



BackBox[®] E5.00 Release Notes

Abstract

This Release Notes document is for BackBox[®] E5.00

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New Features and Improvements

ID	Issue Description
BBOX-321	New ATTO drivers and CLI support for HBA 4 (FC-8) and 5 (FC-16, FC-32 and FC-64) families. Driver versions 2.130.4001.6000 (FC-8) and 2.100.4001.6000 (FC-16, FC-32 and FC-64). Compatible with Windows Server 2016, 2019 and 2022 editions
BBOX-322	Support for ATTO Celerity FC-32 HBA family.
BBOX-565	Support for ATTO Celerity FC-64 HBA family.
BBOX-19	New BackBox Target Mode driver v3.1 to support ATTO Target mode API 4 and 5 versions.  This driver is incompatible with all the earliest BackBox VTC version 04.xx and below.
BBOX-1335	New functionality implemented to support automatic Alter TapeMount for DSM/TC Volume Group.
BBOX-1061	Improved Job Status automatic update.
BBOX-1053	Improved Migration Jobs execution and handling.
BBOX-1230	Automatic Scratch functionality renamed Automatic Volume Creation in Volume Group Advanced page.
BBOX-1486	Implemented a (physical storage) monitoring capability that would prevent QoreStor to be overloaded when Windows physical storage reaches 95 % threshold. For more details, see section QRESTOR CONTAINERS AND ADVANCED POOL MANAGEMENT under QRESTOR DATA STORE in the User Guide .
Documentation	BackBox Release Notes now include information previously distributed in BackBox User Interface Installation , BackBox Upgrade Procedure and BackBox Third Party Components .
Documentation	BackBox User Guide now includes information previously distributed in BackBox SSL Setup and BackBox Tape Encryption Option

Deprecated Features

ID	Issue Description
BBOX-1545 BBOX-1548	Site licenses (for version H4.08 and below) need to be replaced by atomic/node license (supported for version H4.09 and above) before upgrading to T0954V05^AAY. For more details about identifying the license type see G. Site License and Atomic License in the APPENDIX .
BBOX-1325	ATTO Configuration Tool is not distributed anymore. The VTCServerPreparation script, delivered with the BackBox software package, replaces this tool. To access the CLI tools and the associated applications, follow the procedure in F. ATTO CLI Commands .
BBOX-566	ATTO Celerity FC-4 HBA family support has been decommissioned.
BBOX-1007	CA catalog tapes are not supported any more for Volume Group creation.

Resolved Defects

ID	Issue Description
BBOX-1546	Fixed an issue in VTC MC under security page that allows choosing between certificates with the same name.
BBOX-841	Resolved a defect on the QoreStor Event Forwarder page to correctly start or stop the events forwarding.
BBOX-1131	Resolved a defect that triggered the ABEND of BBSV process when receiving an unsolicited message from a network scan.
BBOX-1194	Resolved a memory leak identified in the OpenSSL library.
BBOX-848	Resolved a defect to set never-expire password conditions when QS user is being created on VTCMC.
BBOX-913	Resolved a defect on IPv4 mode to display the options Manual, Automatic or Disabled.
BBOX-914	Resolved a defect that was generating a job report file with the wrong name.
BBOX-974	Removed unrelated details when displaying the volume details of QoreStor volumes.
BBOX-994	Resolved a defect to display correctly the abortion message when the operation was canceled by the operator.
BBOX-1044	Resolved a defect that generates server error while the page is refreshing when enabling/disabling a VTC.
BBOX-1137	Resolved a defect related to the NonStop license expiration message not being displayed on the Status page.
BBOX-1207	Resolved a defect that prevented the job status page from displaying the correct Total to process number of files.
BBOX-1220	Resolved a defect on Storage Administration page that prevent displaying status information when the data store contains large number of volumes.
BBOX-1222	Resolve a library defect that allowed the load process to be initiated when the device was in a not ready state.
BBOX-1328	Fixed an error message content when no storage is available.
BBOX-1330	Resolved a defect related to the certificate displayed through VTCMC.
BOX-1385	Resolved a defect that triggered the same migration job to be run twice, in case the job involves a data store with large number of volumes.
BBOX-1499	Resolved an inconsistency to support multiple certificates with the same subject name.

Security Updates

ID	Issue Description
BBOX-1250	OpenSSL 3.0.15 library update (CVE-2024-5335)
BBOX-1252	Expat 2.6.3 library update (CVE-20244590)

Known Issues

ID	Issue Description
BBOX-870	The migration function does not support BoostFS storage type for this release.
BBOX-733	Creating unlabeled volumes is not supported with lock-protected storage, such as Data Domain, QoreStor Cloud Tier, StoreOnce, etc.
BBOX-1468	The SecureConnect option for RapidCIFS is not working with default naming conventions used by QoreStor Data Store Storage pool path.
BBOX-1469	The UI Summary page may slow down when too many jobs are running at the same time.

USER INTERFACE INSTALLATION

This section documents the installation of the BackBox User Interface client on an operator workstation or on a BackBox VTC server.

The main documentation reference is [BackBox User Manual](#).

Product error messages are documented in the [BackBox Messages Manual and Troubleshooting](#)

The UI Client application can be installed on various Windows operating systems. For details about the product requirements, refer to the introduction in the [BackBox User Manual](#).

BACKBOX DISTRIBUTION PACKAGE

The BackBox distribution package contains the following files:

the UI-vv.vv.vvvv directory:

- BackBox ClientSetup.msi
- Setup.exe

the documentation directory:

- BackBox Installation Guide for an initial installation.
- BackBox Upgrade Procedure for an existing version that will be updated to the most recent one

User Interface Installation Requirements

A user account with full local administrator rights is required for the installation process. If the user running the installation is not the same as the one who will use the UI, make sure to select Everyone option in the Select folder dialog box.

For normal application operation, JavaScript enabled and pop-up Window enabled should be set as described in UI Preferences.

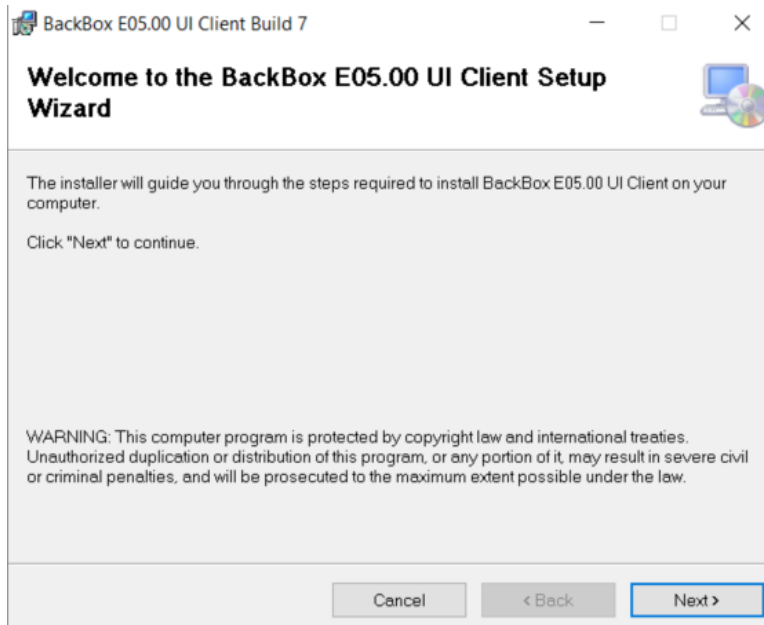
INSTALL BACKBOX UI CLIENT

This section documents how to install the BackBox UI Client on a Windows workstation or a VTC server. To install the BackBox UI Client:

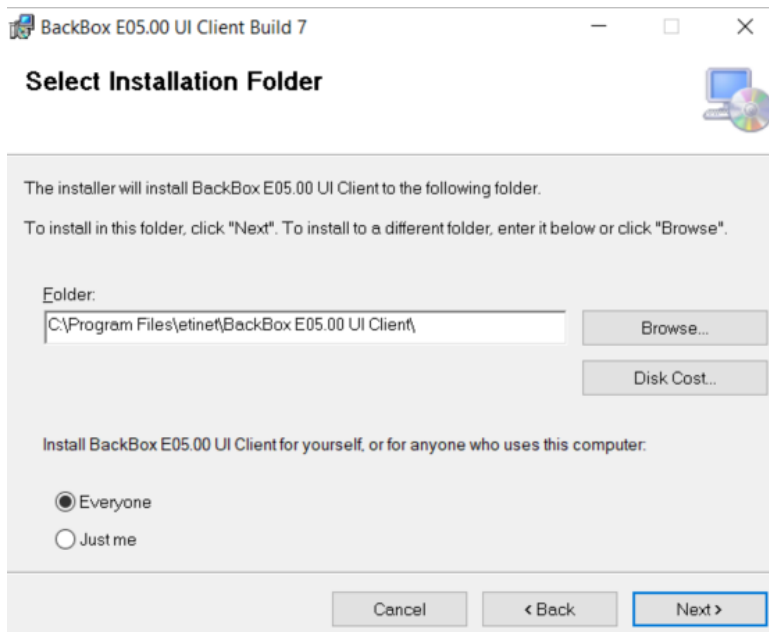
- Open the BackBox distribution set and navigate to the UI-v.vv.vvvv directory.
- Run Setup.exe.

