Integrating RDX® QuikStation™ into NetJapan ActiveImage™ Protector

Backup is the life insurance of a company as it protects its crown jewels. Backup ensures data availability and business continuity after data loss. It is important to know, that data loss could result in loss of business and loss of business might result in closing the business. Backup simply gives a peace of mind.

RDX® QuikStation™ - The flexible removable disk array

Overland-Tandberg's RDX® QuikStation™ is an iSCSI network-attached removable disk array designed to provide a flexible platform for data protection and off-site disaster recovery for physical or virtual SMB and SME environments as well as Hybrid-Cloud applications.

The RDX QuikStation provides four or eight integrated RDX drives, depending on the model ordered. Combined with Tandberg Data's high capacity RDX removable media, the system offers online storage with unlimited offline storage capacity.

By providing multiple operational modes, the QuikStation is a flexible storage device, which satisfies all data protection requirements. This document describes several use cases, how QuikStation fits in different environments.

The 3-2-1 Backup Strategy for full disaster protection

Data loss can be caused by many reasons:

- Employees are pushing the wrong button or delete files by accident
- Software problems might corrupt data
- Hardware failures cause total data loss
- Virus and ransomware attacks destroy data or make them inaccessible
- Fire or natural disasters could damage the IT-equipment
- Sabotage or theft

Because of these different incidents, multiple backup copies should be created and stored at different sites. For full disaster protection, the 3-2-1 backup strategy should be implemented: One media for primary backup and another one as a secondary backup target. If one media fails, the other media is still available for recovery tasks. In addition, a third copy should be stored on a removable media to place this copy off-site. This ensures being capable to accomplish a full data recovery in case of a disaster at the business site. In addition, the off-site copy cannot be affected by a virus or ransomware attack. By using the QuikStation, you can implement the 3-2-1 backup strategy in one device.

Media Rotation

If you are integrating the RDX QuikStation in a multi server/ desktop environment, media rotation is an ideal method to be fully protected against data loss due to a disaster. In this case, every system connects to its RDX drive via iSCSI. Using multiple media enables you to alternate the media after the backup has finished for disaster and ransomware protection.

RDX QuikStation is a flexible removable disk appliance with 4 or 8 RDX drives.

Using the QuikStation for multi-system backup

If you need to protect multiple servers or desktop in a network, the RDX QuikStation offers individual RDX drives for your entire infrastructure over the network (screenshots show the QuikStation 4).
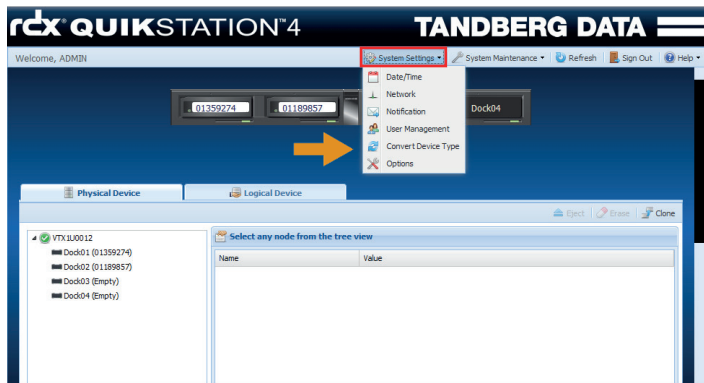
Log into your QuikStation and select "System Settings" from the main menu.

Choose "Convert Device Type".
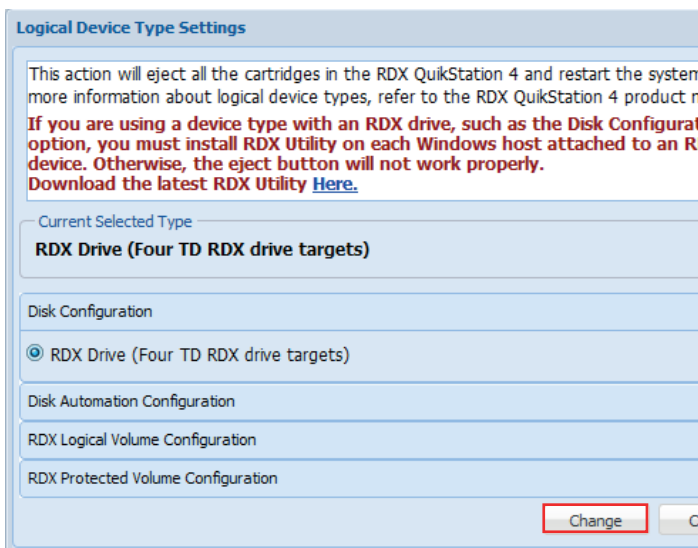
Expand the "Disk Configuration" section.

Select "RDX Drive (Four/Eight TD RDX drive targets)" from the "Disk Configuration" tab.

Click on "Change".

This will disconnect all iSCSI connections from earlier configurations. Confirm the warning popup by selecting "Yes" when this would be applicable to you. Otherwise select "No" and disconnect manually.
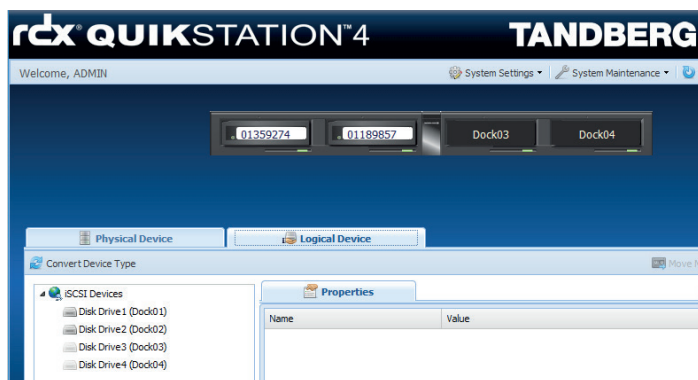
The QuikStation will reboot, which might take approximately 4 minutes.

The configuration now shows individual RDX drives (select the "Logical Device" tab).
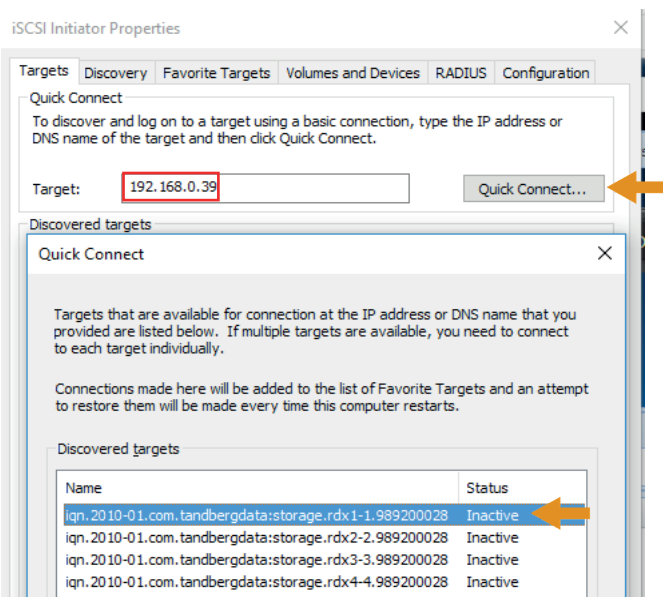
To connect to the individual RDX drives, start the iSCSI-Initiator App on each system.

Fill in the QuikStation's IP-address into the "Target" field and click "Quick Connect". A new menu pops up and shows the available (4 or 8) RDX drives as iSCSI-targets. Select the desired target (drive) and click "Connect" at the buttom of the screen. Make a note on which RDX drive has been connected to which system.
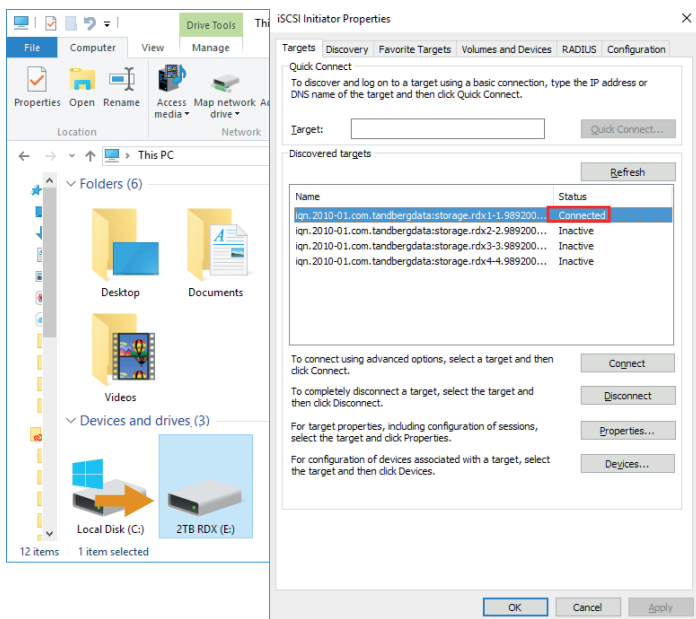

The iSCSI-target is now connected.

The explorer shows the RDX drive as a new drive letter. The drive is now ready to use.

Using the QuikStation for large backup sets

If you need to keep a lot of recovery points or have a large amount of data to backup, the QuikStation offers a logical volume operating mode which shows all RDX drives as one volume (one big RDX). Logical volumes also available in protected mode which tolerate one or two drive failures (dependend on the model you ordered). As we recommend media rotation, protected mode might not neccessarily needed. This mode serves a single server (QuikStation 4) or 2 servers (available on QuikStation 8).
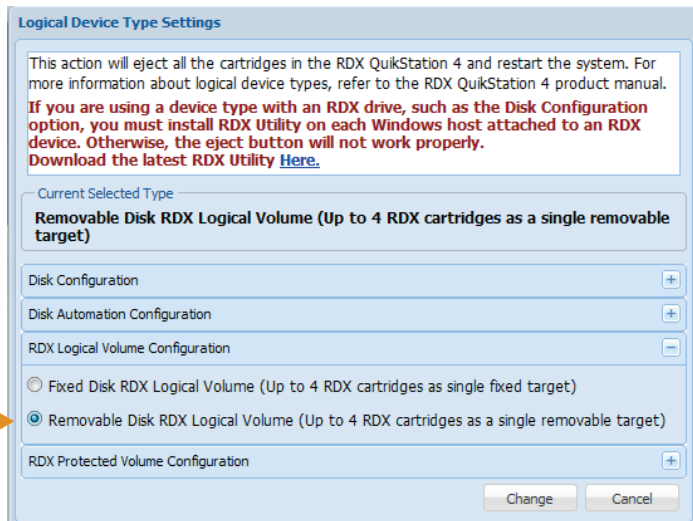
Log into your QuikStation and select "System Settings" from the main menu.

Choose "Convert Device Type". According on your request, select either "Removable Disk RDX Logical Volume" or "Removable Disk RDX Protected Volume".

Click on "Change". This will disconnect all iSCSI connections from earlier configurations.
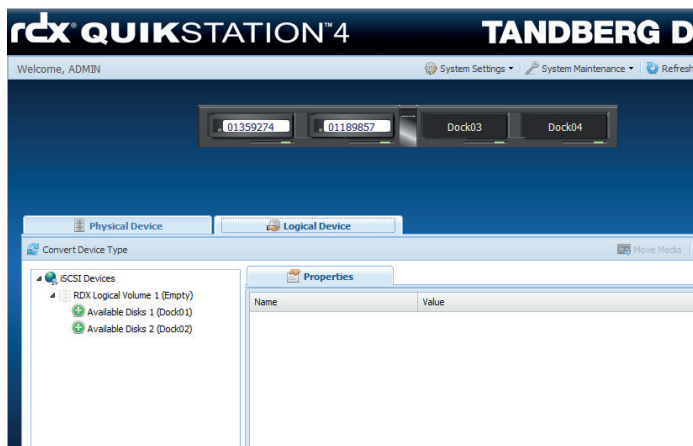
The QuikStation will reboot, which might take approximately 4 minutes.

