BackBox© E4.13 Upgrade Procedure

Abstract

This Upgrade Procedure document is for BackBox© E4.13

Published: July 2024

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INTRODUCTION

This document describes the upgrade procedure of a BackBox E4.13
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.

<center>PLEASE READ THIS DOCUMENT
BEFORE PERFORMING THE UPDATE</center>

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 (INSE4.13 as a text file and BBE4.13 as a binary file).

BackBox Upgrade Package

Upgrade Components	Files	Version xxx
NSK Package	binary file BBEx.xx macro text file INSEx.xx	E4.13
⚠️ **Upload** the binary file (ex: **BBE) and** the macro **text** file **INSE in a sub-**volume different from the current BackBox sub-volume.		
User Interface Package	Ex.xx.nnn	E4.13
VTC Application	Ex.xx.nnn	E4.13

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.REGE412.BBSV
     Binder timestamp:   29MAY2024 15:09:48 LCT, 29MAY2024 19:09:48 GMT
    Version procedure:   T9999V04_01JUN2024_BBOXETI_13
    Version procedure:   T8432H04_30APR2012_CCPLMAIN
    TNS/E Native Mode:   runnable file
$DATA15 REGE412 23>
```

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) current version
- VTC current version

⚠	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
- ATTO FC-16 fully supported from V4.07 and higher
- VTC Server using Server 2012 R2 needs to install the following Microsoft Framework to migrate to V4.12 and higher.

⚠	Download and use the Windows Management Framework 4.6.2 before starting the migration. The package can be downloaded from Microsoft Download Center .

GENERAL CONSTRAINTS AND COMPATIBILITY

- 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 BackBox domains and for different VTCs.

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.

⚠	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.

⚠	If you use iSCSI (virtual tape devices) and upgrade to E4.13, the upgrade will not change your configuration, yet it will modify the way VTC MC handles the virtual tape devices.

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 BackBox 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 TACL 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 BackBox.
   Note that the conversion program may issue EMS messages.

Domain Upgrade

When running the update, the INSE413 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 INSE413 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 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.

Run the macro shown below to start the upgrade:

Go to the location of the sub-volume where the upgrade package has been uploaded (INS E413 and BBE413, then

```
> $DATA15 BDR412 22> run INSE413
Searching for latest PAK file $*.*.BBE413*
press Break key to stop ...
... found $DATA15.BPAKTMPH.BBE413   (2024-FEB-16 11:52)
... found $DATA15.BPAKTMPH.BBE413A  (2024-JAN-23 16:17)

------------- Installation of BackBox E4.13 NSK components  -------------

  1. Input PAK file .............. : $DATA15.BPAKTMPH.BBE413      (FEB-16 11:52)
  2. Target subvol ............... : $DATA15.BDR412
```

```
    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 : 31

EMS Extractor (BBEXT) process name ($BBEXT) : $bbbdr

------------- Installation of BackBox E4.13 NSK components  -------------
    1. Input PAK file .............. : $DATA15.BPAKTMPH.BBE413     (FEB-16 11:52)
    2. Target subvol .............. : $DATA15.BDR412
    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 : $BBBDR

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

For an installation execution sample, see the example in the Appendix.

The available options for the installation macro INSE413 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.

1. **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**

> ⚠️ 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 the installation macro values, see the Appendix.

> ⚠️ Check the message displayed after line **42**: `Running BackBox 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 procedure:

Verify/Update   BBSETUP

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

> ⚠️ If you upgrade from version 4.09 and want to keep your current User Management configuration, uncheck the Run interactive processes under the NonStop user ID box on the Configuration Domain page. SUPER.SUPER user may be required to update the configuration.

PERIPHERAL NODES UPGRADE

> ⚠️ Since version 4.09 each peripheral node is controlled and managed by its own peripheral node license. Licenses are available upon request. Contact ETI-NET Support for peripheral node license request. The license file received has to be uploaded on the NonStop in binary mode. See license file content **\ETINIUM.$DATA05.BPAK.BBEXTLIC** in the sample below.

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

1. Run the Obey file to start the extractor by specifying where the peripheral node license is located (see the sample below).

1. Modify the indicated line in the sample to point at the location of the peripheral node license.

If there is no peripheral node license, the specified line will be ignored by the extractor.

Sample:

```
$DATA15 BBE413175> fup copy oext
COMMENT ***************************************************** COMMENT start
manually the EMS extractor process
COMMENT ***************************************************** CLEAR ALL
RESET DEFINE *
DELETE DEFINE =BackBox_BBSETUP
ADD DEFINE =BackBox_BBSETUP, CLASS MAP, FILE
\ETINIUM.$DATA05.BPAK.BBSETUPDELETE DEFINE =TCPIP^PROCESS^NAME
ADD DEFINE =TCPIP^PROCESS^NAME, CLASS MAP, FILE $ZTC0DELETE DEFINE
=BBEXT_LICENSE
ADD DEFINE =BBEXT_LICENSE, CLASS MAP,FILE \ETINIUM.$DATA05.BPAK.BBEXTLIC
RUN $DATA05.BPAK.BBEXT /NOWAIT, TERM $ZHOME, name $BBEXT/
```

