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User Manual

Installation
BAT-Controller Virtual

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About this manual

The document “User Manual Installation” contains the following information for the BAT-Controller Virtual:

- Installation
- Initial setup
- Registration and activation
- Reset

For more information on the full user documentation:
See “User Documentation” on page 33.

Key

The symbols used in this manual have the following meanings:

▶	Listing
☐	Work step
■	Subheading

1 Description

1.1 General description

The Hirschmann BAT-Controller Virtual is a software-based Controller that runs on a hypervisor. Virtualization allows you to customize the BAT-Controller Virtual exactly for your needs. As it operates the HiLCOS operating system, it offers the same features as a hardware-based Hirschmann BAT-Controller and it offers considerable flexibility.

The BAT-Controller Virtual operates either on a VMware ESXi server (See “Installation on the VMware ESXi server” on page 8.) or a Microsoft Hyper-V (See “Installation on a Microsoft Hyper-V” on page 15.).

1.2 BAT-Controller Virtual files

The following files are available for the BAT-Controller Virtual:

- OVA file
  Basic package for deploying a BAT-Controller Virtual in VMware ESXi
- VHDX file
  Virtual disk image for deploying a BAT-Controller Virtual in Microsoft Hyper-V
- UPX file
  File for updating the software of existing BAT-Controller Virtual installations

2 Starting operation

2.1 Installation on the VMware ESXi server

2.1.1 Prerequisites

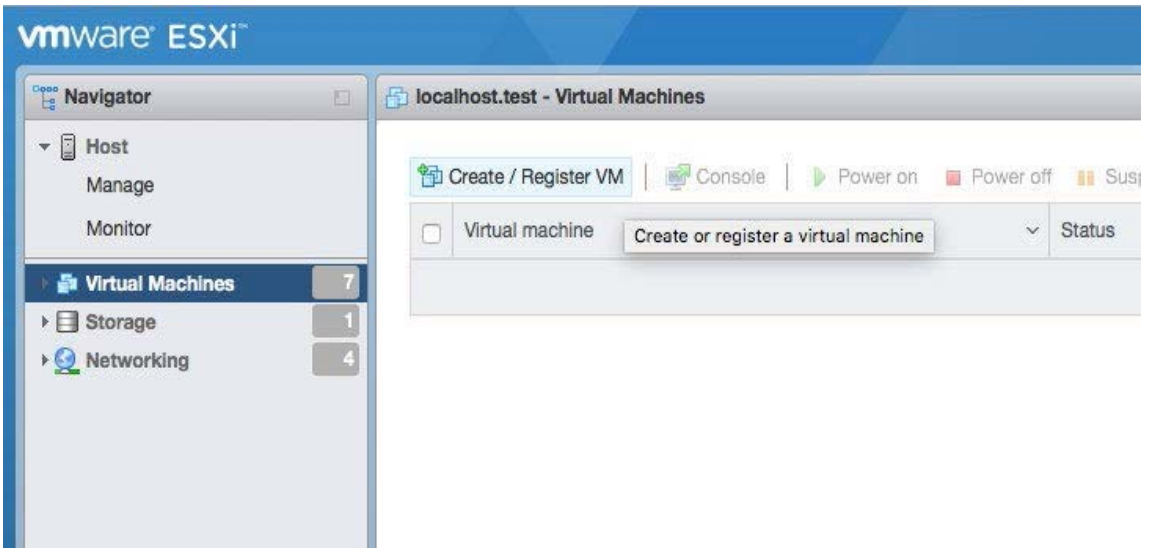
- The BAT-Controller Virtual is available as an OVA file
- VMware ESXi 6.0.0 or higher is running on a server with the Intel Xeon processor with the AES extended instruction set (AES-NI) and hardware virtualization (VT-x)

2.1.2 System requirements

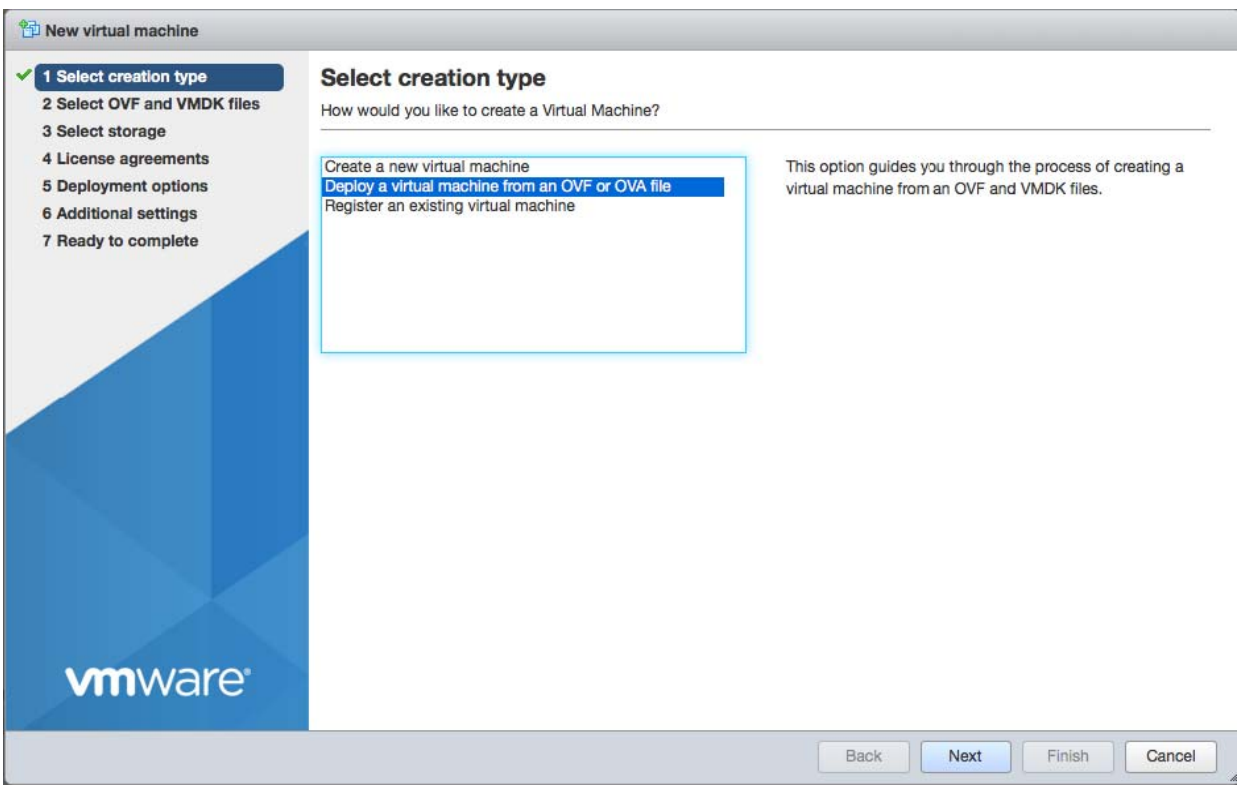
- CPU:
  - BAT-Controller Virtual 100: 1 virtual x86 CPU
  - BAT-Controller Virtual 200: 1 virtual x86 CPU
  - BAT-Controller Virtual 1000: 2-3 virtual x86 CPUs
    For the operation of a BAT-Controller Virtual 1000 a high CPU clock rate is recommended
- Hard disk memory: 512 MB
- Working memory:
  - BAT-Controller Virtual 100: 1024 MB RAM
  - BAT-Controller Virtual 200: 1024 MB RAM
  - BAT-Controller Virtual 1000: 3072 MB RAM

