ABORT PROCESS \$ZZKRN.#BBOXEXT.

Stop the EMS Extractors on all NonStop systems included in the domain that is about to be upgraded – if not already done. Distinct BackPak domains can continue to operate on tape drives emulated by VTCs that are not in the domain to be upgraded.

If a mount request is issued while the EMS Extractor is stopped and the upgrade is executed, this pending mount request will be the first to be executed when the EMS Extractor is restarted (after the upgrade).

4. Stop all Tape Drives in SCF

Go to the SCF.

Then stop the tape IOPs:

```
1->RESET TAPE <$tapedevice-name-pattern>, FORCE
```

5. Check EMS messages

Have an additional TAEL session opened to display EMS messages using VIEWPT or any other EMS viewer. Run the OEMS2 to view only the messages related to the tape system and to BackPak.

Note that the conversion program may issue EMS messages.

How to upgrade the domain

When running the update, the INSE407 installer macro performs the following tasks:

- Copies the complete sub-volume to a backup sub-volume
- Updates the programs and the standard OBEY files
- Converts the data file according to the detected current version.



The upgrade macro INSE407 will require to enter the name of the sub-volume that has to be used as a back-up for the current installation. This specific sub-volume is mandatory and it will be used in case a downgrade is required. See section [G. Backup Sub-Volume](#) in the [Appendix](#).



Use an ID in the SUPER group, but not SUPER.SUPER. This user ID will own all installed files. Because BBSV and BBEXT will be PROGID by the macro, all non-interactive processes that have not logged-in will run under this user ID.

To start the upgrade you must run the macro shown below.

Go to the location of the sub-volume where the upgrade package has been uploaded (INSE407 and BBE407), then

```
> RUN INSE4.07
```

```
Searching for latest PAK file $*.*.BBE4.07*
press Break key to stop ...
... found $DATA.BBOXBKUP.BBE4.07 (2016-NOV-29 10:17)
Catalog found: -\ETINIUM.$DSMSCM.SQL-
----- Installation of BackPak E4.07 NSK components -----
1. Input PAK file ..... : $DATA.BBOXBKUP.BBE4.07 (MMM-DD hh:mm)
2. Target subvol ..... : $DATA.BBOX
3. Install All or Peripheral node: All
4. Initial installation or Update: Program update
5. Spooler location ..... : $S.#BBOX
6. TCPIP process name ..... : $ZTC2
31. EMS Extractor (BBEXT) process : $BBEXT
(Number) option to modify, (S) to stop processes, or (Q) to quit:
```

For an installation execution sample, see the example in the [Appendix](#).

The available options for the installation macro **INSE4.07** are:

1. Input PAK file: Location of the distribution PAK file.

If the name of the PAK file to install was not found and it is not displayed, enter it. The file name can be qualified up to a remote node name.

2. Target Subvol: Installation sub-volume.

Default value is the current sub-volume.

3. Install All or Peripheral Node: Type of installation.

“**A**” (All) to install all programs on the NonStop node that will host the BackBox Domain Manager.

“**P**” (Peripheral node) to install only the node specific components, such as the EMS Extractor.

Select “A”

4. Initial Installation or Update

“**I**” to execute initial installation, including the preparation of Domain sample files.

“**U**” to update only programs, distributed TACL macro and EMS filter files.

This value is automatically prompted by the macro, depending on the presence of BackBox configuration files in the target sub-volume.

Select “**U**”

Note: Change the target sub-vol (Option 1) until the Update option is set by the installation macro.

5. Spooler Location: \$S.#BBOX

To customize the OBEY files.

6. TCP/IP Process Name: \$ZTC0

To customize the OBEY files.

31. EMS Extractor (BBEXT) Process: \$BBEXT

To customize the OEXT and SCFIN1 files.



\$BBEXT is the EMS Extractor process default name. This process can be renamed by the user, but the name has to be the same as the one used in the previous version.

For more info about the installation macro values, see the [Appendix](#).



Check the message displayed after line 42: `Running BackPak process(es)`. If there is any running process, make sure to press **S** to stop the(se) process(es) and proceed with the upgrade.

Post-upgrade

After the upgrade is complete perform the following procedures:

Verify/Update BBSETUP

In the domain installation sub-volume, BBSETUP contains the TACL variables for the execution of the macros defined in MACROS.

4. PERIPHERAL NODES UPGRADE

Software on peripheral nodes running only the EMS Extractor must be updated by using the same installation macro and PAK files that the one used to update the Domain manager. The macro will ask for the location of the central domain sub-volume before displaying the active values for all options.



The process names are not taken in the exiting setup and the default values should be revised for re-customization. Enter a number to change the corresponding option until you are satisfied with the displayed values. Then enter the letter “I” to continue installation and extract the appropriate files to the target sub-volume.

Run the following macro to start the upgrade of the NSK components:

```
$DATA21 BPAK 15> RUN \ETINIUM.$DATA15.BPAK.INSE4.07
----- Installation of BackPak E4.07 NSK components -----
Domain subvol \node.$vol.subvol () :\etinium.$data15.qcv312ea
1. Input PAK file ..... : $DATA21.GCMA.BBE4.07 (NOV-29 10:20)
2. Target subvol ..... : $DATA21.BPAK
3. Install All or Peripheral node: Peripheral node only (EMS Ext.& BBLM)
4. Initial installation or Update: Program update
5. Spooler location ..... : $S.#BBOX
6. TCPIP process name ..... : $ZTC2
31. EMS Extractor (BBEXT) process : $BBEXT
32. Domain subvol ..... : \ETINIUM.$DATA15.QCV312EA
(Number) option to modify, (I) to install, or (Q) to quit :
```

The available options for the installation macro are:

1. Input PAK File: Location of the distribution PAK file.

Select 1 and enter the name of the PACK file installed for the domain manager.

2. Target Sub-Volume: Installation sub-volume.

Default value is the current sub-volume.

3. Install All or Peripheral Node:

“A” (All) to install all programs on the NonStop node that will host the Domain Manager.

“P” (Peripheral node) to install only the node specific components, such as the EMS Extractor.



The macro should detect the peripheral node. If this is not the case, the peripheral node was installed as a domain node and it might be useful to abort the installation and clean the sub-volume before re-installing. For more info about cleaning a sub-volume see [Cleaning a Sub-Volume for a Peripheral Node](#).

4. Initial Installation or Update

“I” to execute initial installation.

“U” to update programs, distributed TAEL macro, and EMS filter files.

This value is automatically presented by the macro, if it detects the presence of BackBox configuration files in the target sub-volume.



If the default value is not **(U)** program Update, the existing configuration files were not found in the target sub-volume.

Enter 2 to point to the right sub-volume.

5. **Spooler Location** Value used to customize some of the installed OBEY files.

6. **TCP/IP Process Name** Value used for BBEXT in the OEXT and SCFIN1 files.

31. **EMS Extractor (BBEXT) Process** BBEXT process name in the OEXT and SCFIN1 files.

32. **Domain Subvol** Domain location.

Check the values presented and enter **I**. The macro will update the programs for a peripheral node and set the proper object code TNS/R vs. TNS/E. It will, however, leave all configurations, data files, and sample OBEY unmodified.

For a NSK components installation macro sample, see the [Appendix](#).