> ⚠️ 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:

```
$ETINET YINE413P 20> run INSE413
Searching for latest PAK file $*.*.BBE413*
press Break key to stop ...


------------- Installation of BackBox E4.13 NSK components  -------------

    1. Input PAK file ............. : $ETINET.YINGQC.BBE41PAK     (MAY-6 20:7)
    2. Target subvol .............. : $ETINET.YINE413P
    3. Install All or Peripheral node: All
    4. Initial installation or Update: Initial
    5. Spooler location ........... : $S.#BBOX
    6. TCPIP process name ......... : $ZTC0
   31. EMS Extractor (BBEXT) process : $BBEXT
   33. Domain manager TCPIP address. : 127.0.0.1
   34. Domain manager TCPIP port.... : 4561

(Number) option to modify, (I) to install, or (Q) to quit :3

What to install (A-All / P-Peripheral node EMS Extractor):P


------------- Installation of BackBox E4.13 NSK components  -------------


Domain subvol  \node.$vol.subvol () :\ETINIUM.$DATA15.YINE413
    1. Input PAK file ............. : $ETINET.YINGQC.BBE41PAK     (MAY-6 20:7)
    2. Target subvol .............. : $ETINET.YINE413P
    3. Install All or Peripheral node: Peripheral node only (EMS Ext)
    4. Initial installation or Update: Initial
    5. Spooler location ........... : $S.#BBOX
    6. TCPIP process name ......... : $ZTC0
```

```
   31. EMS Extractor (BBEXT) process : $BBEXT
   32. Domain subvol .............. : \ETINIUM.$DATA15.YINE413


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


Confirm to proceed (Y/N) : Y
UNPAK  /NAME/   $ETINET.YINGQC.BBE41PAK,     ($*.BBE413X.BBEXT,        $*.BBE413X
.BBLIB,        $*.BBE413X.SSL    ,        $*.BBE413X.CRYPTO ,       $*.*.OEXT,
              $*.*.SCFIN1,                      $*.*.OBWIN1,    $*.*.ORWIN1,
   $*.*.EMSFILT1,  $*.*.EMSFILT2,  $*.*.EMSFUPIN,  $*.*.OEMS*),        VOL $ETINE
T.YINE413P, MYID,OPEN,LISTALL, AUDITED
UNPAK - File decompression program - T1255L01 - (2022-05-05)


Archive version: 1
File Mode RESTORE Program - T9074L01 (30SEP2022) (AHI)
(C) Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\INSIDX.$Z4CG)
System: \ETINIUM  Operating System: J06  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:  6May2024 20:25  Backup time: 18Apr2024 14:18         Page: 1


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


$ETINET.YINE413P
  EMSFILT1     101               162 22Nov2023 10:28 255,101 NNNN
  EMSFILT2     845               178  4Jun2014 16:40 255,101 NNNN
  EMSFUPIN     101              2190  4Jun2014 16:39 255,101 NNNN
  OBWIN1       101               318 22Nov2023 10:00 255,101 NNNN
  OEMS         101              2278 22Nov2023 10:00 255,101 NNNN
  OEMS2        101              2580 22Nov2023  9:59 255,101 NNNN
  OEMSFILT     845               152  4Jun2014 16:40 255,101 NNNN
  OEXT         101              2712 21Nov2023 11:23 255,101 NNNN
  ORWIN1       101              2370 22Nov2023  9:59 255,101 NNNN
  SCFIN1       101               612 21Nov2023 11:21 255,101 NNNN
  BBEXT        500           2274528 18Apr2024 11:19 255,101 NNNN
  BBLIB        500           4622008 18Apr2024 11:13 255,101 NNNN
  CRYPTO       500          35690016 18Apr2024 11:03 255,101 NNNN
  SSL          500           6123288 18Apr2024 11:02 255,101 NNNN


Summary Information


Files restored = 14  Files not restored = 0


FUP SECURE $ETINET.YINE413P.EMSFILT*, NNNN
Editing OEMS2...
Editing OBWIN1...
Editing ORWIN1...
Editing OEXT...
Editing SCFIN1 ...


FUP SECURE $ETINET.YINE413P.BBEXT,NCNC,PROGID
Editing OEMS...
--------->  BackBox Peripheral node installed in $ETINET.YINE413P,
--------->   from $ETINET.YINGQC.BBE413PAK.
--------->  Please verify if any error message was issued above.
```

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 Programs 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 TACL 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.

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

> ⚠️ Before starting the upgrade run the server preparation script: VtcServerPreparation.ps1. For more info, see VBackBox Installation Guide.

- 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-20191101**.

- Supported servers: Windows 2016 / Windows 2019 / Windows 2022

Components	Version	Location
ATTO Configuration Tool	4.38	Tools\win_app_configtool_438
ATTO Celerity driver FC-162P HBA	1.62.0f1	\AttoCelerityFC-20191101\FC16 \win_drv_celer- ity16\1.62.0f1\x64\Win10
ATTO Celerity flash FC-16	01 November, 2018	FC16\win_fls_celerity16-32_181101
ATTO Celerity driver FC-81EN, FC-82EN or FC-84EN HBA	2.07.0f1	\FC8\win_drv_celerity8\2.07.0f1 \x64
ATTO Celerity flash FC-81EN, FC-82EN or FC-84EN HBA	06 April, 2018	\FC8\win_fls_celerity8_180406

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. The signed drivers are found in the same location as the unsigned ones (for you current adapter with the mention signed in the folder name).

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 BackBox distribution package directory **VTC-E4.13.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.

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 BackBox UI Client.

Install User Interface

1. From the BackBox distribution package directory UI-E4.13.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 User Interface Installation manual for details.

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

1. 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.

2. Statistics ENFORM Report: OBEY OBB021.

- Enable SSL (optional) - Refer to SSL Setup manual.

- 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.

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.

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 instructions.

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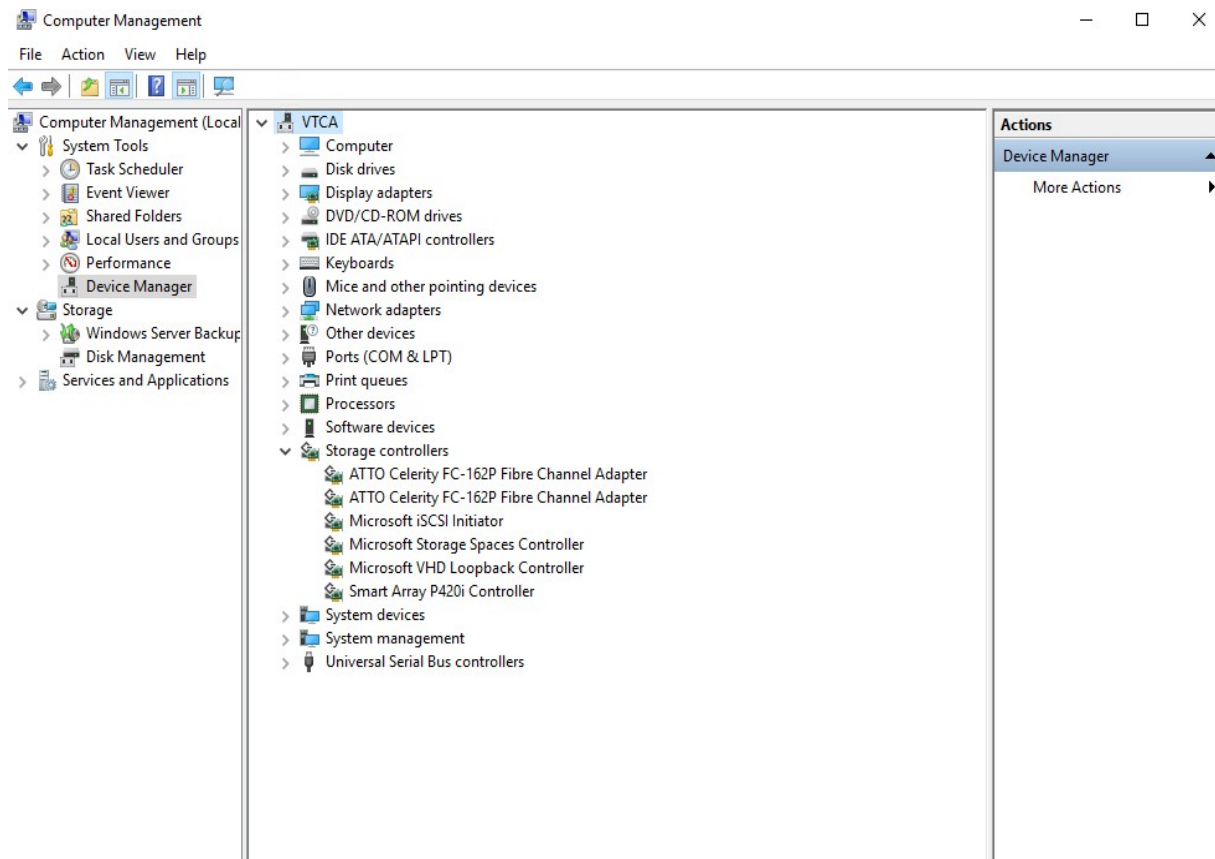
Install the FC Configuration Tool

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- 20191101** directory, sub directory.
Double-click on ConfigTool_438.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.