2.1.3 Step-by-step instructions

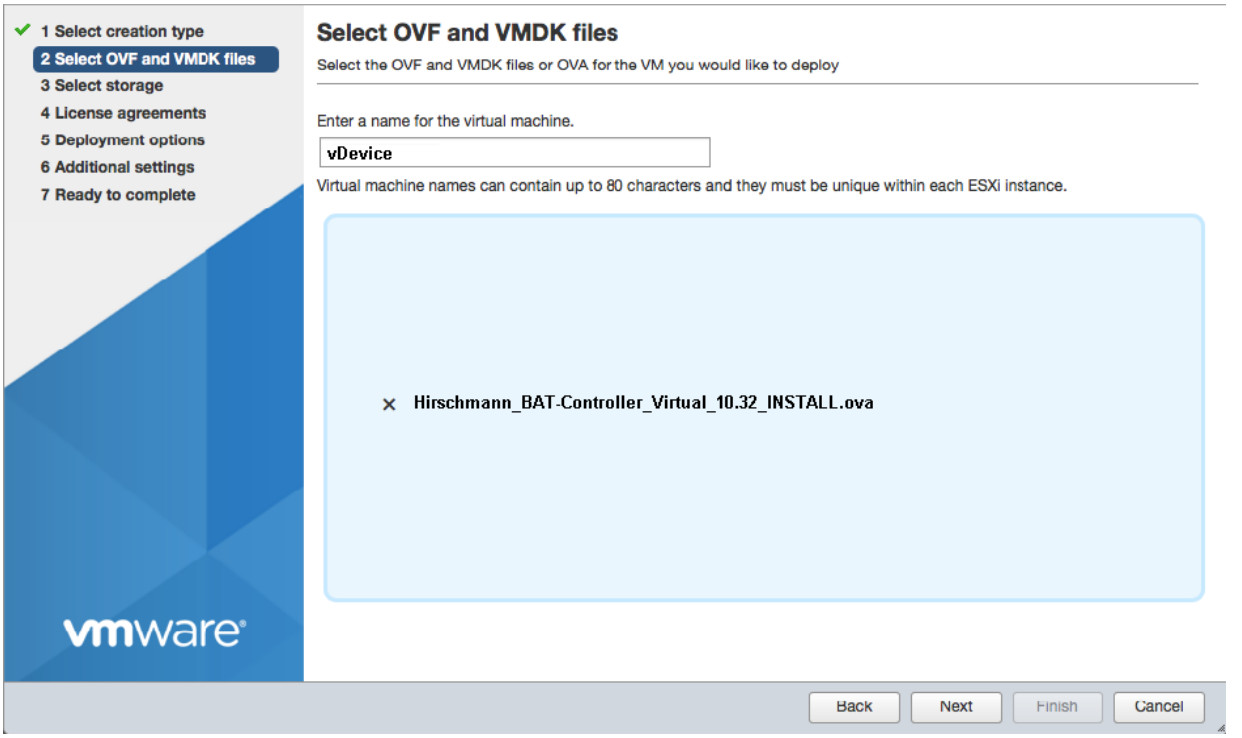
☐ Launch VMware ESXi, log in, and create a new virtual machine.



☐ For **Creation type**, select **Deploy a virtual machine from an OVF or OVA file**.

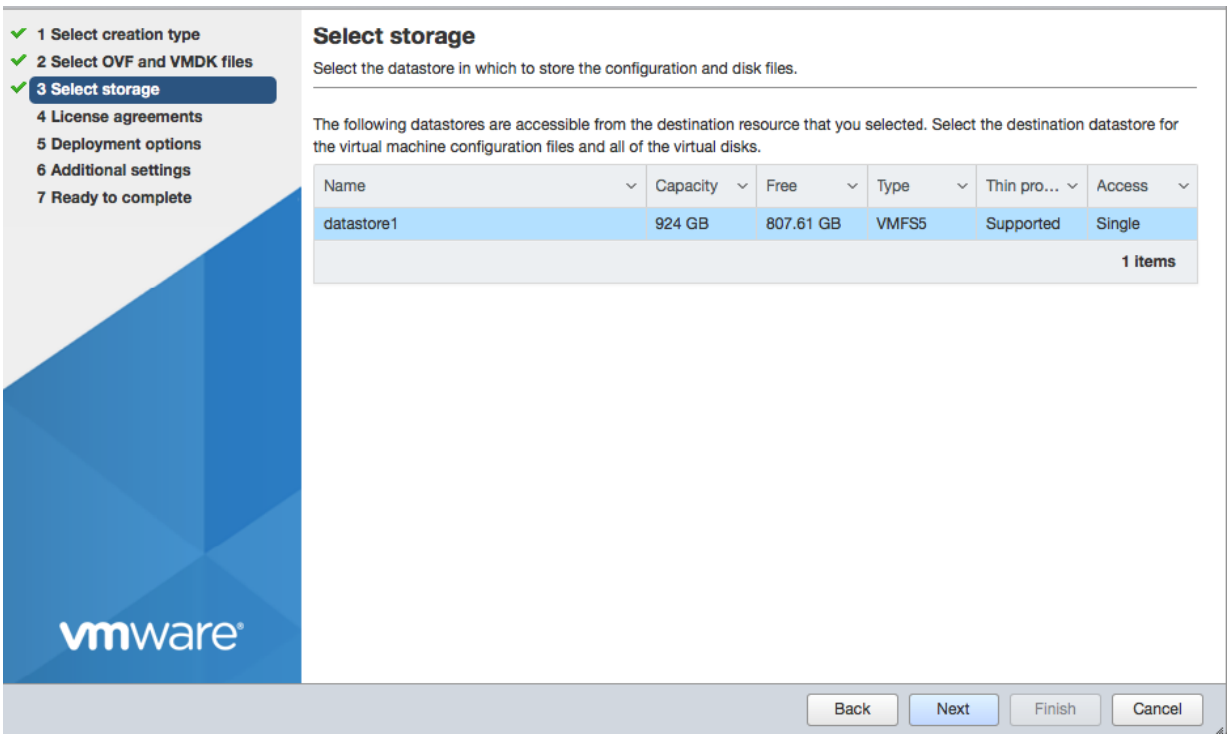


☐ Enter a name for the virtual machine and select the ova file for the BAT-Controller Virtual.

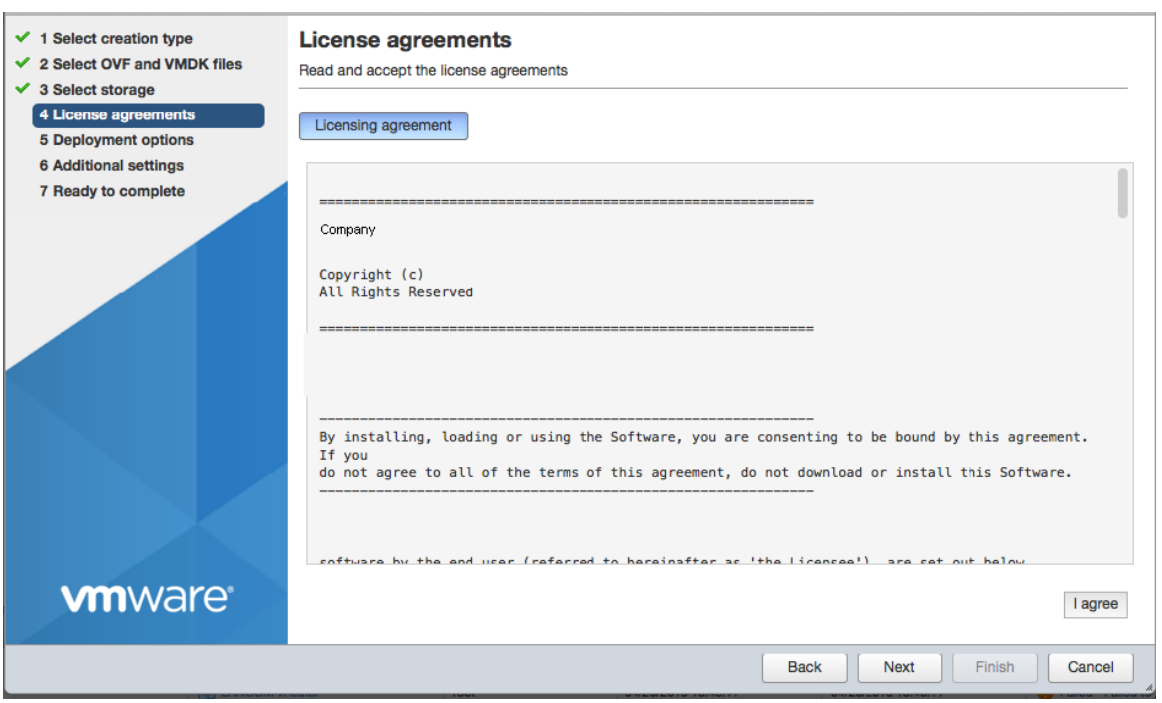


Note: The name you enter here is the name of the BAT-Controller Virtual on the ESXi server and is not necessarily the name of the BAT-Controller Virtual in LANconfig.