Cleaning a Sub-Volume for a Peripheral Node

A sub-volume for a peripheral node contains only the files for running the EMS Extractor:

BBEXT	EMS Event extractor program
BBEXTCFG	Obsolete file
EMSFILT1	EMS filter for tape events
OEXT	OBEY file to start up manually BBEXT
SCFIN1	SCF input to define BBEXT as generic process in the NSK Kernel

The installation macro will also install files for running BBLM - the controller for the tape library media changer. These files can be ignored if the domain is set only for the BackBox product.

5. VTC UPGRADE

Only one version of the software can be installed on a VTC Windows server. When the VTC is shared by several domains, the VTC should be disabled in each domain until all are at the same version-level.

When using multiple BackBox domain configurations:

- In shared NSK: each domain runs its own EMS Extractor(s).
- In shared VTC: all domains must be included in the **Domain List** page displayed by the UI Client started on this VTC.

On a site with several VTCs, consider withdrawing a VTC from regular use for testing a new major version in a distinct domain. This can be done by disabling the VTC in the production domain and keeping the same configuration.

With a complex configuration, especially when each VTC is connected to several NSK nodes, it might be useful to have a printed copy of the overall tape drive configurations before making any changes. The current BackBox UI can be used to produce a print-screen of the status page.

Following the update assume usage of the local Administrator account (Administrator user). Using an account with administrator privileges may require extra configuration step.

Requirements

- Verify the version of the ATTO configuration tool, driver and firmware of the FC card. All installation details will be found in the installation package located at **AttoCelerityFC-20170621**.

Components	Version	Location
ATTO Configuration Tool	4.21	Tools\win_app_configtool_421
ATTO Celerity driver FC-81EN, FC-82EN or FC-84EN HBA	1.87 Server 2008 R2	FC8\win_drv_celerity8_187\x64
ATTO Celerity driver FC-81EN, FC-82EN or FC-84EN HBA	1.87 Server 2012 R2	FC8\win2012r2_whql_drv_celerity8_187\x64
ATTO Celerity flash FC-81EN, FC-82EN or FC-84EN HBA	August 03, 2015	FC8\ (flsbundle_celerity_2015_08_03)

Detailed instructions on how to upgrade these components can be found in the [Appendix](#).

Some enterprise policies may only require the usage of the WHQL signed driver, in which case, the driver 1.32 provided by ATTO for the Server 2008 R2 can be used. The driver can be found in the location: **FC8\win08r2x64_whql_drv_celerity8_187\x64**.

Before proceeding with the upgrade stop the following processes and programs:

- VTC Management Console
- BackBox UI
- Event Viewer
- Performance Monitor
- Internet Explorer
- MS-Windows Administrative Tools and Services
- VTC Services (Admin, Asynclog, Management Service, Emulator (FC), Script Controller).

Uninstall the Old BackBox Software

Depending on the version you are upgrading to, may have to uninstall the following:

- BackBox UI Client
- BackBox Virtual Tape Controller

Install the New VTC Software

Install the VTC application from the BackPak distribution package directory **VTC-E4.07.nnn**: run **setup.exe**.

Post-upgrade

After the installation it is recommended to:

- reboot the VTC
The VTC Windows services will start automatically and will issue messages to EMS.
- verify that the BackBox Windows Services are started
Check that both VTC Admin and VTC Virtual Tape Emulator (FC) services report their state to EMS.

6. USER INTERFACE UPGRADE

Before installing the new version of the User Interface the old version has to be uninstalled.

Follow the procedure to uninstall the old version: in the MS-Windows **Control panel > Add or Remove Programs** remove the program **BackPak UI Client**.

Install the New User Interface

1. From the BackPak distribution package directory **UI-E4.07.nnn**:run **setup.exe**.
2. Run the User Interface application to enter the domain address.



The domain address (domain name, domain IP address, and port) should be the same as the address set in the VTC.

Refer to the *UI Installation* manual for details.

7. POST-UPGRADE

To ensure a good functioning of the upgraded BackBox components (re)start the following services:

- **Tape devices on each NSK node of the domain**

Access the EMS messages or run OEMS2 to get the tape messages on a dedicated TACL session.

```
SCF START TAPE $VT*
```

Verify that SCF starts the devices and that the new message is logged in EMS for each started device.

```
5061 (domain)-(vtc)-I5061 Virtual Tape Device \(\node).$(device) STARTED
```

At the end, the command "MEDIACOM INFO TAPEDRIVE" will list all tape drives.

Verify that the device type (LTO3, LTO4, LTO6) displayed is expected.

- **Restart the EMS Extractor**

Examples:

```
OBEY OEXT
```

```
SCF START PROCESS $ZZKRN.#BBOXEXT
```

If BBEXT abends (abnormal process termination) at startup with the EMS message "F1001- Error 70 from second FILE_OPEN_ on EMSDIST".

See the *\$BBEXT EMS Extractor abend at startup* section in the *BackBox Messages manual and Troubleshooting*.

- **Run Tests**

Node Status Tests - on the User Interface check the Status page for each Guardian node.

1. RESTORE Tests: Restore should be tested first
2. BACKUP Tests: Be aware that it may be impossible to restore a backup done with the current version if you back out of the update.
3. Statistics ENFORM Report: OBEY OBB021.

- **Enable SSL (optional)**- Refer to the manual *SSL Setup*.
- **Restart TMF dumping and tape applications** for each NSK node that is part of the domain - Re-enable the TMF audit, restart the regular tape applications schedule.