Follow the wizard installation, by clicking Next and then agree with the terms and conditions.

Choose or browse the installation folder and proceed.

On the Feature Set page, you have the option of installing only the application without ConfigTool system service or the full package. Choose the appropriate option.

Before installing the tool, the summary page will display details related to the product you are about to install. Click Install to start the installation.

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 log in, expend the localhost node in the left panel.
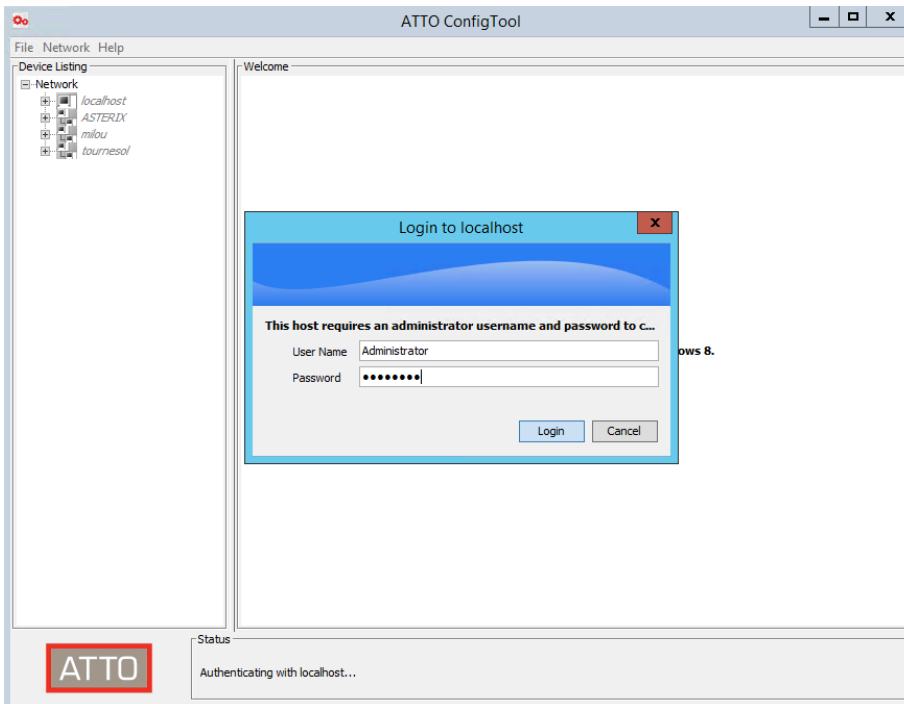
Once logged in, it is possible to expand the localhost node in the left panel. For each Celerity Device verify the drivers version and install the latest version (signed or unsigned):

Driver Version	Latest Version
FC-8X	2.07.0f1
FC-16	1.62.0f1
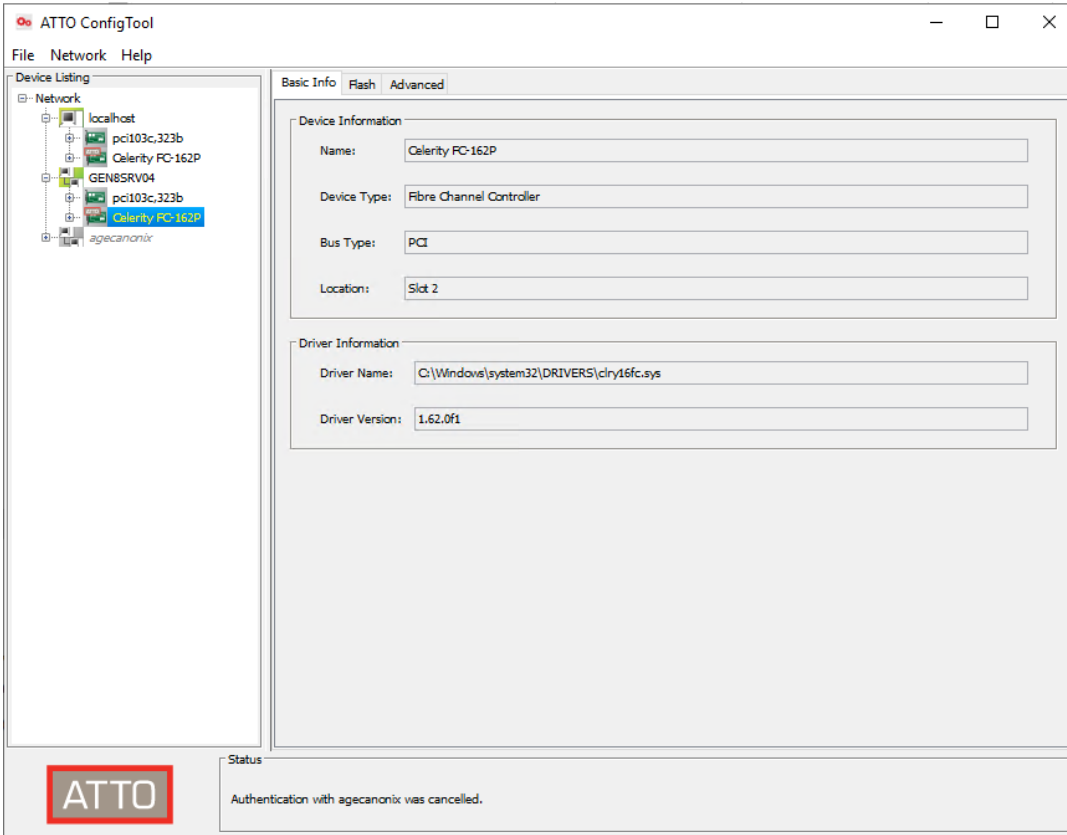
Under the Flash tab, the Flash version for each card should be the driver version that matches the driver version that was just installed. Otherwise, it will be necessary to update the Flash version.
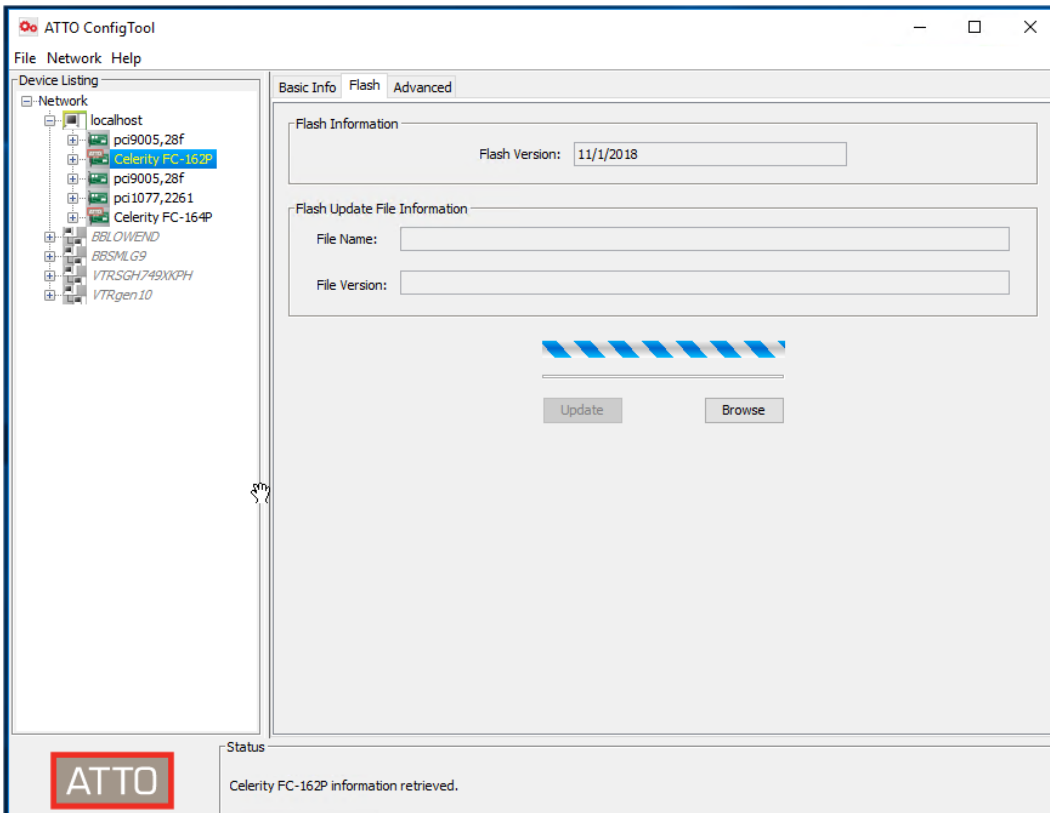
Expand the current Celerity Device node.