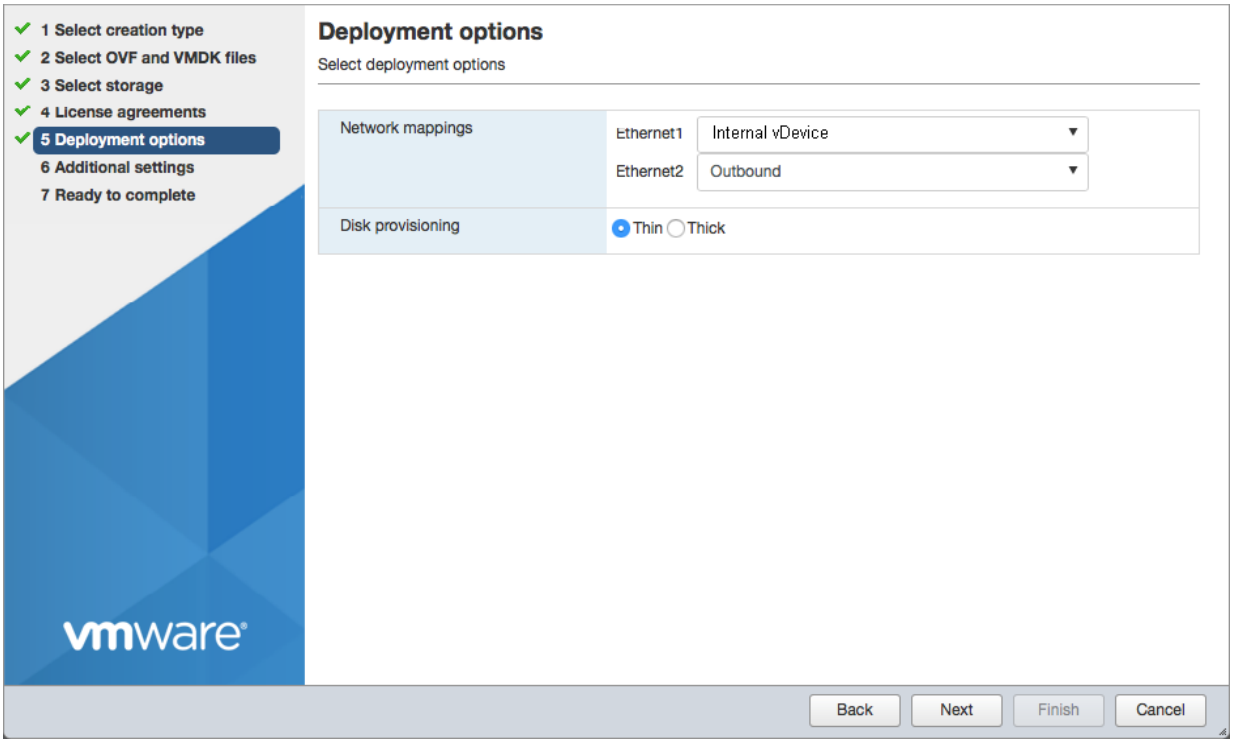
☐ Select the location where the virtual machine is stored.



☐ Read the license agreements and agree to them.

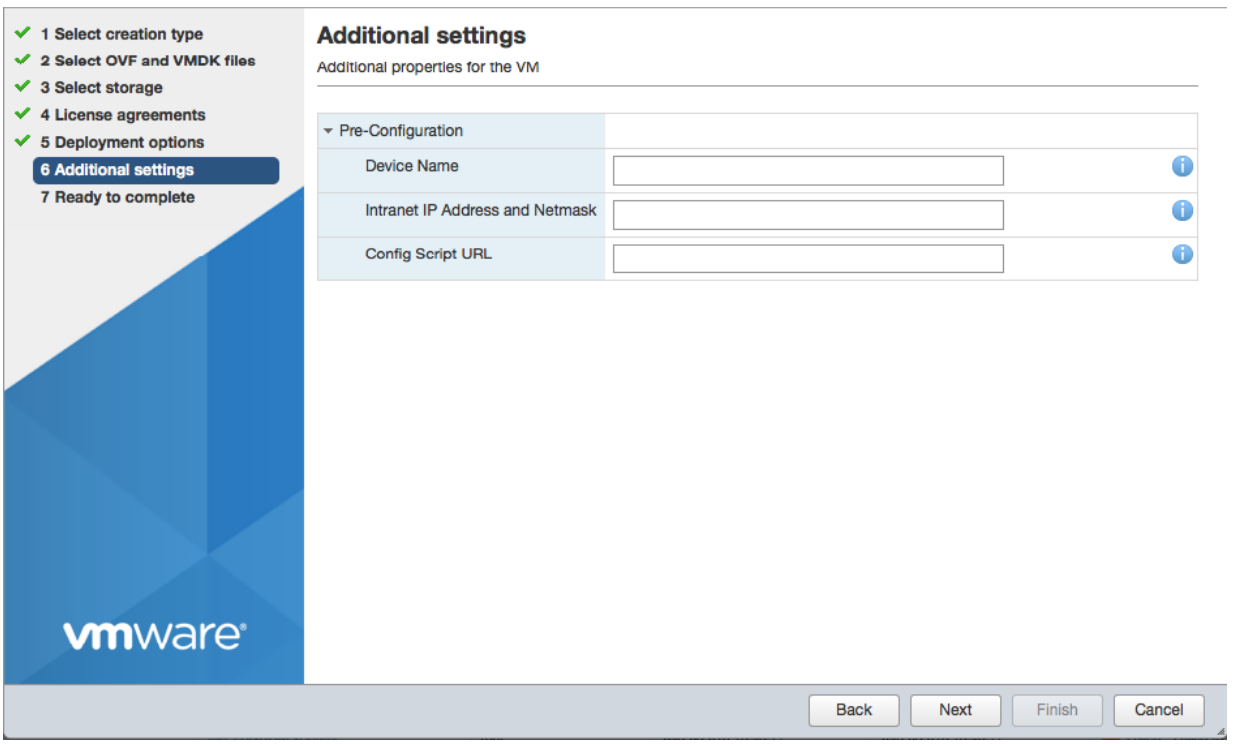


☐ Assign at least 1 network to the BAT-Controller Virtual. You can add more networks later in the properties of the virtual machine as you require. For **Disc provisioning**, select **Thin**.

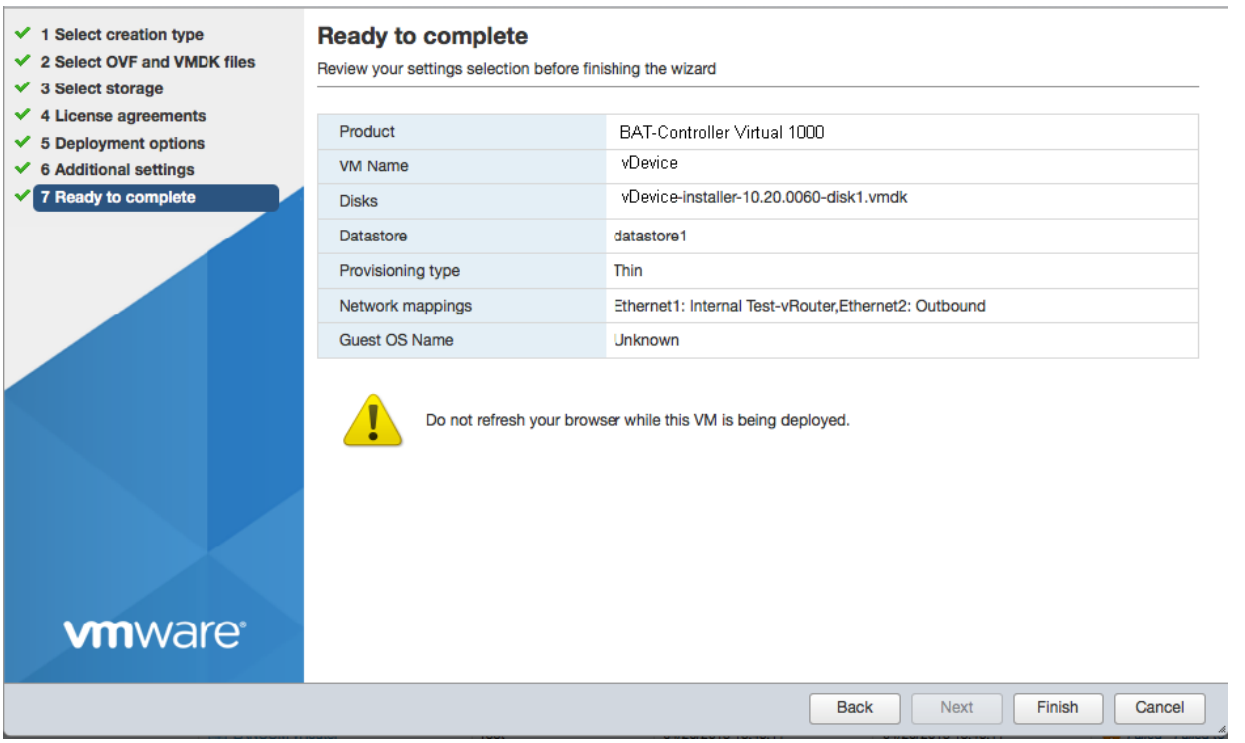


☐ (Optional) Here you specify some basic settings required for deploying the BAT-Controller Virtual:

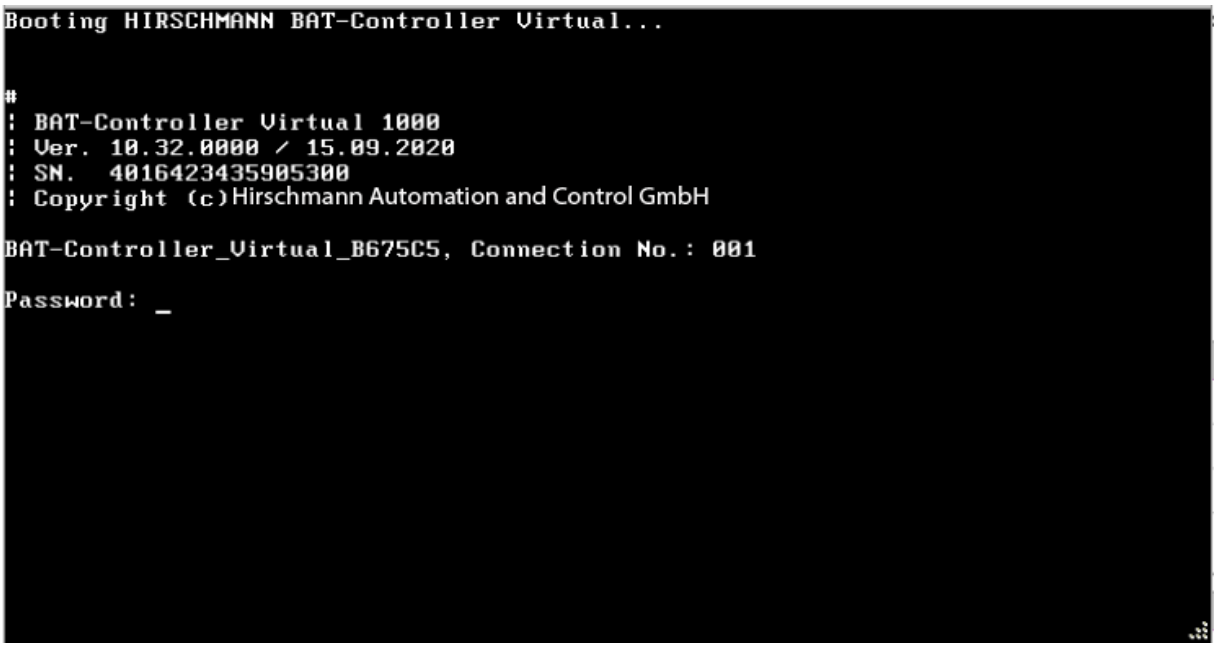
- Device name of the BAT-Controller Virtual for its identification in LANconfig.
- The IPv4 address of the BAT-Controller Virtual and the corresponding netmask (ETH-1 / LAN-1), separated by a space.
- The URL to a script file (.lcs), which can contain additional configuration parameters for the BAT-Controller Virtual (TFTP or HTTP).



☐ Complete the creation of the virtual machine.



☐ After the Installation Wizard has finished, the BAT-Controller Virtual is ready for use. If the network assigned to Ethernet-1 contains a DHCP server, or if an IP address was assigned during the configuration, the BAT-Controller Virtual can be accessed and configured over this network.



Note: After installation, the BAT-Controller Virtual is unlicensed. The data throughput for the LAN ports is therefore limited to 100 KBit/s.

☐ To remove this limitation, the first step following the installation is to activate the license (See “Registration and activation” on page 29.). After that, you can take further steps such as performing a firmware update.

☐ After that, you can take further steps such as performing a firmware update.

2.2 Installation on a Microsoft Hyper-V

2.2.1 Prerequisites

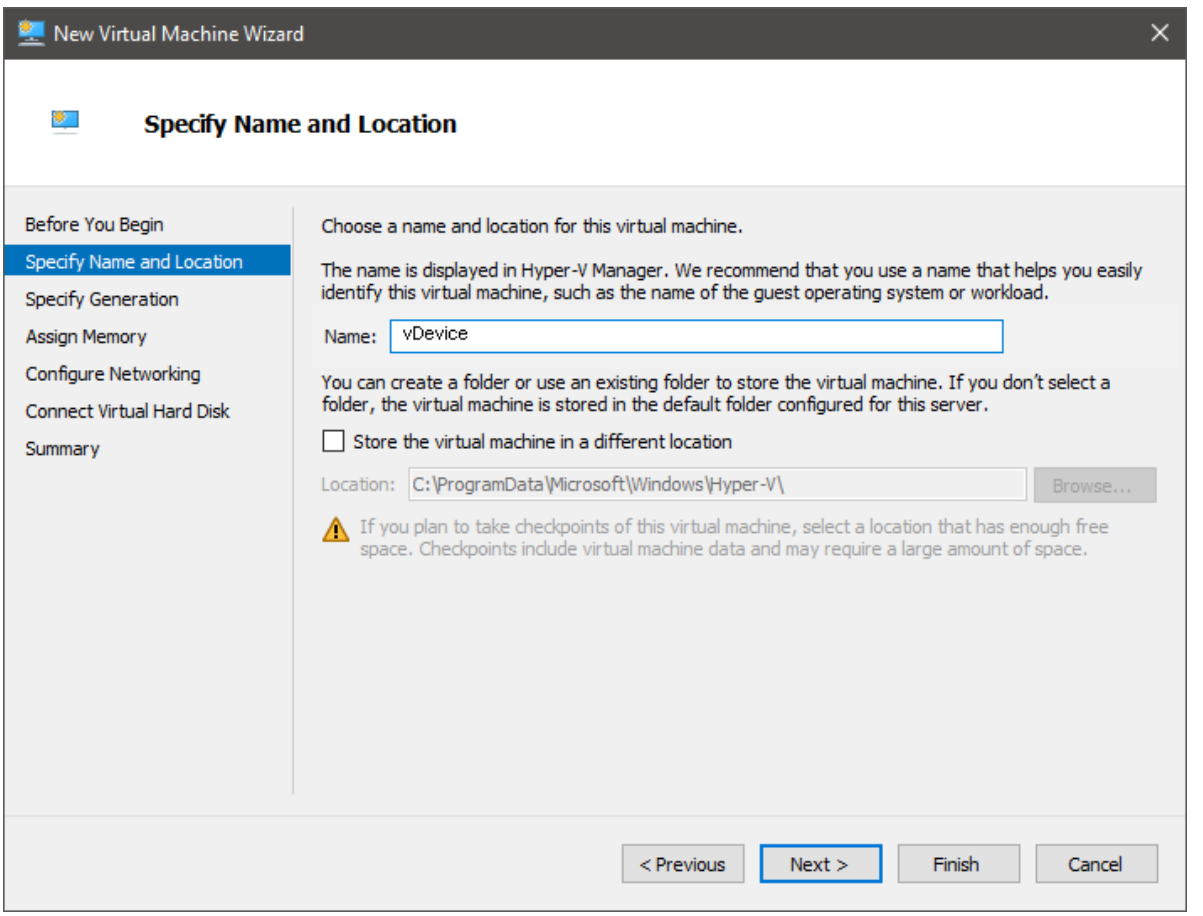
- The BAT-Controller Virtual is available as a VHDX file
- Microsoft Hyper-V is running on a server with the Intel Xeon processor with the AES extended instruction set (AES-NI) and hardware virtualization (VT-x)
- Microsoft Hyper-V is supported based on Microsoft Windows Server 2016, Microsoft Windows Server 2019 and Microsoft Windows 10

