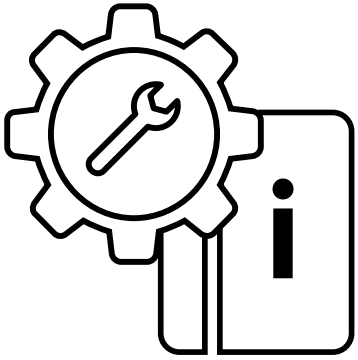
Installation Guide

LANCOM vRouter



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Introduction

Thank you for purchasing a LANCOM vRouter.
The LANCOM vRouter is a software-based router that runs on a hypervisor. Virtualization allows you to customize the vRouter exactly for your needs. As it operates the LCOS operating system, it offers the same features as a hardware-based LANCOM router and it offers considerable flexibility.
This installation guide describes how to put the LANCOM vRouter into operation. This consists of the following steps:

→ Installing the vRouter on a hypervisor (VMware ESXi server or Microsoft Hyper-V) or on the cloud platforms Microsoft Azure and Amazon AWS
→ Initial setup of the vRouter
→ Registration and activation of the vRouter

The document continues with further information about operating the LANCOM vRouter, as well as information on the LANCOM Service & Support.
The LANCOM vRouter operates either on a VMware ESXi server (see “Installation on the VMware ESXi server” on page 04) or a Microsoft Hyper-V (see “Installation on a Microsoft Hyper-V” on page 10). Another option is the hosted operation on the cloud platforms Microsoft Azure (see “Installation in Microsoft Azure” on page 17) and Amazon AWS (see “Installation in Amazon AWS” on page 23).

vRouter files

The following files are available for the vRouter:

→ **OVA file**
Basic package for deploying a vRouter in VMware ESXi

→ **VHD file**
Virtual disk image for deploying a vRouter in Microsoft Hyper-V

→ **UPX file**
File for updating the software of existing vRouter installations created with LCOS 10.20 or higher

Dimensioning of the vRouter host

A vRouter must always have a complete CPU core available; in case of hyperthreading, also the two logical CPUs on this core.
In addition, the host should have enough free cores for packet transport and hypervisor tasks to ensure the operation of the vRouter VMs. In high-throughput scenarios, the host may need up to two additional cores per vRouter.
These requirements can be met in two ways:

1. Exclusive operation on the host
   The host is dimensioned so that sufficient CPU resources are available for all vRouter instances. In this case no further settings need to be made.
2. Mixed operation of vRouter and other VMs
   All other VMs must be limited in CPU affinity so that the vRouters always have enough CPU resources available.

Practical example: For an installation of 5 vRouter instances, you dimensioned the host with 2 physical cores (or 4 logical CPUs) per vRouter. This results in a total of 10 cores (or 20 logical CPUs). The CPU affinity of the other VMs is then configured to the logical CPUs starting with number 20. Optionally, the CPU affinity of the vRouter instances can also be set to 0 to 19, e.g. to be able to distinguish between the two groups in monitoring.

In both variants, the number of vCPUs for the vRouter VM is always set to “1” so that the hypervisor does not delay the regular allocation of computing time (scheduling) to the VM

In contrast, the settings mentioned above refer to CPU affinity planning. The CPU affinity method is chosen here because the reservation of MHz is not always sufficient to ensure the availability of CPU resources for the vRouter and the hypervisor.

Installation on the VMware ESXi server

The following describes the requirements and steps for a successful installation on VMware ESXi servers.

Requirements

The following requirements must be met to successfully install the LANCOM vRouter on a VMware ESXi server:

→ The LANCOM vRouter 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).

