



## BackBox<sup>®</sup> E5.01 Release Notes

Abstract

This Release Notes document is for BackBox<sup>®</sup> E5.01

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## Known Issues

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ID	Issue Description
BBOX-2043 BBOX-1789	When SSH attempts to connect to a freshly installed QoreStor, VTC MC prompts a string longer than 255 characters for the embedded QoreStor Node under the QS Hostname. Input the correct QS hostname and click Verify.
BBOX-870	The migration function does not support BoostFS storage type for this release.
BBOX-1468	The SecureConnect option for RapidCIFS is not working with default naming conventions used by QoreStor Data Store Storage pool path.
BBOX-733	Creating unlabeled volumes is not supported with lock-protected storage, such as Data Domain, QoreStor Cloud Tier, StoreOnce, etc.
BBOX-1884	Enabling TLS SSL protocol through VTC MC prevents Standalone Load function to work properly. Temporarily disable SSL to operate the Manual Load/Unload.
BBOX-1876	If there are two (2) CA certificates , one as the root certificate and the other one as intermediate certificate, they need to be merged into one single CA certificate, to allow enabling security protocols.
BBOX-1878	Changing Cloud Tier password through VTC MC cannot be performed. To change the Cloud Tier password temporarily use QoreStor Web UI instead of VTCMC.

## Supported Products

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BackBox supports different storage appliances, including deduplication units and various storage add-ons:

Supported Storage Software	Version
HPE StoreOnce	4.3.12 or earlier
DELL Data Domain + BoostFS	LTS2025 8.3.1 DDOS/DDVE 8.3.1.0-1175411 BOOSTFS 8.3.1.0-1170271  LTS2024 7.13.1 DDOS/DDVE 7.13.1.40-1186473 BOOSTFS 7.13.1.40-1186210  LTS2023 7.10.1 DDOS/DDVE 7.10.1.70-1181207 BOOSTFS 7.10.1.70-1178590
Cohesity Data Cloud	6.8.1u5 or later (6.x series) 7.1.1 or later (7.x series)

## Version E5.01 - APRIL 2026

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### Resolved Defects

ID	Issue Description
BBOX-2094	Resolved an issue where the VtcServerPreparation.ps1 script failed to correctly handle the installation and upgrade processes of ETINET Driver Installer v3.1.5.
BBOX-2113	Fixed a defect that prevented adding iSCSI new devices on a new virtual BackBox installation.

### Security Updates

ID	Issue Description
BBOX-2047	OpenSSL 3.0.19 library updated (CVE-2025-15467, CVE-2025-68160, CVE-2025-69418, CVE-2025-69419, CVE-2025-69420, CVE-2025-69421, CVE-2026-22795, CVE-2026-22796)
BBOX-2048	NSK Expat 2.7.4 library updated (CVE-2026-24515, CVE-2026-25210)

## New Features and Improvements

ID	Issue Description
BBOX-1536	DNS field value is not mandatory anymore for embedded QoreStor settings.
BBOX-1692	Stand Alone Load functionality has been moved to VTC Management Console with new and improved capabilities. For Stand Alone Load/Unload use VTC Management Console.
BBOX-445	New and improved configuration saving feature in the VTC Management Console; any change in the VTC configuration is automatically prompted with a message underlining the nature of the change and automatically saved once the message has been acknowledged.
BBOX-1542	Improved display fields of email signature request for production license
BBOX-1568	Improved the copy sync process with Force local path feature enabled, by allowing remote path usage for Spare Pool Path.
BBOX-1650	License Generator tool supports product type 5.01 as listed option.
BBOX-1653 BBOX-1686	Introduced a new feature to monitor CoreDump space for QoreStor.
BBOX-1689	Improved the display and the accessibility of the Diagnostics functionality to allow multiple files deletion and downloading.
BBOX-1510	Improved the information display for both FC and iSCSI port-associated devices to show various edit options, such as tape emulation and IP initiator.
BBOX-1690	BackBox has been updated to support QoreStor 7.4.1 and OL8.10 ISO files.
BBOX-1637 BBOX-1674	4k native cluster disks are now supported for storage reliability.
BBOX-1752	Improved BB023 (in OBB017 obeyfile) to exclude "non deleted backup files" of VolumeGroups & DataStores when sending requests to VTC.
BBOX-1729	When no Host license activated, the domain connects to the VTC but with a warning message.
BBOX-1710	Improved VTC Management Console License node display.
BBOX-1701 BBOX-1475 BBOX-1663	Introduced an ETINET driver installer (TSCSITMDInstaller.msi) that needs to be run before VTC software update.
BBOX-1687 BBOX-1636	Modified the trace level on the Domain page to display the following values: DISABLED, GENERAL, DETAILS, DEBUG
BBOX-1666	Introduced a new format for the ticket collection default name that includes the date and time of the generated log package.
BBOX-1653	New diagnostic feature - CoreDump - that automatically generates log files related to QoreStor system crash events. These files are mostly used for troubleshooting, support and debugging.
BBOX-1469	Modified the UI Summary page by removing the Jobs column, that now can be found on the Job Manager page.

## Deprecated Features

ID	Issue Description
BBOX-1618	Stand Alone Load supported by the User Interface has been decommissioned. Functionality has been moved to VTC Management Console with new and improved capabilities. For Stand Alone Load/Unload use VTC Management Console.
BBOX-1007	Support of CA catalog in the Volume Group configuration has been removed.

## Resolved Defects

ID	Issue Description
BBOX-1584	Fixed a delay issue between EndOperation sending time and "successfully sent" message to Nonstop with SSL enabled.
BBOX-1566	Resolved a defect related to the display of special characters in the iSCSI device name field.
BBOX-94	Fixed an EMS message issue triggered by "Force Local Path" feature when all paths configured as "remote".
BBOX-1553	Resolved a defect related to the Migration Job total to process objects displayed on the Administration page, under Jobs.
BBOX-1708	Fixed an error regarding the list of audited volumes after package install or upgrade.
BBOX-1720	Resolved a defect of the EMS event viewer that didn't correctly display Cohesity DataStore load tape.
BBOX-1737	Reduced the attempt access time to an unavailable volume path when running a daily cleanup operation.
BBOX-1664	Resolved a defect related to BBEXT performance degradation due to memory leak when SSL communication is enabled.
BBOX-1758	Fixed the BBSLSVR ABORT with running BRCOM restore when backup has been written into DataDomain storage and largeblock has been used.
BBOX-1699	Resolved error 78 from WRITEUPDATEUNLOCKX VOLUME file.
BBOX-1796	Fixed the BB004_DATASTORE_VALIDATE_ACC macro ABEND.

# USER INTERFACE INSTALLATION

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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.

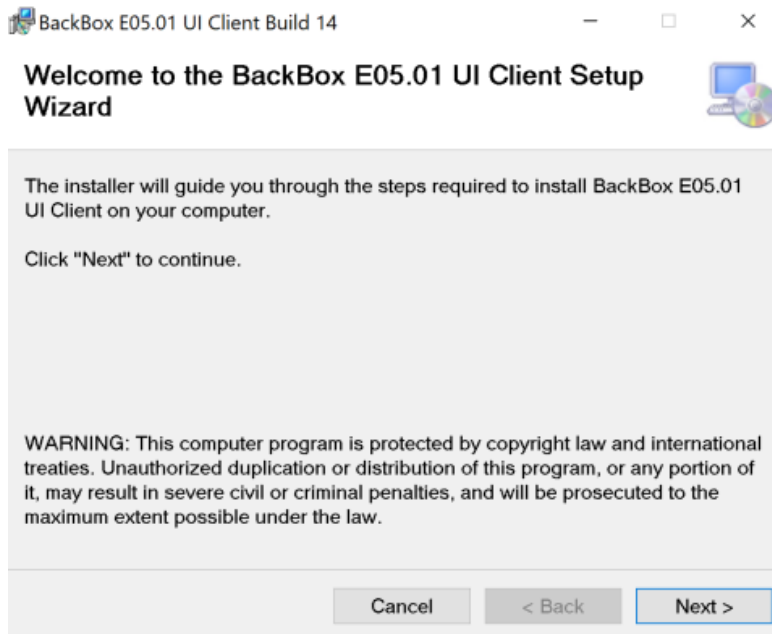
## INSTALL BACKBOX UI CLIENT

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

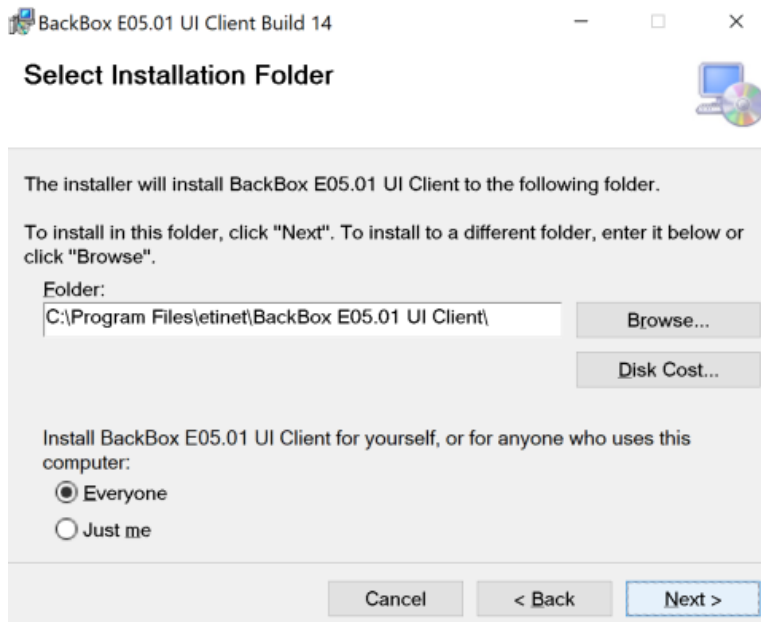
- Open the BackBox distribution set and navigate to the UI-v.vv.vvvv directory.
- Run Setup.exe.