2.2.2 System requirements

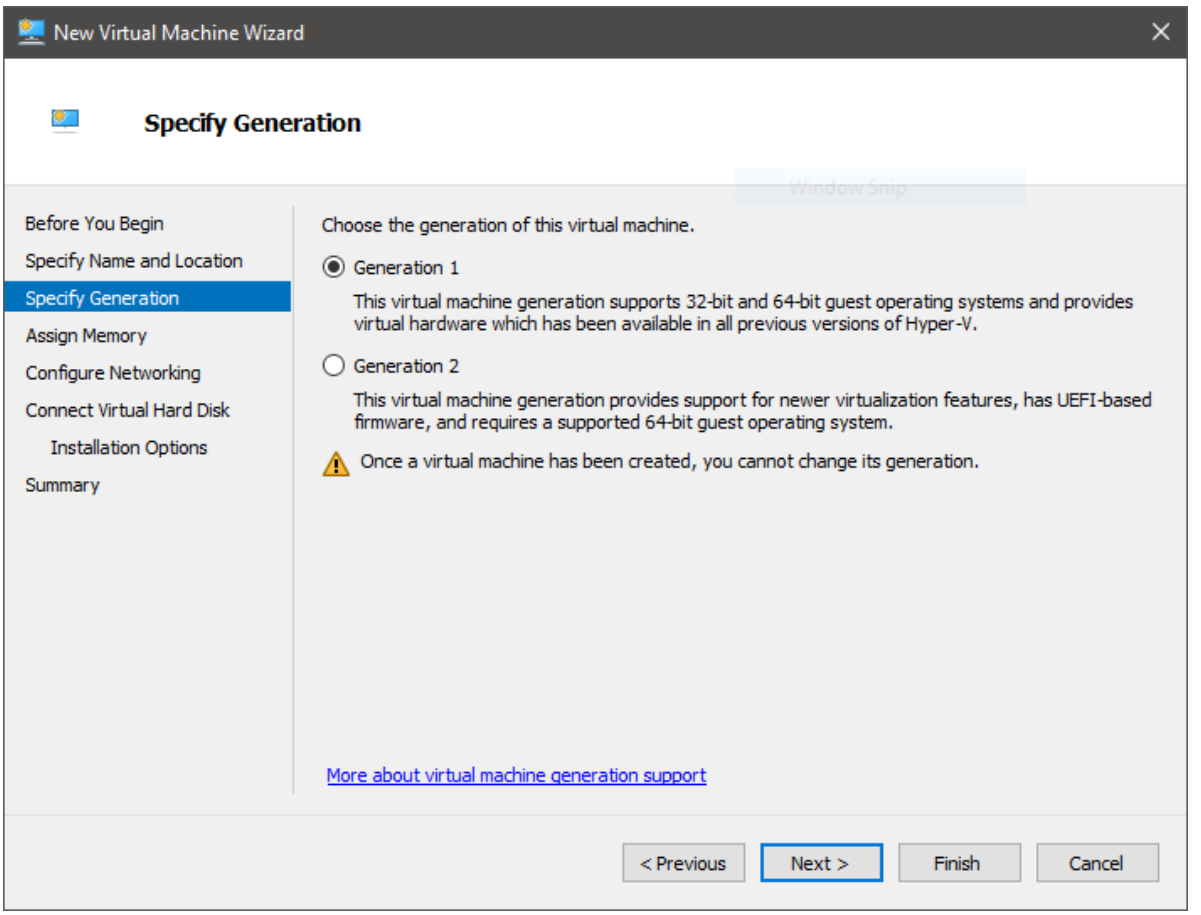
- CPU:
  - BAT-Controller Virtual 100: 1 virtual x86 CPU
  - BAT-Controller Virtual 200: 1 virtual x86 CPU
  - BAT-Controller Virtual 1000: 2-3 virtual x86 CPUs
    For the operation of a BAT-Controller Virtual 1000 a high CPU clock rate is recommended
- Hard disk memory: 512 MB
- Working memory:
  - BAT-Controller Virtual 100: 1024 MB RAM
  - BAT-Controller Virtual 200: 1024 MB RAM
  - BAT-Controller Virtual 1000: 3072 MB RAM

2.2.3 Step-by-step instructions

☐ Start the Hyper-V Manager.
☐ Create a new virtual machine (**Action > New > Virtual Machine**) and follow the instructions of the wizard. Important points for the BAT-Controller Virtual are listed below.
☐ Give the virtual machine a name.

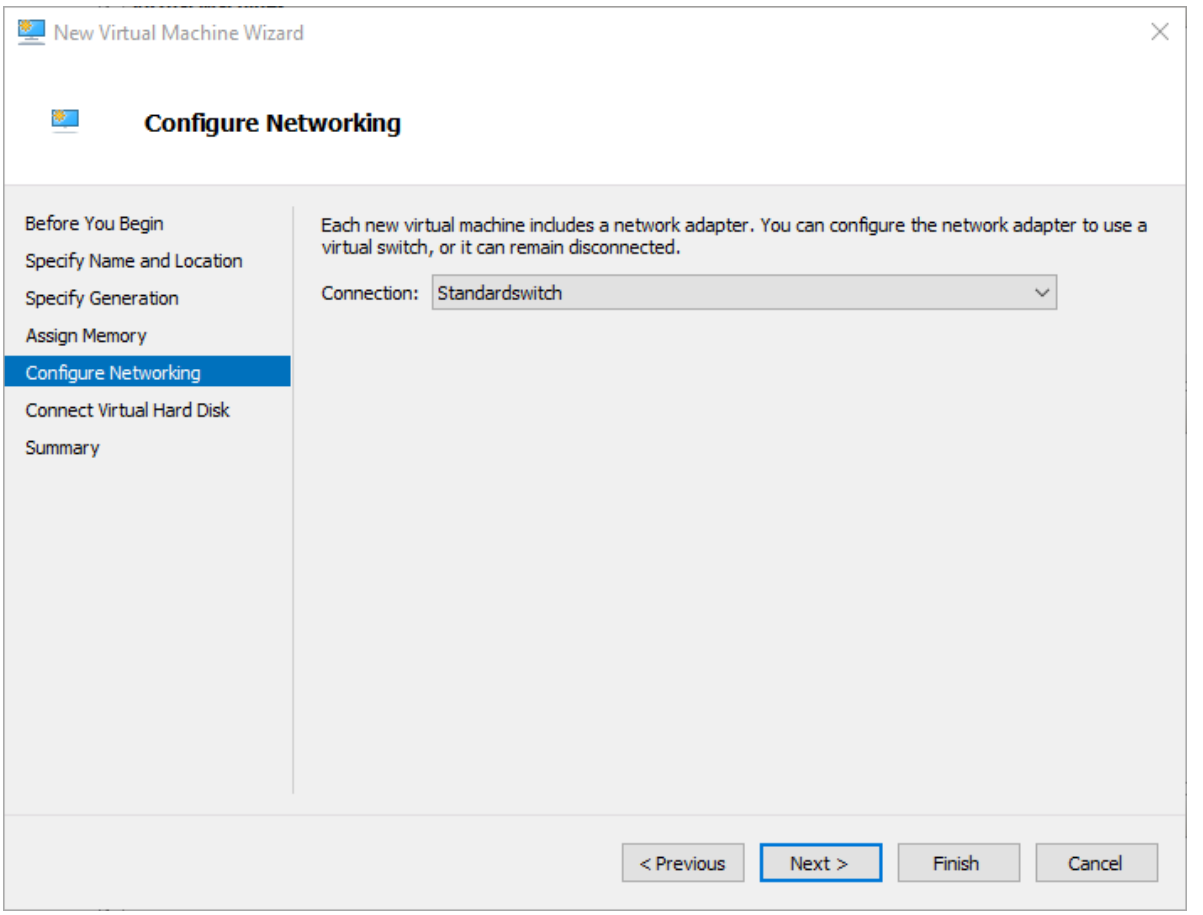


☐ Select **Generation 1**.



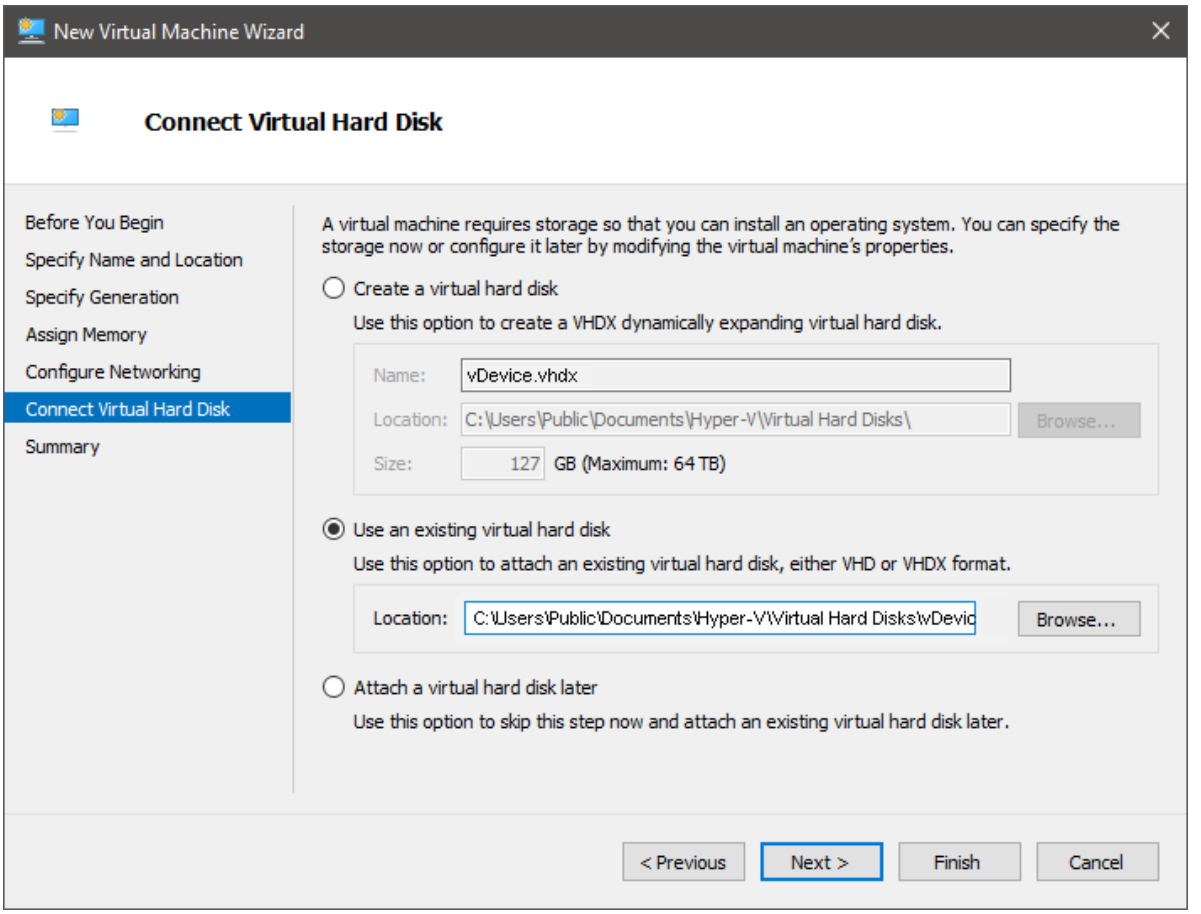
☐ Assign the working memory in the **Assign Memory** dialog according to the requirements of your BAT-Controller Virtual.
See “System requirements” on page 15.