The configuration now shows one logical volume (select the "Logical Device" tab) with all available disks. Next step is to incoporate one or all disks into the logical volume.
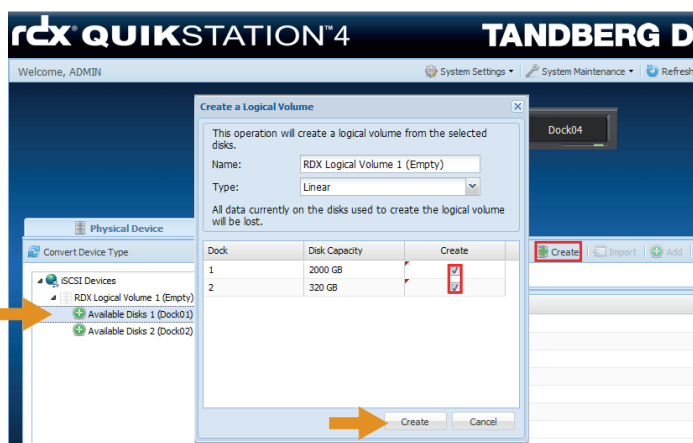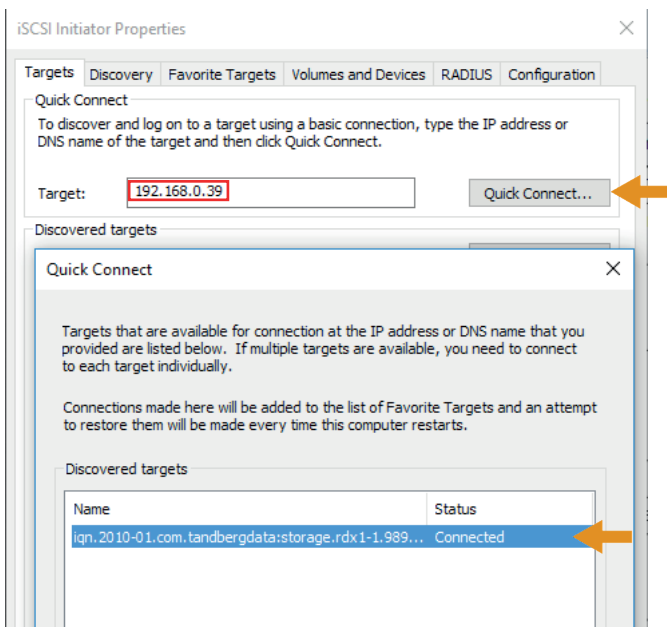

Select one of the available disks.

Click "Create".

A new popup windows appears. Select all RDX drives you want to include into the logical volume. (You will be able to add drives later on, please refer to the QuikStation manual).

Click "Create".
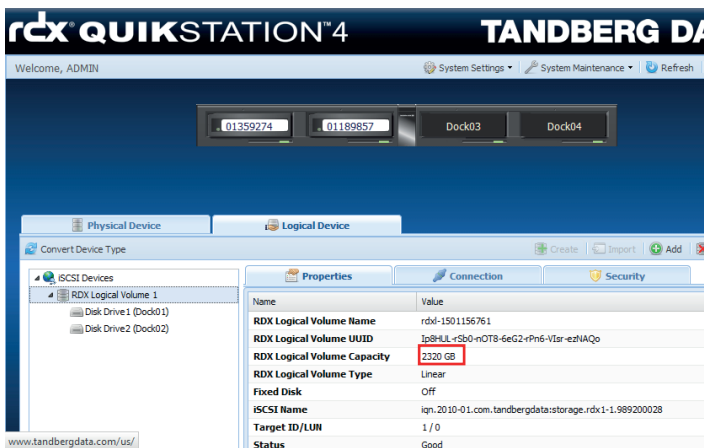
The logical volume has been created. The capacity adds up to all RDX media included.

To connect to the logical volume, start the iSCSI-Initiator App on your system.

Fill in the QuikStation's IP-address into the "Target" field and click "Quick Connect". A new menu pops up and shows the available (1 or 2, according to your configuration) logical volumes as iSCSI-targets. If 2 targets are available, select the desired target (drive) and click "Connect" at the buttom of the screen.

A single target will be connected automatically.
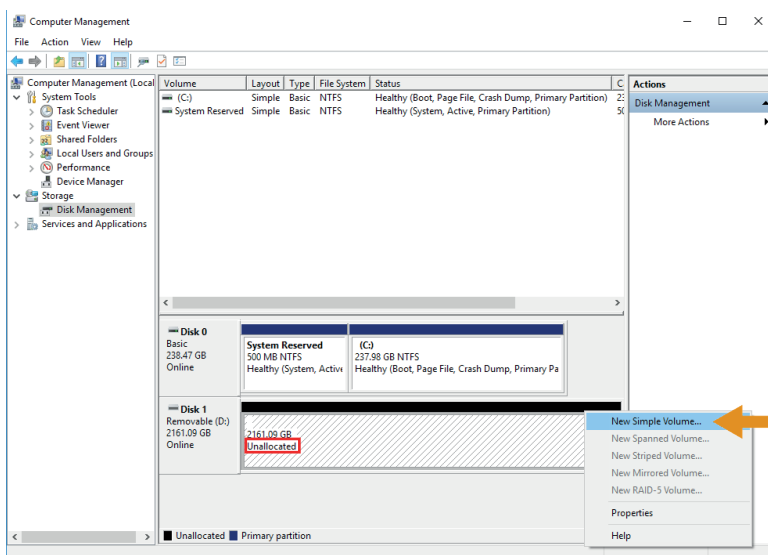
Open the "Disk Management" section of the computer manage-ment application. The volume appears as "Unallocated". Right click on the volume and select "New Simple Volume". Follow the instructions.

Be aware, that the volume needs to be formatted. All existing data will be lost!
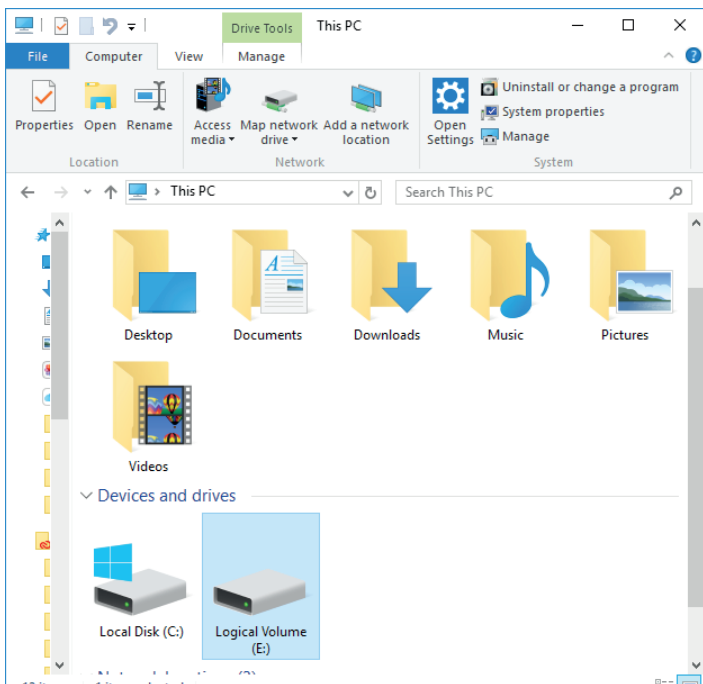
The explorer shows the RDX drive as a new drive letter (The name "Logical Volume" was an individual entry during format procedure).

The drive is now ready to use.

Using the QuikStation as a disk autoloader

The disk autoloader mode allows to perform a daily backup on a seperate media without manual intervention. The QuikStation is able to rotate the media logically through the available slots (4 or 8 depending on the model you purchased), in which a RDX media is inserted. Regardless of the current media, the drive is always presented by the same drive letter to the computer system.
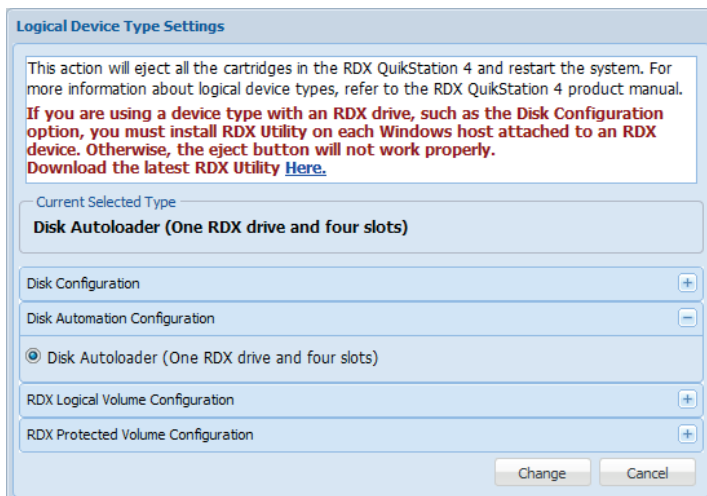
Log into your QuikStation and select "System Settings" from the main menu.

Choose "Convert Device Type".

Select "Disk Autoloader" from the "Disk Automation Configuration" section.

Click on "Change". This will disconnect all iSCSI connections from earlier configurations.
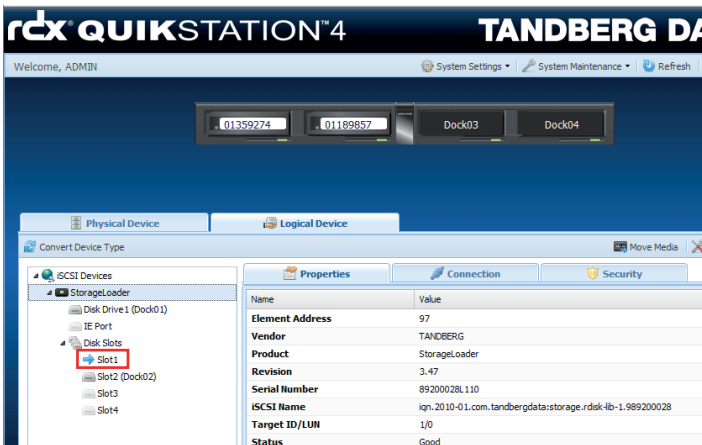
The QuikStation will reboot, which might take approximately 4 minutes.

The configuration now shows the storageloader configuration (select the "Logical Device" tab) with all available disk-slots. A blue arrow indicates, which slot is currently active and which RDX drive will be presented to the computer-system.
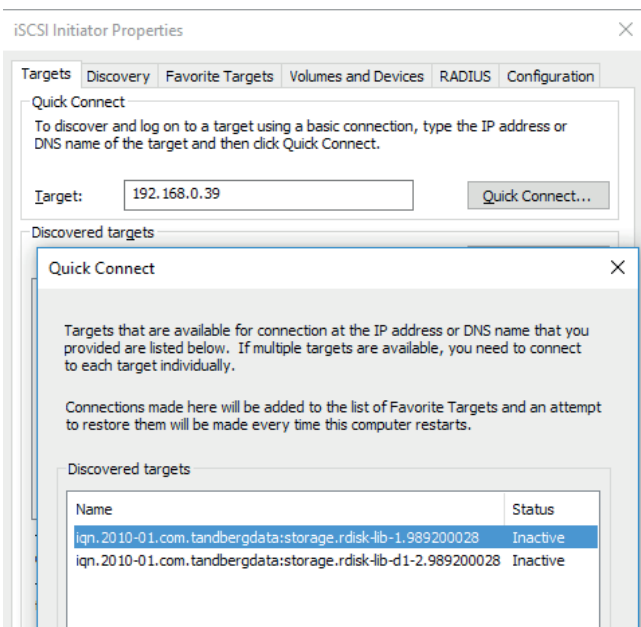
To connect to the autoloader, start the iSCSI-Initiator App on your system.