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.

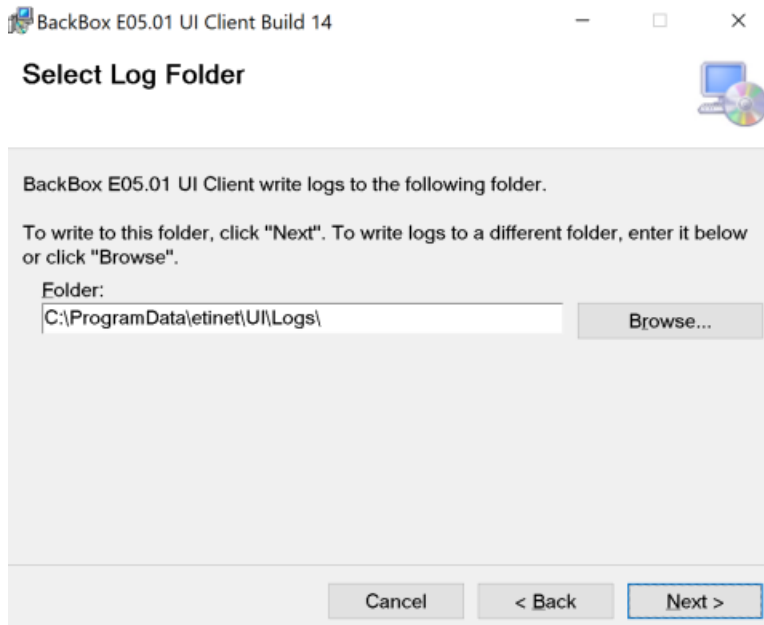
1. Run the Setup.exe to launch the UI Client Setup Wizard and follow the steps required to install the application. Click Next.



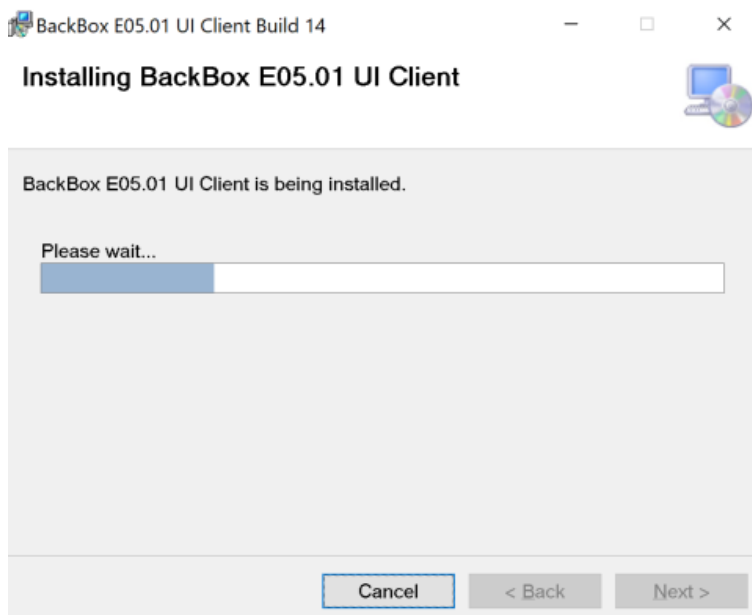
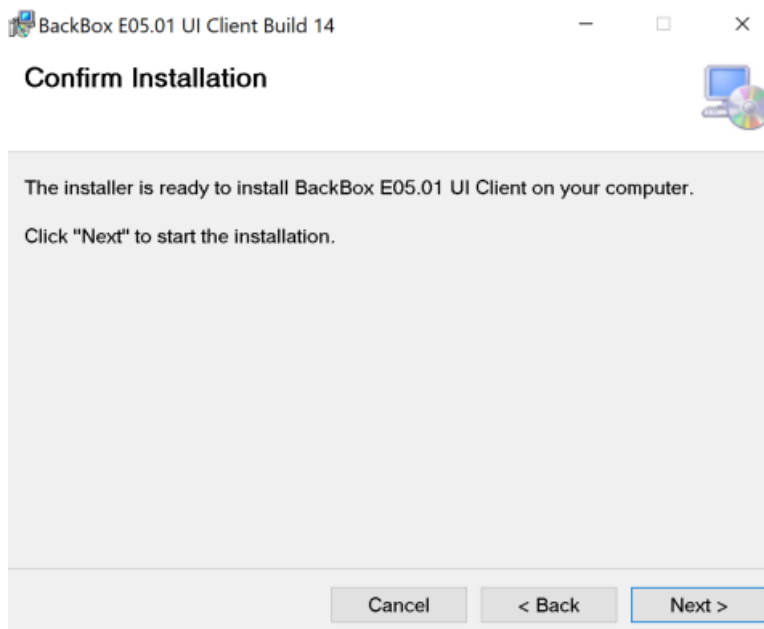
2. Select the installation folder. Use the default folder or browse to install the UI Client to a different folder. If the access to the UI Client has to be restricted to the current user, select Just me. Click Next.



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

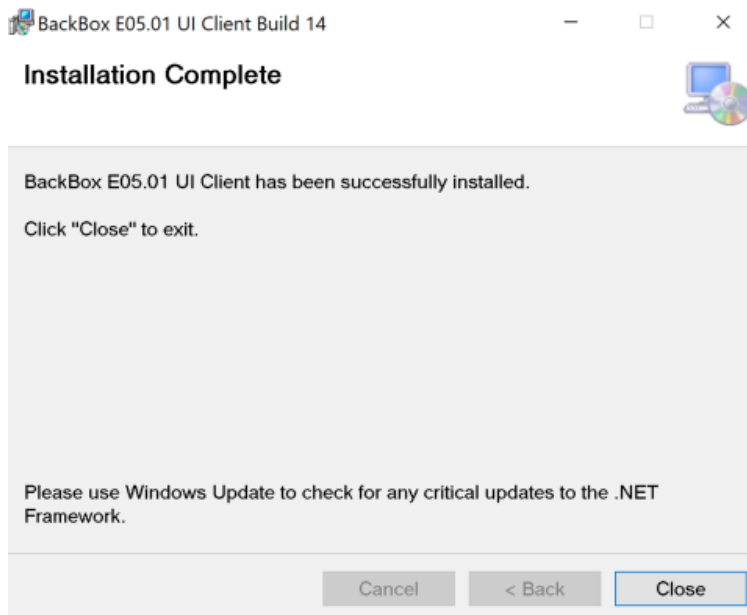


4. Confirm installation by clicking Next.



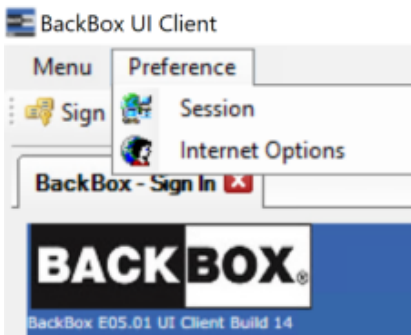
5. Once the installation is complete, you are prompted with the Installation Complete message.

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



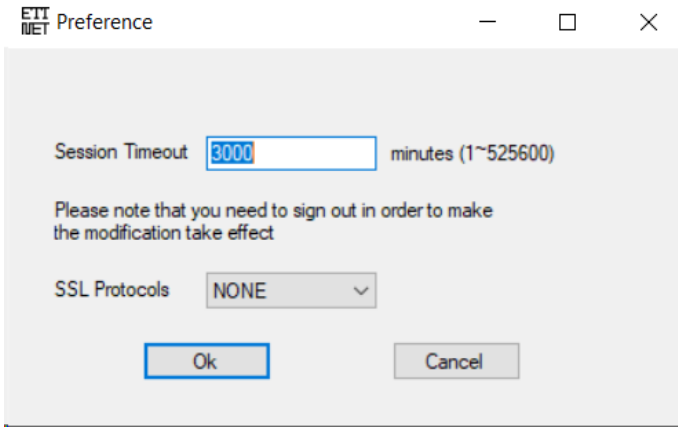
## UI PREFERENCES

UI client preferences can be set by the menu Preference.