☐ Connect the network to a virtual switch you configured previously.



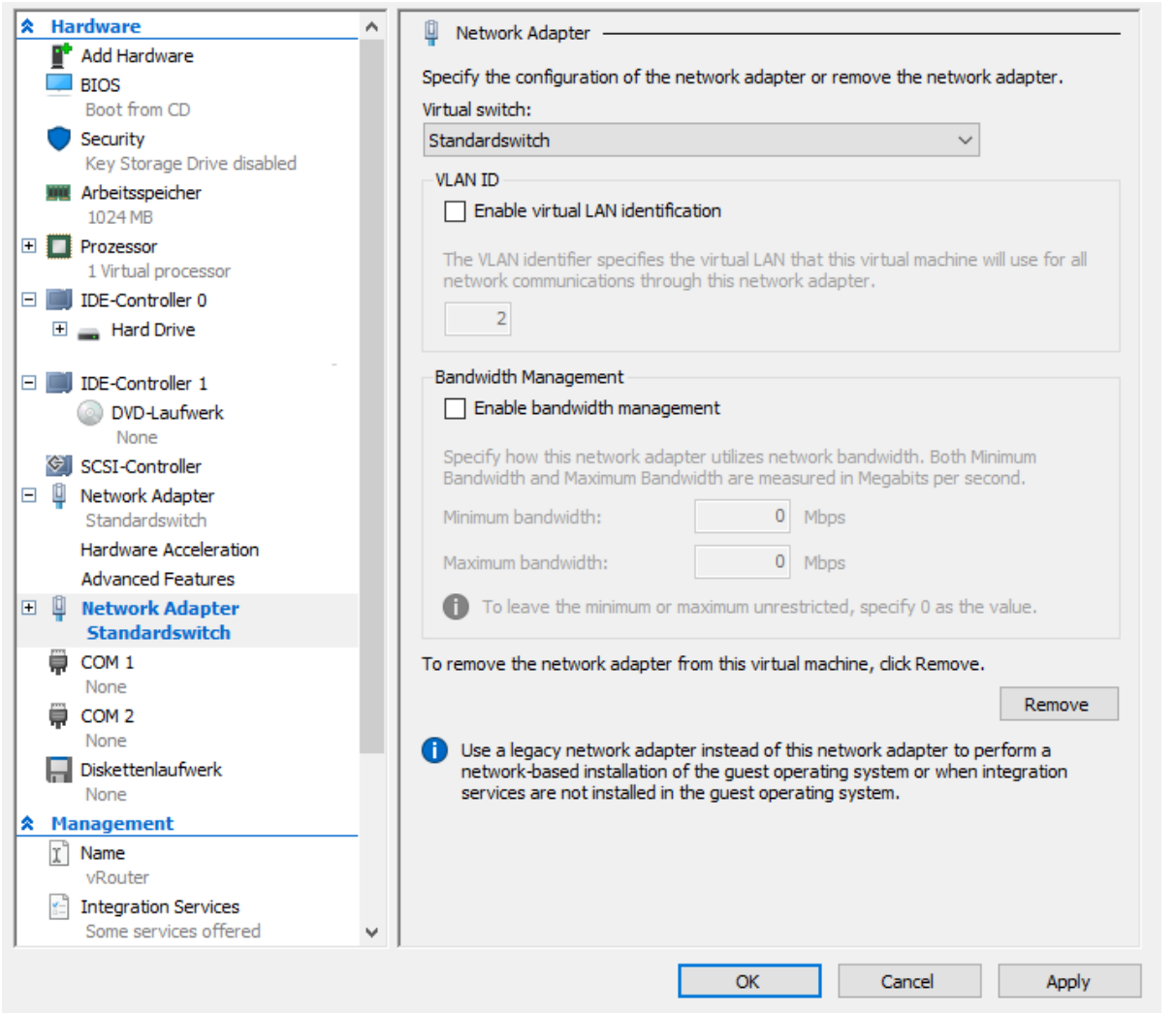
☐ Connect the virtual hard disk of the BAT-Controller Virtual. Select the *.vhdx file you received from Hirschmann. If necessary, copy this to the desired location beforehand.

Note: Note that the BAT-Controller Virtual makes use of this virtual disk after the installation.

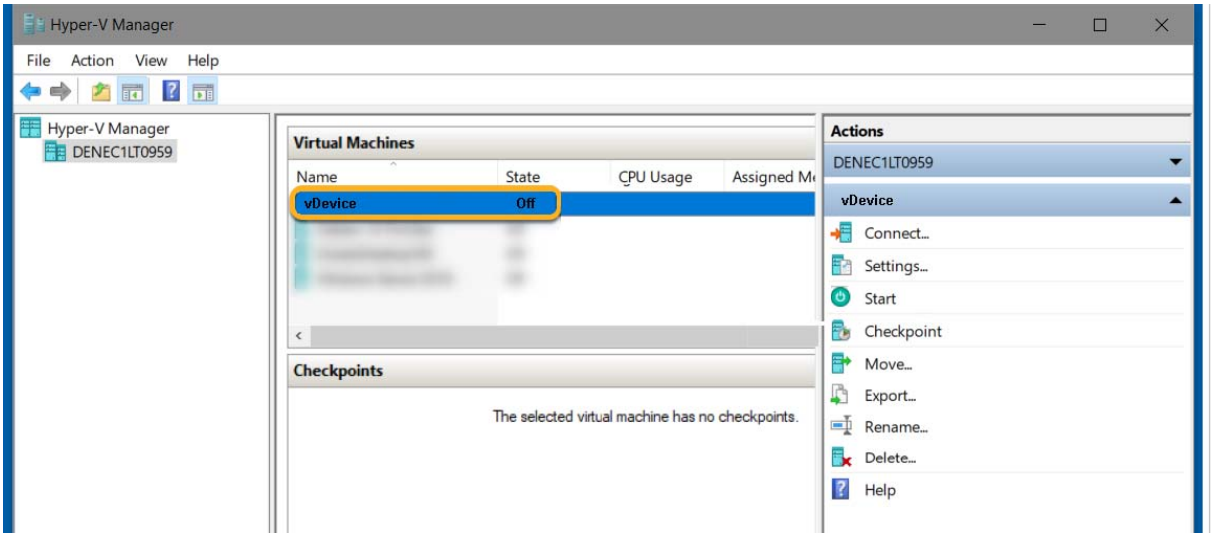


☐ Complete the installation in the **Summary** dialog.

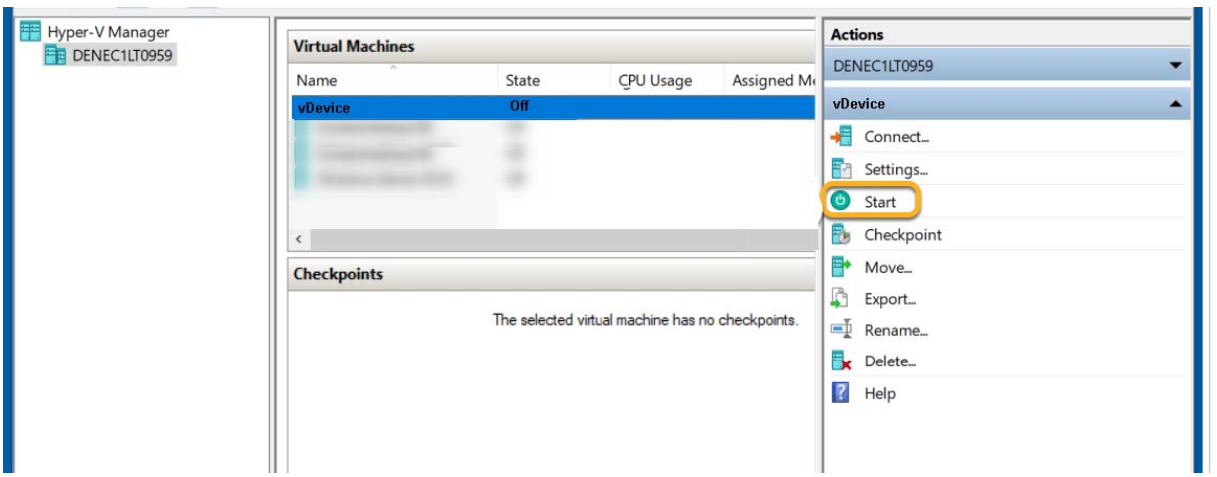
☐ If applicable, go to the settings under **Add hardware** and add up to 5 more network adapters.