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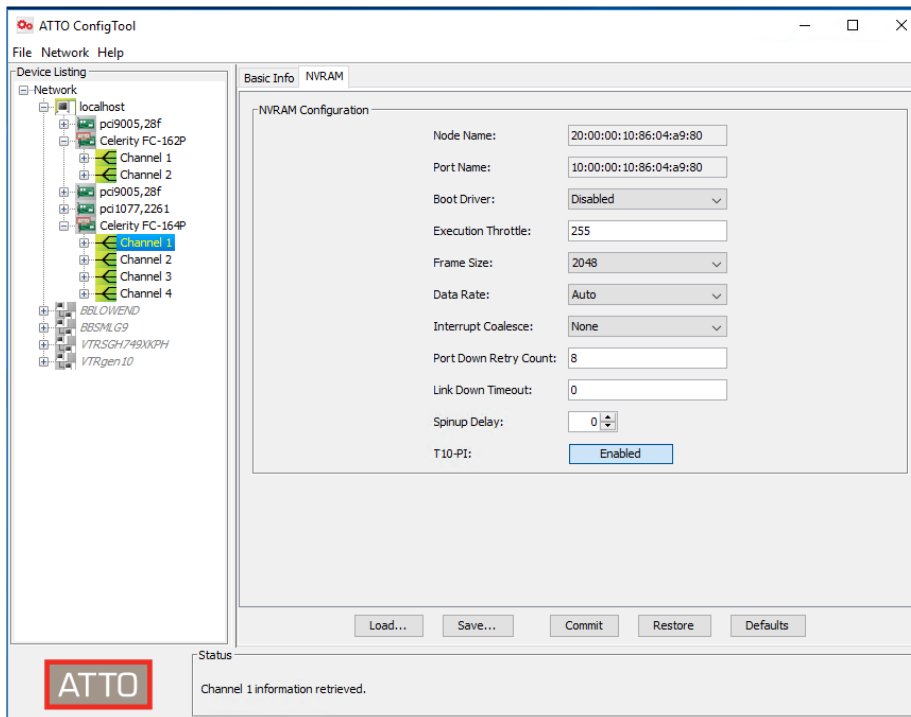
⚠	All parameters and Flash updates can be completed before restarting the server.

Data Rate	Celerity FC HBA type	NonStop connectivity type
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 April 06, 2018 (FC-8xEN models) and November 01, 2018 (for FC-16).
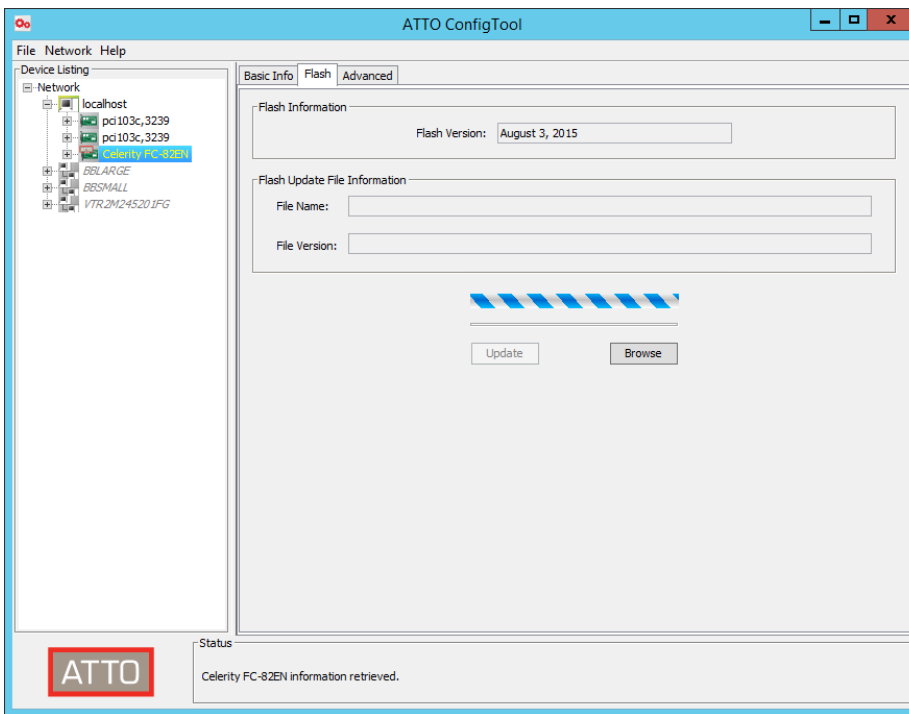
To update the Flash version, first press the Browse button. Then navigate up to the **repository** folder directory, **AttoCelerityFC–** 20191101   for FC-8xEN   models and select the Flash Bundle file proposed by the Configuration Tool. Refer to table for requirements in the VTC   Upgrade   section to verify if you have the right driver version. 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 a separate procedure. Follow the steps below to perform it:

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
1. 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-subvolume>.*,
*,SOURCEDATE FUP ALTER VOLUME,
ALTFILE (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:

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

   o 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
1. 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
$ZHOME, &
STARTMODE
APPLICATION, &
USERID SUPER.OPER
ADD PROCESS, &
(DEFINE
=BackBox_BBSETUP, &
CLASS MAP, &
FILE \ETINIUM.$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 reschedule

them.