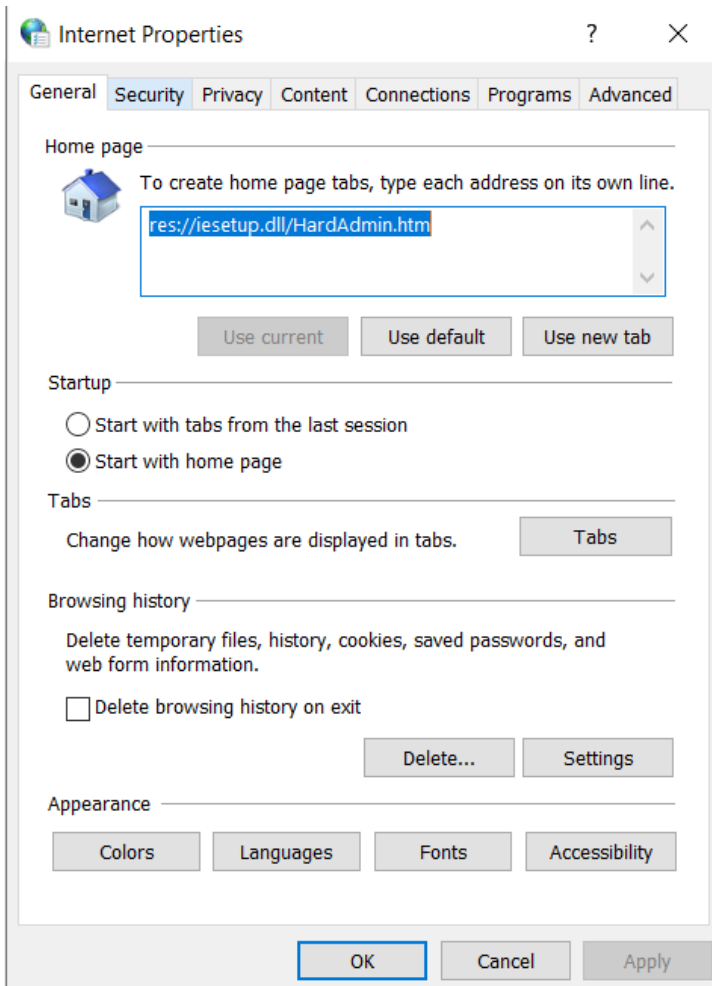
### Session Timeout Configuration

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.

	<b>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</b>
--	--

account.

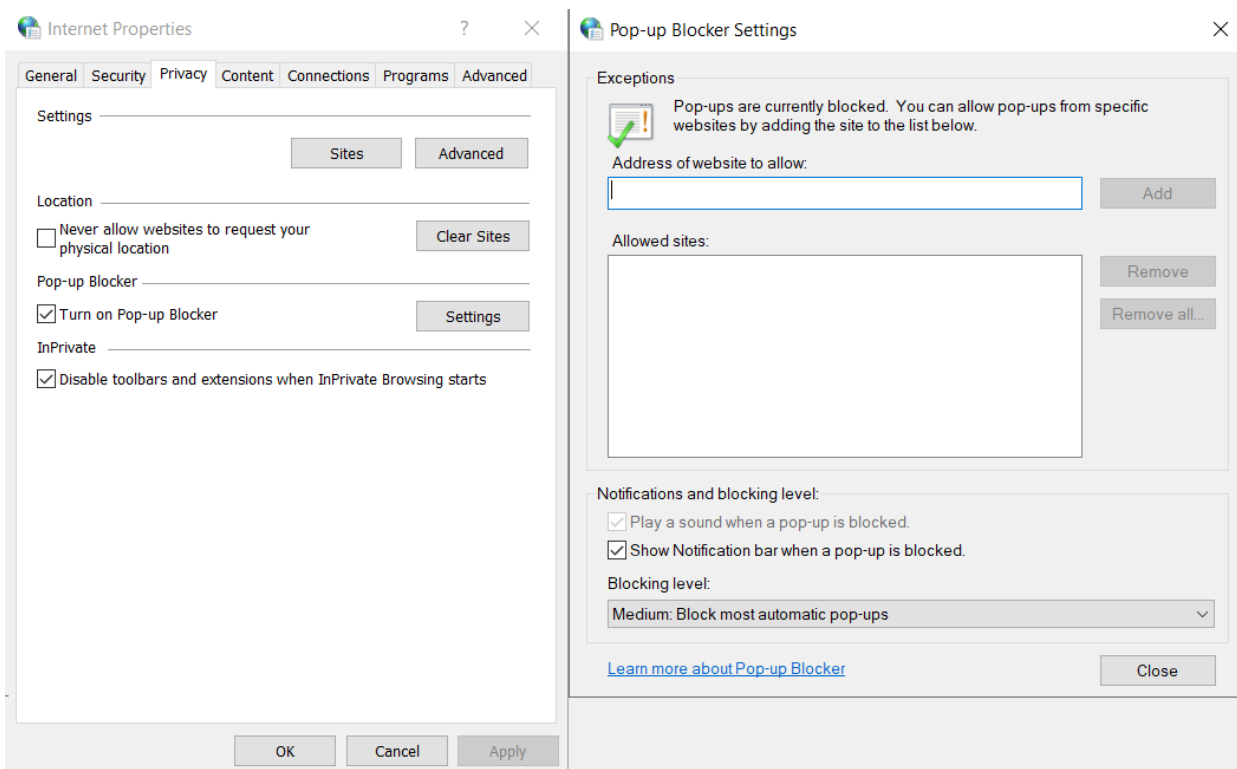
## Pop-up Windows Settings

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.



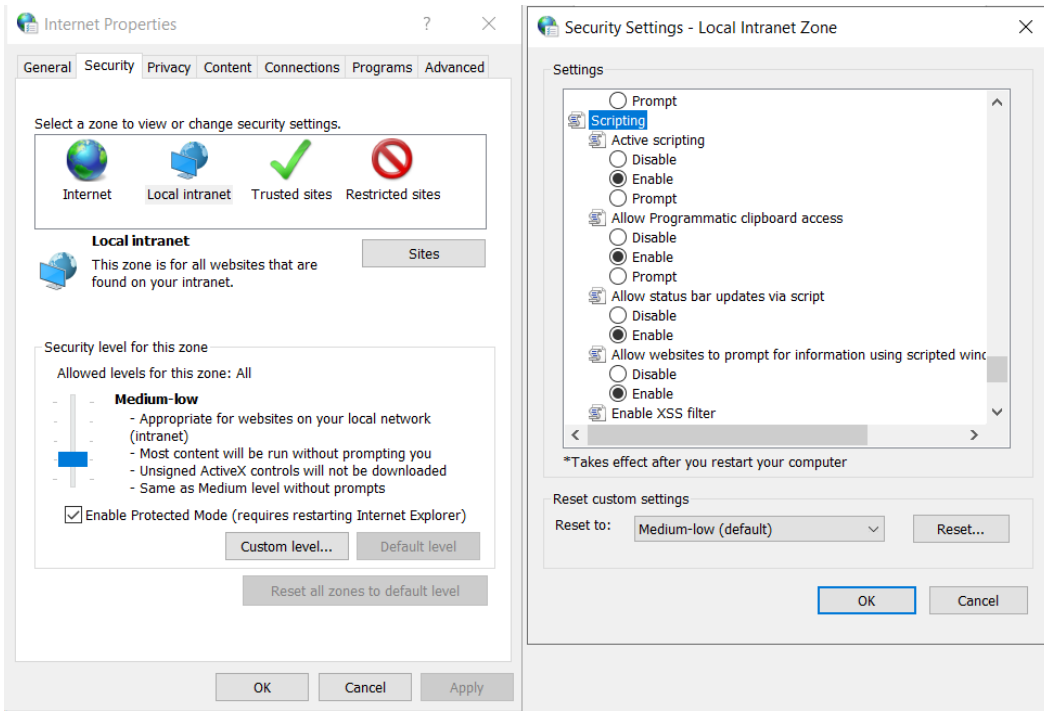
In restricted environments, the user operating the BackBox UI may not be able to change IE Internet Options. In such a case, ask the local administrator to apply the changes to the user account.