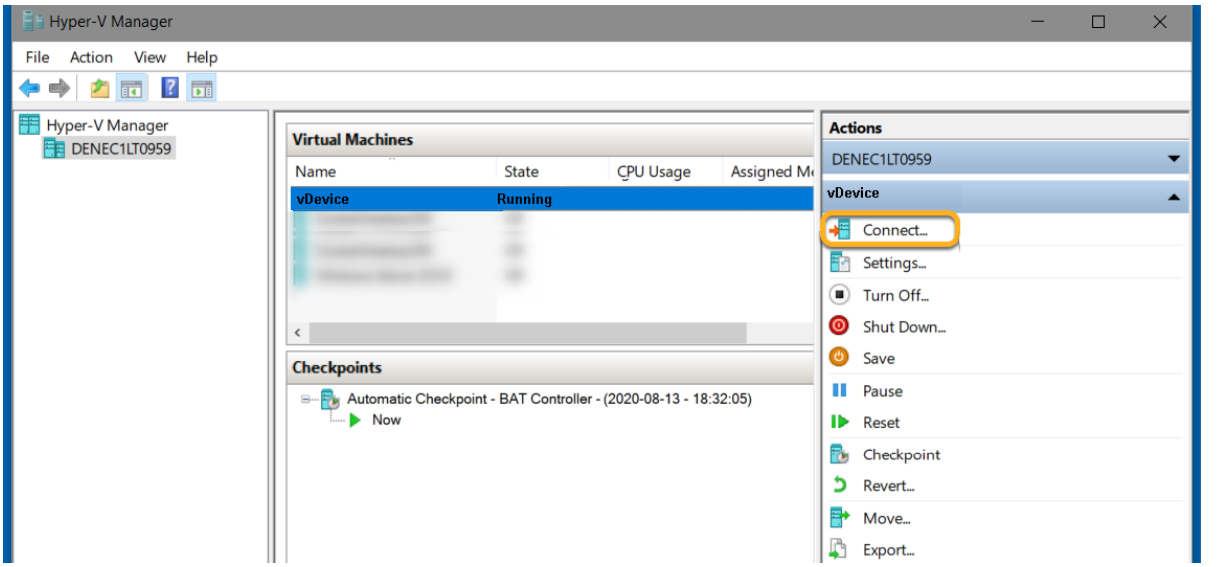
☐ Select the virtual machine.



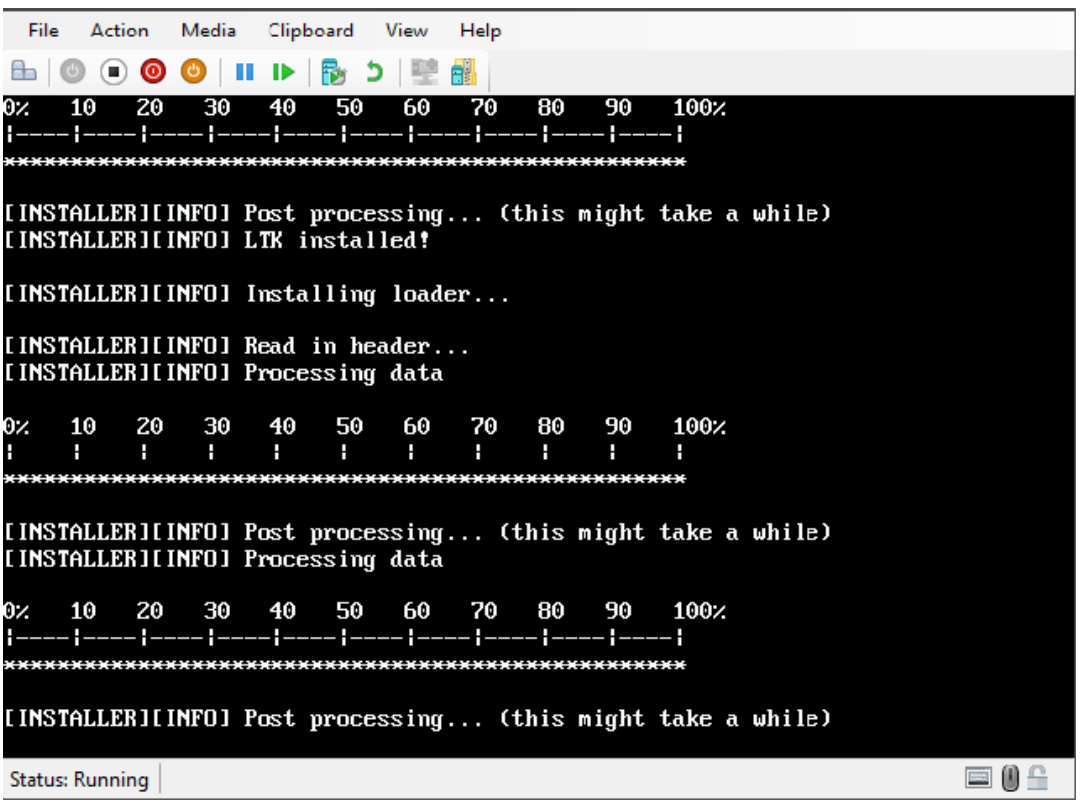
☐ Click **Start**.



☐ Click **Connect**.



The BAT-Controller Virtual will now boot from the connected hard drive and complete the installation of the virtual machine. This can take up to 10 minutes.



Note: After installation, the BAT-Controller Virtual is unlicensed. The data throughput for the LAN ports is therefore limited to 100 KBit/s.

☐ To remove this limitation, the first step following the installation is to activate the license (See “Registration and activation” on page 29.). After that, you can take further steps such as performing a firmware update.

☐ After that, you can take further steps such as performing a firmware update.

3 Initial setup

The BAT-Controller Virtual can be configured via the local area network (LAN). Make sure that the computer you are using for the configuration is on the same LAN as the BAT-Controller Virtual. If a DHCP server is active on the same LAN, the BAT-Controller Virtual is automatically given an IP address where it can be reached (and found in LANconfig). If the BAT-Controller Virtual was installed with an IP address, this can be used to access the device.

The following options are available for the initial setup:

- LANconfig
  See “Configuration with LANconfig” on page 25.
- WEBconfig
  See “Configuration with WEBconfig” on page 27.

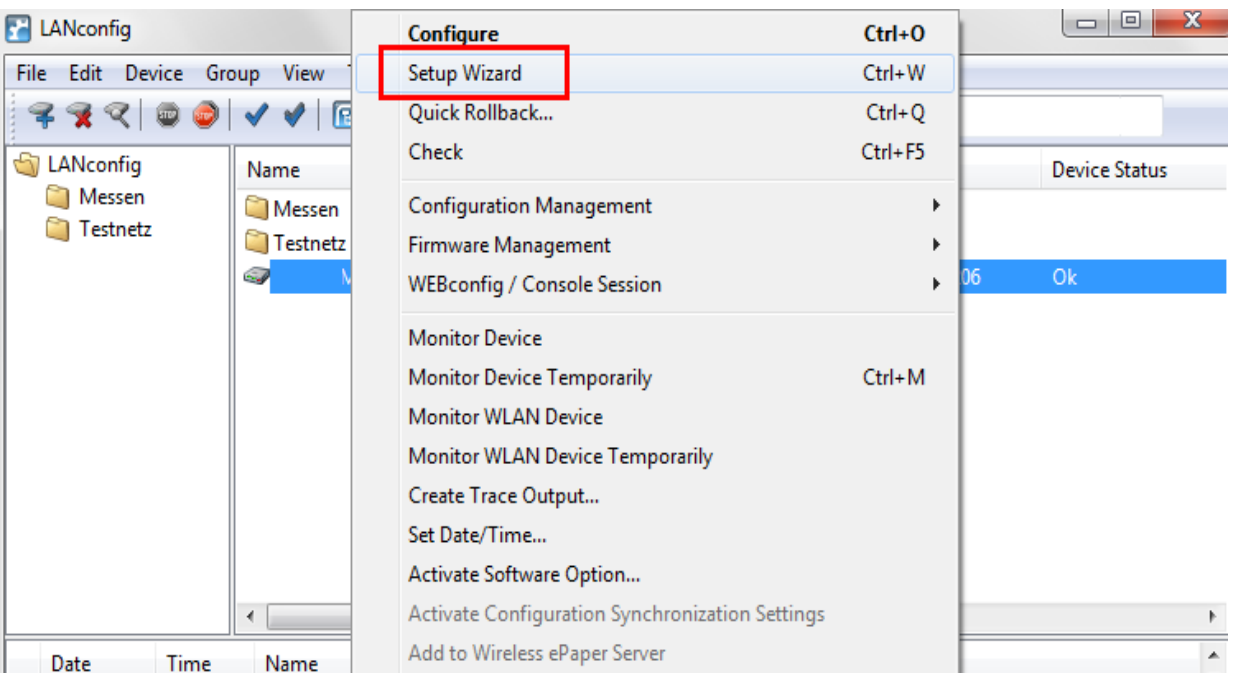
3.1 Configuration with LANconfig

LANconfig is part of LANtools, the free Hirschmann software package. LANconfig has a wide range of applications, from the user-friendly commissioning of a single device with various Installation Wizards, to the holistic management of several devices.
You can download the LANconfig software from the Hirschmann product pages (www.hirschmann.com).