Fill in the QuikStation's IP-address into the "Target" field and click "Quick Connect". A new menu pops up and shows two iSCSI targets (the autoloader and the drive).

Select the first target and click "Connect" at the buttom of the screen. Repeat for the second target.
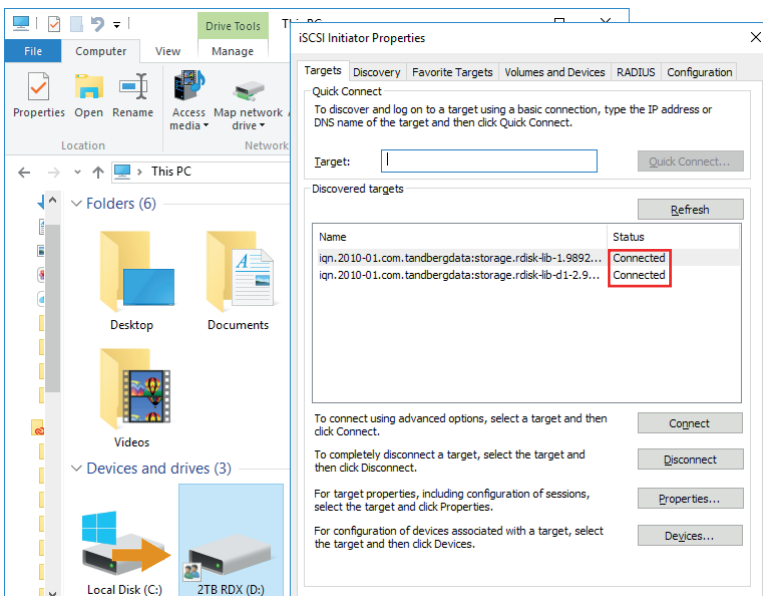
Both targets should show the status "Connected".

The explorer shows the RDX drive as a new drive letter. The drive is now ready to use.

Currently, there is a 2TB media in drive "D:".
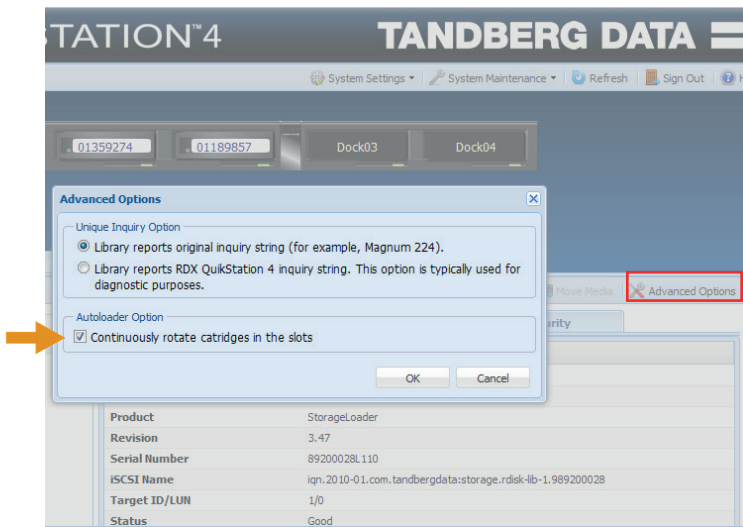
ActiveImage Protector is able to eject the media via post script processing after backup is finished. The appropriate media can be removed and stored at a save place. If the media shouldn't be physically ejected (for instance during vacation), the QuikStation is able to rotate the media and keep them physically in the device.
To do so, select "Advanced Options" and check the box "Continuously rotate the cartridges in the slots".
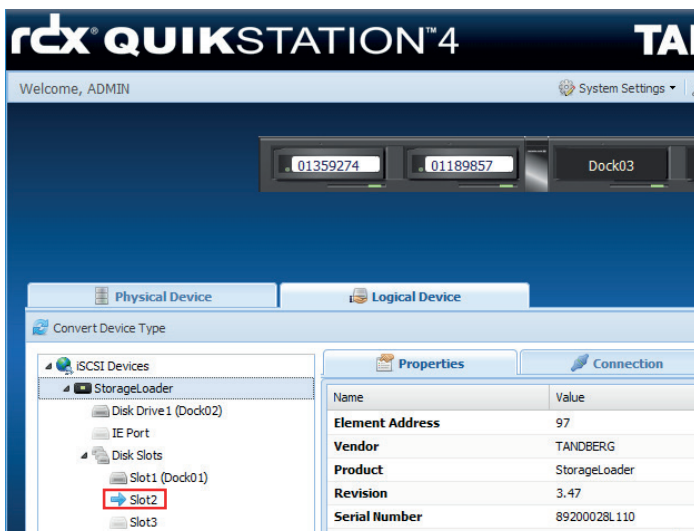
After the media has been ejected (either logically or physically), the disk autoloader virtually moves the next media into the drive.

The blue arrow indicates, that the media of Slot2 is now active.
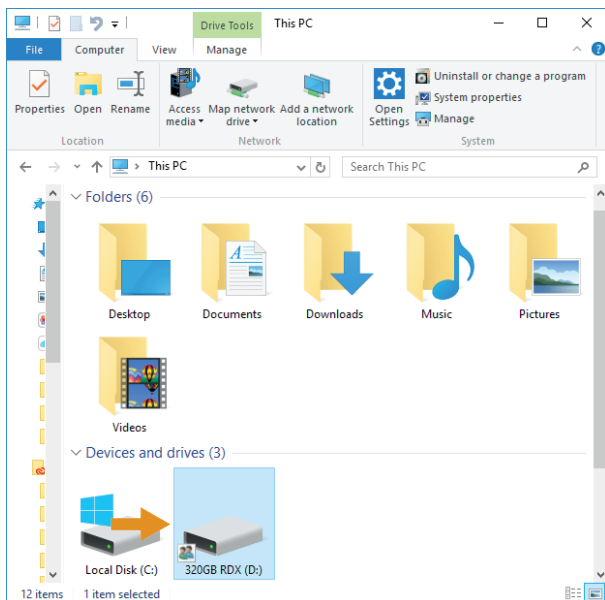
The explorer shows now a 320GB media in drive "D:".

As the driveletter didn't change, applications can continue to write to it, even there is another media inserted.

Scenario I - Backup to RDX QuikStation Single Drive or Logical Volume with Media Rotation

Attach your RDX QuikStation to your network and follow the instructions in the user manual to setup the appropriate operating mode. We recommend using at least three RDX media for media rotation implementation. If using logical volume mode, the whole media set needs to be rotated. If using the disk autoloader mode, media might be kept in the QuikStation. You might use dedicated media for each dav.
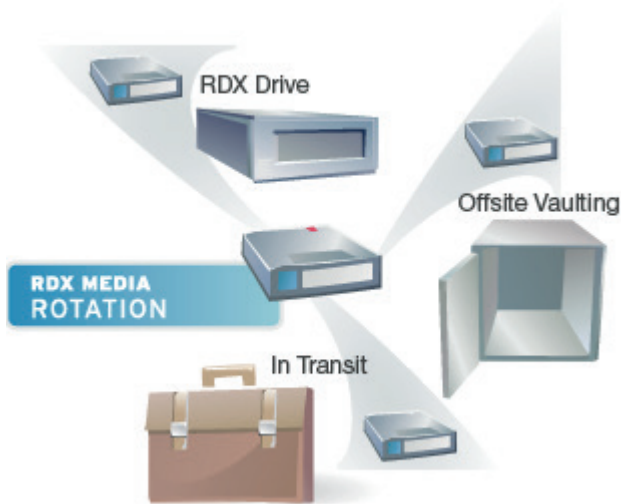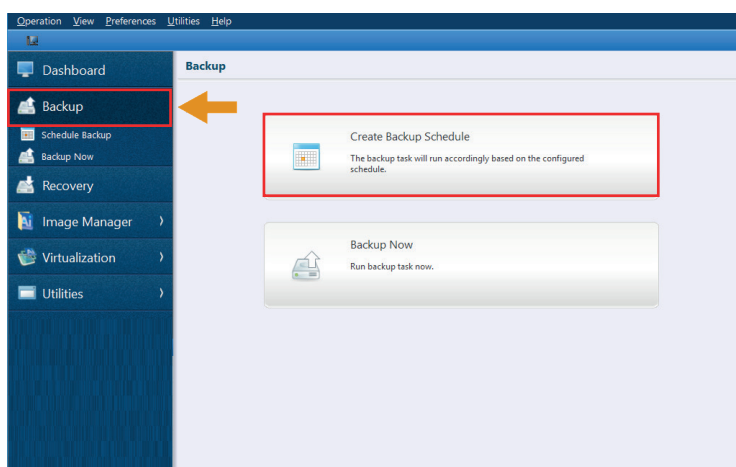

The media rotation scheme:

The first media is in the office, ready for the next backup job

The second media is off-site at a safe location

The third Media in in transit to or from the off-site location.

Launch ActiveImage Protector.

Click on "Backup".

Choose "Create Backup Schedule".
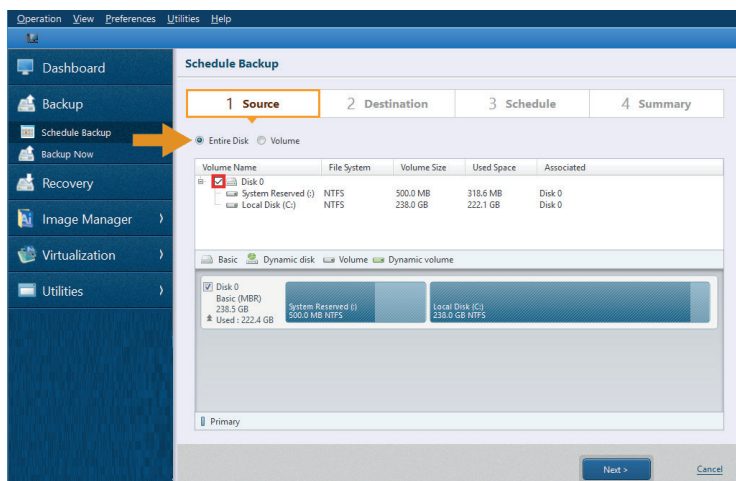
Choose the source disk you want to backup. We recommend to choosing "Entire Disk" and selecting all existing volumes.

Click on "Next".
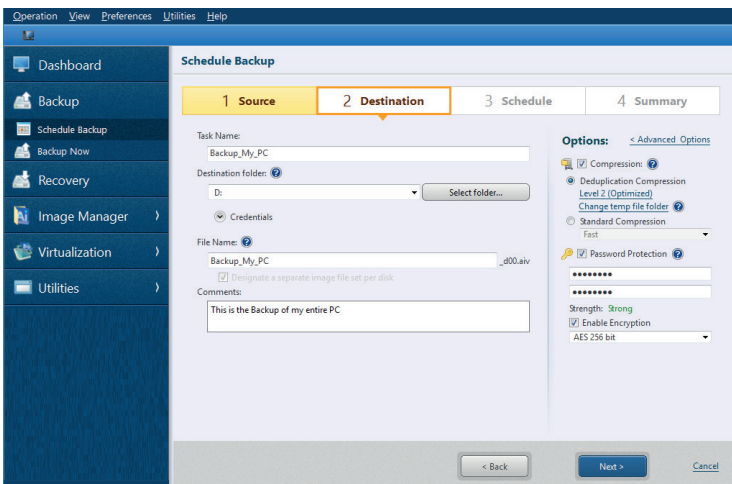
In the "Destination" section, choose a task name to specify your backup job.

Then select the destination you want to store your backup. Here, drive "D:" has been chosen, as this is the connected RDX drive of the QuikStation.