APPENDIX

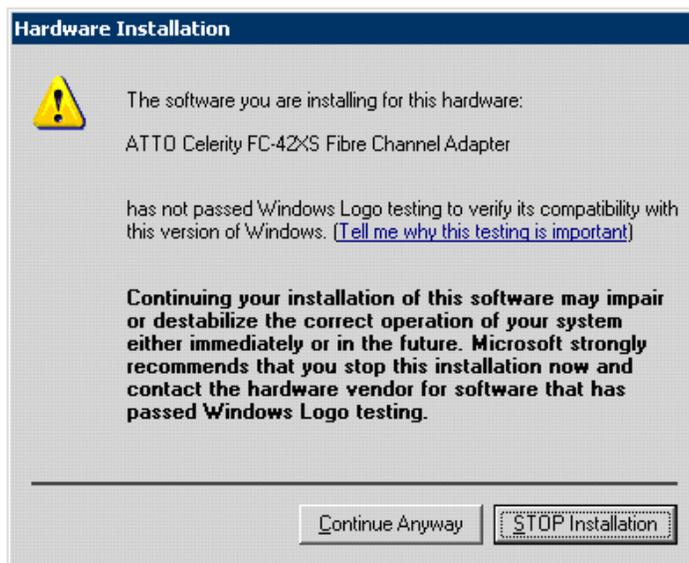
A. ATTO Celerity Installation/Upgrade

Install the FC Adapter Driver

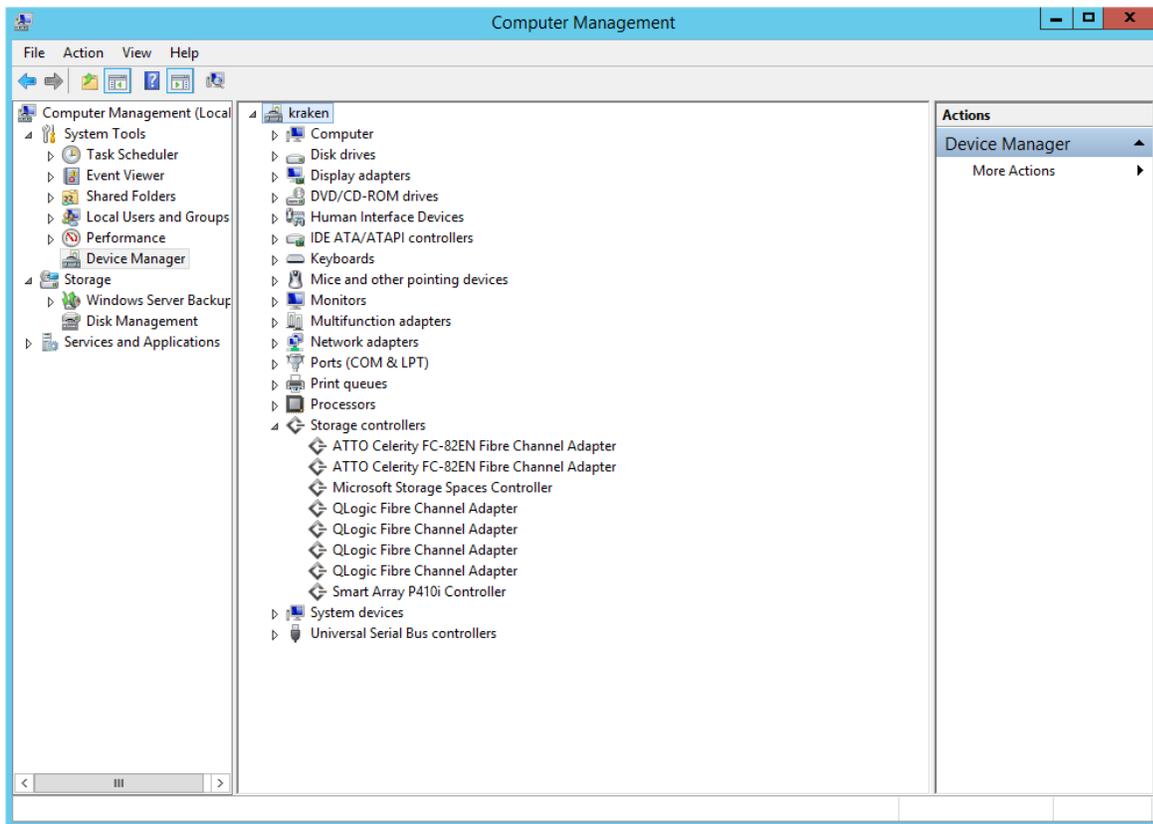
Access the repository folder and navigate to the appropriate installation sub-directory according to the model adapter installed and according to the OS platform.

Once at the appropriate location, double-click on **setup.exe** and follow the installer's instructions.

During this installation, there may be a prompt for Version Signature mismatch (see next figure). For each pop-up window (one for each Channel), press the **Continue Anyway** button.



In the Device Manager, verify that all FC adapters are installed correctly.

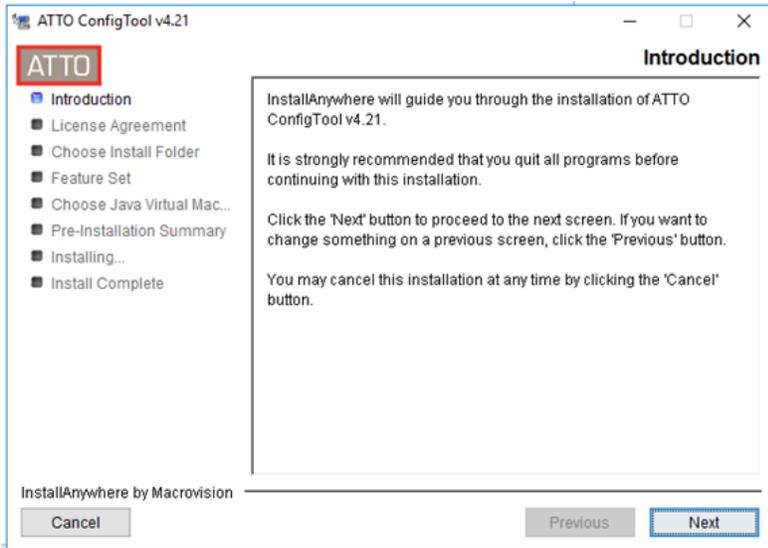


Install the FC Configuration Tool

Perform this sub-task only if there is no ATTO Configuration Tool already installed or the currently installed version is an older one.

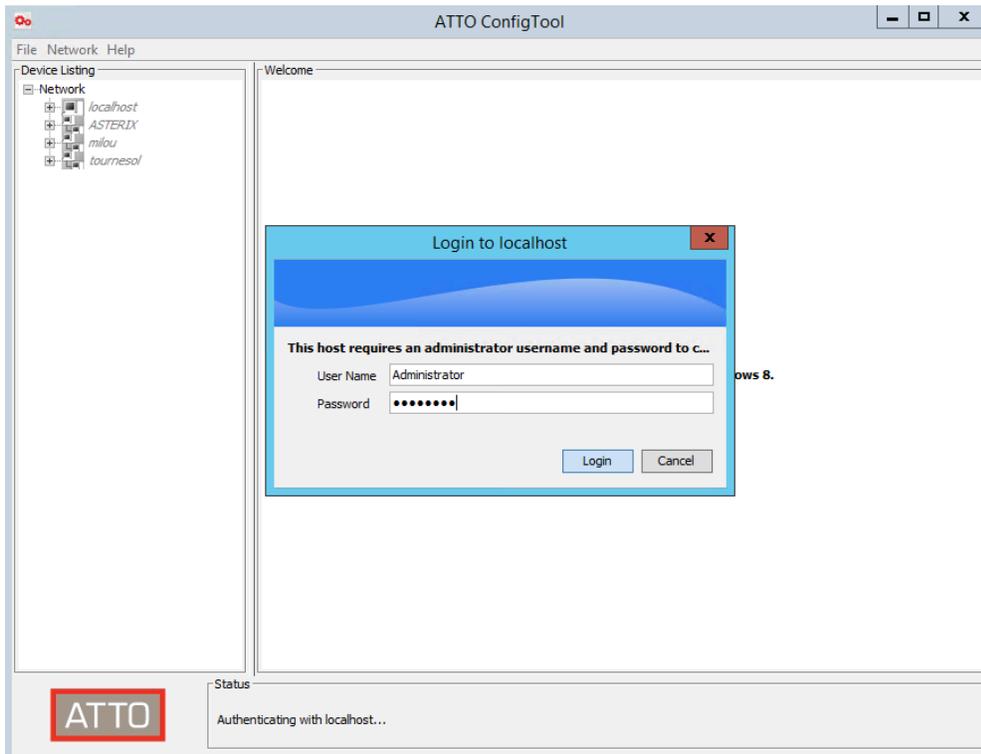
Access the **repository folder** and navigate to the **AttoCelerityFC-20170621** directory, sub directory **Tools\win_app_configtool_421**.

Double-click on **CfgTool_421.exe** and follow the install instructions. Accept all defaults and choose a **Full installation**. If a previous version of the ATTO configuration tool is already installed, you may be prompted to uninstall the old version first.