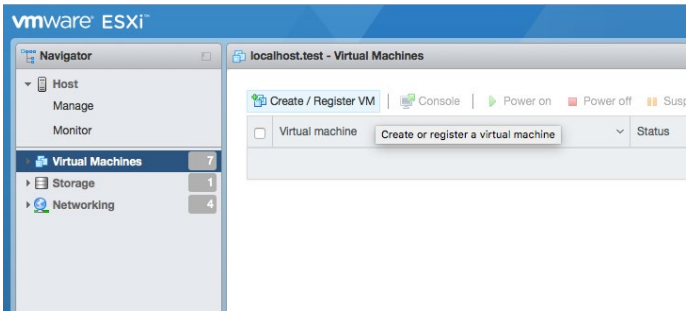
→ The virtual machine must meet the following minimum requirements:

- 1 physical x86 CPU core available on the host,
  2-3 physical CPU cores recommended for vRouter Unlimited
- vRouter 50 and 250: 2 GB RAM
- vRouter 500 and 1000: 4 GB RAM
- vRouter unlimited: 8 GB RAM
- 512 MiB of disk space (SSDs are recommended)
- 1-5 virtual network interfaces based on VMXnet3
- For the operation of a vRouter unlimited a high CPU clock rate is recommended.

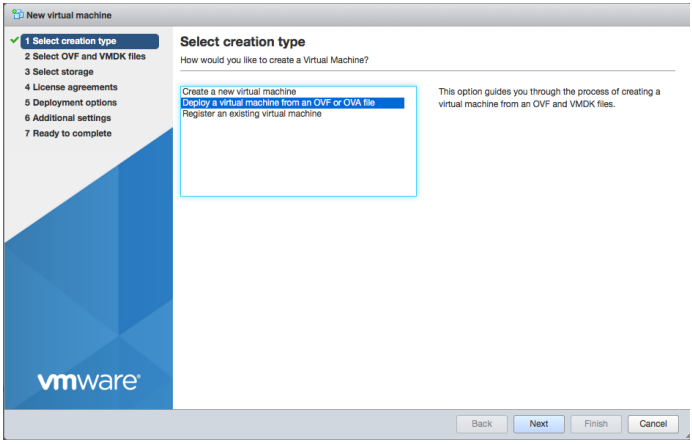
Installation

The following steps describe how to put the LANCOM vRouter into operation.

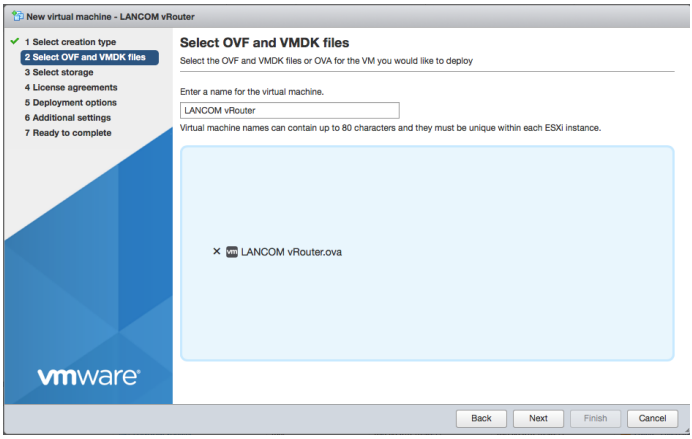
1. Launch VMware ESXi, log in, and create a new virtual machine.