> ⚠️ After moving the sub-volume(s), all tape applications can be restarted.

C. 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.

D. Upgrade Execution Sample

```
$DATA15 UPE411 56> run INSE4TXT
Searching for latest PAK file $*.*.BBE413*
press Break key to stop ...
... found $DATA16.YING.BBE413PK  (2024-MAR-20 10:50)
... found $DATA15.BPAKTMPE.BBE413  (2024-APR-18 14:18)
... found $DATA15.BPAKTMPE.BBE413A  (2024-JAN-24 13:53)
... found $DATA15.BPAKTMPE.BBE413C  (2024-FEB-19 12:7)
... found $DATA15.BPAKTMPE.BBE413D  (2024-MAR-27 14:16)
... found $DATA15.BPAKTMPE.BBE413X  (2024-APR-11 12:20)


------------- Installation of BackBox E4.13 NSK components  --------------

  1. Input PAK file ............. : $DATA15.BPAKTMPE.BBE413    (APR-18 14:18)
  2. Target subvol .............. : $DATA15.UPE411
  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 :31


EMS Extractor (BBEXT) process name ($BBEXT) :$eu411


------------- Installation of BackBox E4.13 NSK components  --------------

  1. Input PAK file ............. : $DATA15.BPAKTMPE.BBE413    (APR-18 14:18)
  2. Target subvol .............. : $DATA15.UPE411
  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 : $EU411

(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
-----> press ANY to continue:

Empty subvol to backup $DATA15.UPE411 () :upe411r

----> copying the installation subvol ...
File Utility Program - T6553H02 - (01MAY2018)    System  \ETINIUM
(C)Copyright 1984-2016 Hewlett Packard Enterprise Development LP
DUP $DATA15.UPE411.* where filecode <> 130,       $DATA15.UPE411R.*, SOURCEDATE
FILES DUPLICATED:   102
```

```
ALTER $DATA15.UPE411R.VOLUME, &
ALTFILE (0, $DATA15.UPE411R.VOLUME0)
----> Installation subvol saved


must replace these files, before upgrade
UNPAK - File decompression program - T1255H01 - (2016-02-15)


Archive version: 1
File Mode RESTORE Program - T9074H01 (19OCT2016) (AGX)
(C)Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\ETINIUM.$Z5KN)
System: \ETINIUM  Operating System: J06  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: 26Apr2024 13:54  Backup time: 18Apr2024 14:18        Page: 1


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


$DATA15.UPE411
 MACROS        101             141060 11Apr2024 12:19 255,100 NCNC
 OBB011        101                722 22Nov2023 10:32 255,100 NCNC
 OBB012        101                736 22Nov2023 10:33 255,100 NCNC


Summary  Information


Files restored = 3  Files not restored = 0


Loaded from $DATA15.UPE411.BBSETUP:


BBSV_ADDR       BBSV_PORT       BBSV_TCPIP      VTC_OBJECT      EZX_MAXRETRY
EZX_RETRYDELAY   EZX_TIMEOUT


Loaded from $DATA15.UPE411.MACROS:


BB_BBOX_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
BB004_DATASTORE_UPDATEPW     BB004_DATASTORE_VALIDATE_ACC
BB005_DATASTORE_MIGRATION    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                        BB054_SHUTDOWN

UNPAK  /NAME/  $DATA15.BPAKTMPE.BBE413,       ($*.*.* WHERE FILECODE > 800,
    $*.BBE413E.*,              $*.*.OBB015,            $*.*.OEXT,    $*.*.sc
fin1,        $*.*.OBB004, $*.*.OBB004B, $*.*.OBB005, $*.*.JOBSTAT*,     $*.*.OBB
018, $*.*.OBB019,  $*.*.OBB021, $*.*.OBB025, $*.*.OBB032,       $*.*.OBB038, $*.
*.OBB039,  $*.*.OBB055, $*.*.VOLEXT,        $*.*.MACROS, $*.*.BBREST,  $*.*.EMSFI
LT*,  $*.*.OEMS2),        VOL $DATA15.UPE411, MYID,OPEN,LISTALL, AUDITED
UNPAK - File decompression program - T1255H01 - (2016-02-15)


Archive version: 1
File Mode RESTORE Program - T9074H01 (19OCT2016) (AGX)
(C)Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\ETINIUM.$Z5KZ)
System: \ETINIUM  Operating System: J06  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: 26Apr2024 13:54  Backup time: 18Apr2024 14:18        Page: 1
```

```
         Tape: 1         Code         EOF     Last modif   Owner RWEP   Type    Rec Bl

         $DATA15.UPE411
          BB011         888          5632   4Jun2014 16:40 255,100 NCNC
          BB012         888          5120  16Oct2023 10:16 255,100 NCNC
          BB018         888         12288  25Oct2023 13:56 255,100 NCNC
          BB019         888          8704  29Jun2016 11:26 255,100 NCNC
          BB021         888         11776  11Nov2014 10:11 255,100 NCNC
          BB025         888          7680   4Jun2014 16:40 255,100 NCNC
          BB032         888          4608   4Jun2014 16:40 255,100 NCNC
          BB038         888          5120  16Oct2023 13:33 255,100 NCNC
          BB039         888         11264   4Jun2014 16:40 255,100 NCNC
          BBREST        101         27248  22Nov2023 10:25 255,100 NCNC
          EMSFILT1      101           162  22Nov2023 10:28 255,100 NCNC
          EMSFILT2      845           178   4Jun2014 16:40 255,100 NCNC
          JOBSTAT                      0  27Jan2022 16:05 255,100 NCNC    K      1288  4

          JOBSTAT0                     0  27Jan2022 16:07 255,100 NCNC    K       146  4

          MACROS        101        141060  11Apr2024 12:19 255,100 NCNC
          OBB004        101          2580  22Nov2023 10:09 255,100 NCNC
          OBB004B       101          4198  22Nov2023 10:11 255,100 NCNC
          OBB005        101          1536  22Nov2023 10:10 255,100 NCNC
          OBB015        101           206  22Nov2023 10:12 255,100 NCNC
          OBB018        101          6858  22Nov2023 10:33 255,100 NCNC
          OBB019        101          7248  22Nov2023 10:34 255,100 NCNC
          OBB021        101          7144  22Nov2023 10:35 255,100 NCNC
          OBB025        101          6858  22Nov2023 10:35 255,100 NCNC
          OBB032        101           470  22Nov2023 10:18 255,100 NCNC
          OBB038        101           744  22Nov2023 10:37 255,100 NCNC
          OBB039        101          6858  22Nov2023 10:37 255,100 NCNC
          OBB055        101           850  22Nov2023 10:36 255,100 NCNC
          OEMS2         101          2580  22Nov2023  9:59 255,100 NCNC