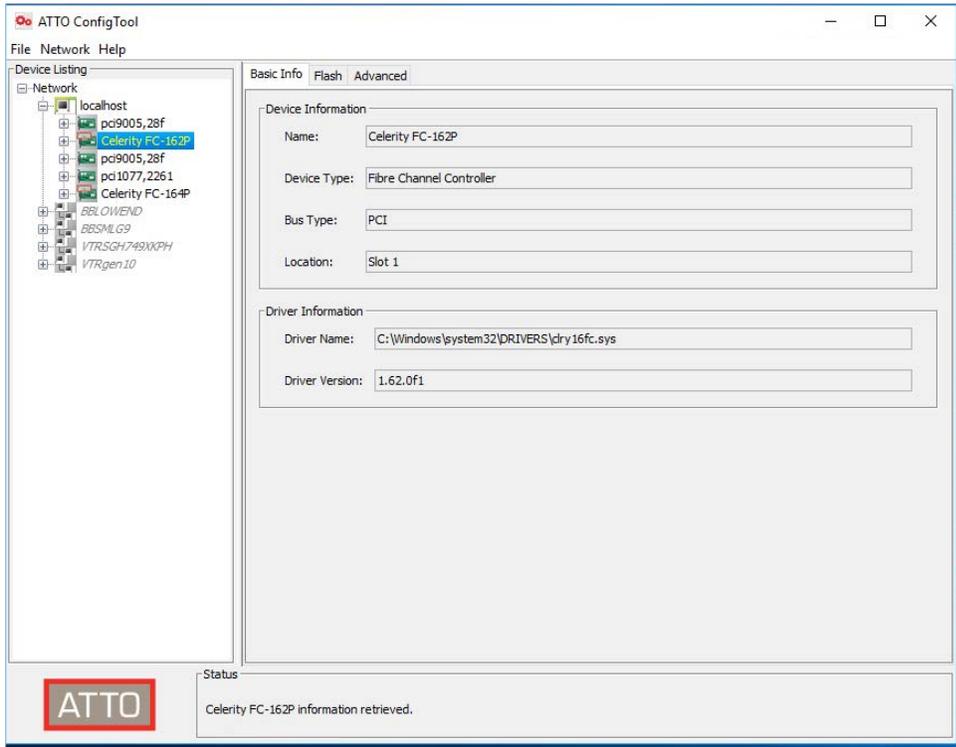
Validate FC Card Channel Parameters

Start the **ATTO ConfigTool** (from the **Windows Start menu > All Programs > ATTO ConfigTool**). When it opens, a user login will be required with the local administrator privilege. To login, try to expand the localhost node in the left panel.



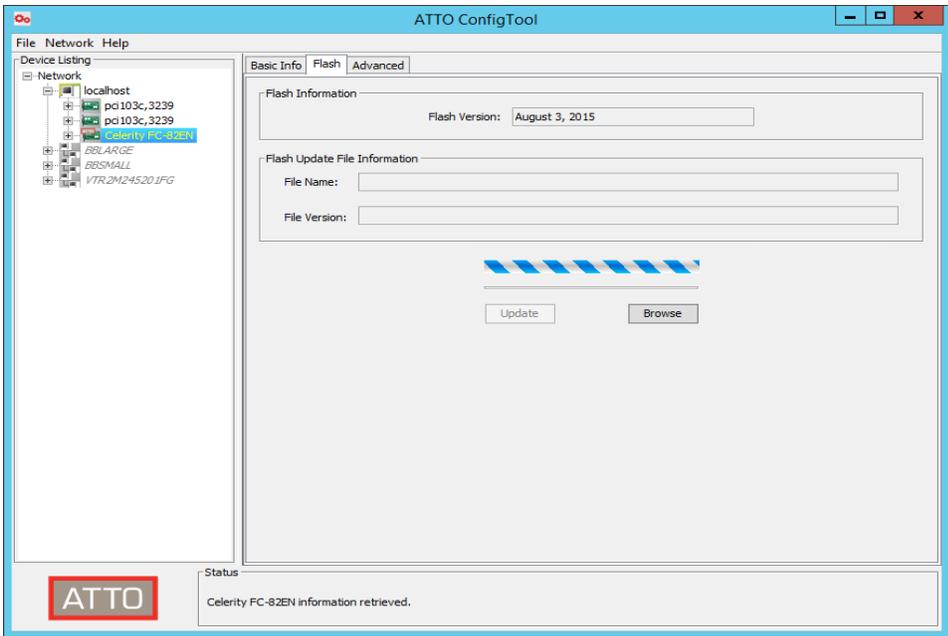
Once logged in, it is possible to expand the localhost node in the left panel. For each Celerity Device listed perform the following procedure:

- In the Basic info tab, check if the driver version ID is 1.62.0f1 or 1.56 to match the driver version that was just installed. If not, it will be necessary to re-install the Celerity driver.



Under the Flash tab, the Flash version for each card should be August 03, 2015 or later for the FC-8 Celerity family model.

Otherwise, it will be necessary to update the Flash version.



Expand the current **Celerity Device** node.

For each Channel listed, verify that the default values match the ones shown when activate the NVRAM tab. Otherwise, update all mismatched fields. In particular, one parameter may require changing the connection mode. It is recommended to use "Point to Point" connection.



Setting a FC channel's Data Rate to Auto can result in automatic selection of a slower connection speed, thereby reducing the performance. The rate should be forced according to the table below, based on the NonStop FC port type that it will be connected to.

When the changes are completed for each port, press the **Commit Button**. Wait for the Commit confirmation status message before continuing. Select the channels one by one and commit each of them.



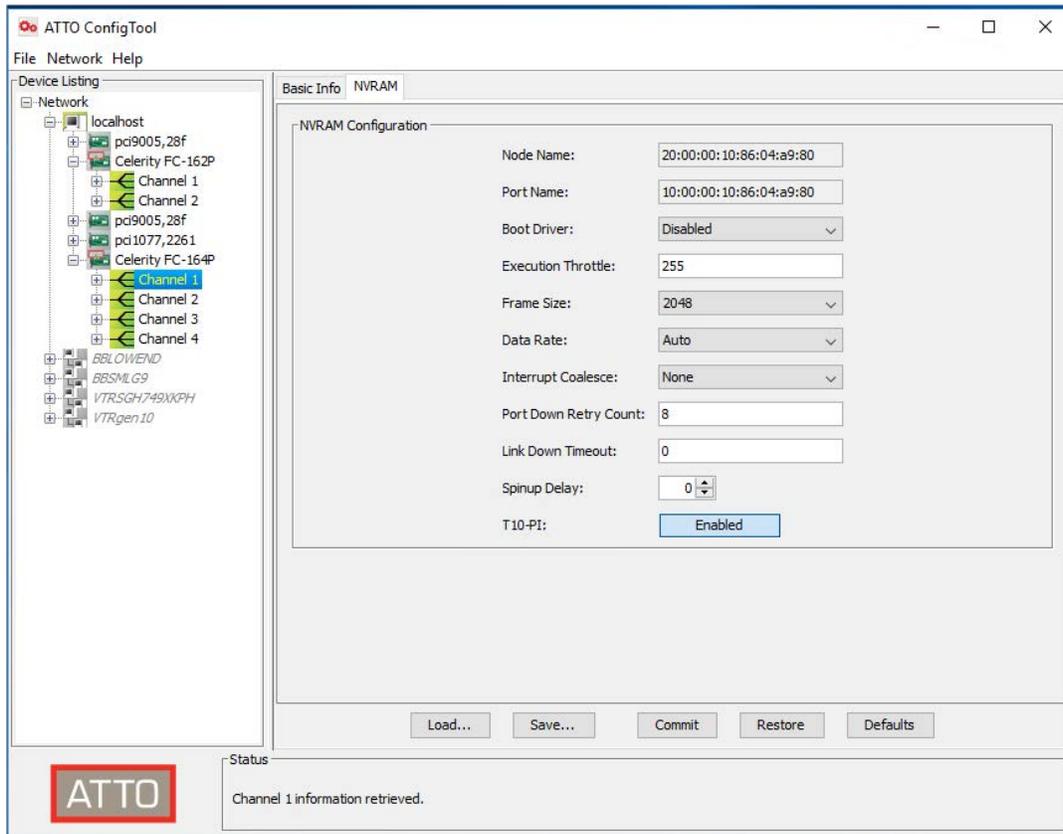
All parameters and Flash updates can be completed before restarting the server.