If a Windows component is missing or not up-to-date, it needs to be downloaded from the Microsoft site. If there is no internet connection, the user has to update or install the missing component using the appropriate procedure.

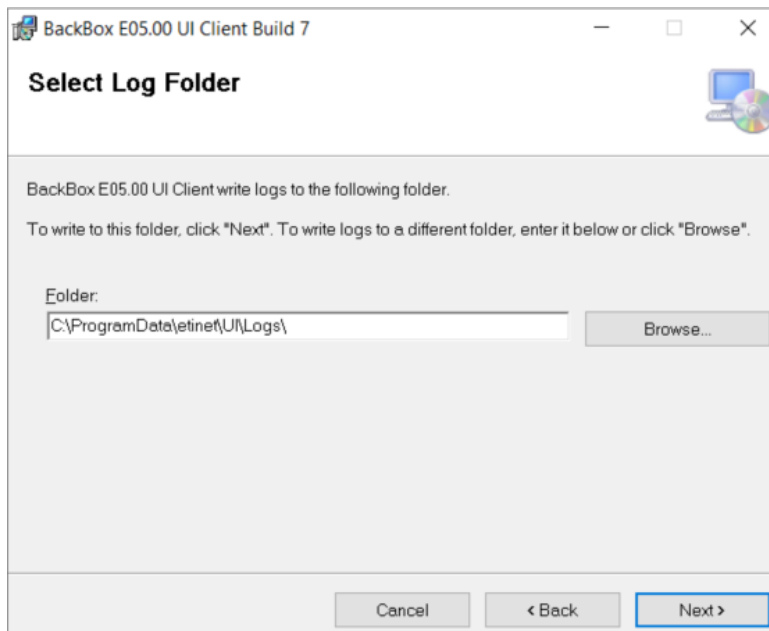
1. Run the Setup.exe to launch the UI Client Setup Wizard and follow the steps required to install the application. Click Next.



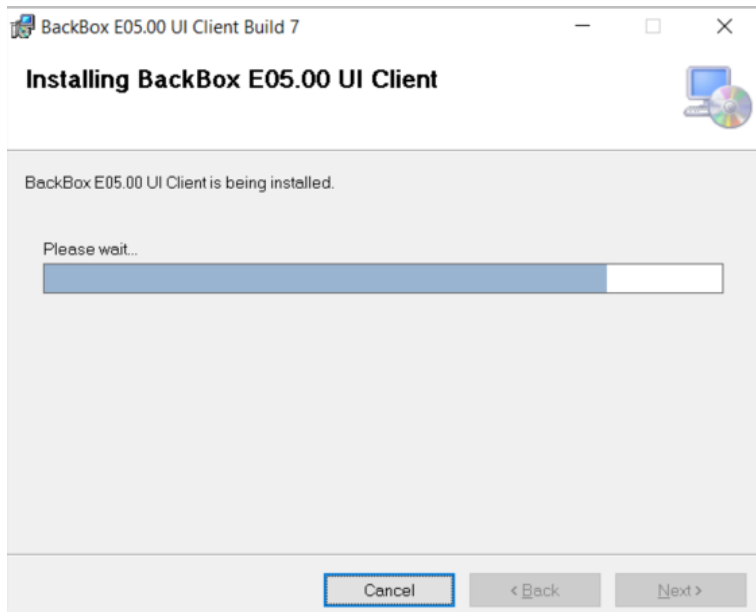
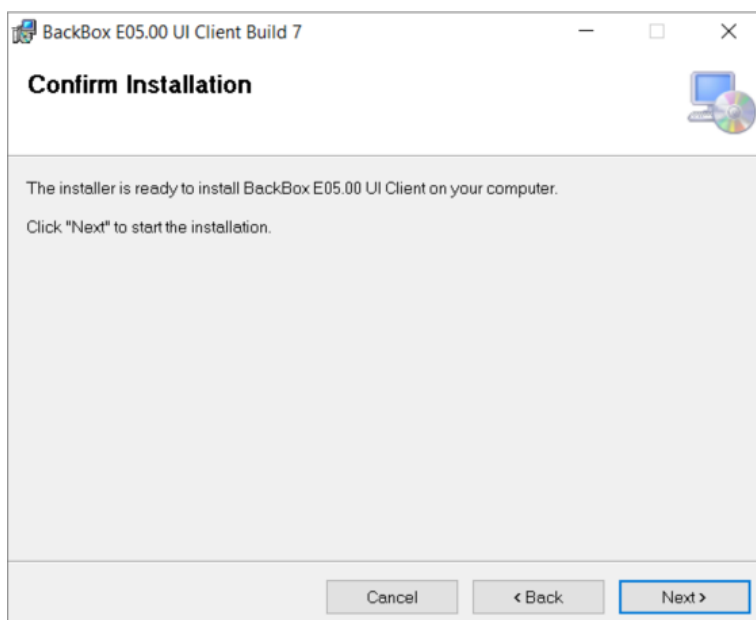
2. Select the installation folder. Use the default folder or browse to install the UI Client to a different folder. If the access to the UI Client has to be restricted to the current user, select Just me. Click Next.



3. Browse the Log Folder or click Next to use the default folder.

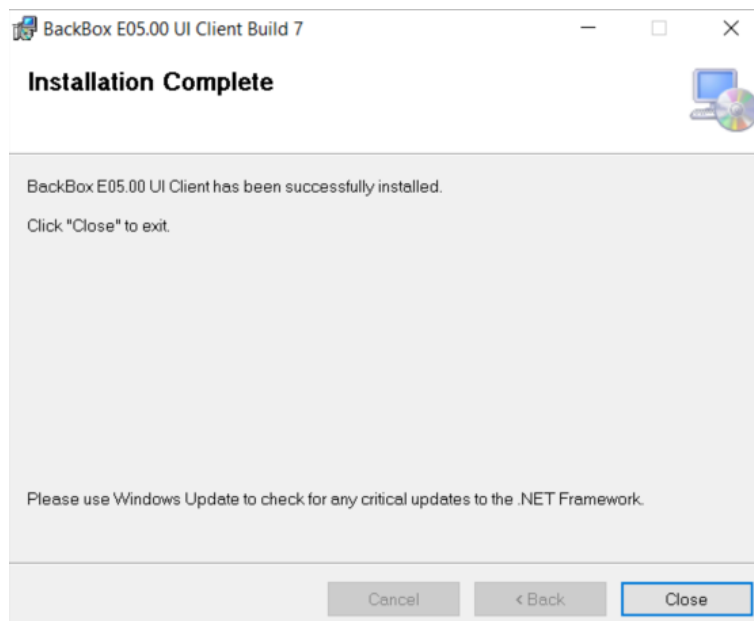


4. Confirm installation by clicking Next.



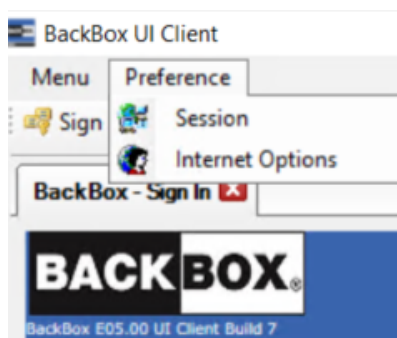
5. Once the installation is complete, you are prompted with the Installation Complete message.

Click Close to exit the Wizard and to complete the installation.



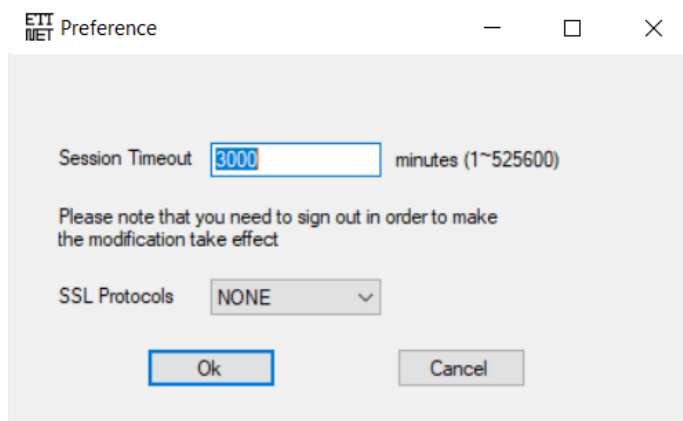
UI PREFERENCES

UI client preferences can be set by the menu Preference.