          OEMSFILT      845           152   4Jun2014 16:40 255,100 NCNC
          OEXT          101          2712  21Nov2023 11:23 255,100 NCNC
          SCFIN1        101           612  21Nov2023 11:21 255,100 NCNC
          VOLEXT                       0   4Jun2014 16:39 255,100 NCNC    E       932  4

          BB010         800       2035536  18Apr2024 10:55 255,100 NCNC
          BB015         800        266320  18Apr2024 10:55 255,100 NCNC
          BB030         800        119496  18Apr2024 10:55 255,100 NCNC
          BB031         800       5199784  18Apr2024 10:55 255,100 NCNC
          BB033         800         55976  18Apr2024 10:53 255,100 NCNC
          BB034         800         50392  18Apr2024 10:54 255,100 NCNC
          BB037         800        510240  18Apr2024 10:54 255,100 NCNC
          BB042         800        388528  18Apr2024 10:54 255,100 NCNC
          BB043         800         51016  18Apr2024 10:54 255,100 NCNC
          BB044         800        900560  17Apr2024 16:44 255,100 NCNC
          BB045         800        424864  17Apr2024 16:47 255,100 NCNC




         Restore time: 26Apr2024 13:54  Backup time: 18Apr2024 14:18          Page: 2


         Tape: 1         Code         EOF     Last modif   Owner RWEP   Type    Rec Bl
          BB053         800       1682992  17Apr2024 16:44 255,100 NCNC
          BB055         800       2072448  17Apr2024 16:44 255,100 NCNC
          BB056         800       1993280  17Apr2024 16:47 255,100 NCNC
          BBCMD         800       1782552  17Apr2024 16:49 255,100 NCNC
          BBDBM         800       7068304  17Apr2024 16:43 255,100 NCNC
          BBDELVOL      800        231128  17Apr2024 16:45 255,100 NCNC
          BBEXT         800       2723944  17Apr2024 16:47 255,100 NCNC
          BBFIXVOL      800        231872  17Apr2024 16:49 255,100 NCNC
          BBLIB         800       5383096  18Apr2024 10:54 255,100 NCNC
          BBMERCAT      800        244264  17Apr2024 16:45 255,100 NCNC
          BBPSCODE      800       1663856  17Apr2024 16:48 255,100 NCNC
          BBSV          800       6657088  17Apr2024 16:46 255,100 NCNC
          BBULIST       800         97416  17Apr2024 16:48 255,100 NCNC
          BBVERCER      800         25968  17Apr2024 16:33 255,100 NCNC
          CRYPTO        800      44898768  17Apr2024 16:34 255,100 NCNC
          ETISSLST      800         49936  17Apr2024 14:00 255,100 NCNC
          SSL           800       7418816  17Apr2024 16:33 255,100 NCNC
          TAPERD        800        102616  17Apr2024 16:45 255,100 NCNC
          TAPEWR        800        273288  17Apr2024 16:49 255,100 NCNC
          TRCLIST       800        110960  17Apr2024 16:49 255,100 NCNC

         Summary  Information

         Files restored = 63  Files not restored = 0
```

```
FUP  SECURE  $DATA15.UPE411.BBSV,CCCC,PROGID

FUP  SECURE  $DATA15.UPE411.EMSFILT*, NNNN
FUP  SECURE  $DATA15.UPE411.OPER, NCNC


Editing OEMS2...
Editing OBWIN1...
Editing ORWIN1...
Editing OBB018...
Editing OBB019...
Editing OBB021...
Editing OBB025...
Editing OBB032...
Editing OBB039...
Editing OBB055 ...
Editing OBB015...
Editing OEXT...
Editing SCFIN1 ...


FUP  SECURE  $DATA15.UPE411.BBEXT,NCNC,PROGID
Editing SSLCFG ...


Loaded  from  $DATA15.UPE411.BBSETUP:


BBSV_ADDR        BBSV_PORT        BBSV_TCPIP        VTC_OBJECT        EZX_MAXRETRY
EZX_RETRYDELAY    EZX_TIMEOUT



Loaded  from  $DATA15.UPE411.MACROS:


BB_BBOX_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
BB004_DATASTORE_UPDATEPW        BB004_DATASTORE_VALIDATE_ACC
BB005_DATASTORE_MIGRATION       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                          BB054_SHUTDOWN


--------->  Whole BackBox updated in $DATA15.UPE411,
--------->   from $DATA15.BPAKTMPE.BBE413.
--------->  Please verify if any error message was issued above.
  check NSKCRT: \ETINIUM.$DATA15.UPE411.NSKCRT
  NSKCRT issuer : /C=CA/ST=QUEBEC/L=MONTREAL/O=ETINET/CN=NONSTOP/emailAddress=sup
port@etinet.com
  Found O=ETINET    Found CN=NONSTOP    Found emailAddress=support@etinet.com
This NSKCRT is the Etinet pre-H412 selfsign certificate
ABENDED: $Z5MN
CPU time: 0:00:00.049
1: Process terminated with warning diagnostics
-----> BBVERCER RETURN NOT zero
-----> This domain is using Etinet pre 4.12 selfsigned certificates
-----> Updating Etinet selfsigned certificates
UNPAK - File decompression program - T1255H01 - (2016-02-15)


Archive version: 1
File Mode RESTORE Program - T9074H01 (19OCT2016) (AGX)
(C)Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\ETINIUM.$Z5MT)
System: \ETINIUM  Operating System: J06  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: 26Apr2024 13:54  Backup time: 18Apr2024 14:18          Page: 1

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


       $DATA15.UPE411
        NSKCRT                         1316 17Apr2023 21:25 255,100 NCNC
        NSKDER                         1773 18Apr2023 13:05 255,100 NCNC
        SSLCFG        101              2286 11Oct2023 13:23 255,100 NCNC
        VTCCRT                         1316 17Apr2023 21:24 255,100 NCNC


       Summary  Information


       Files restored = 4  Files not restored = 0
       Editing SSLCFG ...



       --------->  Is the result OK (Y/N): y

       Loaded  from  $DATA15.UPE411.BBSETUP:


       BBSV_ADDR       BBSV_PORT        BBSV_TCPIP      VTC_OBJECT       EZX_MAXRETRY
       EZX_RETRYDELAY   EZX_TIMEOUT



       Loaded  from  $DATA15.UPE411.MACROS:


       BB_BBOX_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
       BB004_DATASTORE_UPDATEPW      BB004_DATASTORE_VALIDATE_ACC
       BB005_DATASTORE_MIGRATION     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                         BB054_SHUTDOWN



       Backup Version   : 04.12
       Installing Version: 04.13

       $DATA15 UPE411 57>
```