Data Rate	Celerity FC HBA type	NonStop connectivity type
4Gbits	FC-8	G5 (or earlier) Storage CLIM
4Gbits	FC-8	ETI-NET SCSI-to-FC Bridge for S-Series
8Gbits	FC-8, FC-16	G6 Storage CLIM with optional 8 Gbps HBA
16Gbits	FC-16	G10 Storage CLIM with FC-16

If a FC switch is to be used to share-use a single NonStop FC port with multiple VTC or Bridge FC ports, one or more of the following additional settings may be required:

- Disabling Initiator Mode of the ATTO FC card in the Windows Registry
- Making sure the Connection Mode of NVRAM is set to **Point To Point**
- Configuring an FC switch zone and customizing the switch setting

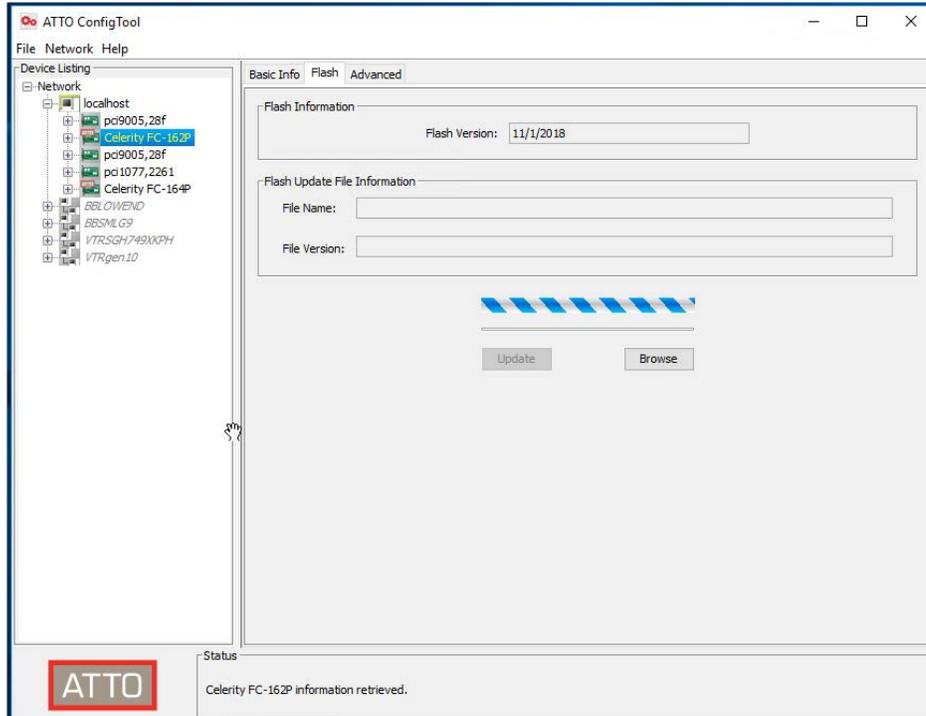
Each switch and its environment may require different settings. Contact your ETI-NET account representative for assistance.



Update FC adapter flash version



This step is only required if the Flash version is older than August 03, 2015 (FC-8xEN models).



To update the Flash version, first press the **Browse** button. Then navigate up to the **repository folder** directory, **AttoCelerity** models, and select the Flash Bundle file proposed by the Configuration Tool. To complete the selection, press the **Open** button. You will be allowed to review the selected Flash Bundle file information. Click the **Update** button to start the process.

B. Moving the Sub-Volume

The upgrade procedure updates the sub-volume in place. In some circumstances, it might be necessary to move the sub-volume to another disk or to rename it. This is documented as a separate procedure as follows:

1. All tape activity must be stopped.
2. BackBox activity must be stopped:
 - Stop all EMS Extractors of the domain
3. SCF ABORT PROCESS #ZZKRN.#bbext-name in the local system and in all peripheral systems
 - Close all UI sessions
 - Ensure that no batch jobs are running (such as the daily OBB017)
4. Point the TCP/IP LISTNER to the new Domain manager sub-volume:
 - Update the system TCP/IP PORTCONF to point the BackBox port (usually 4561) to BBSV in the new sub-volume.
 - Restart the appropriate TCP/IP LISTNER(s)

5. Stop any program still running in the old sub-volume.

- VOLUME <old-sub-volume>
- STATUS *, PROG *, STOP

6. Copy the old sub-volume to the new sub-volume, considering that the VOLUME file has an alternate key file VOLUME0:

- Either by PAK/UNPAK:

PAK -ext 500 -max 200 BBBKUP, <old-sub-volume>.*, AUDITED, OPEN, LISTALL

UNPAK BBBKUP, *.*.*, MAP NAMES \$*.*.* TO <new-sub-volume>.*, AUDITED, OPEN, LISTALL

- Or by FUP DUP:

VOLUME <new-sub-volume>

FUP DUP <old-sub-volume>.*, *, SOURCEDATE

FUP ALTER VOLUME, ALTFIL (0, VOLUME0)

FUP ALTER VOLUME, AUDIT

FUP ALTER STATE, AUDIT

7. Edit the BBSETUP macro and OBEY files to change <old-sub-volume> by <new-sub-volume>:

VOLUME <new-sub-volume>

TEDIT BBSETUP

TEDIT OBB017

TEDIT other obey files, distributed obey files are named OBB* and SCFIN*

8. In the UI:

- Start the UI
- Sign in
- **Configuration** tab
- **Switch to Edit mode**
- In the **Domain page**, review the disk location of:

- Trace Sub Volume (must be different from the <new-sub-volume>)

- Stats File Name (should be in the <new-sub-volume>)

- Click the **Update** button
- Click **Save**.

9. Start the EMS Extractor:

- Adjust the definition of the EMS Extractor as \$ZZKRN permanent process

10. Change the location of BBEXT and BBEXTCFG to <new-sub-volume>.

Sample permanent process definition:

```
ADD PROCESS $ZZKRN.#BBOXEXT, &
PROGRAM $DATA05.BBOX.BBEXT, &
NAME $BBEXT, &
AUTORESTART 3, &
CPU FIRST, &
HOMETERM $ZHOME, &
STARTMODE APPLICATION, &
USERID SUPER.OPER
ADD PROCESS, &
(DEFINE =BACKPAK_BBSETUP, &
CLASS MAP, &
FILE \ETINIUM.$DATA05.BBOX.BBSETUP)
```

- Start the modified EMS Extractor process

SCF START PROCESS #ZZKRN.#bbext-name

- Look for an EMS message such as:

yyyy-mm-dd 12:48:40 \ETINIUM.\$BBEX ETINET.100.100 3517 \$BBEX-I3517 EMS Extractor started for domain BPAK (BBEXT E0407 10OCT2016).