2. Set the **creation type** to “Deploy a virtual machine from an OVF or OVA file”.

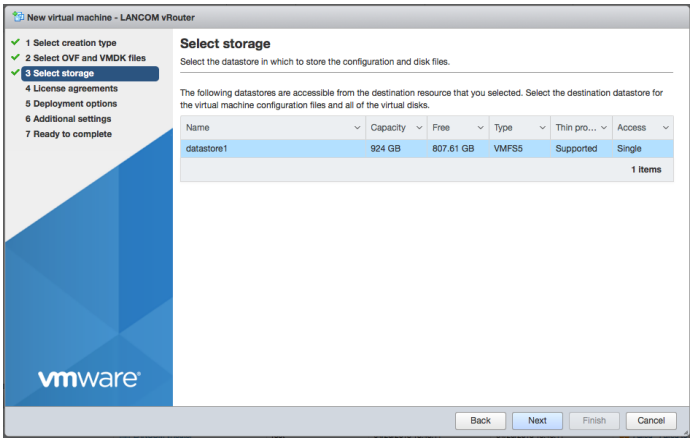


3. Enter a name for the virtual machine and select the ova file for the vRouter.

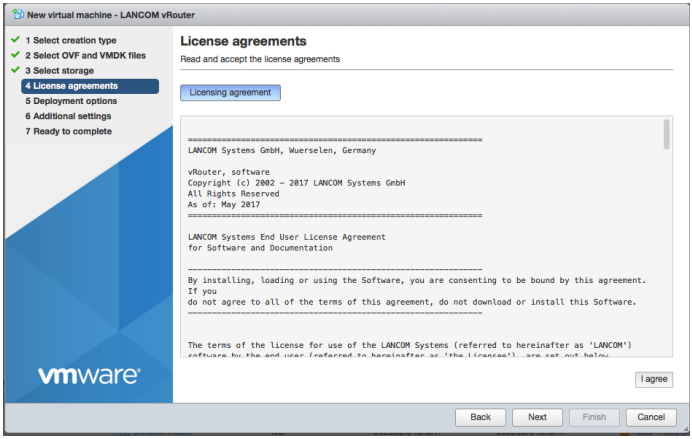


The name you enter here is the name of the router on the ESXi server and is not necessarily the name of the router in the LANCOM Management Cloud or in LANconfig.

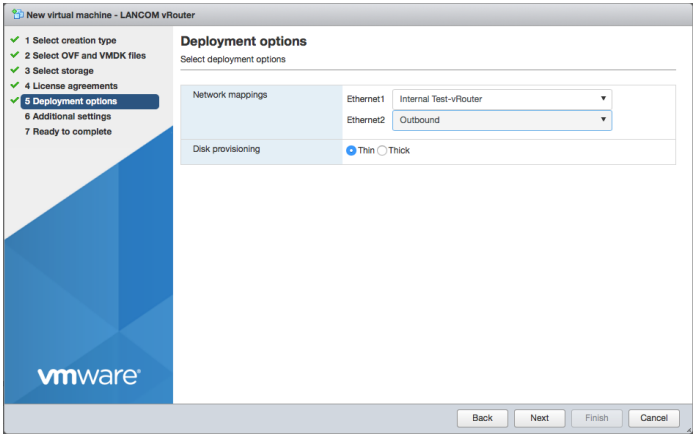
4. Select the location where the virtual machine is stored.



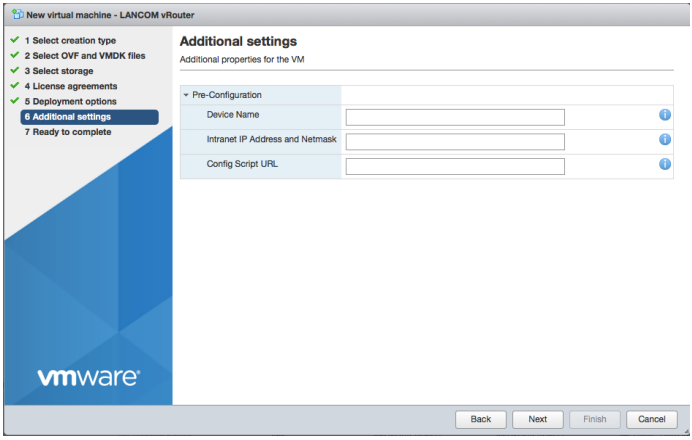
5. Read and agree to the license agreements from LANCOM Systems for the vRouter.



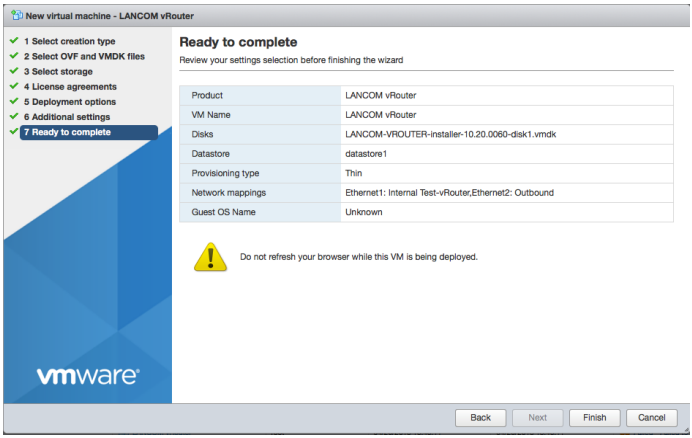
6. Assign at least one network to the vRouter. You can add more later in the properties of the virtual machine as you require. For **Disk provisioning** choose **Thin**.