E. Installation Macro Sample

```
       $DATA15 YINE413 9> run INSE4TXT
       Searching for latest PAK file $*.*.BBE413*
       press Break key to stop ...
       ... found $DATA16.YING.BBE413PK  (2024-MAR-20 10:50)
       ... found $DATA15.BPAKTMPE.BBE413  (2024-APR-18 14:18)
       ... found $DATA15.BPAKTMPE.BBE413A  (2024-JAN-24 13:53)
       ... found $DATA15.BPAKTMPE.BBE413C  (2024-FEB-19 12:7)
       ... found $DATA15.BPAKTMPE.BBE413D  (2024-MAR-27 14:16)
       ... found $DATA15.BPAKTMPE.BBE413X  (2024-APR-11 12:20)


       ------------- Installation of BackBox E4.13 NSK components  --------------

         1. Input PAK file ............. : $DATA15.BPAKTMPE.BBE413     (APR-18 14:18)
         2. Target subvol .............. : $DATA15.YINE413
         3. Install All or Peripheral node: All
         4. Initial installation or Update: Initial
         5. Spooler location ........... : $S.#BBOX
         6. TCPIP process name ......... : $ZTC2
        31. EMS Extractor (BBEXT) process : $BBEXT
        33. Domain manager TCPIP address. : 127.0.0.1
```

```
  34. Domain manager TCPIP port.... : 4561

(Number) option to modify, (I) to install, or (Q) to quit :31

EMS Extractor (BBEXT) process name ($BBEXT) :$ye413


------------- Installation of BackBox E4.13 NSK components  --------------

   1. Input PAK file ............. : $DATA15.BPAKTMPE.BBE413     (APR-18 14:18)
   2. Target subvol .............. : $DATA15.YINE413
   3. Install All or Peripheral node: All
   4. Initial installation or Update: Initial
   5. Spooler location ........... : $S.#BBOX
   6. TCPIP process name ......... : $ZTC2
  31. EMS Extractor (BBEXT) process : $YE413
  33. Domain manager TCPIP address. : 127.0.0.1
  34. Domain manager TCPIP port.... : 4561

(Number) option to modify, (I) to install, or (Q) to quit :33

 Domain manager TCPIP address (127.0.0.1 to loop back): 192.168.20.63


------------- Installation of BackBox E4.13 NSK components  --------------

   1. Input PAK file ............. : $DATA15.BPAKTMPE.BBE413     (APR-18 14:18)
   2. Target subvol .............. : $DATA15.YINE413
   3. Install All or Peripheral node: All
   4. Initial installation or Update: Initial
   5. Spooler location ........... : $S.#BBOX
   6. TCPIP process name ......... : $ZTC2
  31. EMS Extractor (BBEXT) process : $YE413
  33. Domain manager TCPIP address. : 192.168.20.63
  34. Domain manager TCPIP port.... : 4561

(Number) option to modify, (I) to install, or (Q) to quit :34

 Domain manager TCPIP process port : 4756


------------- Installation of BackBox E4.13 NSK components  --------------

   1. Input PAK file ............. : $DATA15.BPAKTMPE.BBE413     (APR-18 14:18)
   2. Target subvol .............. : $DATA15.YINE413
   3. Install All or Peripheral node: All
   4. Initial installation or Update: Initial
   5. Spooler location ........... : $S.#BBOX
   6. TCPIP process name ......... : $ZTC2
  31. EMS Extractor (BBEXT) process : $YE413
  33. Domain manager TCPIP address. : 192.168.20.63
  34. Domain manager TCPIP port.... : 4756

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

Confirm to proceed (Y/N) : y
must replace these files, before upgrade
UNPAK - File decompression program - T1255H01 - (2016-02-15)

Archive version: 1
File Mode RESTORE Program - T9074H01 (19OCT2016) (AGX)
(C)Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\ETINIUM.$Z7QJ)
System: \ETINIUM  Operating System: J06  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:  2May2024 17:12  Backup time: 18Apr2024 14:18        Page: 1


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


$DATA15.YINE413
 MACROS         101           141060 11Apr2024 12:19 255,100 NCNC
 OBB011         101              722 22Nov2023 10:32 255,100 NCNC
 OBB012         101              736 22Nov2023 10:33 255,100 NCNC


Summary  Information


Files restored = 3  Files not restored = 0
```

```
UNPAK  /NAME/  $DATA15.BPAKTMPE.BBE413,     ($*.BBE413.*,     $*.BBE413E.*),
  MAP NAMES $*.*.* TO $DATA15.YINE413.*,    MYID,OPEN,LISTALL,AUDITED
UNPAK - File decompression program - T1255H01 - (2016-02-15)


Archive version: 1
File Mode RESTORE Program - T9074H01 (19OCT2016) (AGX)
(C)Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\ETINIUM.$Z7QL)
System: \ETINIUM  Operating System: J06  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:  2May2024 17:12  Backup time: 18Apr2024 14:18       Page: 1


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


$DATA15.YINE413
  BB011       888           5632  4Jun2014 16:40 255,100 NCNC
  BB012       888           5120 16Oct2023 10:16 255,100 NCNC
  BB018       888          12288 25Oct2023 13:56 255,100 NCNC
  BB019       888           8704 29Jun2016 11:26 255,100 NCNC
  BB021       888          11776 11Nov2014 10:11 255,100 NCNC
  BB025       888           7680  4Jun2014 16:40 255,100 NCNC
  BB032       888           4608  4Jun2014 16:40 255,100 NCNC
  BB038       888           5120 16Oct2023 13:33 255,100 NCNC
  BB039       888          11264  4Jun2014 16:40 255,100 NCNC
  BBREST      101          27248 22Nov2023 10:25 255,100 NCNC
  BBSETUP     101           2922 22Nov2023 10:27 255,100 NCNC
  BBSVCFG     101           2088 13Apr2021 14:11 255,100 NCNC
  EMSFILT1    101            162 22Nov2023 10:28 255,100 NCNC
  EMSFILT2    845            178  4Jun2014 16:40 255,100 NCNC
  EMSFUPIN    101           2190  4Jun2014 16:39 255,100 NCNC
  EMSOUT                      0  4Jun2014 16:39 255,100 NCNC   E     560  4

  JOBSTAT                     0 27Jan2022 16:05 255,100 NCNC   K    1288  4

  JOBSTAT0                    0 27Jan2022 16:07 255,100 NCNC   K     146  4

  MACROS      101         141060 11Apr2024 12:19 255,100 NCNC
  NSKCRT                   1316 17Apr2023 21:25 255,100 NCNC
  NSKDER                   1773 18Apr2023 13:05 255,100 NCNC
  OBB004      101           2580 22Nov2023 10:09 255,100 NCNC
  OBB004B     101           4198 22Nov2023 10:11 255,100 NCNC
  OBB005      101           1536 22Nov2023 10:10 255,100 NCNC
  OBB011      101            722 22Nov2023 10:32 255,100 NCNC
  OBB012      101            736 22Nov2023 10:33 255,100 NCNC