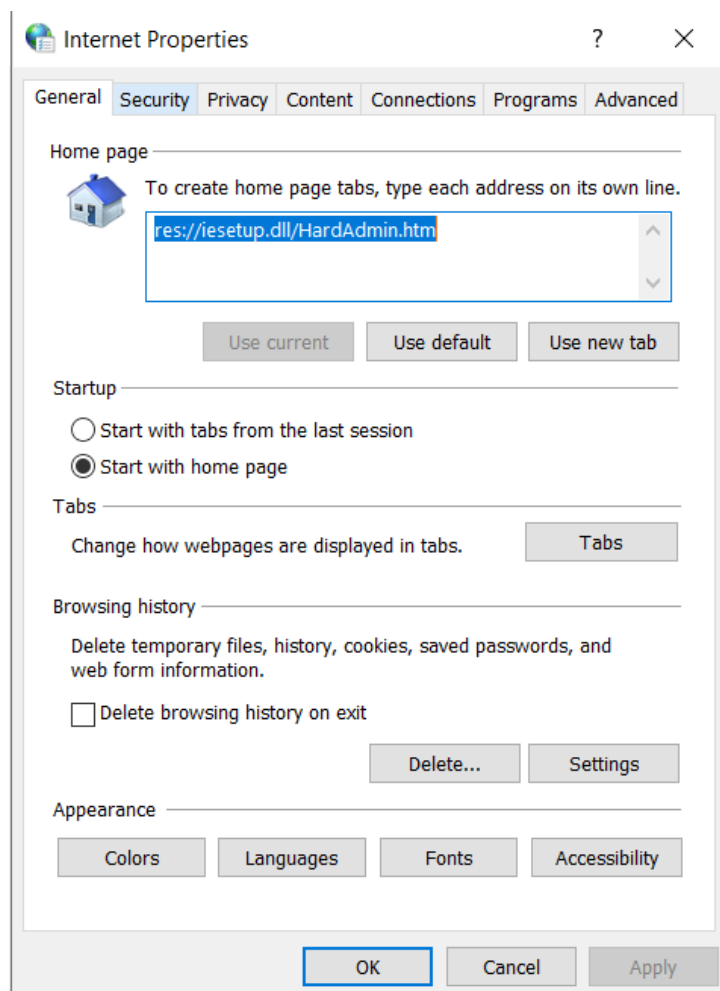
Session Timeout Configuration

User Interface sessions automatically time out after 99 minutes of inactivity. To set a different timeout, select Preference > Session. The Session Timeout field allows values between 1-525600 (in minutes).



Internet Options

To set up or change the Internet options, use the standard IE Internet Options page: Preference > Internet Options.



The BackBox UI requires usage of Scripting applet and Pop-up windows. Those options need to be set for each user account that will run the BackBox UI.



In restricted environments, the user operating the BackBox UI may not be able to change IE Internet Options. In such a case, ask the local administrator to apply the changes to the user account.

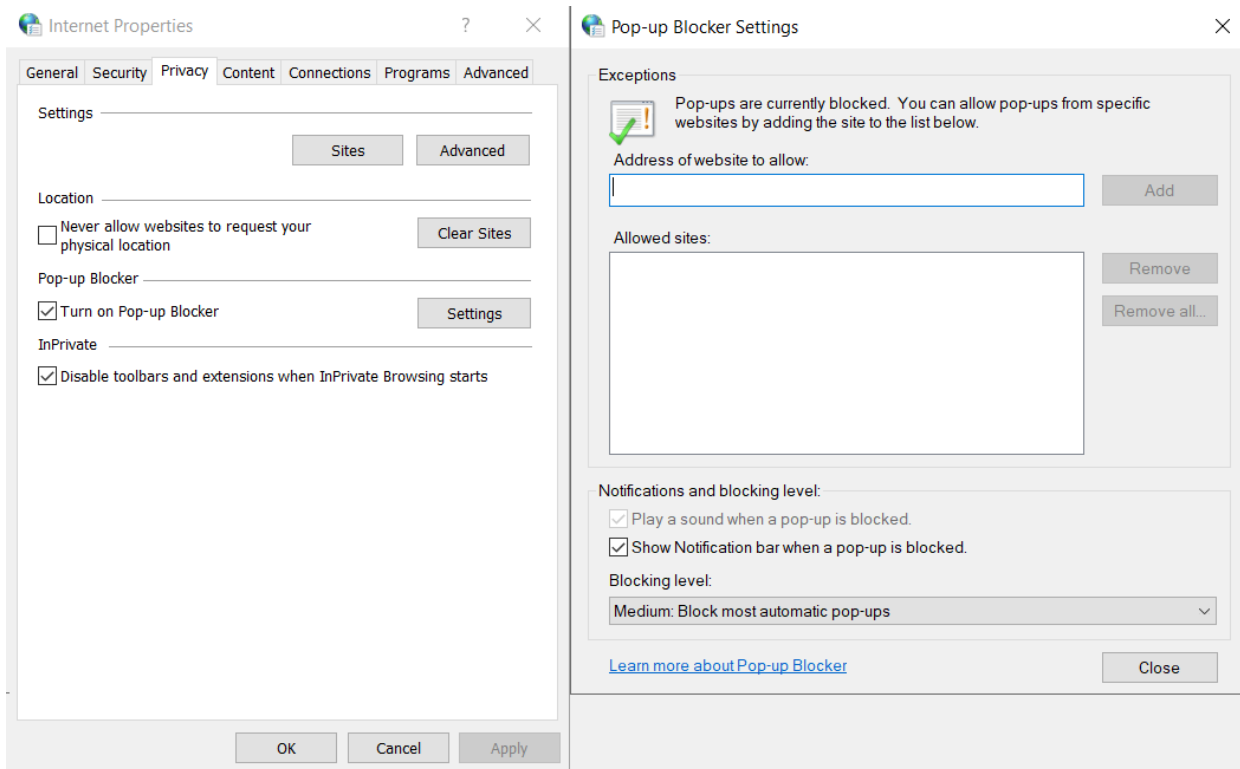
Pop-up Windows Settings

Select the **Privacy** tab and verify if the **Pop-up Blocker** is activated. If the case, you need to add localhost address to the Allowed sites.



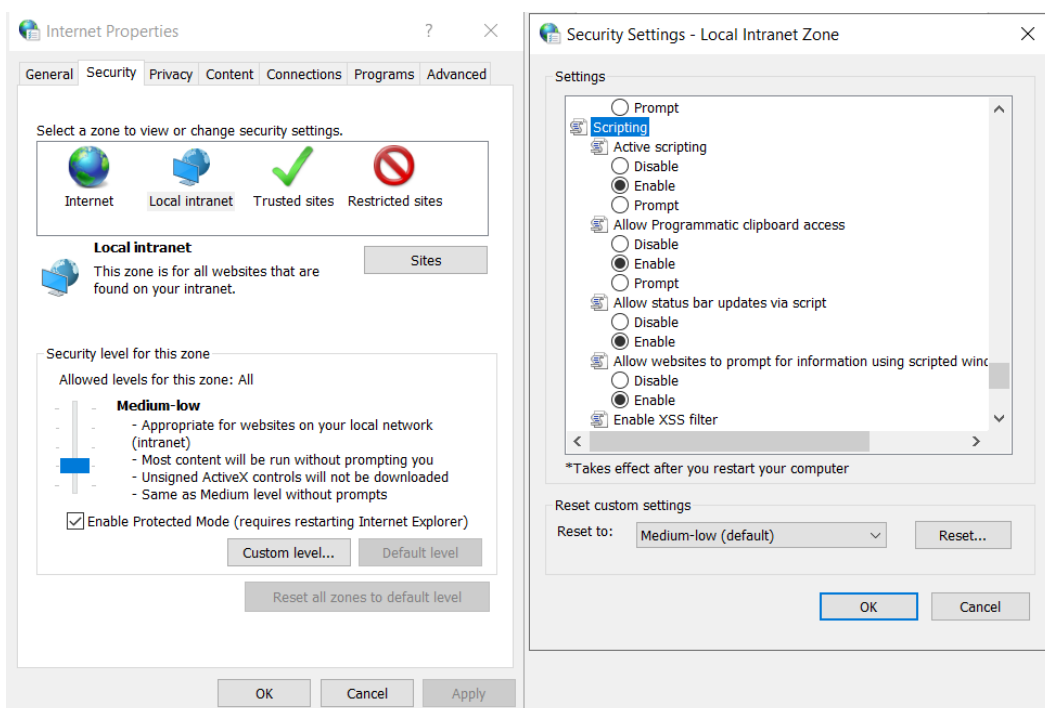
In restricted environments, the user operating the BackBox UI may not be able to change IE Internet Options. In such a case, ask the local administrator to apply the changes to the user account.

Note: If other Pop-up windows blockers are enabled on IE, they would need to be configured as well.



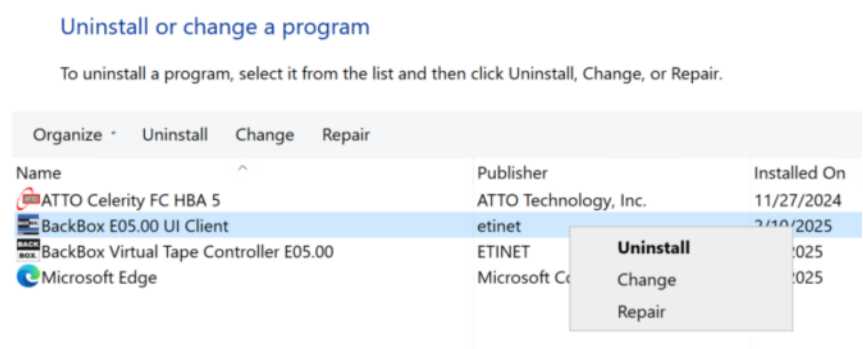
Scripting Settings

In the Security tab, select the Local intranet zone and click on the Custom level. In the Security settings dialog box scroll down up to the Scripting section and activate all 6 options: Activate Scripting, Allow Programmatic clipboard access, Allow status bar updates via script, Allow websites to prompt for information using scripted windows, Enable XSS filter, Scripting for Java applets.