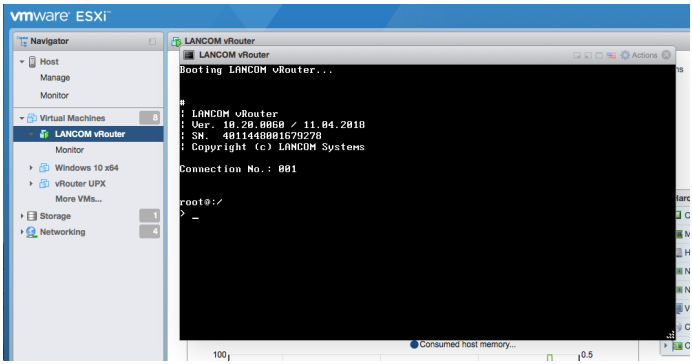
7. (Optional) Here you specify some basic settings required for deploying the vRouter:
   - Device name of the vRouter for its identification in the LANCOM Management Cloud and in LANconfig.
   - The IPv4 address of the vRouter and the corresponding netmask (ETH-1 / LAN-1), separated by a space.
   - The URL to a script file (.lcs), which can contain additional configuration parameters for the vRouter (TFTP or HTTP).



8. Complete the creation of the virtual machine.



9. After the Installation Wizard is finished, the vRouter is ready for use. If the network assigned to Ethernet1 contains a DHCP server, or if an IP address was assigned during the configuration, the vRouter can be accessed and configured over this network.



After installing – commissioning

Note that after installation, the vRouter is unlicensed and the throughput for the LAN ports is limited to 1 Mbps. To remove this limitation, the first step following the installation is to activate the license (see section “Registration

& activation" on page 32). After that, it is easier to take further steps such as performing a firmware update.
In particular if you wish to connect the vRouter to the LANCOM Management Cloud, be sure to perform license activation as the first step after installation. Once the license is activated, the vRouter receives a new serial number and device ID. This information is transmitted to the LMC during pairing.

Installation on a Microsoft Hyper-V

The following describes the requirements and steps to successfully install a LANCOM vRouter on Hyper-V.

Requirements

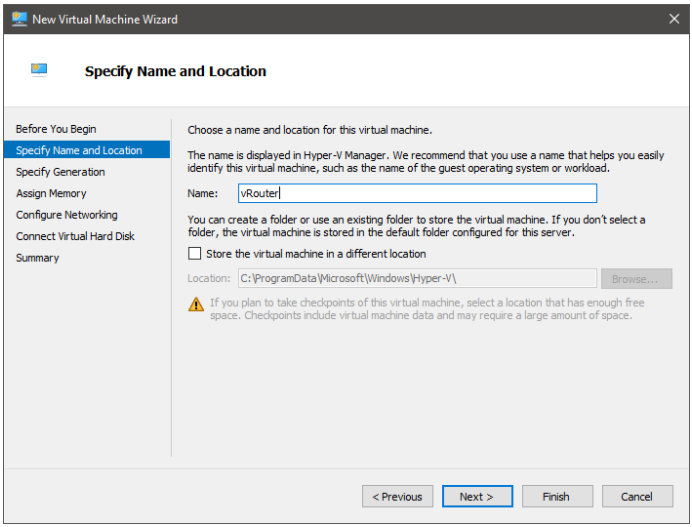
Following requirements must be met to successfully install the LANCOM vRouter on Hyper-V:

→ The LANCOM vRouter 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.
→ The virtual machine must meet the following minimum requirements:
- 1 physical x86 CPU core available on the host,
  2-3 physical CPU cores recommended for vRouter Unlimited
- vRouter 50 and 250: 2 GB RAM
- vRouter 500 and 1000: 4 GB RAM
- vRouter unlimited: 8 GB RAM
- 512 MiB of disk space (SSDs are recommended)
- 1 – 5 virtual network adapters
- For the operation of a vRouter unlimited a high CPU clock rate is recommended.