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



## Scripting Settings

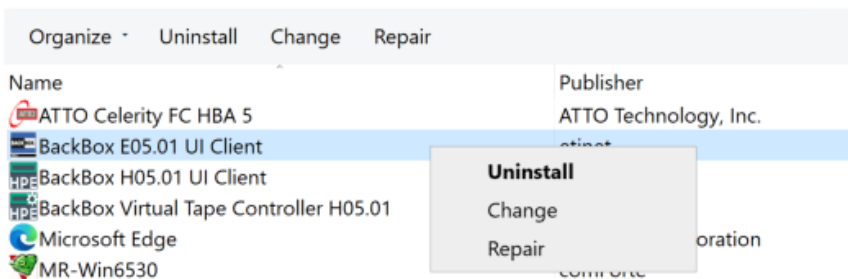
In the Security tab, select the Local intranet zone and click on the Custom level. In the Security settings dialog box, scroll down up to the Scripting section and activate all 6 options: Activate Scripting, Allow Programmatic clipboard access, Allow status bar updates via script, Allow websites to prompt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

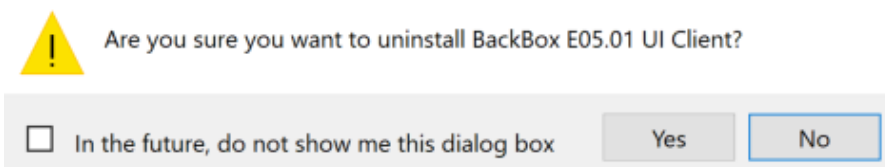
### Uninstall or change a program

To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.



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

#### Programs and Features



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



Do you want to keep configuration files?

Yes

No

The application has been removed and uninstalled.

# UPGRADE PROCEDURE

This section describes the upgrade procedure of a BackBox.

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
AttoCelerityFC-20250721	Latest (required) AttoCelerity version, if necessary
ETINET Driver Installer v3.1.5	BackBox VTC driver
GUARDIAN-E05.01-01APR2026	Latest BackBox Guardian Software
ServerScripts-20260320	PowerShell installation scripts required for upgrade or new installation
UI-E05.01.15	Installer for the BackBox Client
VTC-E05.01.29	Installer for the VTC Application

Fiber Channel (FC) Type	ATTO Driver Version
FC-16 FC-32 FC-64	2.110.4001.6000
FC-8	2.130.4001.6000

## Product Naming and Version Identification

A package is identified by its release number. There are several releases 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:

Version procedure: T9999V05\_15MAR2026\_BBOXETI\_01

## 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 E5.01, 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 UserInterface

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 ( INSE5.01 and BBE5.01), then

```
$ETINET YINE501 19> run inse5txt
Searching for latest PAK file $*.*.BBE501*
press Break key to stop ...
... found $ETINET.BPAKTMPE.BBE501 (2025-SEP-3 21:5)
... found $ETINET.BPAKTMPE.BBE501A (2025-JUN-16 17:19)
... found $ETINET.BPAKTMPE.BBE501B (2025-JUN-10 21:33)
... found $ETINET.BPAKTMPE.BBE501C (2025-JUL-2 20:53)

----- Installation of BackBox E5.01 NSK components -----

 1. Input PAK file ..... : $ETINET.BPAKTMPE.BBE501 (SEP-3 21:5)
 2. Target subvol ..... : $ETINET.YINE501
 3. Install All or Peripheral node: All
 4. Initial installation or Update: Program update
 5. Spooler location ..... : $S.#BBOX
 6. TCPIP process name ..... : $ZTC0
31. EMS Extractor (BBEXT) process : $BBEXT

Running BackBox process(es): 1
 \INSIDX.$Y1F0 \INSIDX.$ETINET.YINE501.BBSV

(Number) option to modify, (S) to stop processes, or (Q) to quit :Q

$ETINET YINE501 20> run bpaktmpe.inse501
Searching for latest PAK file $*.*.BBE501*
press Break key to stop ...
... found $ETINET.BPAKTMPE.BBE501 (2025-SEP-3 21:5)
... found $ETINET.BPAKTMPE.BBE501A (2025-JUN-16 17:19)
... found $ETINET.BPAKTMPE.BBE501B (2025-JUN-10 21:33)
... found $ETINET.BPAKTMPE.BBE501C (2025-JUL-2 20:53)

----- Installation of BackBox E5.01 NSK components -----

 1. Input PAK file ..... : $ETINET.BPAKTMPE.BBE501 (SEP-3 21:5)
 2. Target subvol ..... : $ETINET.YINE501
 3. Install All or Peripheral node: All
 4. Initial installation or Update: Program update
 5. Spooler location ..... : $S.#BBOX
 6. TCPIP process name ..... : $ZTC0
31. EMS Extractor (BBEXT) process : $BBEXT
(Number) option to modify, (I) to install, or (Q) to quit :31
EMS Extractor (BBEXT) process name ($BBEXT) :$YE501
----- Installation of BackBox E5.01 NSK components -----

 1. Input PAK file ..... : $ETINET.BPAKTMPE.BBE501 (SEP-3 21:5)
 2. Target subvol ..... : $ETINET.YINE501
 3. Install All or Peripheral node: All
 4. Initial installation or Update: Program update
 5. Spooler location ..... : $S.#BBOX
 6. TCPIP process name ..... : $ZTC0
31. EMS Extractor (BBEXT) process : $YE501
(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 ACL 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: <code>Running BackBox process(es)</code> . 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 ACL 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 <code>\ETINIUM.\$DATA05.BPAK.BBEXTLIC</code> 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:

```
----- Installation of BackBox E5.01 NSK components -----

1. Input PAK file ..... : $ETINET.BPAKTMPE.BBE501      (SEP-3 21:5)
2. Target subvol ..... : $ETINET.QATEST
3. Install All or Peripheral node: All
4. Initial installation or Update: Initial
5. Spooler location ..... : $S.#BBOX
6. TCPIP process name ..... : $ZTCO
31. EMS Extractor (BBEXT) process : $BBEXT
32. Domain subvol ..... : \INSIDX.$ETINET.QATEST

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

EMS Extractor (BBEXT) process name ($BBEXT) :$QE501
```

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.

## Server Preparation

	<p>When upgrading from version 4.xx to version 5.xx uninstall the following:</p> <ul style="list-style-type: none"> <li>• BackBox UI Client</li> <li>• BackBox Virtual Tape Controller</li> </ul>
---	---

In the same folder you unzipped the installation package, locate the ServerScripts-yyyymmdd folder, right-click on the file VtcServerPreparation.ps1 and click on Run with PowerShell (or launch the script from the opened PowerShell command line).

```

Administrator: Windows PowerShell
Transcript started, output file is \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\ServerScripts-20250721\ServerPreparation.log
Server Preparation 5.0.12 Created 2025-07-21
WARNING: BBOX2019-2: Exception calling "ParseExact" with "3" argument(s): "String was not recognized as a valid DateTime." <Thu Nov 19 13:59:51 PST 2020>

Preparing Microsoft Windows Server 2019 Standard
Verify if Atto HBA installed...


VTC Enable FC-8 Target Mode Registry
VTC FC-8 Target Mode was already configured
Validate FC-8 Firmware
ATTO Celerity FC-82EN in PCI-E Slot 2 4/6/2018 (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_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 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_RSA_WITH_AES_128_CBC_SHA256 is currently disabled
Protocol TLS_RSA_WITH_AES_128_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_AES_256_CBC_SHA is currently disabled
Protocol TLS_RSA_WITH_3DES_EDE_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_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
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