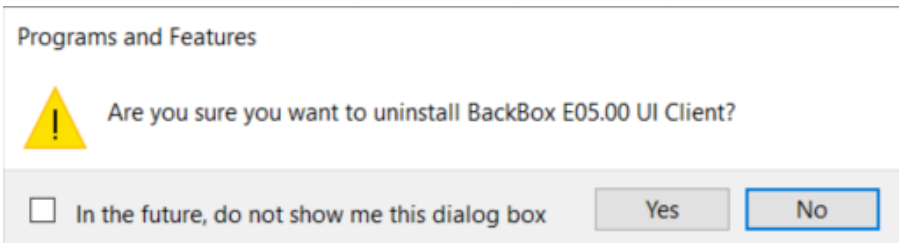


If you need to uninstall, follow the install procedure: Control Panel > Add or Remove Programs .

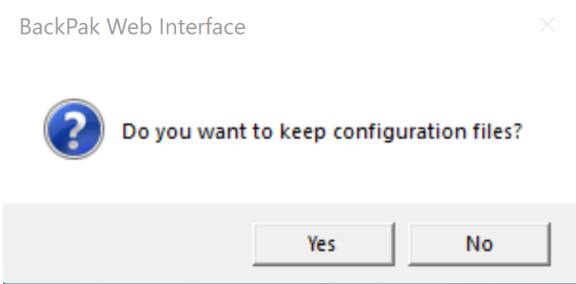
Search for BackBox UI Client followed by the version type and number and right-click on it to uninstall, change, or repair.



To Uninstall, click Yes in the confirmation pop-up window.



While uninstalling the interface, a pop-up will ask if you want to keep the configuration files. Choose accordingly.



The application has been removed and uninstalled.

UPGRADE PROCEDURE

This section describes the upgrade procedure of a BackBox E5.00.

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 SECTION BEFORE PERFORMING THE UPDATE

Check version identification, compatibility and general constraints before proceeding with the update. 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 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 (INSE as a text file and BBE as a binary file).

BackBox Upgrade Package

Folder Installation Package Latest Released Version	Content
Guardian-E05.00-20241201	Latest BackBox Guardian Software
UI-E05.00.8	Installer for the BackBox UI Client
VTC-E05.00.23	Installer for the VTC application
ServerScripts-20241126	PowerShell installation scripts required for upgrade or new installation
AttoCelerityFC-20241114	Latest (required) AttoCelerity version, if necessary

Fiber Channel (FC) Type	ATTO Driver Version
FC-8	2.130.4001.6000
FC-16 FC-32 FC-64	2.100.4001.6000

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:

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.

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 E5.00, 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 INSE 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 INSE 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 (INSE5.00 and BBE5.00)

, then

```
> $DATA15 BDR412 22> run INSE500
Searching for latest PAK file $*.*.BBE500*
press Break key to stop ...
... found $DATA15.BPAKTMPIH.BBE413      (2024-FEB-16 11:52)
... found $DATA15.BPAKTMPIH.BBE413A     (2024-JAN-23 16:17)

----- Installation of BackBox E5.00 NSK components -----

  1. Input PAK file ..... : $DATA15.BPAKTMPIH.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. TCP/IP 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 E5.00 NSK components -----

  1. Input PAK file ..... : $DATA15.BPAKTMPIH.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. TCP/IP 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 INSE 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



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.

Domain 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 currentUser 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:

```
$DATA15 BBE175> fup copy oext
COMMENT *****
COMMENT start manually the EMS extractor process
COMMENT *****
***** CLEAR
ALL
RESET DEFINE *
DELETE DEFINE =BackBox_BBSETUP
ADD DEFINE =BackBox_BBSETUP, CLASS MAP, FILE
\ETINIUM.$DATA05.BPAK.BBSETUPDELETE DEFINE =TCPIP^PROCESS^NAME
ADD DEFINE =TCPIP^PROCESS^NAME, CLASS MAP, FILE $ZTCODELETE DEFINE
=BBEXT_LICENSE
ADD DEFINE =BBEXT_LICENSE, CLASS MAP, FILE \ETINIUM.$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 INSE500
Searching for latest PAK file $*.*.BBE500*
press Break key to stop ...
```

```
----- Installation of BackBox E5.00 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 E5.00 NSK components
-----
```

```
Domain subvol \node.$vol.subvol ( ) :\ETINIUM.$DATA15.YINE500
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 B1						
\$ETINET.YINE413P						
EMSFLT1	101	162	22Nov2023 10:28	255,101	NNNN	
EMSFLT2	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.EMSFLT*, 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.BBE500PAK.
-----> 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 currentBackBox 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.

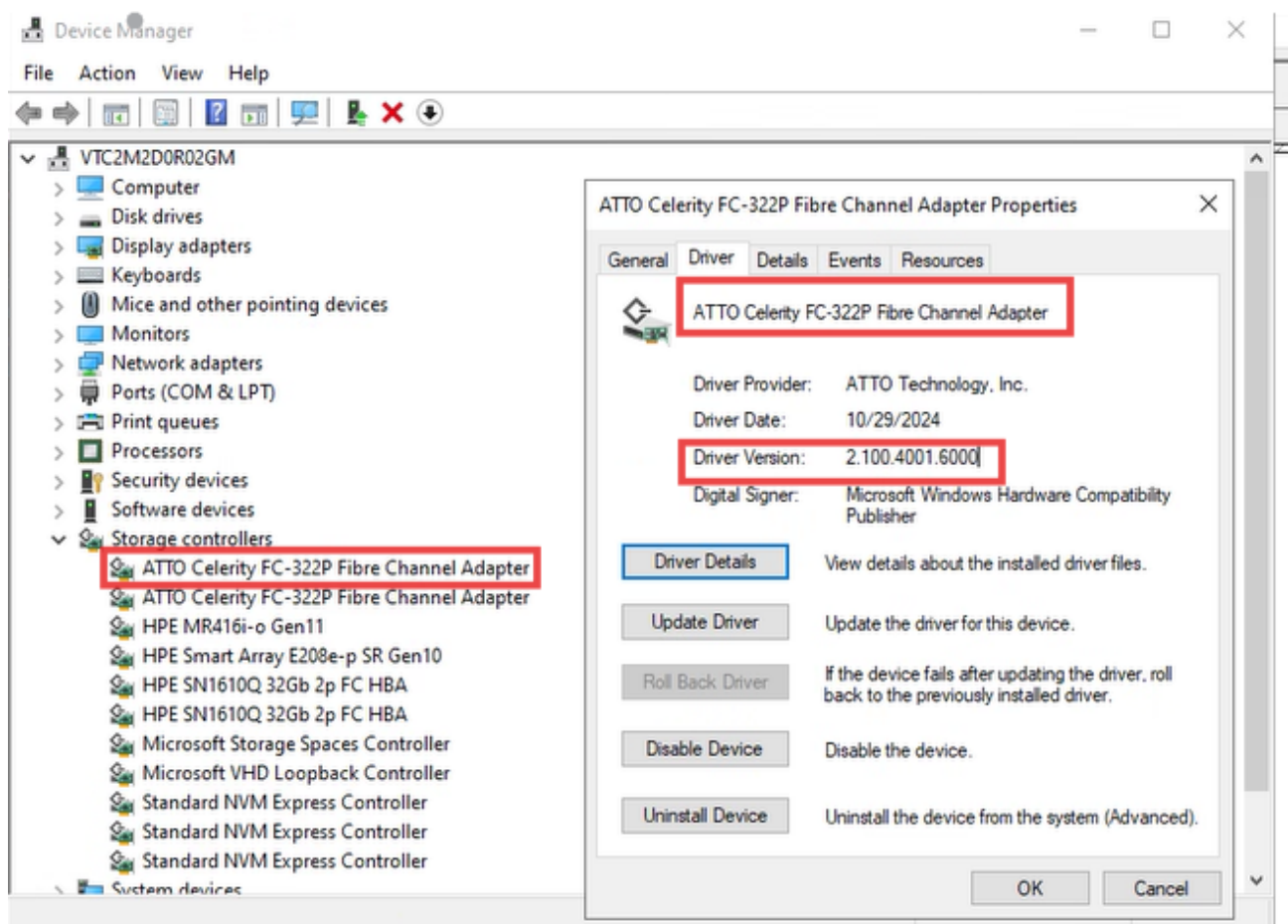
Pre-Upgrade

New BackBox Target Mode driver v3.1 distributed with E05.00 and up supports ATTO Target mode API 4 and 5 versions.



This driver is incompatible with all the earlier BackBox VTC versions 04.xx and with older ATTO drivers below versions 2.130.4001.6000 (FC-8) and 2.100.4001.6000 (FC-16, FC-32 and FC-64). Make sure ATTO driver has been upgraded before starting the VTC software update.

Verify the ATTO driver version by checking against the server Device Manager.



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).



Before performing the VTC installation log in with the local Administrator account (Administrator user). Using such an account (with administrator privileges) may require an extra configuration step.