3.1.1 Basic Settings

After starting, LANconfig automatically searches the local network for new devices and adds them to the overview.
In the overview, you can open a context menu with a right-click on the device. This context menu provides you the possibility to configure the device or to start a Setup Wizard.

☐ Start the Setup Wizard.
If the device has not yet been configured (for example during the deployment on the ESXi server or Hyper-V server), a basic setup wizard starts automatically for the configuration of basic parameters (such as the main device password and IP address).



Note: The main device password is essential for resetting the BAT-Controller Virtual.

☐ After running the basic Setup Wizard, you can continue with the configuration either with another Wizard or manually.

3.1.2 Internet connection

Setting up an Internet connection is easily done with a Setup Wizard.

☐ Start the Setup Wizard from the context menu in LANconfig and follow the instructions of the Setup Wizard.

Note: Make sure that the Ethernet port you use for the Internet connection is NOT connected to the LAN that is used to manage the BAT-Controller Virtual.

3.2 Configuration with WEBconfig

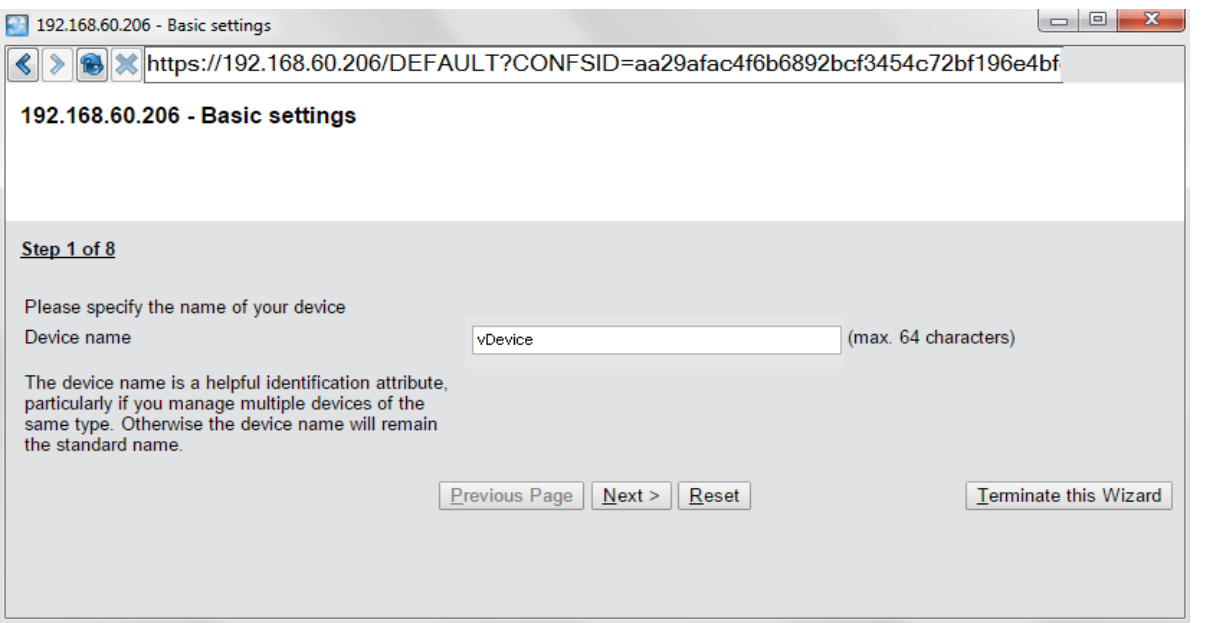
WEBconfig is the web-based configuration interface of HiLCOS.

☐ To start the configuration in WEBconfig, open a web browser.

☐ Type in the IP address assigned during the installation into the address bar of your web browser.

3.2.1 Basic Settings

If the device has not yet been configured (for example during the deployment on the ESXi server or Hyper-V server), a basic setup wizard starts automatically for the configuration of basic parameters (such as the main device password and IP address).



Note: The main device password is essential for resetting the BAT-Controller Virtual.

☐ After running the basic Setup Wizard, you can continue with the configuration either with another Wizard or manually.

3.2.2 Internet connection

Setting up an Internet connection is easily done with a Setup Wizard.
☐ Start the Setup Wizard using the WEBconfig menu item **Setup Wizards**.

Note: Make sure that the Ethernet port you use for the Internet connection is NOT connected to the LAN that is used to manage the BAT-Controller Virtual.

4 Registration and activation

The functional scope of the BAT-Controller Virtual is determined by the license used to activate it. The license sets out framework conditions such as:

- Maximum number of VPN tunnels
- Maximum data throughput
- Maximum number of ARF networks

A BAT-Controller Virtual without an activated license is limited to a data throughput of 100 KBit/s.

4.1 Registration using LANconfig

To register the BAT-Controller Virtual using LANconfig, proceed as follows:

☐ Open the context menu right-clicking on the device.

☐ Open the **Activate license** dialog.

☐ Enter the purchased license key and click the **Register license** button. Your web browser will then redirect you to the Hirschmann website to carry out the registration.

☐ After you have entered the information, you can download the license file.

4.2 Activation using LANconfig

To activate the license, proceed as follows:

☐ Drag & drop the downloaded license file onto the frame next to the **Browse** button or use the **Browse** button to navigate to where the license file is stored.

☐ Use the **OK** button to upload the license file to the BAT-Controller Virtual and complete the registration.

Note: Deleting the BAT-Controller Virtual from the ESXi server or Hyper-V server also deletes the activated license.

5 Reset

If you want to reconfigure the BAT-Controller Virtual irrespective of any settings you have made, you can reset the BAT-Controller Virtual to its default settings without affecting the license. You can perform the reset in the following ways:

- Reset via the Command Line Interface (CLI)
- Reset via the Command Line Interface (CLI) while retaining certificates and the main device password

5.1 Reset via the Command Line Interface (CLI)

☐ Open the CLI for the BAT-Controller Virtual on the ESXi server or Hyper-V server, or connect to the BAT-Controller Virtual via an SSH connection.

☐ Once you have logged on, you perform the reset with the `do /other/reset` command. If a main password has been set for the device, this is will be requested before the command is executed. After resetting, the BAT-Controller Virtual boots.

Note: Resetting the BAT-Controller Virtual deletes all of the configuration settings, passwords and certificates.

5.2 Reset via the Command Line Interface (CLI) while retaining certificates and the main device password

In order to retain the main password and any uploaded certificates on the BAT-Controller Virtual, you can execute a command using the command line interface of the BAT-Controller Virtual.

☐ Open the CLI for the BAT-Controller Virtual on the ESXi server or Hyper-V server, or connect to the BAT-Controller Virtual via a SSH connection.

☐ Once you have logged on, you perform the reset with the `default -r` command.

Note: The `default -r` command resets all of the configuration items in the current directory and its subdirectories to the default values. Certificates and the main device password in theBAT-Controller Virtual remain unchanged.

6 User Documentation

The full user documentation for the BAT-Controller Virtual consists of the following documents:

- User Manual Installation
- HiLCOS User Manual Configuration Guide
- HiLCOS Reference Manual CLI

You find the documents as PDF files for downloading on the Internet at:
https://www.doc.hirschmann.com

A Further support

Technical questions

For technical questions, please contact any Hirschmann dealer in your area or Hirschmann directly.

You find the addresses of our partners on the Internet at http://www.hirschmann.com.

A list of local telephone numbers and email addresses for technical support directly from Hirschmann is available at https://hirschmann-support.belden.com.

This site also includes a free of charge knowledge base and a software download section.

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