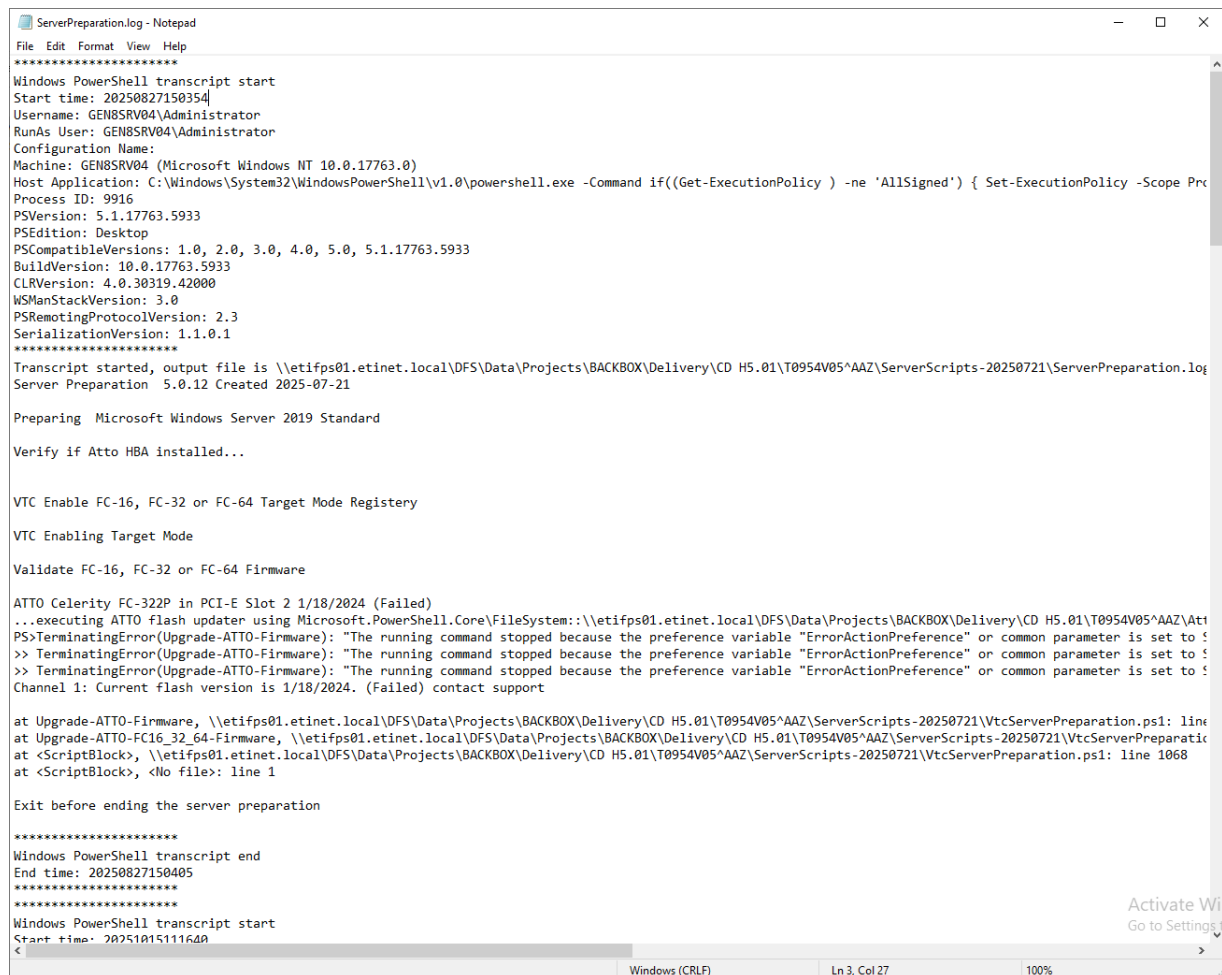
Transcript stopped, output file is \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\ServerScripts-20250721\ServerPreparation.log
Press enter to exit :

```

Click Y in the PowerShell to reboot the server, if required.

	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).
---	--

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.log - Notepad
File Edit Format View Help
*****
Windows PowerShell transcript start
Start time: 20250827150354
Username: GEN8SRV04\Administrator
RunAs User: GEN8SRV04\Administrator
Configuration Name:
Machine: GEN8SRV04 (Microsoft Windows NT 10.0.17763.0)
Host Application: C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -Command if((Get-ExecutionPolicy ) -ne 'AllSigned') { Set-ExecutionPolicy -Scope Pro
Process ID: 9916
PSVersion: 5.1.17763.5933
PSEdition: Desktop
PSCompatibleVersions: 1.0, 2.0, 3.0, 4.0, 5.0, 5.1.17763.5933
BuildVersion: 10.0.17763.5933
CLRVersion: 4.0.30319.42000
WSManStackVersion: 3.0
PSRemotingProtocolVersion: 2.3
SerializationVersion: 1.1.0.1
*****
Transcript started, output file is \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\ServerScripts-20250721\ServerPreparation.log
Server Preparation 5.0.12 Created 2025-07-21

Preparing Microsoft Windows Server 2019 Standard

Verify if Atto HBA installed...

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

VTC Enabling Target Mode

Validate FC-16, FC-32 or FC-64 Firmware

ATTO Celerity FC-322P in PCI-E Slot 2 1/18/2024 (Failed)
...executing ATTO flash updater using Microsoft.PowerShell.Core\FileSystem::\\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\Att
PS>TerminatingError(Upgrade-ATTO-Firmware): "The running command stopped because the preference variable "ErrorActionPreference" or common parameter is set to !
>> TerminatingError(Upgrade-ATTO-Firmware): "The running command stopped because the preference variable "ErrorActionPreference" or common parameter is set to !
>> TerminatingError(Upgrade-ATTO-Firmware): "The running command stopped because the preference variable "ErrorActionPreference" or common parameter is set to !
Channel 1: Current flash version is 1/18/2024. (Failed) contact support


at Upgrade-ATTO-Firmware, \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\ServerScripts-20250721\VtcServerPreparation.ps1: line
at Upgrade-ATTO-FC16_32_64-Firmware, \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\ServerScripts-20250721\VtcServerPreparati
at <ScriptBlock>, \\etifps01.etinet.local\DFS\Data\Projects\BACKBOX\Delivery\CD H5.01\T0954V05^AAZ\ServerScripts-20250721\VtcServerPreparation.ps1: line 1068
at <ScriptBlock>, <No file>: line 1

Exit before ending the server preparation

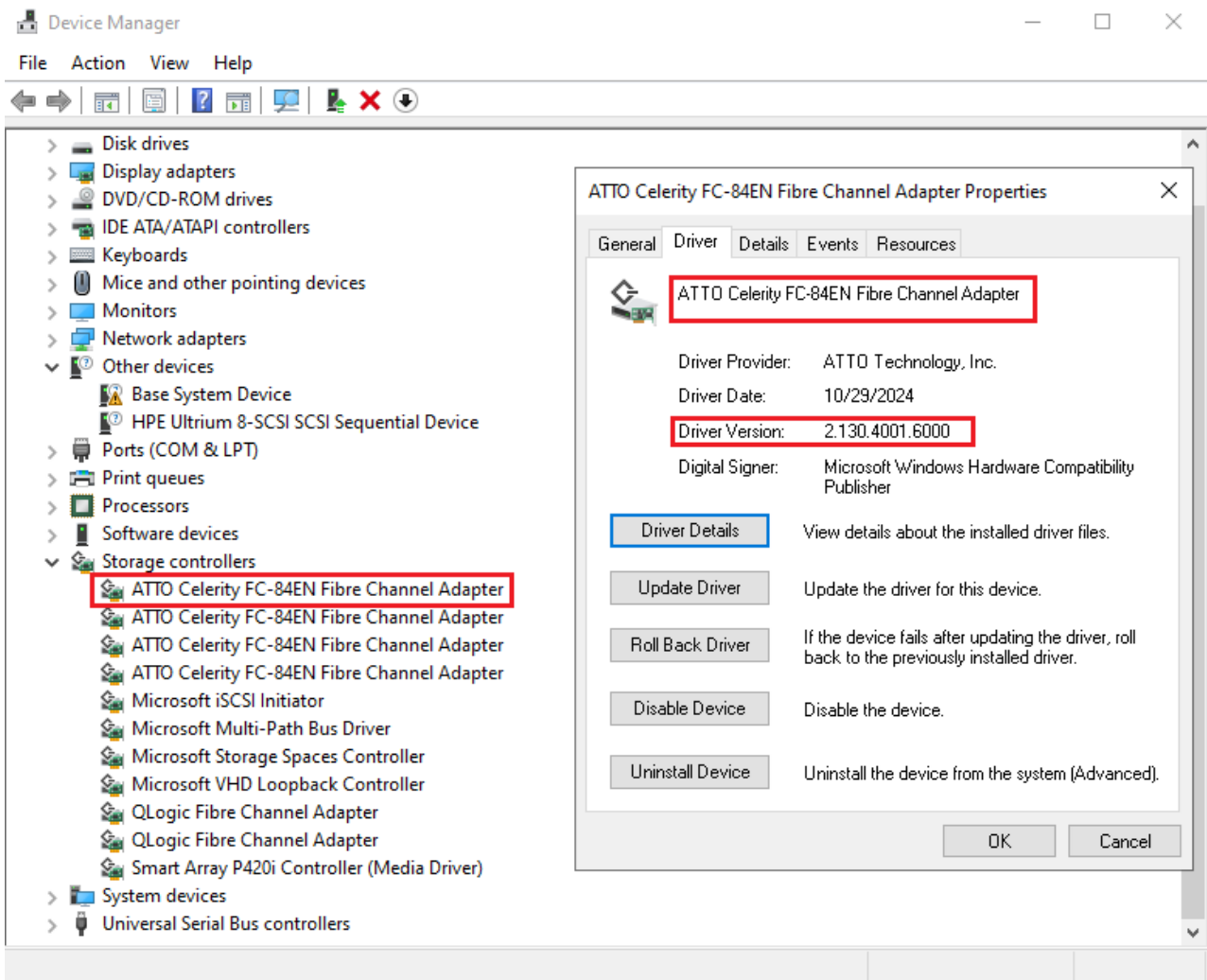
*****
Windows PowerShell transcript end
End time: 20250827150405
*****
Windows PowerShell transcript start
Start time: 20251015111640
<
```

## Pre-Upgrade

New BackBox Target Mode driver v3.1 distributed with E5.01 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 2.110.4001.6000 (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. If the Celerity driver version is prior to 2.130.4001.6000 (FC-8) or 2.110.4001.6000 (FC-16, FC-32 and FC-64), make sure to run the VtcServerPreparation.ps1 script, as described in the [Server Preparation](#) section, - before installing the VTC Software.