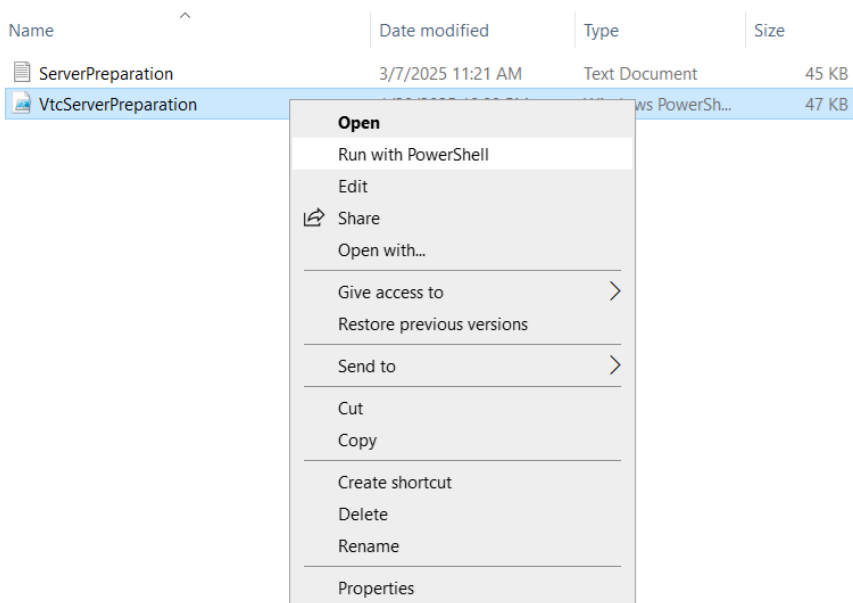
IMPORTANT: If you are using an account with Administrator privileges and not the local Administrator, start PowerShell command line using the `Run as Administrator` or pre-load macros before running scripts from a PowerShell command line: `Import-Module Server Manager`.

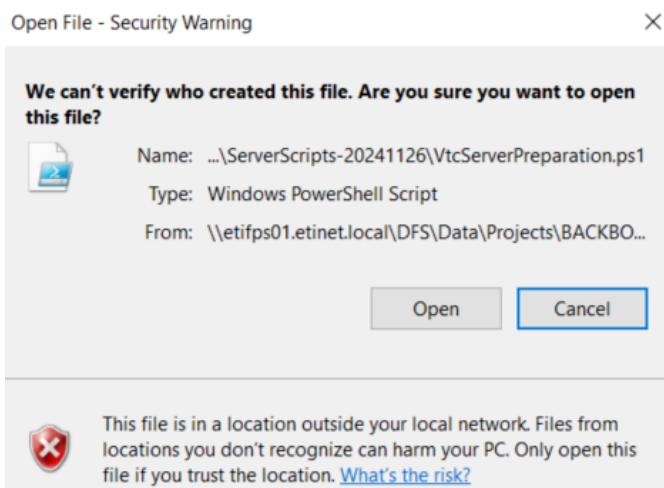
Uninstall the following:

- BackBox UI Client
- BackBox Virtual Tape Controller

Run the Server Preparation

In the same folder you unzipped the installation package, locate the `VTCServerScripts-yyyymmdd` folder, right-click on the file `VtcServerPreparation` and click on `Run with PowerShell` (or launch the script from the opened PowerShell command line).





```
Administrator: Windows PowerShell

Preparing Microsoft Windows Server 2022 Standard
Verify if Atto HBA installed...

VTC Enable FC-16, FC-32 or FC-64 Target Mode Registry

VTC Enabling Target Mode
Driver Atto Celerity FC-16, FC-32 or FC-64 needs to be installed, downgraded or upgraded to version 2.100.4001.6000.

Start Installation...
46%
[ooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooo]

VTC Server MS Schannel TLS configuration
Enable TLS 1.2
TLS 1.2 has been enabled (Server reboot required)
Configure .NET applications to use TLS 1.2
TLS 1.2 has been enabled for .NET applications (Server reboot required)
Disable weak TLS protocols
TLS 1.0 has been disabled (Server reboot required)
TLS 1.1 has been disabled (Server reboot required)
Disable weak ciphers and algorithms
Protocol TLS_DHE_RSA_WITH_AES_256_CBC_SHA is currently disabled
Protocol TLS_DHE_RSA_WITH_AES_128_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_AES_256_GCM_SHA384 has been disabled (Server reboot required)
Protocol TLS_RSA_WITH_AES_128_GCM_SHA256 has been disabled (Server reboot required)
Protocol TLS_RSA_WITH_AES_256_CBC_SHA256 has been disabled (Server reboot required)
Protocol TLS_RSA_WITH_AES_128_CBC_SHA256 has been disabled (Server reboot required)
Protocol TLS_RSA_WITH_AES_256_CBC_SHA has been disabled (Server reboot required)
Protocol TLS_RSA_WITH_AES_128_CBC_SHA has been disabled (Server reboot required)
Protocol TLS_RSA_WITH_3DES_EDE_CBC_SHA has been disabled (Server reboot required)
Protocol TLS_DHE_DSS_WITH_AES_256_CBC_SHA256 is currently disabled
Protocol TLS_DHE_DSS_WITH_AES_128_CBC_SHA256 is currently disabled
Protocol TLS_DHE_DSS_WITH_AES_256_CBC_SHA is currently disabled
Protocol TLS_DHE_DSS_WITH_AES_128_CBC_SHA is currently disabled
Protocol TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_RC4_128_SHA is currently disabled
Protocol TLS_RSA_WITH_RC4_128_MD5 is currently disabled

WARNING: You must restart this server to finish the installation process.
Message Queuing Server successfully installed
Restart Needed

System restart required to apply settings. Restart computer now?

Confirm
Are you sure you want to perform this action?
Performing the operation "Enable the Local shutdown access rights and restart the computer." on target "localhost (TOUTATIS)".
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "Y"):
```

Click Y in the PowerShell to restart the server.

Reboot the server.



Some features will require rebooting the server. Re-execute this script until it shows there is no more feature needed to be installed (no red message in the PowerShell).

```
Administrator: Windows PowerShell
Validate FC-16, FC-32 or FC-64 Firmware
Opt 2 Current Flash version is 10/10/2024 (Passed)
VTC Server MS Schannel TLS configuration
Enable TLS 1.2
TLS 1.2 is currently enabled
Configure .NET applications to use TLS 1.2
TLS 1.2 is currently enabled for .NET applications
Disable weak TLS protocols
TLS 1.0 is currently disabled
TLS 1.1 is currently disabled
Disable weak ciphers and algorithms
Protocol TLS_RSA_WITH_AES_256_CBC_SHA is currently disabled
Protocol TLS_DHE_RSA_WITH_AES_128_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_AES_256_GCM_SHA384 is currently disabled
Protocol TLS_RSA_WITH_AES_128_GCM_SHA256 is currently disabled
Protocol TLS_RSA_WITH_AES_256_CBC_SHA256 is currently disabled
Protocol TLS_DHE_DSS_WITH_AES_128_CBC_SHA256 is currently disabled
Protocol TLS_RSA_WITH_AES_256_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_AES_128_CBC_SHA is currently disabled
Protocol TLS_DHE_DSS_WITH_AES_256_CBC_SHA256 is currently disabled
Protocol TLS_DHE_DSS_WITH_AES_128_CBC_SHA is currently disabled
Protocol TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_RC4_128_SHA is currently disabled
Protocol TLS_RSA_WITH_RC4_128_MD5 is currently disabled
Protocol TLS_RSA_WITH_NULL_SHA256 is currently disabled
Protocol TLS_RSA_WITH_NULL_SHA is currently disabled
Protocol TLS_PSK_WITH_AES_256_GCM_SHA384 is currently disabled
Protocol TLS_PSK_WITH_AES_128_GCM_SHA256 is currently disabled
Protocol TLS_PSK_WITH_AES_256_CBC_SHA384 is currently disabled
Protocol TLS_PSK_WITH_AES_128_CBC_SHA256 is currently disabled
Protocol TLS_PSK_WITH_NULL_SHA384 is currently disabled
Protocol TLS_PSK_WITH_NULL_SHA256 is currently disabled
The TLS/SSL Server Static Key Cipher usage is currently disabled
The TLS/SSL Server already supports the usage of longer Diffie-Hellman ephemeral (DHE) key shares for TLS servers
Install MSNQ-Server Feature
Message Queuing Server already installed
Transcript stopped, output file is \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD E5.00\ServerScripts-20241126\ServerPreparation.log
Press enter to exit :
```

The server preparation script creates a specific log file in the script folder location:ServerPreparation.log. The transcript of each execution will be automatically logged into this file.

```
ServerPreparation - Notepad
File Edit Format View Help
*****
Windows PowerShell transcript start
Start time: 20250305141909
Username: KRAKEN\Administrator
RunAs User: KRAKEN\Administrator
Machine: KRAKEN (Microsoft Windows NT 10.0.14393.0)
Host Application: C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -Command if((Get-ExecutionPolicy ) -ne 'AllSigned') { Set-Execu
Process ID: 4180
PSVersion: 5.1.14393.6343
PSEdition: Desktop
PSCompatibleVersions: 1.0, 2.0, 3.0, 4.0, 5.0, 5.1.14393.6343
BuildVersion: 10.0.14393.6343
CLRVersion: 4.0.30319.42000
WSManStackVersion: 3.0
PSRemotingProtocolVersion: 2.3
SerializationVersion: 1.1.0.1
*****
Transcript started, output file is Microsoft.PowerShell.Core\FileSystem::\\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.00
Server Preparation 5.0.10 Created 2025-01-03

Preparing Microsoft Windows Server 2016 Datacenter

Verify if Atto HBA installed...

VTC Enable FC-8 Target Mode Registry

VTC FC-8 Target Mode was already configured
```

Install the New VTC Software

Install the VTC application from the BackBox distribution package directory VTC-E.nnn: run **setup.exe**.