11. In NetBatch, adjust OBB017 and possible other BackBox related job definitions (search for old-subvol), and re-schedule them.



At this point, all tape applications can be restarted.

Moving an EMS Extractor Sub-Volume

A sub-volume containing only an EMS Extractor (peripheral node) is simpler to move.

Stop the EMS Extractor

```
SCF ABORT PROCESS #ZZKRN.#bbext-name
```

Execute the **Start the EMS Extractor** of the previous section.

C. Installation Execution Sample

```
$DATA15 GCH404EA 264> run insE4.07
N00045Searching for latest PAK file $*.*.BBE4.07*
_N00030press Break key to stop ...
_N00054... found $PDISK1.DMBACK.BBE4.07 (2017-OCT-14 13:7)
_N00055... found $PDISK1.OLDPRD.BBE4.07 (2017-OCT-14 15:25)
_N00055... found $DATA16.BENOIT.BBE4.07 (2017-JAN-16 15:39)
_N00056... found $DATA16.QCISCSI.BBE4.07 (2017-JAN-16 15:45)
_N00053... found $DATA15.BPAK.BBE4.07 (2016-AUG-24 11:58)
_N00054... found $DATA15.BPAK.BBE4.07 (2016-JUN-30 11:58)
```

```

_----- Installation of BackPak E4.07 NSK components -----
_
_ 1. Input PAK file ..... : $DATA15.GCEA.BBE4.07 (JAN-24 11:23)
_ 2. Target subvol ..... : $DATA15.GCEA
_ 3. Install All or Peripheral node: All
_ 4. Initial installation or Update: Program update
_ 5. Spooler location ..... : $S.#BBOX
_ 6. TCPIP process name ..... : $ZTC2
_ 31. EMS Extractor (BBEXT) process : $BBEXT

(Number) option to modify, (I) to install, or (Q) to quit :I

Confirm to proceed (Y/N) : Y

-----> The whole target subvol (pgm+data) must be duplicated once, before any
upgrade activity

-----> Duplicate the target subvol (Y/N): Y

Empty subvolsub-volume to backup $DATA15.QCV312EA () :BPAKSAVE

----> copying the installation subvol ...

File Utility Program - T6553H03 - (19JUL2016) System \ETINIUM (C)1981 Tandem
(C)2006 Hewlett Packard Development Company, L.P. DUP $DATA15.QCV312EA.* ,
$DATA15.BPAKSAVE.*, SOURCEDATE WARNING - $DATA15.BPAKSAVE.BBDBM: SQL
RECOMPILATION REQUIRED.

FILES DUPLICATED: 68

ALTER $DATA15.BPAKSAVE.VOLUME, & ALTFILE (0, $DATA15.BPAKSAVE.VOLUME0)

----> Installation subvol saved

UNPAK /NAME/ $DATA15.GCBE41EA.BBE4.07, ($*.* WHERE FILECODE > 800,
$*.BBE4.07E.*, $*.*.SSLCFG, $*.*.servcert, $*.*.servkey, $*.*.cacert,
$*.*.OBB015, $*.*.OBB017L, $*.*.OEXT, $*.*.OBBLM, $*.*.scfin1, $*.*.OBB018,
$*.*.OBB019, $*.*.OBB021, $*.*.OBB025, $*.*.OBB032, $*.*.OBB038 ,
$*.*.OBB039, $*.*.VOLEXT, $*.*.MACROS, $*.*.BBREST, $*.*.EMSFILT*, *. *.OPER,
$*.*.OEMS2), VOL $DATA15.QCV312EA, MYID,OPEN,LISTALL UNPAK - File decom-
pression program - T1255H01 - (2014-01-29)

Archive version: 1

File Mode RESTORE Program - T9074H01 (24JUL2016) (AGI)

(C)2000 Compaq (C)2007 Hewlett-Packard Enterprise Development Company, L.P.
Drives: (\ETINIUM.$X0N2)

System: \ETINIUM Operating System: H06 Tape Version: 3

Backup options: AUDITED, BLOCKSIZE 8, NO IGNORE, OPEN, PARTONLY OFF, INDEXES
IMPLICIT *WARNING-7147* Files created and stored via OSS and SQL/MX objects
are not supported.

Restore time: 30Jul2014 13:07 Backup time: 28Jul2016 11:04 Page: 1

Tape: 1 Code EOF Last modif Owner RWEPT Type Rec Bl $DATA15.QCV312EA

```

```

BB011 888 5632 4Jun2016 16:40 -1 NCNC
BB011 888 5632 4Jun2016 16:40 -1 NCNC
BB012 888 5120 4Jun2016 16:40 -1 NCNC

BB018 888 12288 4Jun2016 16:40 -1 NCNC BB019 888 8704 4Jun2016 16:40 -1 NCNC
BB021 888 11264 4Jun2016 16:40 -1 NCNC BB025 888 7680 4Jun2016 16:40 -1 NCNC
BB032 888 4608 4Jun2016 16:40 -1 NCNC BB038 888 5120 4Jun2016 16:40 -1 NCNC
BB039 888 11264 4Jun2016 16:40 -1 NCNC BBREST 101 27248 4Jun2016 16:39 -1
NCNC CACERT 656 20Nov2015 15:31 -1 NCNC EMSFILT1 101 2210 4Jun2016 16:39 -1
NCNC EMSFILT2 845 178 4Jun2016 16:40 -1 NCNC MACROS 101 184856 24Jul2016
15:34 -1 NCNC OBB015 101 2254 4Jun2016 16:39 -1 NCNC OBB017L 101 5028 4Jun-
2016 16:39 -1 NCNC OBB018 101 6858 4Jun2016 16:39 -1 NCNC OBB019 101 5200
4Jun2016 16:39 -1 NCNC OBB021 101 7240 4Jun2016 16:39 -1 NCNC OBB025 101 6858
4Jun2016 16:39 -1 NCNC OBB032 101 2518 4Jun2016 16:39 -1 NCNC OBB038 101 2792
4Jun2016 16:39 -1 NCNC OBB039 101 6858 4Jun2016 16:39 -1 NCNC OBBLM 101 2484
4Jun2016 16:39 -1 NCNC OEMS2 101 532 4Jun2016 16:39 -1 NCNC OEMSFILT 845 152
4Jun2016 16:40 -1 NCNC OEXT 101 542 10Jun2016 10:28 -1 NCNC OPER 0 4Jun2016
16:39 -1 NCNC K 4062 4 SCFIN1 101 2546 10Jun2016 9:50 -1 NCNC SERVCERT 496
20Nov2015 15:31 -1 NCNC SERVKEY 389 20Nov2015 15:31 -1 NCNC SSLCFG 101 2204
21Jul2016 9:39 -1 NCNC VOLEXT 0 4Jun2016 16:39 -1 NCNC E 932 4 BB010 800
6759864 27Jul2016 22:57 -1 NCNC BB015 800 5307016 27Jul2016 23:09 -1 NCNC
BB030 800 5167144 27Jul2016 22:56 -1 NCNC BB031 800 5156936 27Jul2016 23:00 -
1 NCNC BB033 800 56120 27Jul2016 22:54 -1 NCNC BB034 800 21776 27Jul2016
23:06 -1 NCNC BB037 800 5393840 27Jul2016 23:09 -1 NCNC BB042 800 5278552
27Jul2016 22:54 -1 NCNC BB043 800 49440 27Jul2016 23:07 -1 NCNC BB044 800
5765216 27Jul2016 23:01 -1 NCNC Restore time: 30Jul2016 13:07 Backup time:
28Jul2016 11:04 Page: 2 Tape: 1 Code EOF Last modif Owner RWEPT Type Rec Bl
BB053 800 6450040 27Jul2016 23:03 -1 NCNC BB053L 800 1725368 27Jul2016 22:58
-1 NCNC BBCMD 800 5721200 27Jul2016 22:58 -1 NCNC BBCMDL 800 758544 27Jul2016
23:09 -1 NCNC BBDBM 800 6953984 27Jul2016 23:17 -1 NCNC BBEXT 800 7452184
27Jul2016 23:19 -1 NCNC BBEXTL 800 2984112 27Jul2016 23:22 -1 NCNC BBLINKL
800 6258272 27Jul2016 23:21 -1 NCNC BBLM 800 6095720 27Jul2016 23:24 -1 NCNC
BBSV 800 10678696 28Jul2016 11:03 -1 NCNC BBSVL 800 6880240 28Jul2016 11:03 -
1 NCNC NLDOBEY 101 142 15May2016 9:22 -1 NCNC SECLIBA 17424334 30Apr2016
16:25 -1 NCNC SSLSTUBL 800 59808 27Jul2016 23:41 -1 NCNC TAPERD 800 5155456
27Jul2016 23:40 -1 NCNC TAPEWR 800 5308864 27Jul2016 23:39 -1 NCNC TRCLIST
800 5163520 27Jul2016 23:41 -1 NCNC Summary Information Files restored = 60
Files not restored = 0 FUP SECURE $DATA15.QCV312EA.EMSFILT*, NNNN FUP SECURE
$DATA15.QCV312EA.OPER, NCNC
***** Editing OEMS2... Editing
OBWIN1... Editing ORWIN1... Editing OBB018... Editing OBB019... Editing
OBB021... Editing OBB025... Editing OBB032... Editing OBB039... Editing
OBB015... Editing OEXT... Editing SCFIN1 ... FUP SECURE
$DATA15.LSD2.BBEXT,NCNC,PROGID FUP SECURE $DATA15.LSD2.BBSV,CCCC,PROGID Edit-
ing OBBLM... Editing SCFIN3 ... -----> Whole BackPak updated in
$DATA15.QCV312EA, -----> from $DATA15.GCBE41EA.BBE4.07. -----> Please
verify if any error message was issued above. -----> Is the result OK