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

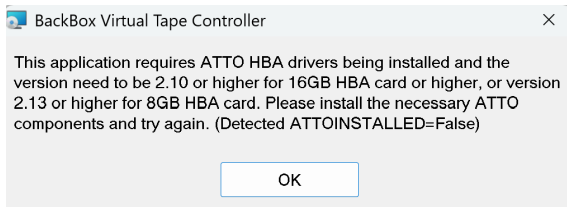
Administrator account under Windows on the server acting as the VTC.

- Install VTC BackBox-specific driver TSCSITMInstaller.msi, located in the folder ETINET Driver Installer, delivered with the BackBox package.

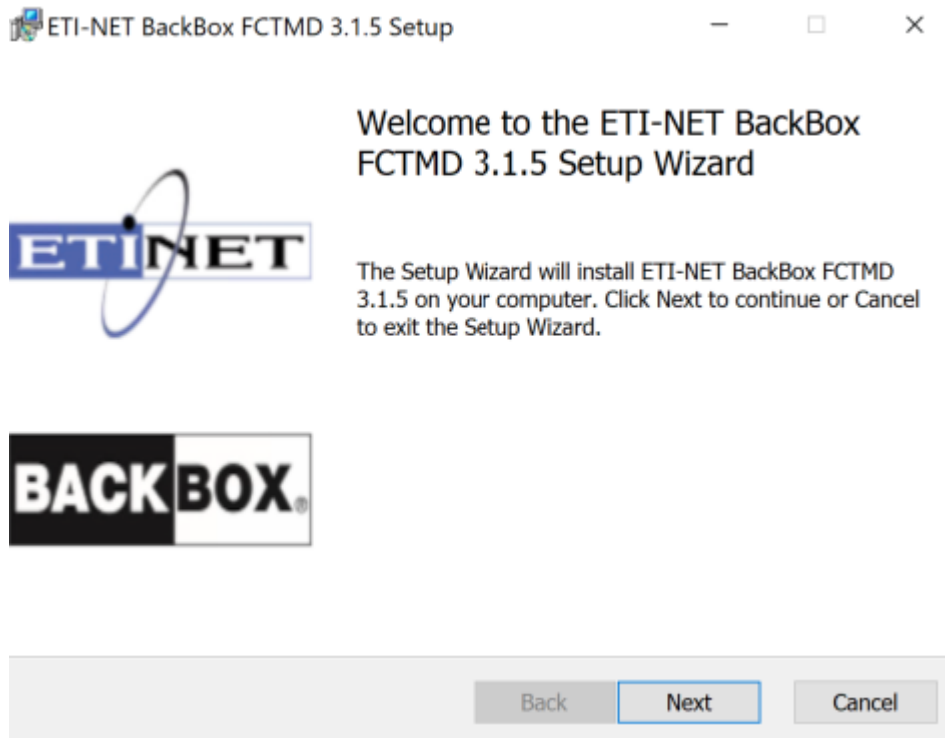
1. Open the folder ETINET Driver Installer and then TSCSITMInstaller.msi

Name	Date modified	Type
AttoCelerityFC-20250721	2026-03-21 1:21 AM	File folder
BackBox-E05.01-Documentation-202604...	2026-03-21 1:24 AM	File folder
ETINET Driver Installer v3.1.5	2026-03-21 1:37 AM	File folder
GUARDIAN-E05.01-01APR2026	2026-03-21 1:27 AM	File folder
ServerScripts-20260320	2026-03-23 2:13 PM	File folder
UI-E05.01.15	2026-03-21 1:22 AM	File folder
VTC-E05.01.29	2026-03-21 1:45 AM	File folder

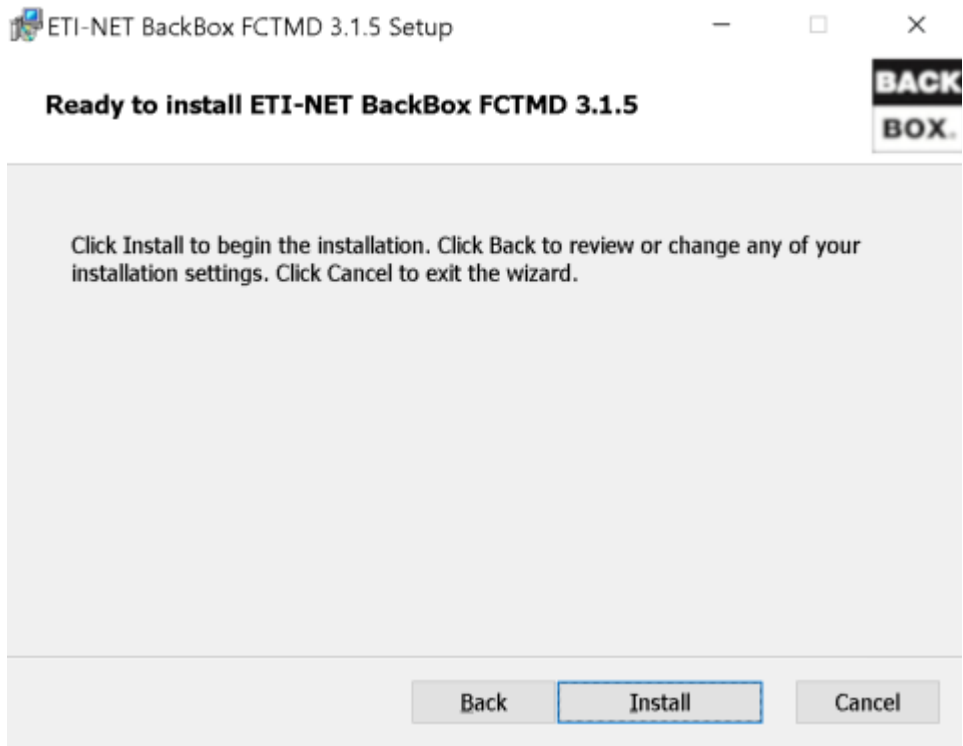
**If prompted with a pop-up requiring the installation of ATTO HBA drivers, proceed with installing these drivers before running the TSCSITMInstaller.msi Wizard**



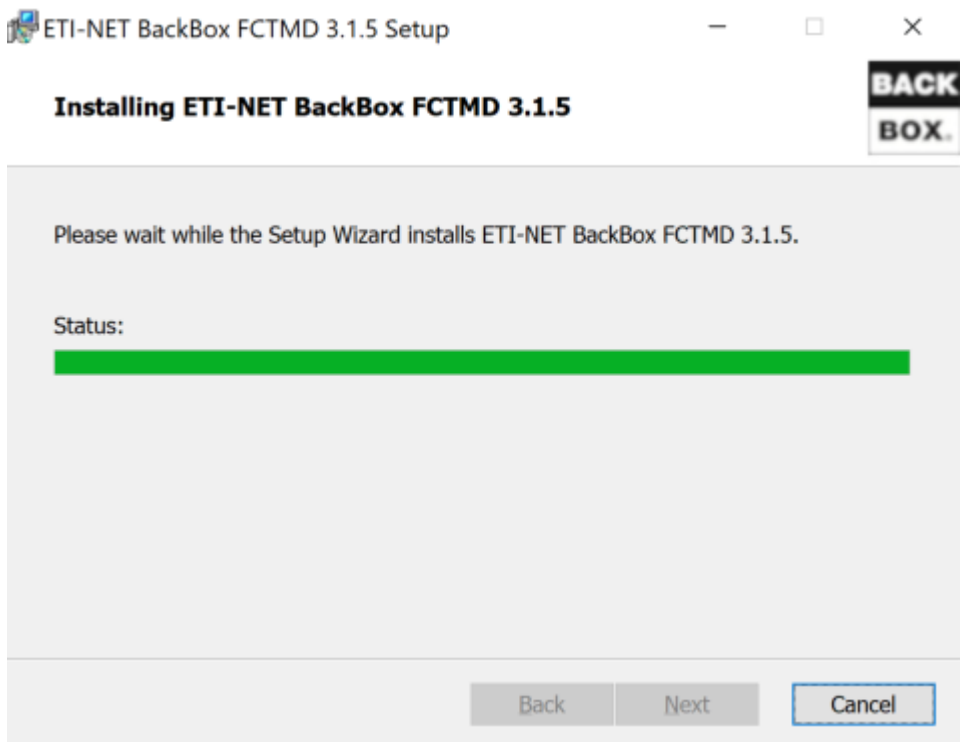
2. Run the installer Setup Wizard and click Next.