Install the latest UI version from the BackBox distribution package directory UI-E.nnn: run **setup.exe**.

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.

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 (LT03, LT04, LT06) 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](#) section in the [User Guide](#).
- 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.

THIRD PARTY COMPONENTS

This section lists the third-party software components included in the BackBox package.

Open Source	H05.00 (T0954V05)	Used By	Reference
Crypto++ Library - 8.7.0	8.7.0	VTC	https://github.com/weidai11/cryptopp/releases/tag/CRYPTOPP_8_7_0
OpenSSL – 3.0.15	3.0.15	VTC-Domain	https://openssl-library.org/policies/general/security-policy/
ZLib – 1.3.1	1.3.1	VTC	https://www.zlib.net/
LZ4 – 1.9.4	1.9.4	VTC	https://github.com/lz4/lz4
SharpSNMP 8.5.0	8.5.0	VTC	https://github.com/lexstudio/sharpsnmplib
LibTomCrypt – 1.7	1.7	VTC-UI-Domain	https://github.com/libtom/libtomcrypt/blob/develop/LICENCE
expat - XML Parser Toolkit – 2.6.3	2.6.3	Domain	https://github.com/libexpat/libexpat/blob/master/expat/Changes
Cassini v3.5.0.2	v3.5.0.2	UI	https://github.com/zippy1981/Cassini
Data Tables 1.13.3	1.13.3	UI	https://datatables.net/license/mit
NewtonSoft.Json 13.0.2	13.0.2	VTC	https://github.com/JamesNK/Newtonsoft.Json
PuttyTel 0.81	0.81	VTC	https://www.chiark.greenend.org.uk/~sgtatham/putty/releases/0.81.html
OpenKMIP 02.0	02.0	VTC	https://github.com/OpenKMIP
RestSharp 108.0.3	108.0.3	VTC	https://www.nuget.org/packages/RestSharp/108.0.3
AjaxMin 5.14.5506.26202	5.14.5506.26202	UI	https://www.nuget.org/packages/AjaxMin

Crypto++ Library - 8.7.0

<http://www.cryptopp.com/>

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3way.cpp

Leonard Janke - cast.cpp, seal.cpp Steve Reid - cast.cpp

Phil Karn - des.cpp Andrew M. Kuchling - md2.cpp, md4.cpp Colin Plumb - md5.cpp

Seal Woods - rc6.cpp

Chris Morgan - rijndael.cpp Paulo Baretto - rijndael.cpp,

skipjack.cpp, square.cpp Richard De Moliner - safer.cpp

Matthew Skala - twofish.cpp

Kevin Springle - camellia.cpp, shacal2.cpp, ttmac.cpp, whrlpool.cpp, ripemd.cpp Ronny Van Keer - sha3.cpp

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ZLib - 1.3.1

<http://www.zlib.net/>

License

Acknowledgments:

The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by L. Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

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If you redistribute modified sources, we would appreciate that you include in the file ChangeLog history information documenting your changes. Please read the FAQ for more information on the distribution of modified source versions.

LZ4 – 1.9.4

[GitHub - lz4/lz4: Extremely Fast Compression algorithm](#)

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SharpSNMP 8.5.0

<https://github.com/lexstudio/sharpsnmplib>

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#SNMP open source SNMP library for .NET and Mono

#SNMP (SharpSNMP) Library is an open source library for developers who target Microsoft .NET/Xamarin/Mono platforms. It's developed in C# and can be used for VB.NET, Delphi Prism, and more.

LibTomCrypt – 1.7

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expat - XML Parser Toolkit – 2.6.3

[Expat 2.6.2 released, includes security fixes \(xml.com\)](#)
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Cassini v3.5.0.2

<https://github.com/zippy1981/Cassini>

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NewtonSoft.Json 13.0.2

<https://github.com/JamesNK/Newtonsoft.Json/blob/master/LICENSE.md>

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PuttyTel 0.81

<https://git.tartarus.org/?p=simon/putty.git>

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RestSharp 108.0.3

Simple REST and HTTP API Client for .NET. Contribute to restsharp/RestSharp development by creating an account on GitHub. (61 kB)

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AjaxMin 5.14.5506.26202

<https://www.nuget.org/packages/AjaxMin/4.97.4951.28483>

JavaScript and CSS minification Library for use in .NET applications that want to provide minification or parsing functionality.

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APPENDIX

A. 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:
 - 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
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.