The backup filename is automatically created according to date and time. You might overwrite this name with your own suggestion.

On the right side of this window, choose compression / deduplication if applicable and secure your backup file to protect off-site backup against unauthorized use with password and AES 256 bit encryption.

Select "Advanced Options".
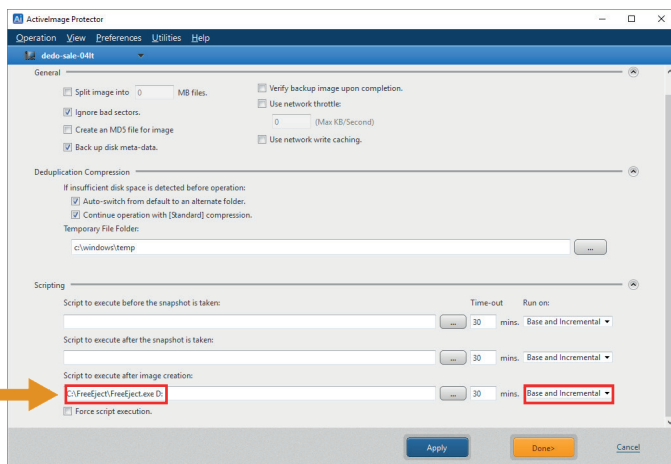
We highly recommend to integrate a post processing script to eject the RDX media after each backup as a visual reminder to rotate the media.

A freeware tool is available under http://www.freeeject.com/

Click on "Done".

Then click "Next".
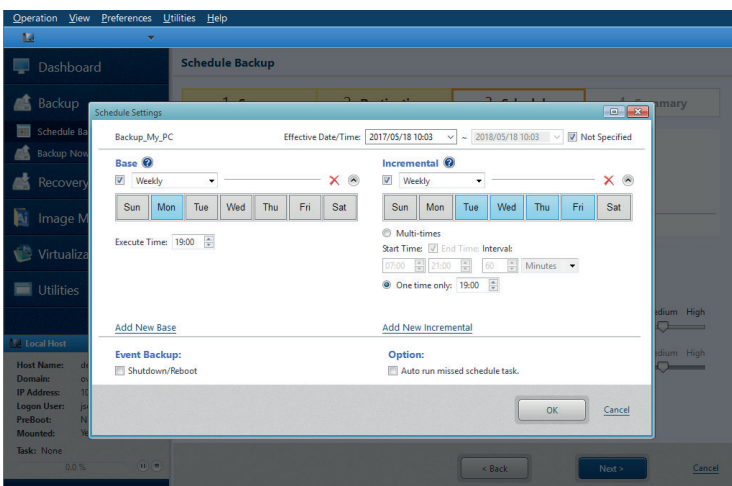
Define your backup schedule. In this scenario, we define a daily backup on workdays at 7:00 PM, starting with a full backup on Mondays followed by incremental backups from Tuesday through Friday.

Click "OK".
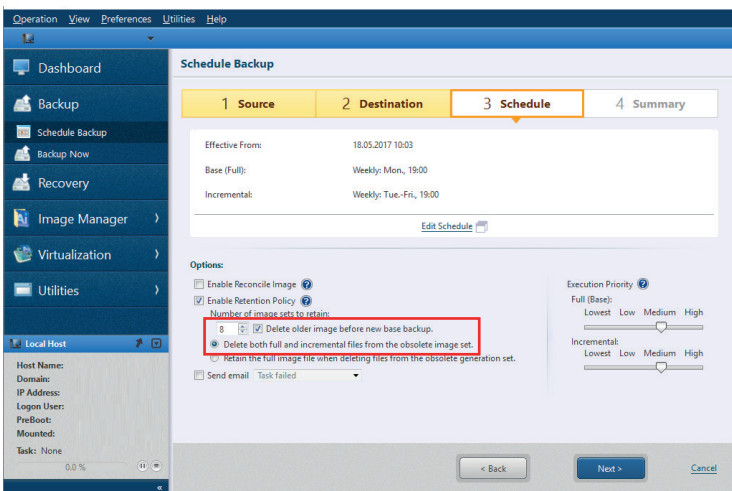
You might want to set a retention policy to keep a certain number of backup sets (full backups with their corresponding incremental backups).

This will delete older backup sets to free up disk space on your RDX media. The number of sets applies according to your requirements. In this example, we keep 8 weeks (because of a weekly full-backup).
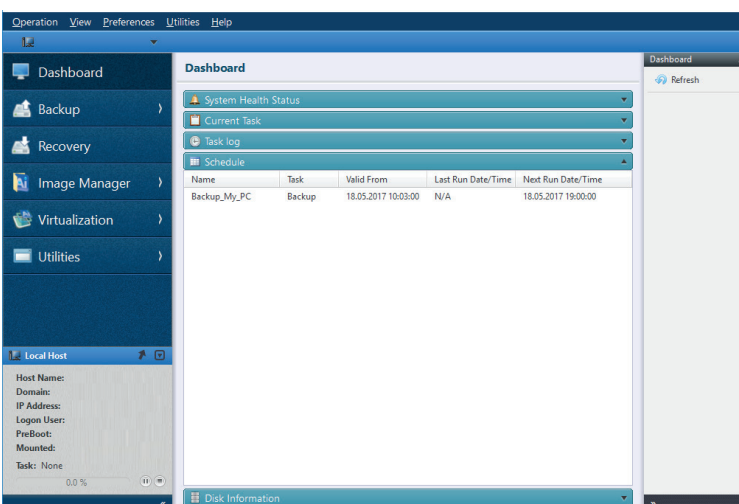
Click "Next".
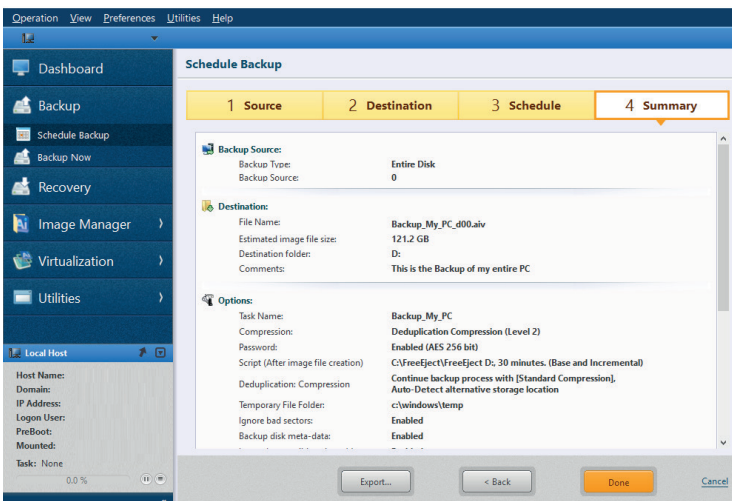
A summary screen is displayed. Please check your setting.

If you are satisfied with your settings, click "Done", otherwise click on "Back".

After clicking "Done", you can decide whether you want to start your backup right now.

The created backup job is displayed in the dashboard screen and ready to run at the specified time.

Scenario II - Backup and Replication to RDX QuikStation

Backup to a single target is not sufficient for data protection. As already mentioned at the beginning of this document, a second backup copy to another backup target should be created. Furthermore, one copy should be stored off-site to be protected against local incidents or virus and ransomware attacks. With either RDX drive configuration or RDX logical volume configuration (QuikStation 8) this can be implemented in one RDX QuikStation appliance.

In conjunction with ImageCenter LE, Active Image Protector is able to perform a primary backup to a RDX target for fast restore operations and secondary backup to another RDX target including off-site storage for disaster and cyber attack protection.

Step 1: Backup to primary RDX target

For setting up the backup to the primary RDX target, refer to "Scenario I". In this scenario, the post script for ejecting the media is not needed. The screenshots below show the last steps of this primary backup job which we called "Backup to primary RDX target".
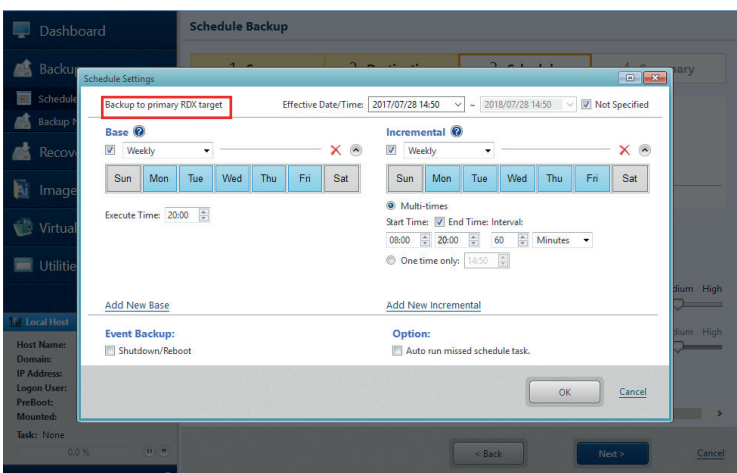
In this example, we perform daily full backups and additional incremental backups on every hour.

These settings might vary according to your business needs.

Click "OK".

Please refer to scenario I for additional settings.
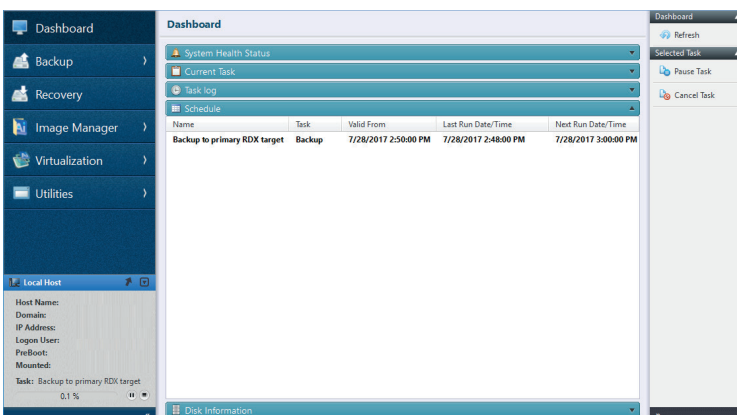
The created backup job is displayed in the dashboard screen and ready to run at the specified time.
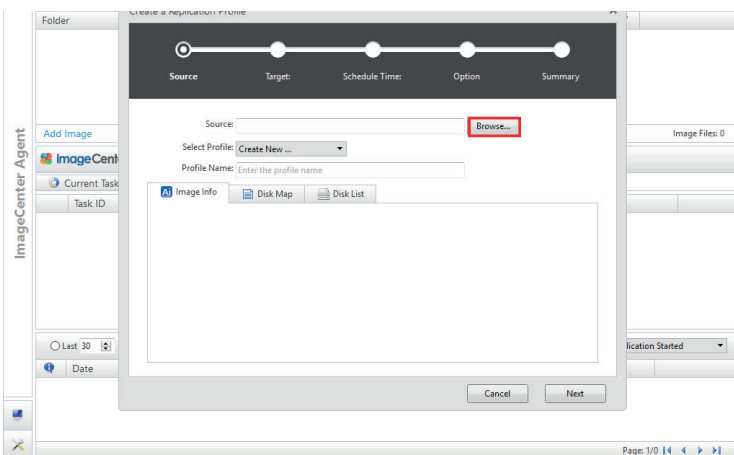
Step 2: Replication to the secondary RDX target