```

```

(Y/N): Y Loaded from $DATA15.QCV312EA.BBSETUP: BBSV_ADDR BBSV_PORT BBSV_TCPIP
VTC_OBJECT EZX_MAXRETRY EZX_RETRYDELAY EZX_TIMEOUT Loaded from
$DATA15.QCV312EA.MACROS: BB_BPAK_PGM_VERSION BB_041_TIMEOUT BB_041_DEVICE BB_
041_LABELS BB_041_PROCESS BB_VALID_HHMMSS BB_QUALIFY_SUBVOL BB_GET_EXISTING_
FILE BB_CHECK_EXIST_FILE BB_FILENAME_SYNTAX BB_VALID_TIMESTAMP BB_TCPIP BB_
GET_TMP_FILE IS_NUMERIC LOG_TEXT BB_GET_DEFAULT_VOL BB_GET_IN_SUBVOL BB000_
COLLECT BB001_TIME_EDIT BB002_VERSION BB003_UPGRADE BB003_GET_OPTION BB003_
VALID_TARGET BB003_VALID_BKUP BB003_UPGRADE_EXEC BB017_FREE_EXPIRED BB018_
DEFAULTS BB030_EXTRACT_STATS BB020_RESERVE BB022_CHECK_SPACE BB023_DEL_
BACKEDUP BB024_LIB_SYNC BB026_EXPORT_CATALOG BB027_IMPORT_CATALOG BB036_
BACKUP_STORE BB038_FREE_LIB_MEDIA BB040_VIRTUALIZE_PREP BB041_VIRTUALIZE_
START BB042_VIRTUALIZE LISTT VIEWT TMFC2 BB051_RELINK BB052_NLD BB053_SSL_
CLEAR BB053_SSL BB054_SHUTDOWN ----- Convert NSK BackPak data files to
E4.07 version ----- 1. Input backup old : $DATA15.BPAKSAVE Version 4.00
2. Target subvol ..... : $DATA15.QCV312EA Version E4.07 (Number) option
to modify, (C) to convert, or (Q) to quit :C ... ----- BackPak
data file conversion ----- Input subvol : $DATA15.BPAKSAVE
Output subvol: $DATA15.QCV312EA Only files that are not compatibles will be
rewritten OPER will be purged. Then recreated at first use VOLUME will be con-
verted input file : last modif 2016-10-18 17:00:11, eof 196608 output file:
last modif 2016-10-18 17:00:11, eof 196608 STATE will be converted Confirm to
proceed (Y/N) : Y Data files conversion executing ... PURGE
$DATA15.QCV312EA.OPER $DATA15.QCV312EA.OPER Purged File Utility Program -
T6553H02 - (19JUL2016) System \ETINIUM (C)1981 Tandem (C)2006 Hewlett Packard
Development Company, L.P. PURGE $DATA15.QCV312EA.STATE ! 1 FILE PURGED SET
LIKE $DATA15.BPAKSAVE.STATE SET REC 446 SET NO AUDIT CREATE
$DATA15.QCV312EA.STATE CREATED - $DATA15.QCV312EA.STATE COPY
$DATA15.BPAKSAVE.STATE , $DATA15.QCV312EA.STATE 9 RECORDS TRANSFERRED ALTER
$DATA15.QCV312EA.STATE, AUDIT $DATA15.QCV312EA.VOLUME PURGED.
$DATA15.QCV312EA.VOLUME0 PURGED. 2 FILES PURGED BB015 - Conversion of the
BackPak catalog 2016/07/30 13:09 from version V1.6-V3.12 to V3.13 reading the
file $DATA15.BPAKSAVE.VOLUME creating the file $DATA15.QCV312EA.VOLUME File
$DATA15.QCV312EA.VOLUME will be created Number records read : 131 Number
records written: 131 $DATA15.QCV312EA.VOLUME RELOAD COMPLETED: 30 Jul 2016,
13:09

```

D. NSK components installation macro sample

```

$DATA21 BPAK 15> RUN \ETINIUM.$DATA15.BPAK.INSE4.07

Searching for latest PAK file $*.*.BBE4.07* press Break key to stop ...

... found $DATA21.GCMA.BBE4.07 (2016-NOV-29 10:20)

----- Installation of BackPak E4.07 NSK components -----

Domain subvol \node.$vol.subvol () :\etinium.$data15.qcv312ea

1. Input PAK file ..... : $DATA21.GCMA.BBE4.07 (NOV-29 10:20)

2. Target subvol ..... : $DATA21.BPAK