B. 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. Upgrade Execution Sample

```
$DATA15 QCTEST 16>run INSE5TXT
Searching for latest PAK file $*.*.BBE500*
press Break key to stop ...
... found $DATA15.BPAKTMPE.BBE500 (2024-NOV-29 15:57)
... found $DATA15.BPAKTMPE.BBE500A (2024-SEP-18 10:44)

----- Installation of BackBox E5.00 NSK components -----

1. Input PAK file ..... : $DATA15.BPAKTMPE.BBE500 (NOV-29 15:57)
2. Target subvol ..... : $DATA15.QCTEST
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 :31

EMS Extractor (BBEXT) process name ($BBEXT) :$QC500

----- Installation of BackBox E5.00 NSK components -----

1. Input PAK file ..... : $DATA15.BPAKTMPE.BBE500 (NOV-29 15:57)
2. Target subvol ..... : $DATA15.QCTEST
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 : $QC500
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 E5.00 NSK components -----

1. Input PAK file ..... : $DATA15.BPAKTMPE.BBE500 (NOV-29 15:57)
2. Target subvol ..... : $DATA15.QCTEST
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 : $QC500
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 : 4592

----- Installation of BackBox E5.00 NSK components -----

1. Input PAK file ..... : $DATA15.BPAKTMPE.BBE500 (NOV-29 15:57)
2. Target subvol ..... : $DATA15.QCTEST
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 : $QC500
33. Domain manager TCPIP address. : 192.168.20.63
34. Domain manager TCPIP port.... : 4592

(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.\$Z80G)
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: 18Feb2025 16:39 Backup time: 29Nov2024 15:57 Page: 1

Tape: 1	Code	EOF	Last modif	Owner	RWEP	Type	Rec	Bl
\$DATA15.QCTEST								
	MACROS	101	140702 17Sep2024 13:40	255,101	NNNN			
	OBB011	101	722 16Sep2024 15:05	255,101	NNNN			
	OBB012	101	736 16Sep2024 15:05	255,101	NNNN			

Summary Information

Files restored = 3 Files not restored = 0
UNPAK /NAME/ \$DATA15.BPAKTMPE.BBE500, (\$*.BBE500.*, \$*.BBE500E.*),
MAP NAMES \$*.* TO \$DATA15.QCTEST.*, 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.\$Z80H)
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: 18Feb2025 16:39 Backup time: 29Nov2024 15:57 Page: 1

Tape: 1	Code	EOF	Last modif	Owner	RWEP	Type	Rec	Bl
\$DATA15.QCTEST								
	BB011	888	5632 16Sep2024 15:05	255,101	NNNN			
	BB012	888	5120 16Sep2024 15:05	255,101	NNNN			
	BB018	888	12288 16Sep2024 15:05	255,101	NNNN			
	BB019	888	8704 16Sep2024 15:05	255,101	NNNN			
	BB021	888	11776 16Sep2024 15:05	255,101	NNNN			
	BB025	888	7680 16Sep2024 15:05	255,101	NNNN			
	BB032	888	4608 16Sep2024 15:05	255,101	NNNN			
	BB038	888	5120 16Sep2024 15:05	255,101	NNNN			
	BB039	888	11264 16Sep2024 15:05	255,101	NNNN			
	BBREST	101	27248 16Sep2024 15:05	255,101	NNNN			
	BBSETUP	101	2922 16Sep2024 15:05	255,101	NNNN			
	BBSVCFG	101	2088 16Sep2024 15:05	255,101	NNNN			
	EMSFLT1	101	162 16Sep2024 15:05	255,101	NNNN			
	EMSFLT2	845	178 16Sep2024 15:05	255,101	NNNN			
	EMSUPIN	101	2190 16Sep2024 15:05	255,101	NNNN			
	EMSOUT		0 16Sep2024 15:05	255,101	NNNN	E	560	4
	JOBSTAT		0 16Sep2024 15:05	255,101	NNNN	K	1288	4
	JOBSTAT0		0 16Sep2024 15:05	255,101	NNNN	K	146	4
	MACROS	101	140702 17Sep2024 13:40	255,101	NNNN			
	NSKCRT		1316 16Sep2024 15:05	255,101	NNNN			
	NSKDER		1773 16Sep2024 15:05	255,101	NNNN			
	OBB004	101	2580 16Sep2024 15:05	255,101	NNNN			
	OBB004B	101	4198 16Sep2024 15:05	255,101	NNNN			
	OBB005	101	1536 16Sep2024 15:05	255,101	NNNN			
	OBB011	101	722 16Sep2024 15:05	255,101	NNNN			
	OBB012	101	736 16Sep2024 15:05	255,101	NNNN			
	OBB015	101	2254 16Sep2024 15:05	255,101	NNNN			
	OBB017	101	2306 16Sep2024 15:05	255,101	NNNN			
	OBB018	101	6858 16Sep2024 15:05	255,101	NNNN			
	OBB019	101	7248 16Sep2024 15:05	255,101	NNNN			
	OBB021	101	7144 16Sep2024 15:05	255,101	NNNN			
	OBB025	101	6858 16Sep2024 15:05	255,101	NNNN			
	OBB032	101	470 16Sep2024 15:05	255,101	NNNN			

OBB038	101	744	16Sep2024	15:05	255,101	NNNN			
OBB039	101	6858	16Sep2024	15:05	255,101	NNNN			
OBB055	101	850	16Sep2024	15:05	255,101	NNNN			
OBWIN1	101	318	16Sep2024	15:05	255,101	NNNN			
OEMS	101	2278	16Sep2024	15:05	255,101	NNNN			
OEMS2	101	2580	16Sep2024	15:05	255,101	NNNN			
OEMSFILT	845	152	16Sep2024	15:05	255,101	NNNN			
OEXT	101	2712	16Sep2024	15:05	255,101	NNNN			
OPER		0	16Sep2024	15:05	255,101	NNNN	K	4062	4
ORWIN1	101	2370	16Sep2024	15:05	255,101	NNNN			

Restore time: 18Feb2025 16:39 Backup time: 29Nov2024 15:57 Page: 2

Tape: 1	Code	EOF	Last modif	Owner	RWEP	Type	Rec	Bl
SCFIN1	101	612	16Sep2024 15:05	255,101	NNNN			
SCFIN2	101	2294	16Sep2024 15:05	255,101	NNNN			
SCFIN4	101	158	16Sep2024 15:05	255,101	NNNN			
SCFIN5	101	2424	16Sep2024 15:05	255,101	NNNN			
SCFIN6	101	2430	16Sep2024 15:05	255,101	NNNN			
SSLCFG	101	2286	16Sep2024 15:05	255,101	NNNN			
STATE		0	16Sep2024 15:05	255,101	NNNN	K	446	4
STATS		0	16Sep2024 15:05	255,101	NNNN	E	4000	4
USERLIST	180	3253	16Sep2024 15:05	255,101	NNNN			
VOLEXT		0	16Sep2024 15:05	255,101	NNNN	E	932	4
VOLUME		0	16Sep2024 15:05	255,101	NNNN	K	4056	4
VOLUME0		0	16Sep2024 15:05	255,101	NNNN	K	46	4
VTCCRT		1316	16Sep2024 15:05	255,101	NNNN			
BB010	800	2043360	29Nov2024 14:14	255,101	NNNN			
BB030	800	119728	29Nov2024 14:14	255,101	NNNN			
BB031	800	5207056	29Nov2024 14:13	255,101	NNNN			
BB033	800	56008	29Nov2024 14:11	255,101	NNNN			
BB034	800	50680	29Nov2024 14:11	255,101	NNNN			
BB037	800	515768	29Nov2024 14:13	255,101	NNNN			
BB042	800	393856	29Nov2024 14:13	255,101	NNNN			
BB043	800	51168	29Nov2024 14:11	255,101	NNNN			
BB044	800	902456	29Nov2024 14:12	255,101	NNNN			
BB045	800	426096	29Nov2024 14:14	255,101	NNNN			
BB053	800	1686032	29Nov2024 14:12	255,101	NNNN			
BB055	800	2080048	29Nov2024 14:12	255,101	NNNN			
BB056	800	1996936	29Nov2024 14:13	255,101	NNNN			
BBCMD	800	1785760	29Nov2024 14:14	255,101	NNNN			
BBCRYPTO	800	44994488	29Nov2024 14:10	255,101	NNNN			
BBDBM	800	7081088	29Nov2024 14:20	255,101	NNNN			
BBDELVOL	800	231568	29Nov2024 14:10	255,101	NNNN			
BBEXT	800	2738024	29Nov2024 14:11	255,101	NNNN			
BBFIXVOL	800	232312	29Nov2024 14:11	255,101	NNNN			
BBLIB	800	5390392	29Nov2024 14:11	255,101	NNNN			
BBMERCAT	800	244720	29Nov2024 14:10	255,101	NNNN			
BBPSCODE	800	1670928	29Nov2024 14:10	255,101	NNNN			
BBSL	800	7435744	29Nov2024 14:09	255,101	NNNN			
BBSV	800	6705584	29Nov2024 14:11	255,101	NNNN			
BBULIST	800	97624	29Nov2024 14:10	255,101	NNNN			
BEVERCER	800	25984	29Nov2024 14:09	255,101	NNNN			
TAPERD	800	102824	29Nov2024 14:11	255,101	NNNN			
TAPEWR	800	273736	29Nov2024 14:10	255,101	NNNN			
TRCLIST	800	111192	29Nov2024 14:11	255,101	NNNN			

Summary Information

Files restored = 85 Files not restored = 0

FUP SECURE \$DATA15.QCTEST.BBSV,CCCC,PROGID

FUP SECURE \$DATA15.QCTEST.EMSFILT*, NNNN

FUP SECURE \$DATA15.QCTEST.OPER, NCNC

FUP SECURE \$DATA15.QCTEST.VOLUME*, NCNC

Editing OEMS2...

Editing OBWIN1...

Editing ORWIN1...

Editing OBB018...

Editing OBB019...

Editing OBB021...

Editing OBB025...

Editing OBB032...

```

Editing OBB039...
Editing in CUSTOMIZE_EXPAND_OBFILE ROUTINE
Editing OBB055 ...
Editing OEXT...
Editing in CUSTOMIZE_EXPAND_OBFILE ROUTINE
Editing SCFIN1 ...

FUP SECURE $DATA15.QCTEST.BBEXT,NCNC,PROGID
Editing BBSETUP...
Editing OBB017...
Editing OEMS...
Editing in CUSTOMIZE_EXPAND_OBFILE ROUTINE
Editing SSLCFG ...

Loaded from $DATA15.QCTEST.BBSETUP:

BBSV_ADDR      BBSV_PORT      BBSV_TCPIP      VTC_OBJECT      EZX_MAXRETRY
EZX_RETRYDELAY  EZX_TIMEOUT

Loaded from $DATA15.QCTEST.MACROS:

BB_BBOX_PGM_VERSION      BB_041_TIMEOUT
BB_041_DEVICE             BB_041_LABELS
BB_041_PROCESS            BB_VALID_HMMSS
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
-----> NonStop BackBox installed in $DATA15.QCTEST,
-----> from $DATA15.BPAKTMPE.BBE500.
-----> Please verify if any error message was issued above.
Create initial USER Profile List used for BackBox Access Control
Userlist =\ETINIUM.$DATA15.QCTEST.USERLIST, user =SUPER.ETINET

```

D. 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".

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

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 and upgrade the programs.

E. 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.

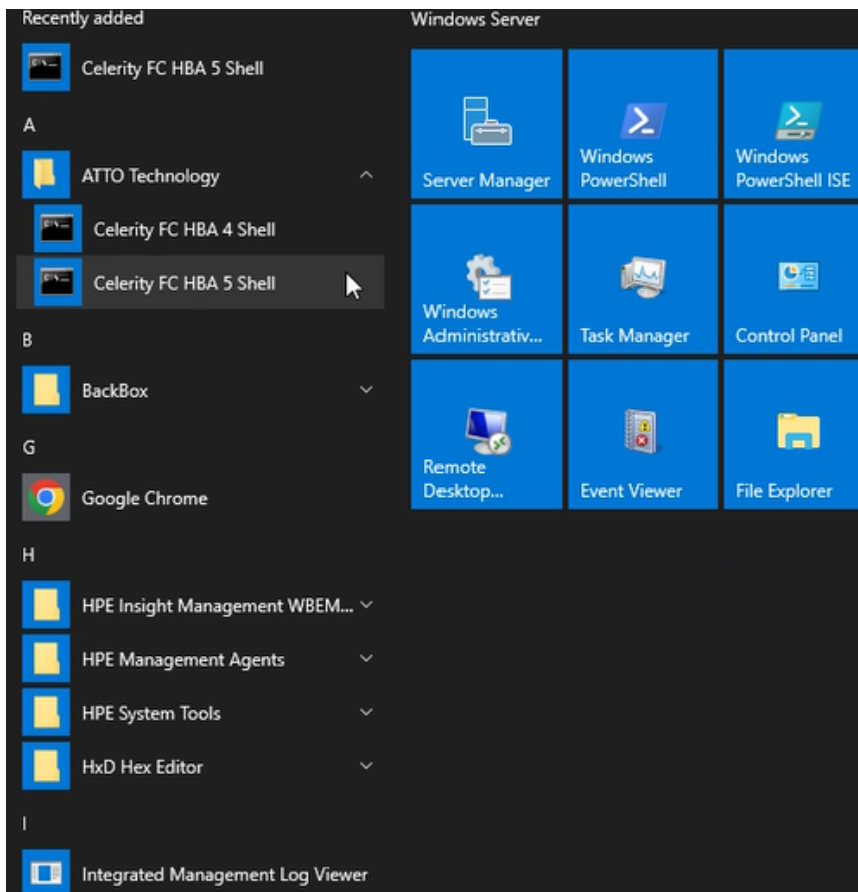


TSM archive scripts: the option Delete backed-up files is available and it can be configured in the Volume group, in order to keep the archived files online in Data Store (only for a few days).

F. ATTO CLI Commands

If you need to access the CLI tools and the associated applications, follow the steps below:

1. Start Windows menu.
2. Select Celerity FC HBA 4 Shell for ATTO Celerity FC-8 HBA or Celerity FC HBA 5 Shell for ATTO Celerity FC-16, FC-32 or FC-64 HBA.



3. Run `dir` command in the Shell to list and display all CLI applications.