Replication to the secondary RDX target can be performed with the ImageCenter LE software, which is part of the backup software package.
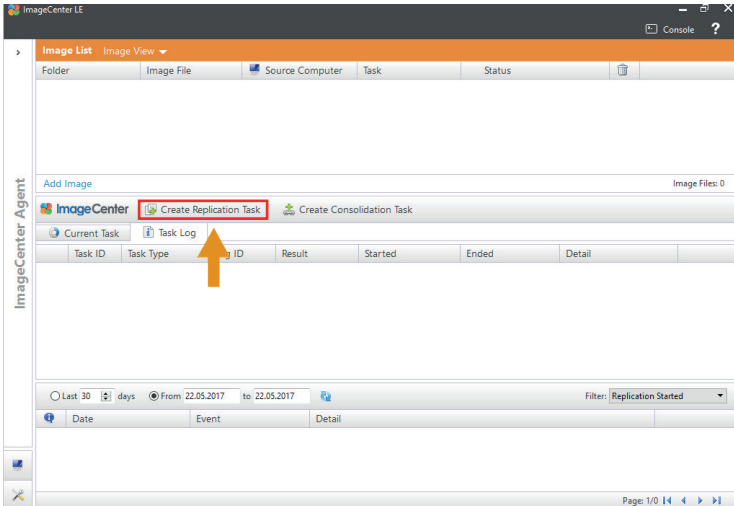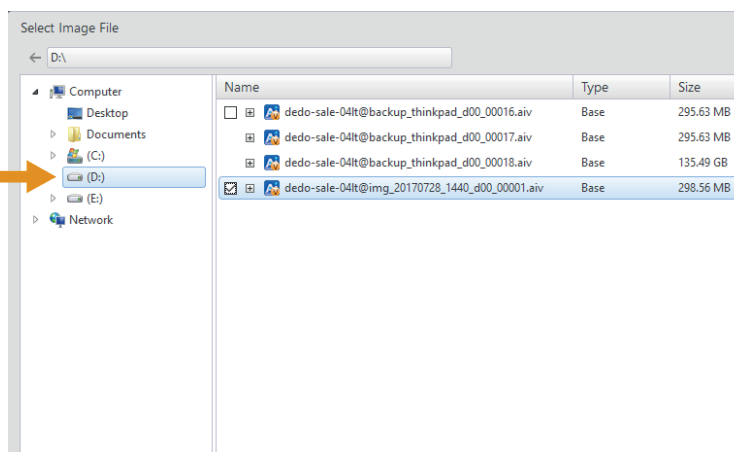

Start ImageCenter LE.
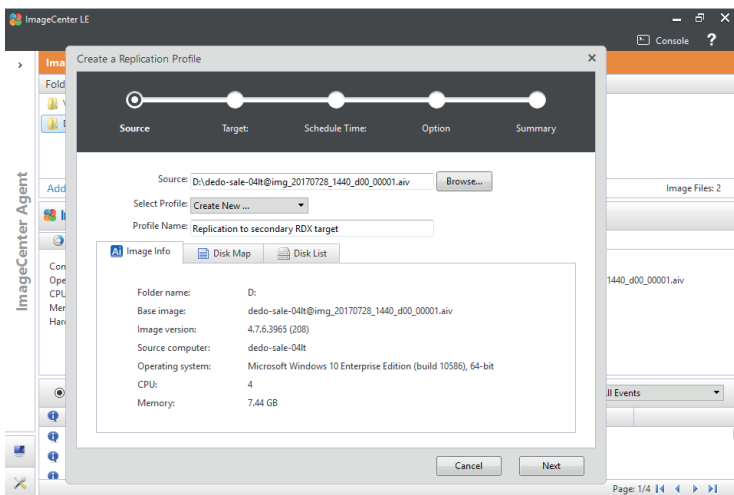
Select "Create Replication Task".

Click on "Browse" to select you primary backup target (the primary RDX target in our case).

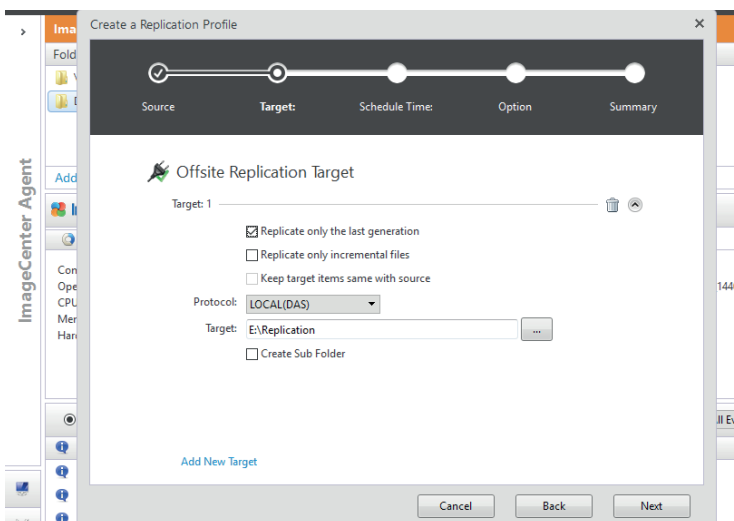Select the primary targhet drive-letter, then select the image file you want to replicate.

Notice, that only the image file of the initial backup can be selected.

Click "OK".

You might want to change the default profile name.

Click "Next".

Select the target for replication. Here, we choose "LOCAL(DAS)" and select drive letter "E:" as this is our RDX drive for the secondary target. In addition, we created a dedicated subfolder for replication.

You can choose some replication-options, in this example, we selected "Replicate only the last generation" to replicate the latest backup only.

Click "Next".
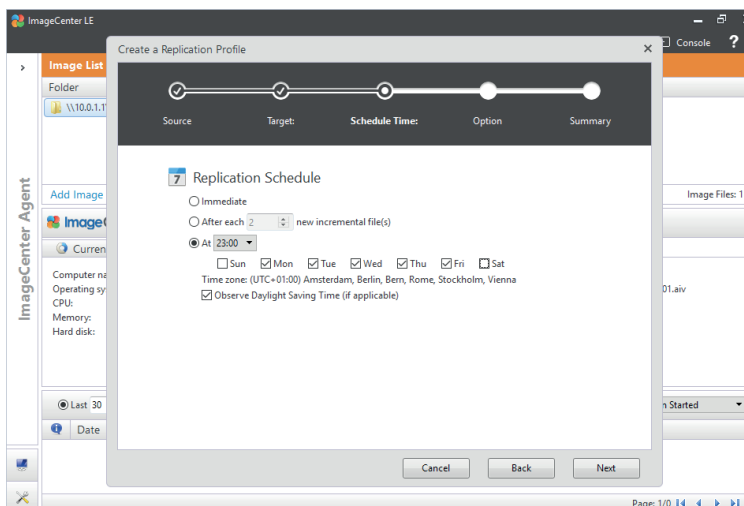
Specify the schedule according to your requirements. In this example, we choose a replication on workdays at 11PM after our full backup.

Click "Next".
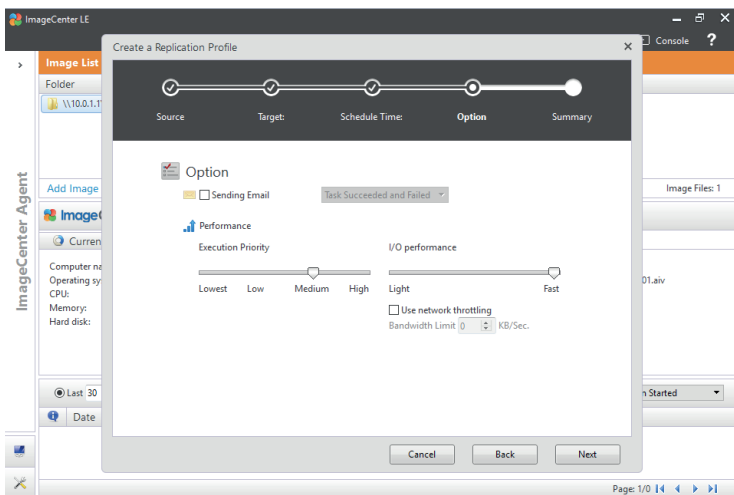
You might want to adjust some performance settings.

Click "Next".
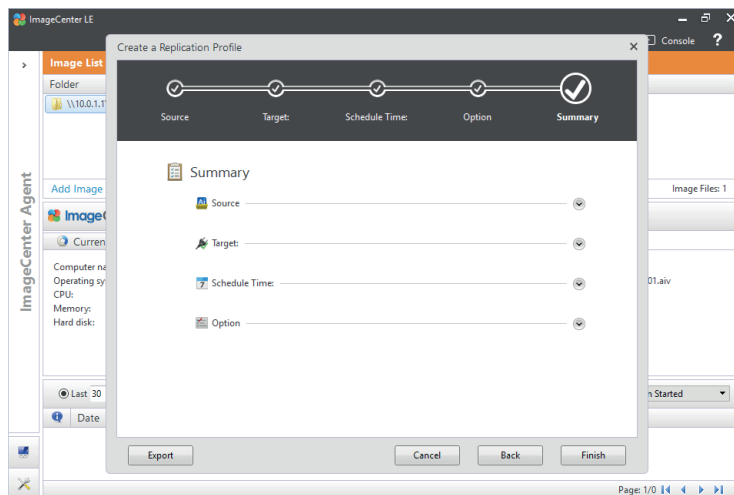
The summary window enables you to review your settings. If you need to change some settings click on "Back", otherwise select "Finish".
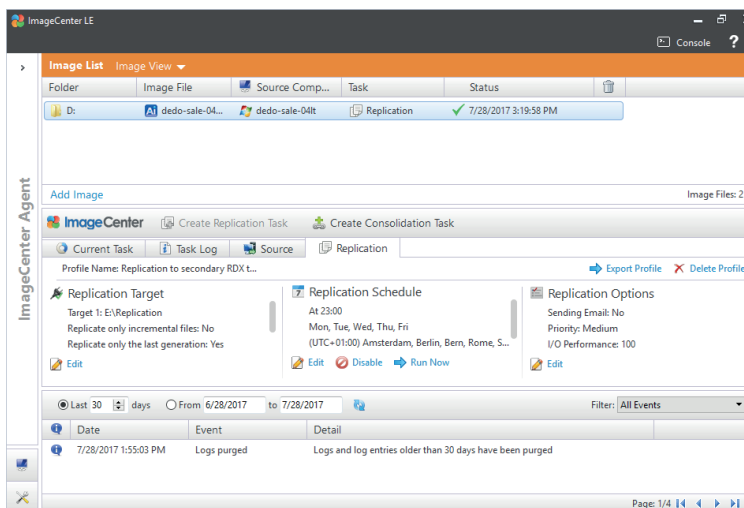
The replication has been created and will start according to the specified schedule.
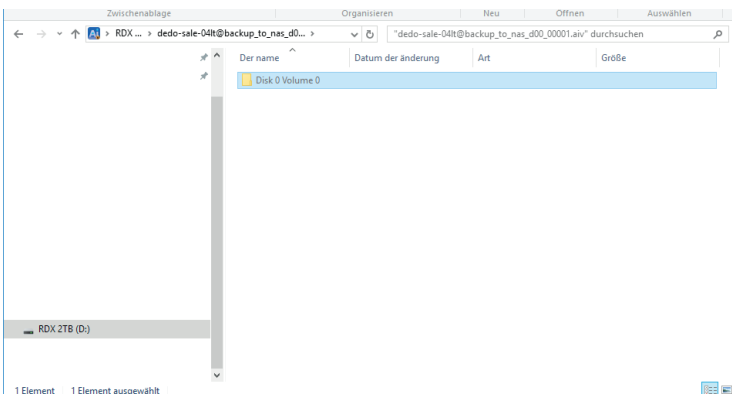
Performing a restore

You can either perform a single file or directory restore or a full system restore with bare metal recovery.
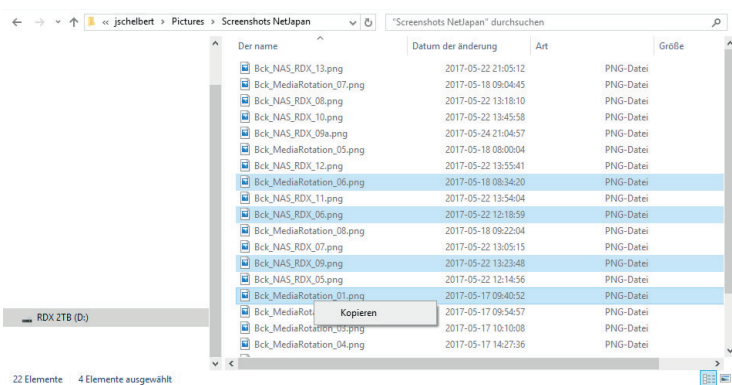
Single file/directory restore
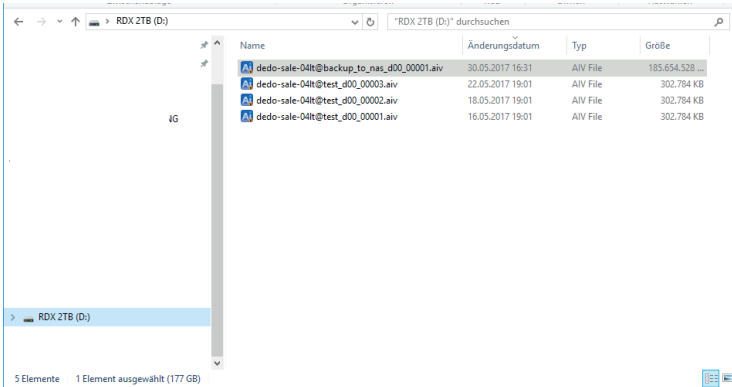
Select your backup target on either your NAS system or RDX media.