  OBB015      101            206 22Nov2023 10:12 255,100 NCNC
  OBB017      101           2306 22Nov2023 10:15 255,100 NCNC
  OBB018      101           6858 22Nov2023 10:33 255,100 NCNC
  OBB019      101           7248 22Nov2023 10:34 255,100 NCNC
  OBB021      101           7144 22Nov2023 10:35 255,100 NCNC
  OBB025      101           6858 22Nov2023 10:35 255,100 NCNC
  OBB032      101            470 22Nov2023 10:18 255,100 NCNC
  OBB038      101            744 22Nov2023 10:37 255,100 NCNC
  OBB039      101           6858 22Nov2023 10:37 255,100 NCNC
  OBB055      101            850 22Nov2023 10:36 255,100 NCNC
  OBWIN1      101            318 22Nov2023 10:00 255,100 NCNC
  OEMS        101           2278 22Nov2023 10:00 255,100 NCNC
  OEMS2       101           2580 22Nov2023  9:59 255,100 NCNC
  OEMSFILT    845            152  4Jun2014 16:40 255,100 NCNC
  OEXT        101           2712 21Nov2023 11:23 255,100 NCNC
  OPER                        0  4Jun2014 16:39 255,100 NCNC   K    4062  4

  ORWIN1      101           2370 22Nov2023  9:59 255,100 NCNC




Restore time:  2May2024 17:12  Backup time: 18Apr2024 14:18       Page: 2

Tape: 1        Code          EOF     Last modif   Owner RWEP   Type   Rec Bl
  SCFIN1      101            612 21Nov2023 11:21 255,100 NCNC
  SCFIN2      101           2294  4Jun2014 16:39 255,100 NCNC
  SCFIN4      101            158  4Jun2014 16:39 255,100 NCNC
  SCFIN5      101           2424  4Jun2014 16:39 255,100 NCNC
  SCFIN6      101           2430  4Jun2014 16:39 255,100 NCNC
  SSLCFG      101           2286 11Oct2023 13:23 255,100 NCNC
  STATE                       0  4Jun2014 16:39 255,100 NCNC   K     446  4
```

```
    STATS                        0  4Jun2014 16:39 255,100 NCNC   E     4000   4

    USERLIST      180         3253 28Nov2019 16:38 255,100 NCNC
    VOLEXT                       0  4Jun2014 16:39 255,100 NCNC   E      932   4

    VOLUME                       0  4Jun2014 16:39 255,100 NCNC   K     4056   4

    VOLUME0                      0  4Jun2014 16:39 255,100 NCNC   K       46   4

    VTCCRT                    1316 17Apr2023 21:24 255,100 NCNC
    BB010         800      2035536 18Apr2024 10:55 255,100 NCNC
    BB015         800       266320 18Apr2024 10:55 255,100 NCNC
    BB030         800       119496 18Apr2024 10:55 255,100 NCNC
    BB031         800      5199784 18Apr2024 10:55 255,100 NCNC
    BB033         800        55976 18Apr2024 10:53 255,100 NCNC
    BB034         800        50392 18Apr2024 10:54 255,100 NCNC
    BB037         800       510240 18Apr2024 10:54 255,100 NCNC
    BB042         800       388528 18Apr2024 10:54 255,100 NCNC
    BB043         800        51016 18Apr2024 10:54 255,100 NCNC
    BB044         800       900560 17Apr2024 16:44 255,100 NCNC
    BB045         800       424864 17Apr2024 16:47 255,100 NCNC
    BB053         800      1682992 17Apr2024 16:44 255,100 NCNC
    BB055         800      2072448 17Apr2024 16:44 255,100 NCNC
    BB056         800      1993280 17Apr2024 16:47 255,100 NCNC
    BBCMD         800      1782552 17Apr2024 16:49 255,100 NCNC
    BBDBM         800      7068304 17Apr2024 16:43 255,100 NCNC
    BBDELVOL      800       231128 17Apr2024 16:45 255,100 NCNC
    BBEXT         800      2723944 17Apr2024 16:47 255,100 NCNC
    BBFIXVOL      800       231872 17Apr2024 16:49 255,100 NCNC
    BBLIB         800      5383096 18Apr2024 10:54 255,100 NCNC
    BBMERCAT      800       244264 17Apr2024 16:45 255,100 NCNC
    BBPSCODE      800      1663856 17Apr2024 16:48 255,100 NCNC
    BBSV          800      6657088 17Apr2024 16:46 255,100 NCNC
    BBULIST       800        97416 17Apr2024 16:48 255,100 NCNC
    BBVERCER      800        25968 17Apr2024 16:33 255,100 NCNC
    CRYPTO        800     44898768 17Apr2024 16:34 255,100 NCNC
    ETISSLST      800        49936 17Apr2024 14:00 255,100 NCNC
    SSL           800      7418816 17Apr2024 16:33 255,100 NCNC
    TAPERD        800       102616 17Apr2024 16:45 255,100 NCNC
    TAPEWR        800       273288 17Apr2024 16:49 255,100 NCNC
    TRCLIST       800       110960 17Apr2024 16:49 255,100 NCNC

Summary Information

Files restored = 87  Files not restored = 0

FUP  SECURE  $DATA15.YINE413.BBSV,CCCC,PROGID

FUP  SECURE  $DATA15.YINE413.EMSFILT*, NNNN
FUP  SECURE  $DATA15.YINE413.OPER, NCNC
FUP  SECURE  $DATA15.YINE413.VOLUME*, NCNC

Editing OEMS2...
Editing OBWIN1...
Editing ORWIN1...
Editing OBB018...
Editing OBB019...
Editing OBB021...
Editing OBB025...
Editing OBB032...
Editing OBB039...
Editing OBB055 ...
Editing OBB015...
Editing OEXT...
Editing SCFIN1 ...

FUP  SECURE  $DATA15.YINE413.BBEXT,NCNC,PROGID
Editing BBSETUP...
Editing OBB017...
Editing OEMS...
Editing SSLCFG ...

Loaded from $DATA15.YINE413.BBSETUP:

BBSV_ADDR       BBSV_PORT       BBSV_TCPIP      VTC_OBJECT      EZX_MAXRETRY
EZX_RETRYDELAY   EZX_TIMEOUT


Loaded from $DATA15.YINE413.MACROS:
```

```
BB_BBOX_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
BB004_DATASTORE_UPDATEPW       BB004_DATASTORE_VALIDATE_ACC
BB005_DATASTORE_MIGRATION      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                          BB054_SHUTDOWN


--------->   Whole BackBox installed in $DATA15.YINE413,
--------->    from $DATA15.BPAKTMPE.BBE413.
--------->   Please verify if any error message was issued above.
Create initial USER Profile List used for BackBox Access Control
Userlist =\ETINIUM.$DATA15.YINE413.USERLIST, user =SUPER.OPER
$DATA15 YINE413 10>
```

F. 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 pro- grams, 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 berun later.

See File Conversion Macro BB003_UPGRADE_EXEC. The following screen will be shown:

```
---------- Convert NSK BackBox data files to E4.13 version----------
1. Input backup old subvol : $DATA15.LSX314 Version 4.00
2.
2. Target subvol ......... : $DATA15.BBOX Version E4.13(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  <BackBox-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. 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 and can be configured in the Volume group, in order to keep the archived files online in Data Store (only for a few days).