```

```
3. Install All or Peripheral node: Peripheral node only (EMS Ext.& BBLM)
4. Initial installation or Update: Program update
5. Spooler location ..... : $S.#BBOX
6. TCPIP process name ..... : $ZTC2
31. EMS Extractor (BBEXT) process : $BBEXT
32. Domain subvol ..... : \ETINIUM.$DATA15.QCV312EA
    Extracting BB031 utility ...
$DATA21.BPAK.BB031 PURGED.
1 FILE PURGED
UNPAK - File decompression program - T1255G06 - (2016-06-03)
Restore time: 30Jul2016 14:47 Backup time: 28Jul2016 11:04 Page: 1
Tape: 1 Code EOF Last modif Owner RWEPT Type Rec Bl
    $DATA21.BPAK BB031 700 2394544 27Jul2016 23:07 255,100 NNNN
    Summary Information Files restored = 1 Files not restored = 0
(Number) option to modify, (I) to install, or (Q) to quit :I
```

```
Confirm to proceed (Y/N) : Y
UNPAK /NAME/ $DATA21.GCMA.BBE4.07, (*.BBE4.07R.BB053, *.BBE4.07R. BB053L,
*.BBE4.07R.BBEXT, *.BBE4.07.BBEXTL, *.BBE4.07R.BBLM, *.BBE4.07R.BBLINKL,
*.BBE4.07R.NLDOBEY, *.BBE4.07R.SECLIBA, *.BBE4.07R.SSLSTUBL, *.*.SCFIN3,
*.*.SCFIN4, *.*.OEXT, *.*.OBB LM , *.*.SCFIN1, *.*.SCFIN3,
*.*.EMSFILT1, *.*.EMSFILT2, *.*.EMS FUPIN, *.*.OEMS*), VOL $DATA21.BPAK,
MYID,OPEN,LISTALL
UNPAK - File decompression program - T1255G06 - (2016-06-03)
Archive version: 1
File Mode RESTORE Program - T9074G08 (21JUL2016) (AFO)
(C)2000 Compaq (C)2006 Hewlett Packard Development Company, L.P. Drives:
(\MONT.$Z6NF)
System: \ETINIUM Operating System: H06 Tape Version: 3
Backup options: AUDITED, BLOCKSIZE 8, NO IGNORE, OPEN, PARTONLY OFF, INDEXES
IMPLICIT
*WARNING-7147* Files created and stored via OSS and SQL/MX objects are not
supported.
Restore time: 30Jul2016 14:48 Backup time: 28Jul2016 11:04 Page: 1
```

Tape: 1 Code EOF Last modif Owner RWEF Type Rec Bl

\$DATA21.BPAK

EMSFILT1 101 2210 4Jun2016 16:39 255,100 NNNN

EMSFILT2 845 178 4Jun2016 16:40 255,100 NNNN

EMSFUPIN 101 2190 4Jun2016 16:39 255,100 NNNN

OBBLM 101 2484 4Jun2016 16:39 255,100 NNNN

OEMS 101 230 4Jun2016 16:39 255,100 NNNN

OEMS2 101 532 4Jun2016 16:39 255,100 NNNN

OEMSFILT 845 152 4Jun2016 16:40 255,100 NNNN

OEXT 101 542 10Jun2016 10:28 255,100 NNNN

SCFIN1 101 2546 10Jun2016 9:50 255,100 NNNN

SCFIN3 101 476 4Jun2016 16:39 255,100 NNNN

SCFIN4 101 158 4Jun2016 16:39 255,100 NNNN

BB053 700 3305968 27Jul2016 22:55 255,100 NNNN

BB053L 700 1065840 27Jul2016 23:01 255,100 NNNN

BBEXT 700 4092784 27Jul2016 23:18 255,100 NNNN

BBEXTL 700 1920064 27Jul2016 23:20 255,100 NNNN

BBLINKL 700 2337912 27Jul2016 23:17 255,100 NNNN

BBLM 700 3086064 27Jul2016 23:17 255,100 NNNN

NLDOBEY 101 2250 15Dec2006 22:35 255,100 NNNN

SECLIBA 11377826 30Apr2016 16:26 255,100 NNNN

SSLSTUBL 700 22816 27Jul2016 23:40 255,100 NNNN

Summary Information

Files restored = 20 Files not restored = 0

FUP SECURE \$DATA21.BPAK.EMSFILT*, NNNN

Editing OEMS2...

Editing OBWIN1..

Editing ORWIN1..

Editing OEXT....

Editing SCFIN1 .

Editing OBBLM...

```
Editing SCFIN3 .
-----> BackPak Peripheral node updated in $DATA21.BPAK,
-----> from $DATA21.GCMA.BBE4.07.
-----> Please verify if any error message was issued above.
```

E. Upgrade Installation Macro Values

The macro menu displays the current values for all options. Enter a number to change the corresponding value. Then enter the letter “I” to continue installation and extract appropriate files to the target sub-volume.

The option 4 (“Initial Installation or Update”) should not be used. The macro will set the value according the content found in the target sub-volume and will reject a different value.

The macro should detect that BackBox programs in the target sub-volume or in the associated sub-volumes in peripheral nodes are still running.

This detection requires the program utility BB031 that is extracted first from the package; the detection occurs at various steps of the installation, depending on the previous installed version.

If running processes are detected, they are displayed. Letter “S” is used to shutdown the processes before initiating the actual installation by the letter “I”.



If other components (such as the UI or the VTC) are still running, they might restart BackBox NonStop programs.

When “I” Install option is chosen, the macro will ask for an empty backup sub-volume to receive a copy of the current sub-volume.

The macro will copy the current sub-volume content to the backup sub-volume, upgrade the programs, then propose to convert the data files (depending on the version found in the backup sub-volume). If the user enters the copy that has already been done, the backup sub-volume will be requested to verify the presence of essential files and to use them as file input for the possible data file conversions.

At the installation completion, the macro will load the library of TACL macros and start the macro BB053_UPGRADE for the immediate conversion of the data files. BB053_UPGRADE can also be run later.

See File Conversion Macro BB003_UPGRADE_EXEC.

The following screen will be shown:

```
----- Convert NSK BackPak data files to E4.07 version -----
1. Input backup old subvol : $DATA15.LSX314 Version 4.00 2.
```

```
2. Target subvol ..... : $DATA15.BBOX Version E4.07
(Number) option to modify, (C) to convert, or (Q) to quit :c
```

G. Backup Sub-Volume

1. Run the following TACL commands to return to the previous version (downgrade):

```
VOLUME <BackPak-sub-volume>
FUP DUP <backup-sub-volume>.*, *, PURGE, SOURCEDATE
FUP ALTER VOLUME, ALTFILE (0, VOLUME0)
```

2. The backup sub-volume will be used as source for the data files conversion. The backup sub-volume is used by the installer macro to identify the current version to be updated by executing `VPROC <backup-sub-volume>.BBEXT`.

This will indicate which data conversion must be run.

Security

In VTC, an MS-Windows non-interactive log on must be successful with the account configured in the WINDISK data stores. It is recommended to add this account in the standard User group “Backup Operators”.

In some setups, this account might be known by the file server only and not by the MS-Windows environment. In such a case, the MS-Windows account must be created, either as an Active Directory account or as a local account in all VTCs - with the same password.

For setups with a MS-Windows account already configured, the user must verify if this account can actually log in the VTCs. It is recommended, as well, to restrict the account to non-interactive log on.

Complete the upgrade with an account that is allowed to interactive log on. When the upgrade is completed, the account can be restricted to non-interactive log on and its password changed.

Scripts

Previously the VTC was running all processes under "Local System" and it had access to any local resources. With the 4.00 architecture, the processes accessing the files in Data Store will run under the account configured in the Data Store.

The VTC software handles the setup – except for the resources accessed by the scripts. The user must verify in scripts the access to resources.



The conversion of old NonStop data files is handled by the Install macro.



TSM archive scripts: the option **Delete backed-up files** is available and it can be configured in the Volume group, in order to keep the archived files online in Data Store (only for a few days).