Choose the appropriate backup file and double-click on it.

Select the volume you need to restore your files/directories.

Click through your directory structure until you reached the directory/files you need to restore.

Select the appropriate directories/ files your need to restore. Right click and select "Copy".
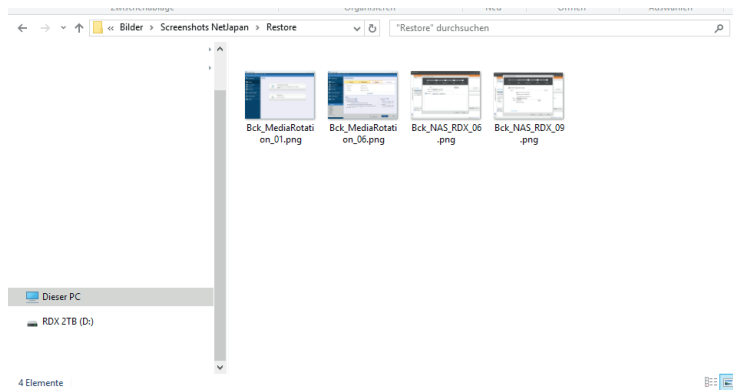
Select the destination folder for restore right click and select "Paste" to restore them.

System Restore using BMR (bare metal recovery)

Prerequisite: Creating a bootable USB stick

Create a bootable USB stick with the appropriate system image. This should of course be done in advance of a system crash.
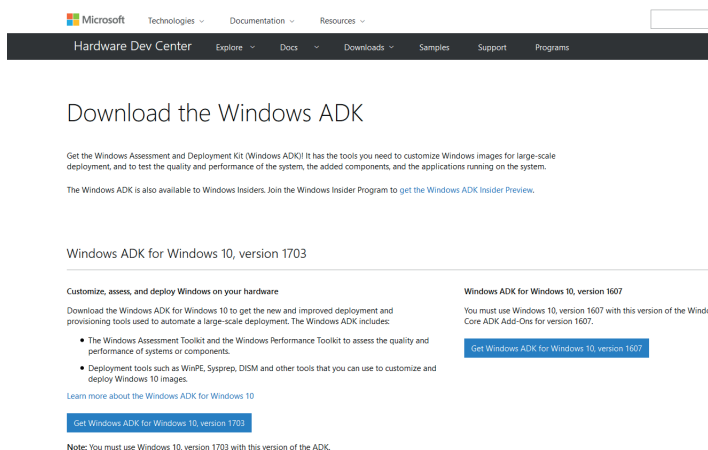
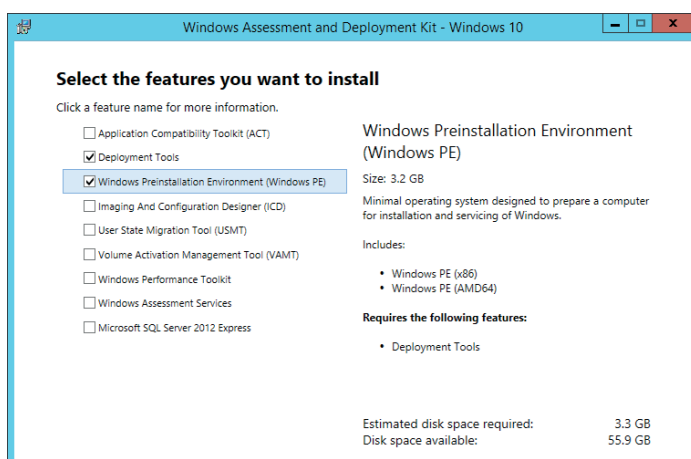Download the "Windows Assessment and Deployment" (Windows ADK).

You might use these links:

Windows 8.1:
https://www.microsoft.com/en-US/download/details.aspx?id=39982

Windows 10 (please use version 1607):
https://developer.microsoft.com/en-us/windows/hardware/windows-assessment-deployment-kit

Start "adksetup" to install the Windows ADK. This will create a subdirectory called "Windows Kits". Open this subdirectory and start "adksetup".

Please select "Deployment Tools" and "Windows Preinstallation Environment" to install. Deselect all other options.

To be able to integrate the iSCSI functionality in order to restore from QuikStation, the standard Windows ADK needs to be modified. Therefore, a special script has been prepared for your convenience. Download the script from here and follow the instructions in the "PE_iSCSI.txt" file. Then continue with the steps below!
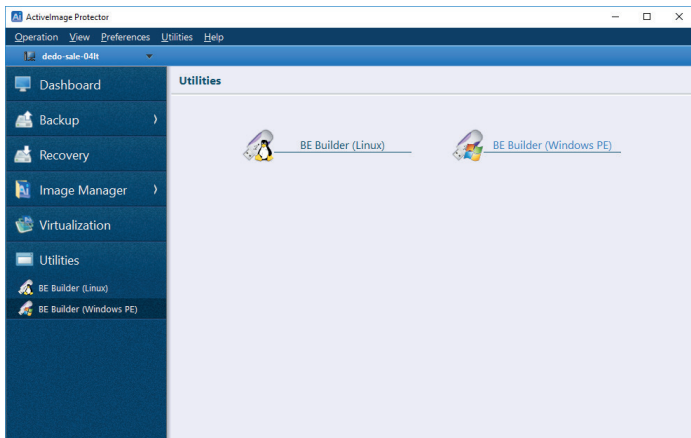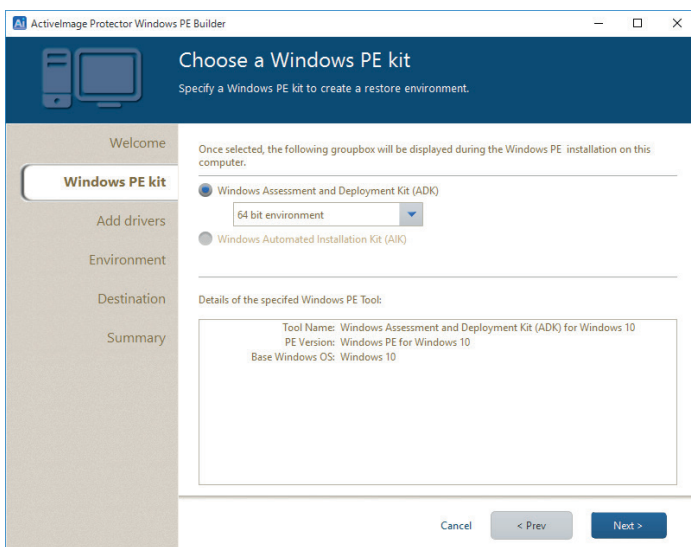

Start the ActiveImage Protector Software.

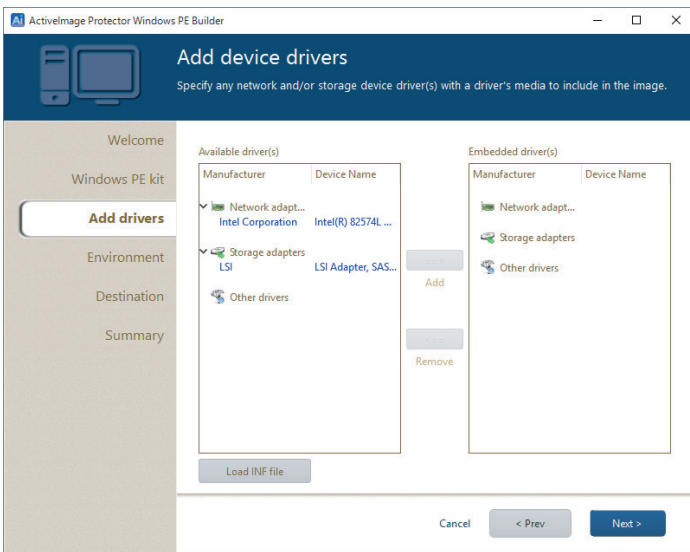Choose "Utilities" and select "BE Builder (Windows PE)".
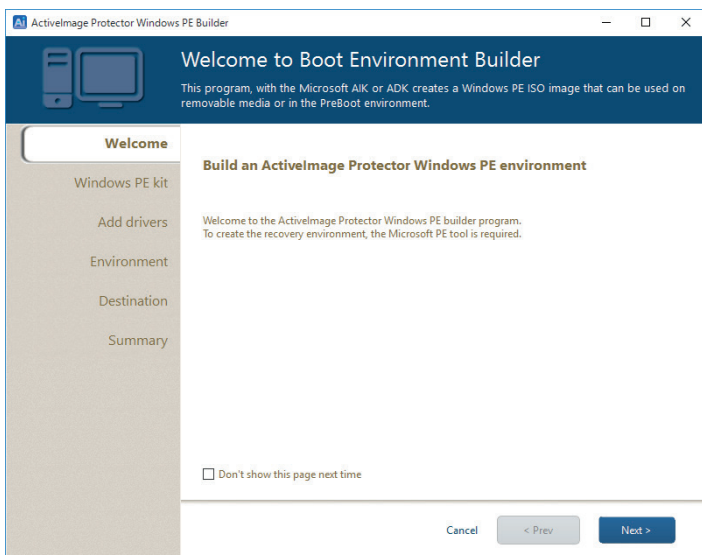
The Boot Environment Builder application is started.

Click "Next".

The application recognizes the installed ADK and the operating system version. You might change the version if necessary.
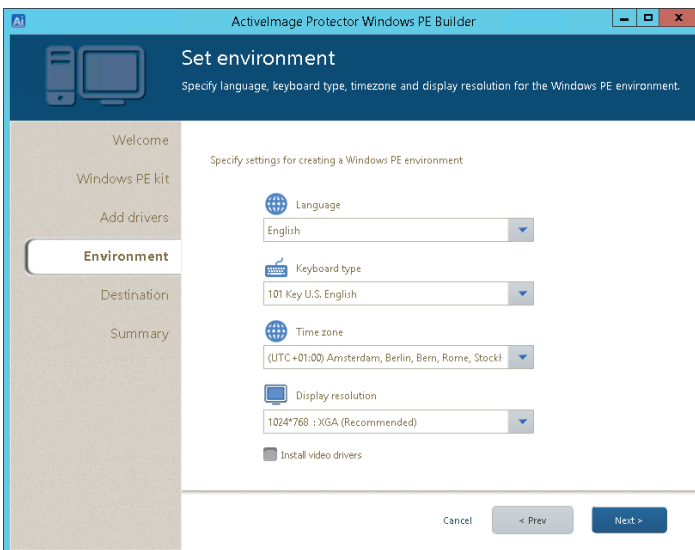
Click "Next".