3. Click Install to begin installation.

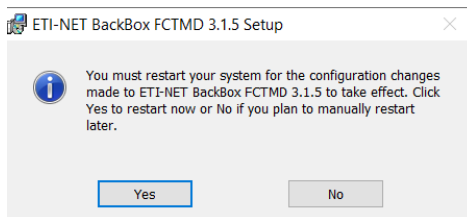


4. Once the installation is complete, click Finish to exit the Wizard.





5. In order to complete the installation, the VTC needs to be restarted. Click Yes in the pop-up window.



The VTC Windows services will start and will issue various messages to EMS.

## Install the New VTC Software

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	E05.01 APRIL 2026	Used By	Reference
Crypto++ Library - 8.7.0	8.7.0	VTC	<a href="https://github.com/weidai11/cryptopp/releases/tag/CRYPTOPP_8_7_0">https://github.com/weidai11/cryptopp/releases/tag/CRYPTOPP_8_7_0</a>
OpenSSL – 3.0.19	3.0.19	VTC- Domain	<a href="https://openssl-library.org/policies/general/security-policy/">https://openssl-library.org/policies/general/security-policy/</a>
ZLib - 1.3.1	1.3.1	VTC	<a href="https://www.zlib.net/">https://www.zlib.net/</a>
LZ4 – 1.9.4	1.9.4	VTC	<a href="https://github.com/lz4/lz4">https://github.com/lz4/lz4</a>
SharpSNMP 8.5.0	8.5.0	VTC	<a href="https://github.com/lextudio/sharpsnmplib">https://github.com/lextudio/sharpsnmplib</a>
LibTomCrypt – 1.7	1.7	VTC-UI- Domain	<a href="https://github.com/libtom/libtomcrypt/blob/develop/LICENSE">https://github.com/libtom/libtomcrypt/blob/develop/LICENSE</a>
expat - XML Parser Toolkit	2.7.4	Domain	<a href="https://www.xml.com/news/2026-01-expat-274-released-includes-security-fixes/">https://www.xml.com/news/2026-01-expat-274-released-includes-security-fixes/</a>
Cassini v3.5.0.2	v3.5.0.2	UI	<a href="https://github.com/zippy1981/Cassini">https://github.com/zippy1981/Cassini</a>
Data Tables 1.13.3	1.13.3	UI	<a href="https://datatables.net/license/mit">https://datatables.net/license/mit</a>
NewtonSoft.Json 13.0.2	13.0.2	VTC	<a href="https://github.com/JamesNK/Newtonsoft.Json">https://github.com/JamesNK/Newtonsoft.Json</a>
PuttyTel 0.81	0.81	VTC	<a href="https://www.chiark.greenend.org.uk/~sgtatham/putty/releases/0.81.html">https://www.chiark.greenend.org.uk/~sgtatham/putty/releases/0.81.html</a>
OpenKMIP 02.0	02.0	VTC	<a href="https://github.com/OpenKMIP">https://github.com/OpenKMIP</a>
RestSharp 108.0.3	108.0.3	VTC	<a href="https://www.nuget.org/packages/RestSharp/108.0.3">https://www.nuget.org/packages/RestSharp/108.0.3</a>
AjaxMin	5.14.5506.262 02	UI	<a href="https://www.nuget.org/packages/AjaxMin">https://www.nuget.org/packages/AjaxMin</a>

### Crypto++ Library - 8.7.0

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

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I would like to thank the following authors for placing their works into the public domain: Joan Daemen -

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, tmac.cpp, whirlpool.cpp, ripemd.cpp Ronny Van Keer - sha3.cpp

The Crypto++ Library (as a compilation) is currently licensed under the Boost Software License 1.0

<http://www.boost.org/users/license.html>).

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## OpenSSL – 3.0.19

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

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## Cassini v3.5.0.2

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

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

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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-sub-volume>.*,
*,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

```
Running BackBox process(es): 1
  \INSIDX.$Y1F0      \INSIDX.$ETINET.YINE501.BBSV

(Number) option to modify, (S) to stop processes, or (Q) to quit :Q

$ETINET YINE501 20> run bpaktmpe.inse501
Searching for latest PAK file $*.*.BBE501*
press Break key to stop ...
... found $ETINET.BPAKTMPE.BBE501 (2025-SEP-3 21:5)
... found $ETINET.BPAKTMPE.BBE501A (2025-JUN-16 17:19)
... found $ETINET.BPAKTMPE.BBE501B (2025-JUN-10 21:33)
... found $ETINET.BPAKTMPE.BBE501C (2025-JUL-2 20:53)

----- Installation of BackBox E5.01 NSK components -----
  1. Input PAK file ..... : $ETINET.BPAKTMPE.BBE501 (SEP-3 21:5)
  2. Target subvol ..... : $ETINET.YINE501
  3. Install All or Peripheral node: All
  4. Initial installation or Update: Program update
  5. Spooler location ..... : $S.#BBOX
  6. TCP/IP process name ..... : $ZTC0
 31. EMS Extractor (BBEXT) process : $BBEXT
(Number) option to modify, (I) to install, or (Q) to quit :31
EMS Extractor (BBEXT) process name ($BBEXT) :$YE501
----- Installation of BackBox E5.01 NSK components -----

  1. Input PAK file ..... : $ETINET.BPAKTMPE.BBE501 (SEP-3 21:5)
  2. Target subvol ..... : $ETINET.YINE501
  3. Install All or Peripheral node: All
  4. Initial installation or Update: Program update
  5. Spooler location ..... : $S.#BBOX
  6. TCP/IP process name ..... : $ZTC0
 31. EMS Extractor (BBEXT) process : $YE501
(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 $ETINET.YINE501 ( ) :YINE501B
----> copying the installation subvol ...
File Utility Program - T6553L01 - (02APR2020) System \INSIDX
(C)Copyright 1984-2016 Hewlett Packard Enterprise Development LP
DUP $ETINET.YINE501.* where filecode <> 130, $ETINET.YINE501B.*, SOURCEDATE
FILES DUPLICATED: 88
ALTER $ETINET.YINE501B.VOLUME, &
ALTFILE (0, $ETINET.YINE501B.VOLUME0)
----> Installation subvol saved
must replace these files, before upgrade
UNPAK - File decompression program - T1255L01 - (2023-06-07)

Archive version: 1
File Mode RESTORE Program - T9074L01 (01AUG2024) (AHK)
(C) Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\INSIDX.$Y1G5)
System: \INSIDX Operating System: L06 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: 23Sep2025 16:33 Backup time: 3Sep2025 21:05 Page: 1
Tape: 1 Code EOF Last modif Owner RWEPT Type Rec Bl
$ETINET.YINE501
  MACROS 101 128756 8May2025 16:53 255,101 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
Loaded from $ETINET.YINE501.BBSETUP:
BBSV_ADDR BBSV_PORT BBSV_TCPIP VTC_OBJECT EZX_MAXRETRY
EZX_RETRYDELAY EZX_TIMEOUT
Loaded from $ETINET.YINE501.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/ $ETINET.BPAKTMPE.BBE501, ($*.* WHERE FILECODE > 800,
$*.BBE501X.*, $*.*.OBB004, $*.*.OBB004B, $*.*.OBB005, $*.*.JOBS
TAT*, $*.*.OBB018, $*.*.OBB019, $*.*.OBB021, $*.*.OBB025, $*.*.OBB0
38, $*.*.OBB039, $*.*.OBB055, $*.*.VOLEXT, $*.*.MACROS, $*.*.BBREST, $*.
*.EMSFILT*, $*.*.OEMS2), VOL $ETINET.YINE501, MYID,OPEN,LISTALL, AUDITED
UNPAK - File decompression program - T1255L01 - (2023-06-07)

```

```

Archive version: 1
File Mode RESTORE Program - T9074L01 (01AUG2024) (AHK)
(C) Copyright 2015 Hewlett Packard Enterprise Development LP
Drives: (\INSIDX.$Y1G6)
System: \INSIDX Operating System: L06 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: 23Sep2025 16:33 Backup time: 3Sep2025 21:05 Page: 1

```

Tape: 1	Code	EOF	Last modif	Owner	RWEP	Type	Rec	Bl
\$ETINET.YINE501								
	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			
	EMSFILT1	101	162 16Sep2024 15:05	255,101	NNNN			
	EMSFILT2	845	178 16Sep2024 15:05	255,101	NNNN			
	JOBSTAT		0 16Sep2024 15:05	255,101	NNNN	K	1288	4
	JOBSTAT0		0 16Sep2024 15:05	255,101	NNNN	K	146	4
	MACROS	101	128756 8May2025 16:53	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			
	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			
	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			
	OEMS2	101	2580 16Sep2024 15:05	255,101	NNNN			
	OEMSFILT	845	152 16Sep2024 15:05	255,101	NNNN			
	VOLEXT		0 16Sep2024 15:05	255,101	NNNN	E	932	4
	BB010	500	1738648 3Sep2025 20:21	255,101	NNNN			
	BB030	500	115536 3Sep2025 20:21	255,101	NNNN			
	BB031	500	4488768 3Sep2025 20:17	255,101	NNNN			
	BB033	500	43688 3Sep2025 20:09	255,101	NNNN			
	BB034	500	54600 3Sep2025 20:09	255,101	NNNN			
	BB037	500	332592 3Sep2025 20:17	255,101	NNNN			
	BB042	500	226544 3Sep2025 20:17	255,101	NNNN			
	BB043	500	55152 3Sep2025 20:09	255,101	NNNN			
	BB044	500	659872 3Sep2025 20:17	255,101	NNNN			
	BB045	500	256240 3Sep2025 20:21	255,101	NNNN			
	BB053	500	1411640 3Sep2025 20:17	255,101	NNNN			
	BB055	500	1736664 3Sep2025 20:16	255,101	NNNN			
	BB056	500	1727680 3Sep2025 20:21	255,101	NNNN			
	BBCMD	500	1526984 3Sep2025 20:22	255,101	NNNN			