```
Administrator: C:\Windows\system32\cmd.exe

C:\Program Files\ATTO Technology\celerity5\bin>dir
Volume in drive C has no label.
Volume Serial Number is 9014-0E8D

Directory of C:\Program Files\ATTO Technology\celerity5\bin

01/10/2025  11:21 AM    <DIR>          .
01/10/2025  11:21 AM    <DIR>          ..
06/10/2024  10:27 AM             702,888 atcfg.exe
08/02/2024  08:57 AM             927,656 atdevinfo.exe
09/11/2024  08:23 PM             806,824 atdpm.exe
06/10/2024  10:26 AM             710,056 atfccfg.exe
06/10/2024  10:26 AM             784,296 atfcinfo.exe
06/10/2024  10:27 AM             782,760 atfcnvr.exe
08/02/2024  08:57 AM             774,056 atflash.exe
09/11/2024  08:23 PM             893,864 atinfo.exe
06/10/2024  10:26 AM             705,960 attrace.exe
          9 File(s)          7,088,360 bytes
          2 Dir(s)  124,102,057,984 bytes free

C:\Program Files\ATTO Technology\celerity5\bin>
```

attrace.exe

attrace.exe -h

Driver Tracing Tool 1.63.0f1

This tool saves controller driver trace data to a file.

Options:

- c {channel} Selects a specific controller channel for the operation,
 starts at 1, all channels are selected by default.
- d [feature] Disable driver tracing feature.
- e [feature] Enable driver tracing feature.
 [feature] values:
 wrap Trace buffer wrapping.
 all All tracing, overrides trace mask (-e only).
 <blank> All tracing, maintain current trace mask.
- g Generate the trace data (Warning: may disrupt I/O).
- h Display extended help.
- l List the controllers in the system.
- r Reset tracing and clear trace data.
- s {filename} Save the trace to a file.
- t {type} Specify the trace type. {type} values:
 driver Driver trace (default).
 fwcoredump Firmware core dump.
 fwdriver Firmware backend driver trace.
 fwlog Firmware trace log.
- v Display non-error messages.

Note that multiple trace functions may be specified at a time. Options may be specified in any order, but are processed in the following order: -d, -s, -r, -e. When -s is specified, -d and -e are implied if tracing is currently enabled.

Usage Examples:

1. Save the current driver trace to a file named trace.trc:
 attrace -s trace.trc
2. Clear the firmware backend driver trace for channel 2:
 attrace -r -t fwdriver -c 2

atflash.exe

atflash.exe -h

Controller Flash Update Tool 1.63.0f1

This tool updates controller flash from a flash bundle.

Options:

- c {channel} Selects a specific controller channel for the operation,
 starts at 1, all channels are selected by default.
- f {filename} Specifies the flash bundle file name.
- h Display extended help.
- l List the controllers in the system.

- p Print the flash version.
- v Display non-error messages.

Usage examples:

1. Display all controllers:
 atflash -l
2. Display the current flash version for all controllers:
 atflash -p
3. Display the flash bundle version for {filename}:
 atflash -p -f {filename}
4. Update the flash on channel 1:
 atflash -c 1 -f {filename}

atfcnvr.exe

atfcnvr.exe -h

Fibre Channel NVRAM Tool 1.63.0f1

This tool modifies NVRAM settings for Fibre Channel controllers. Settings can also be saved to or restored from a file.

Options:

- b {boot} Set the boot driver setting. {boot} values are:
 - enable Enable the boot driver
 - disable Disable the boot driver
- c {channel} Selects a specific controller channel for the operation,
 - starts at 1, all channels are selected by default.
- d {feature} Disable an NVRAM feature.
- e {feature} Enable an NVRAM feature.
 - {feature} values:
 - t10-pi Support for T10-PI (T10-DIF).
- g {disctype} Set the device discovery type. {disctype} values are
 - port Discover devices by port WWN
 - node Discover devices by node WWN
- h Display extended help.
- i {coalescing} Set the interrupt coalescing. {coalescing} values are
 - 'low', 'medium', 'high', and 'disable'.
- j {mode} Set the connection mode. {mode} values are
 - alonly Arbitrated loop connections only
 - alpref Arbitrated loop connections preferred
 - ptponly Point-to-point connections only
 - ptppref Point-to-point connections preferred

-k {speed} Set the connection speed. {speed} values are:

- auto Auto speed negotiation
- 64 64 Gb/s
- 32 32 Gb/s
- 16 16 Gb/s
- 8 8 Gb/s
- 4 4 Gb/s
- 2 2 Gb/s
- 1 1 Gb/s (4Gb controllers only)

-l List the controllers in the system.

-m {seconds} Set the spinup delay (0-255)

-n {hardaddr} Set the hard address. {hardaddr} values are 0-125 or 'disable'.

-o {framesize} Set the frame size in bytes. {framesize} values are '512', '1024', and '2048'.

-p Print the contents of NVRAM.

-q {throttle} Set the execution throttle (1-255).

-r {filename} Restore the NVRAM from a file.

-s {filename} Save the NVRAM to a file.

-t Restore the NVRAM to default settings.

-u {VF count} Set SR-IOV VF count (1-16), 0 to disable SR-IOV (default).

-v Display non-error messages.

-w {seconds} Set the link down timeout (0-255). 0 selects the driver default.

-x {count} Set the port down retry count (0-255).

-X [xmlfile] Output the information in XML - to a file if specified or to the console.

By default, the current adapter NVRAM is modified and written back to the adapter. Alternatively, the input NVRAM may be the defaults (-t) or a previously saved file (-r). The output may be printing NVRAM (-p) or saving the NVRAM to a file (-s).

Usage examples:

1. Display all controllers:
atfcnvr -l
2. Display the NVRAM settings for all controllers:
atfcnvr -p
3. Set the NVRAM for all controllers to the defaults:
atfcnvr -t
4. Save the NVRAM for channel 1 to a file:
atfcnvr -c 1 -s {filename}
5. Set the execution throttle to 8 for all controllers and set all other settings from a file:
atfcnvr -r {filename} -q 8
6. Set the spinup delay to 20 seconds for all controllers and set all

other settings to defaults:
atfcnvr -t -m 20

atfcinfo.exe

atfcinfo.exe -h

Fibre Channel Information Display Tool 1.63.0f1

Display information about a Fibre Channel topology.

Options:

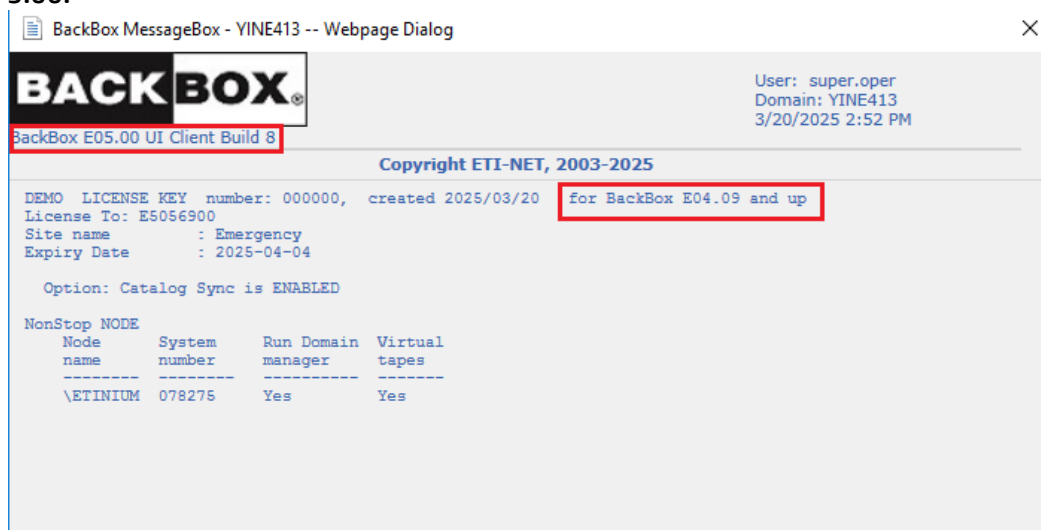
- c {channel} Filter the display to a controller channel,
starts at 1, defaults to all channels.
- h Display extended help.
- i [infotype] Display information for the FC topology. Information
types are:
 - all Display detailed information.
 - dump Display raw hex dumps.
- l List the controllers in the system.
- v Display non-error messages.
- X [xmlfile] Output the information in XML - to a file if specified
or to the console.

Usage examples:

1. Display details for the FC topology:
atfcinfo -i all
2. Display hex dumps of FC protocol data on channel 1:
atfcinfo -i dump -c 1

G. Site License and Atomic License

Customers currently using node licenses (H4.09 and above) do not need a new license when upgrading to 5.00.



Customers currently using site licenses (4.08 and below) need to request a node license for each node (VTC

and NonStop) as part of the existing site license. When requesting a node license you have to provide the VTC Serial Number that can be found in VTC MC under License>License Information.