The Boot Environment Builder allows you to install device drivers needed for your environment.

Network and storage device drivers included in the current system are detected and listed on the left pane. Select the driver(s) and click on "==>" to embed them into the boot environment.

To add additional drivers, click on "Load INF file" and browse through your system.
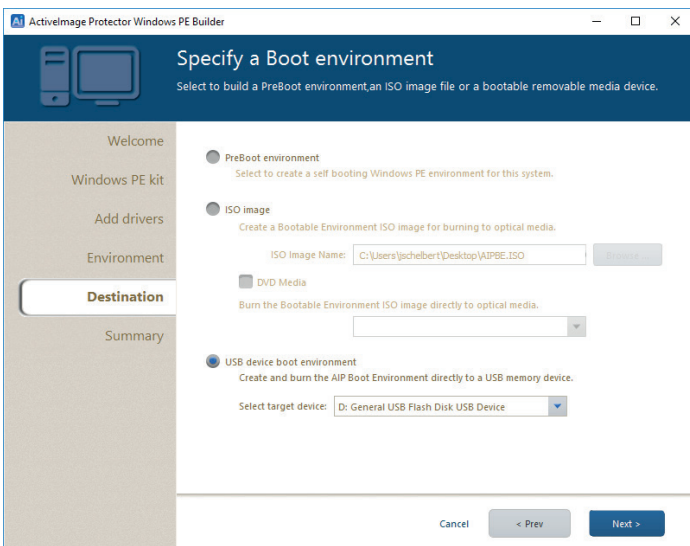
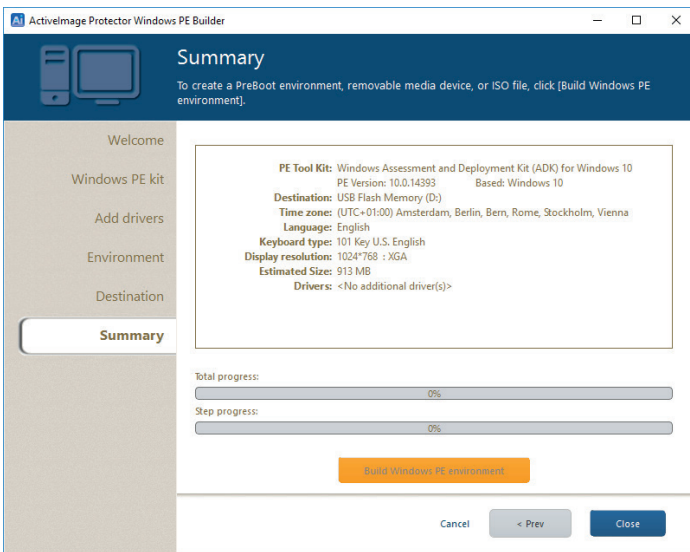Click "Next".

Set your environment.

Hint:
For a higher compatibility, you can skip the video driver installation at this time. You should keep default screen resolution at 1024*768.

Click "Next".

Select "USB device boot environment" to create a boot environment on your USB stick.

Click "Next".

Please check your configuration at the "Summary Screen".

Click on "Build Windows PE environment", if you are satisfied with your settings, otherwise click "< Prev" to make changes.

Click on "OK" to confirm to start building Windows PE environment.

Click "Close" if creation has finished.

Restore your system

Insert the USB-stick with the system image created previously. Power on your system.
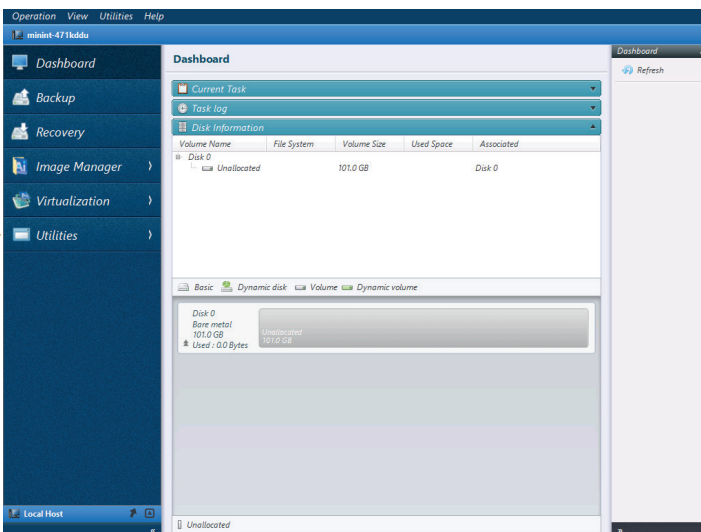
After the recovery environment has booted, the Active Image Protector application is started automatically. You can check the local disks in the overview.
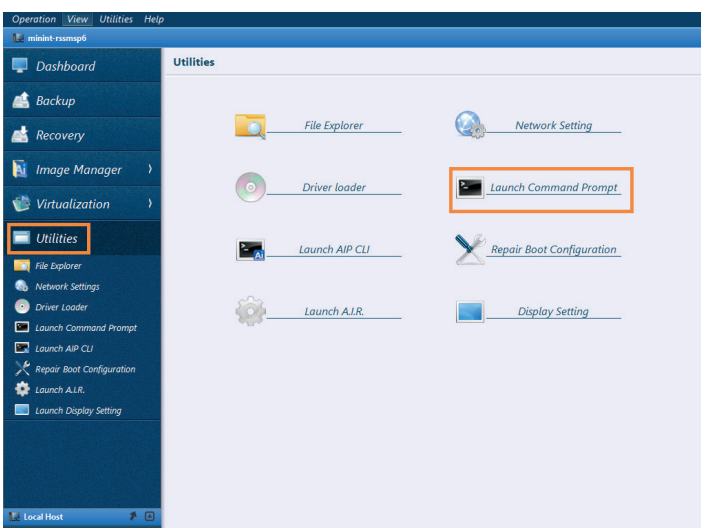
Click on "Utilities" and "Launch Command Prompt" to be able to connect the QuikStation via iSCSI for file recovery from RDX.
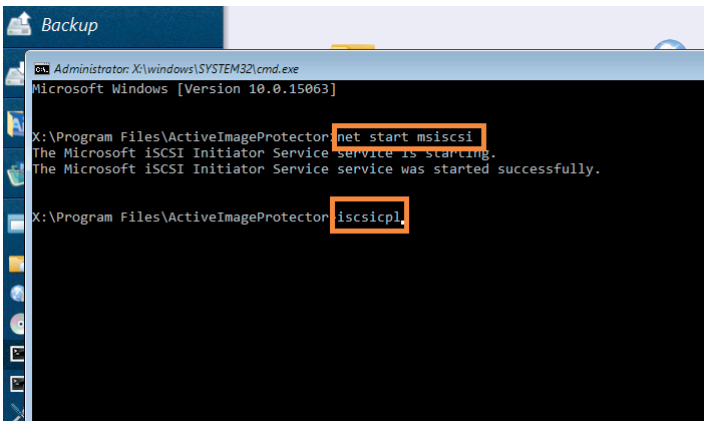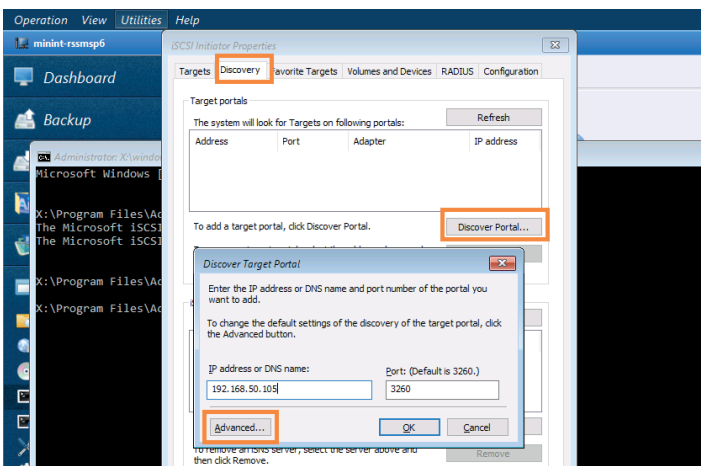
The command line interface starts.

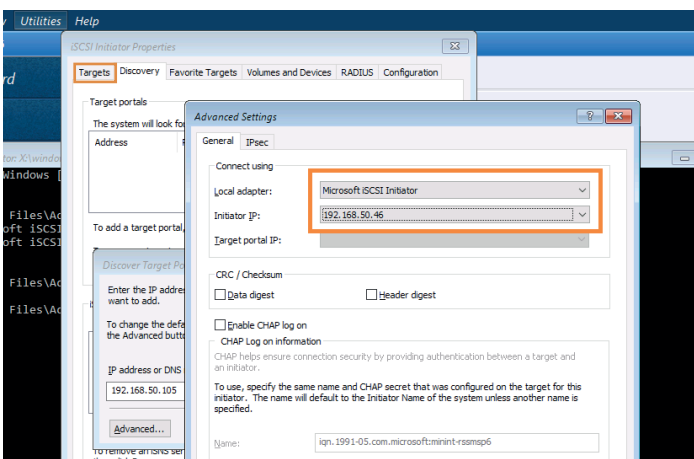Type the following command to start the iSCSI initiator services:

"net start msiscsi"

Then type "iscsicpl" to start the iSCSI initiator application.

The iSCSI initiator application starts.

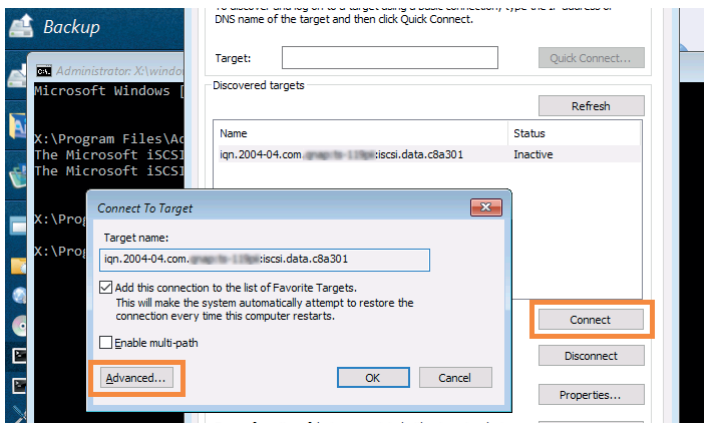Select the "Discovery" tab, then click "Discover Portal".

Enter the IP address of your QuikStation, then click "Advanced".

Select "Microsoft iSCSI Initiator" as the local adapter.

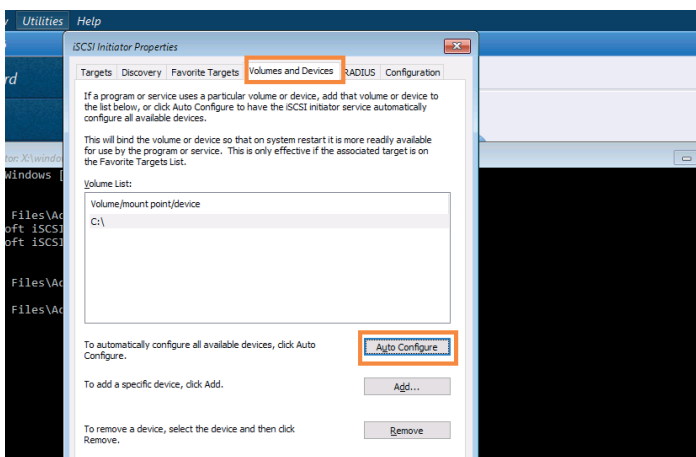Select the initiator IP. This is inserted automatically.