Tape: 1	Code	EOF	Last modif	Owner	RWEP	Type	Rec Bl
	BBDBM	500	5979632	3Sep2025	20:16	255,101	NNNN
	BBDELVOL	500	220568	3Sep2025	20:18	255,101	NNNN
	BBEXT	500	2294240	3Sep2025	20:20	255,101	NNNN
	BBFIXVOL	500	221208	3Sep2025	20:22	255,101	NNNN
	BBLIB	500	4638872	3Sep2025	20:16	255,101	NNNN
	BBMERCAT	500	231896	3Sep2025	20:18	255,101	NNNN
	BBPCODE	500	1399704	3Sep2025	20:22	255,101	NNNN
	BBSSL	500	6126384	3Sep2025	20:15	255,101	NNNN
	BBSV	500	5954768	3Sep2025	20:20	255,101	NNNN
	BBULIST	500	101480	3Sep2025	20:21	255,101	NNNN
	BBVERCER	500	52520	3Sep2025	20:10	255,101	NNNN
	TAPERD	500	103784	3Sep2025	20:18	255,101	NNNN
	TAPEWR	500	250888	3Sep2025	20:22	255,101	NNNN
	TRCLIST	500	110744	3Sep2025	20:22	255,101	NNNN

Summary Information

Files restored = 57 Files not restored = 0

FUP SECURE \$ETINET.YINE501.BBSV,CCCC,PROGID

FUP SECURE \$ETINET.YINE501.EMSFILT\*, NNNN

FUP SECURE \$ETINET.YINE501.OPER, NCNC

Editing OEMS2...

Editing OBWIN1...

Editing ORWIN1...

Editing OBB018...

Editing OBB019...

Editing OBB021...

Editing OBB025...

Editing OBB039...

Editing in CUSTOMIZE\_EXPAND\_OBFILE ROUTINE

Editing OBB055 ...

Editing OEXT...

Editing in CUSTOMIZE\_EXPAND\_OBFILE ROUTINE

Editing SCFIN1 ...

FUP SECURE \$ETINET.YINE501.BBEXT,NCNC,PROGID

Editing in CUSTOMIZE\_EXPAND\_OBFILE ROUTINE

Editing SSLCFG ...

Loaded from \$ETINET.YINE501.BBSETUP:

BBSV_ADDR	BBSV_PORT	BBSV_TCPIP	VTC_OBJECT	EZX_MAXRETRY
EZX_RETRYDELAY	EZX_TIMEOUT			

Loaded from \$ETINET.YINE501.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

-----> Whole BackBox updated in \$ETINET.YINE501,

-----> from \$ETINET.BPAKTMPE.BBE501.

-----> Please verify if any error message was issued above.

check NSKCRT: \INSIDX.\$ETINET.YINE501.NSKCRT

NSKCRT issuer : /C=CA/ST=QC/L=Montreal/O=ETI-NET/OU=R&D/CN=NSK/emailAddress=alb.ert.zhang@etinet.com

This NSKCRT is NOT the Etinet pre-H412 selfsign certificate

-----> BBVERCER RETURN zero

-----> This domain does not use Etinet pre 4.12 selfsigned certificates

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

Loaded from \$ETINET.YINE501.BBSETUP:

BBSV_ADDR	BBSV_PORT	BBSV_TCPIP	VTC_OBJECT	EZX_MAXRETRY
EZX_RETRYDELAY	EZX_TIMEOUT			

Loaded from \$ETINET.YINE501.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

Backup Version : 05.01  
Installing Version: 05.01

## 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 to 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 and upgrade the programs.

## E. Backup Sub-Volume

1. Run the following ACL 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
 

```
<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 datastores. 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.

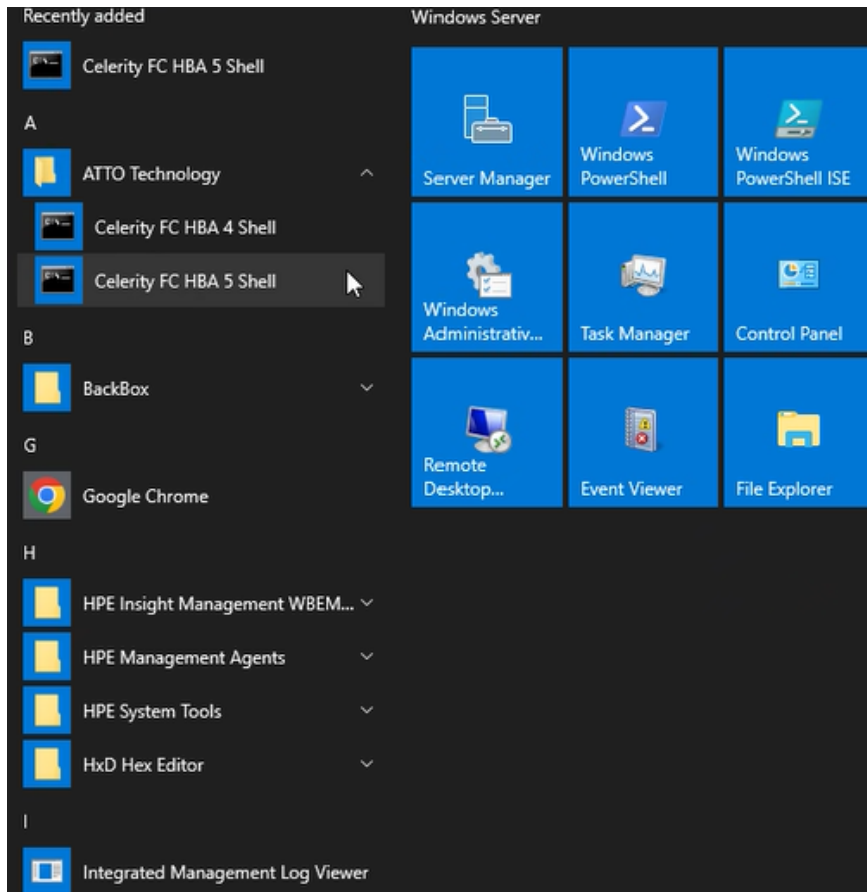
The VTC software handles the setup - except for the resources accessed by the scripts. The user must verify in scripts the access to resources.

	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

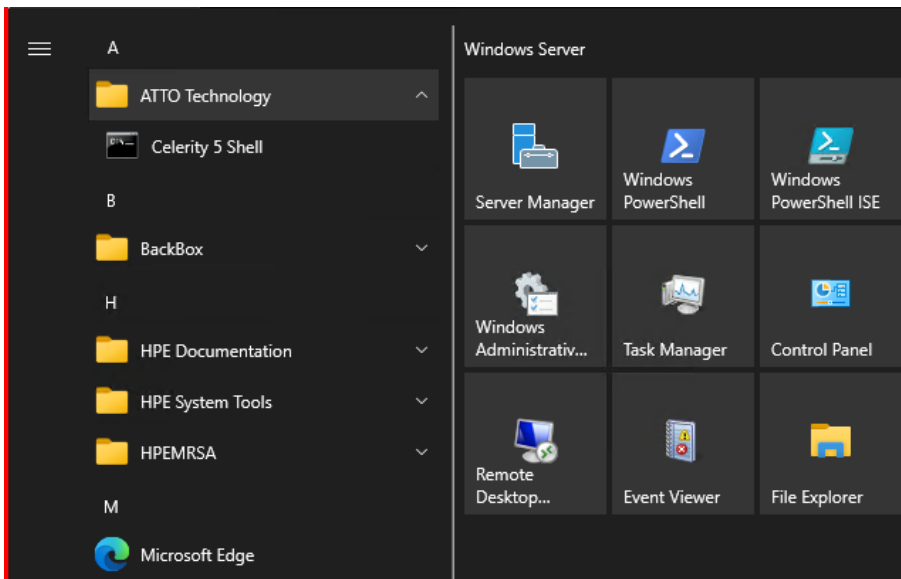
If you need to access the CLI tools and the associated applications, follow the steps below:

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.

2. Select Celerity FC HBA 5 Shell for ATTO Celerity FC-16 and FC-32.



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 E5.01.



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.