Click "OK" twice, then select the "Targets" tab.

Click "Connect".

You might check the box "Add this connection to the list of Favorite Targets..."

Click "Advanced" to check the local adapter, initiator IP address and target IP address.

Click "OK".
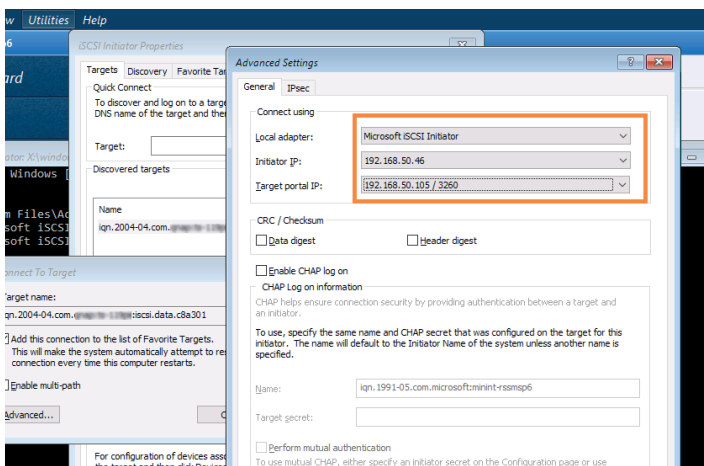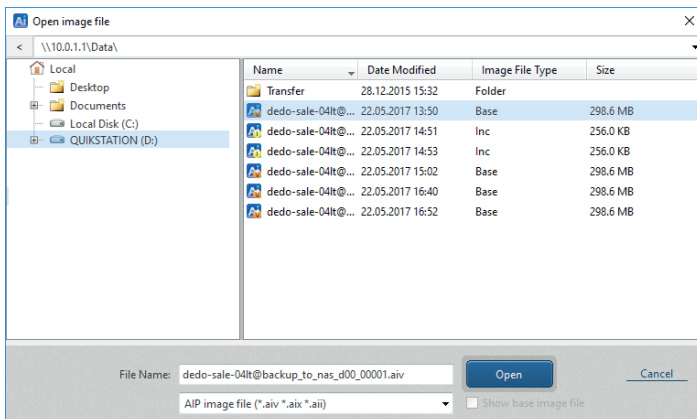

Enter corrections if necessary.

Click "OK".

Select the "Volumes and Devices" tab.

Select "Auto Configure", then click "OK".

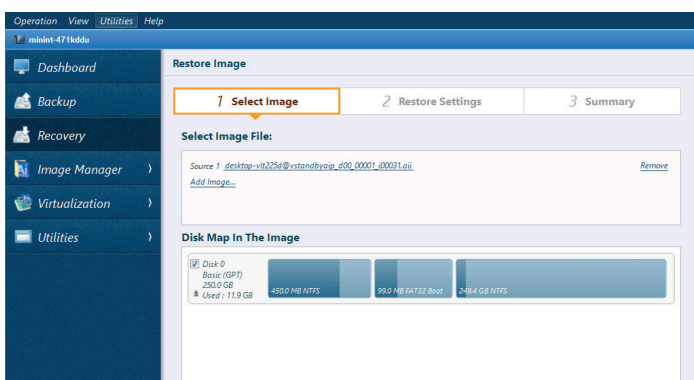The QuikStation is now available as a restore source.
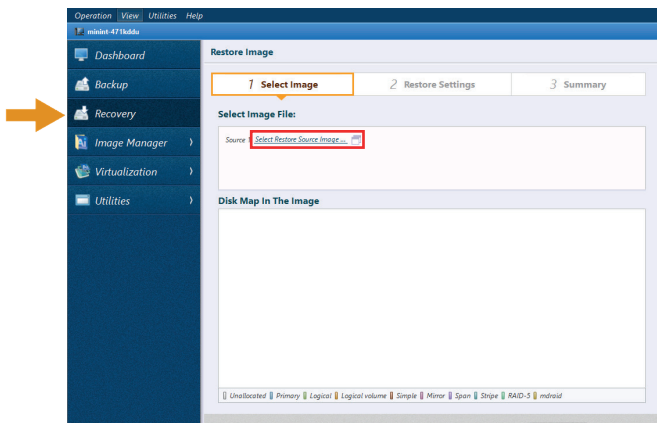
From the menu pane, click "Recovery".

Click on "Select Restore Source Image".

Choose a full base backup or an incremental image file of the Quik-Station for restore.
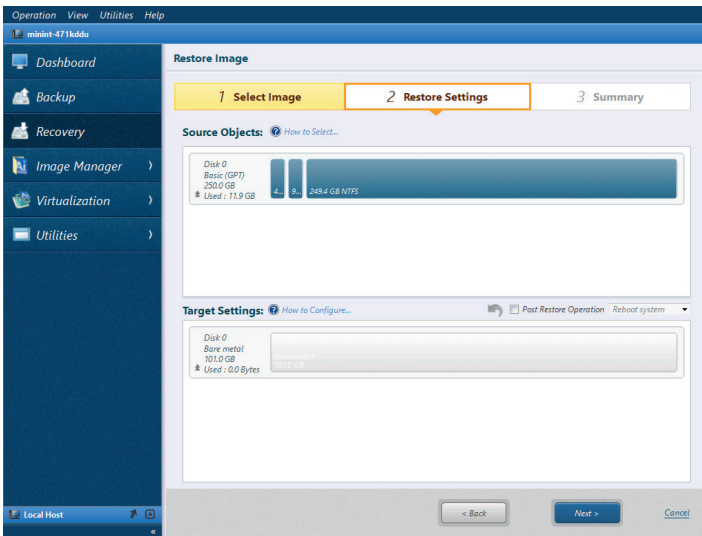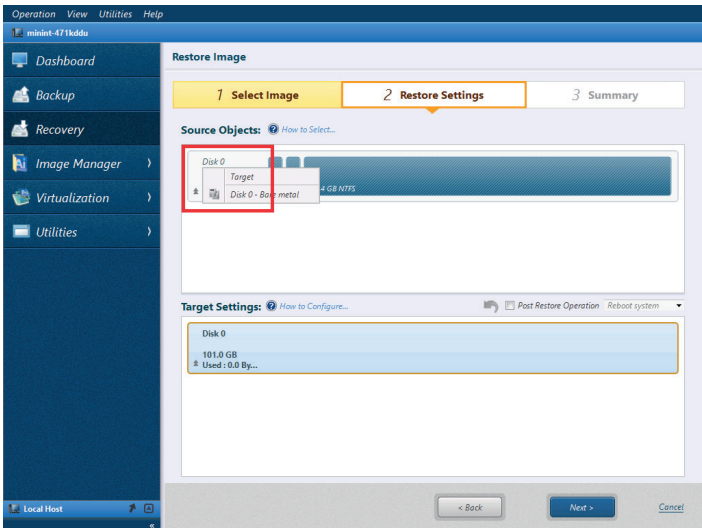
Highlight and click "Open".

The image has been selected for restore.

Check the box in the Disk Map to select the volume or disk to be restored.

Click "Next".

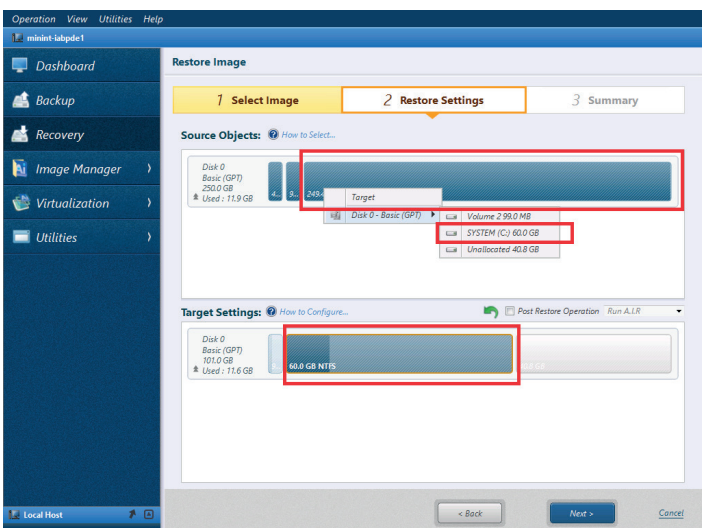The disk selected is now displayed under "Source Objects:".

Right-click on the restore source (a disk or a volume).
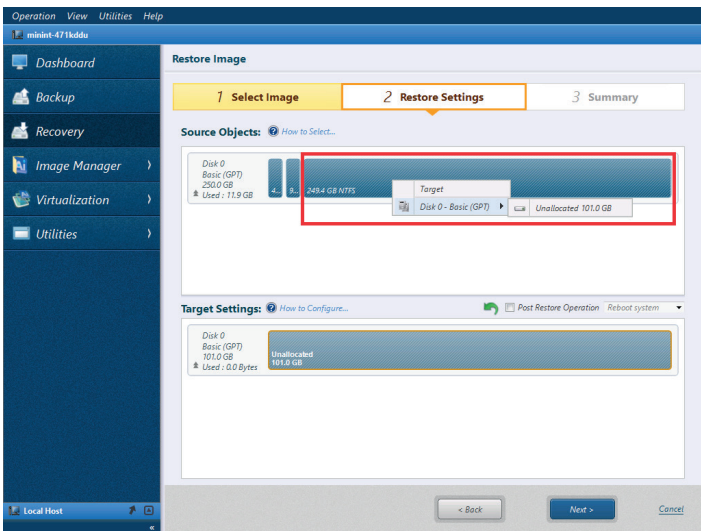
We have now a few options:

1. We just want to restore the entire disk from the backup to new disk with the same size.

In this case just right click to the disk on top under "Source Objects:" and choose your new target disk and press "ok".
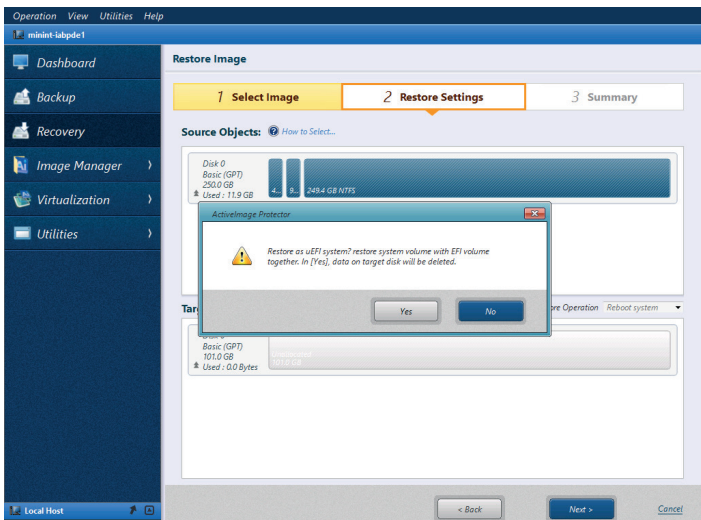

2. You want to restore single volume to an existing disk

Right click on top under "Source Objects:" and choose your target volume and press "ok".

Right click to the system volume (Windows C: drive) on top under "Source Objects:" and choose your new target disk and press "ok".

When the restore target destination is specified, the following message is displayed. Click on "Yes".

If the restore target destination volume or available space is smaller than the source, but the above conditions are satisfied, the volume is added to "Target Settings:".

If you want to further reduce the volume, right-click on the volume to select "Resize Volume" or place the mouse cursor on the right-end of the volume and drag it to the left.

You can repeat this for the other remaining data volumes, to change the volume size.

Afterwards click on "Next >". Review the settings and click on "Done" to start the restore task.

After the restart, the system is up and running. Additional tasks may be performed to complete the recovery.

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