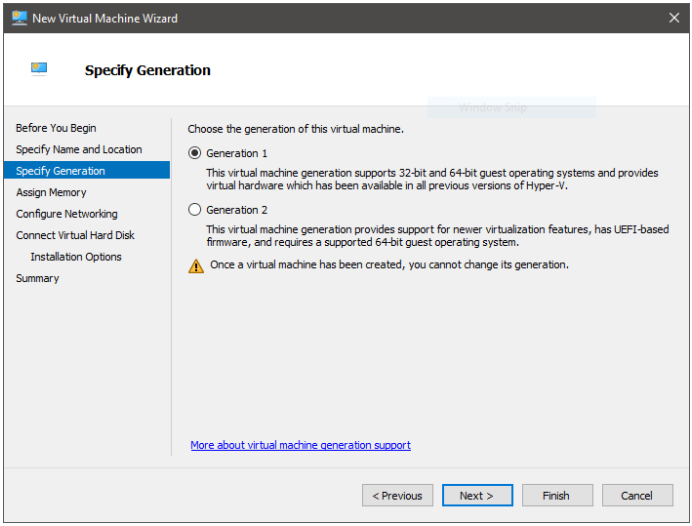
Installation

The following steps describe how to put the LANCOM vRouter into operation.

1. Start the Hyper-V Manager.
2. Create a new “virtual machine” and follow the wizard’s instructions. Important points for the LANCOM vRouter are listed below.
3. Give the virtual machine a name.

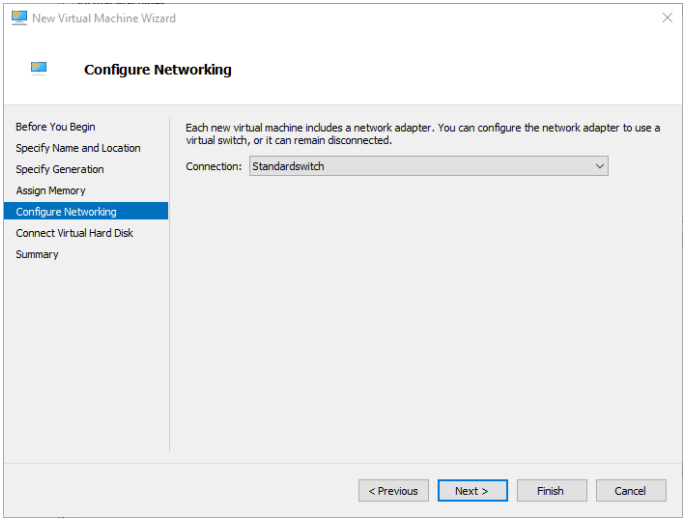


4. Select **Generation 1**.



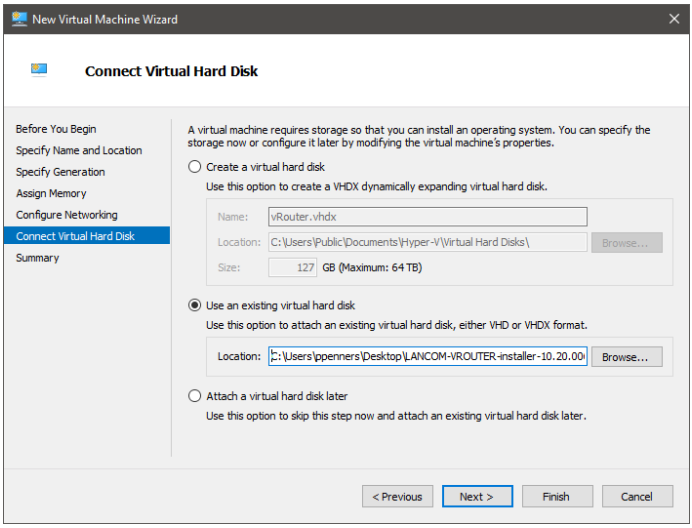
5. The memory at startup should be at least 512 MB. Depending on your product, you should allocate more memory as specified in the requirements.

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

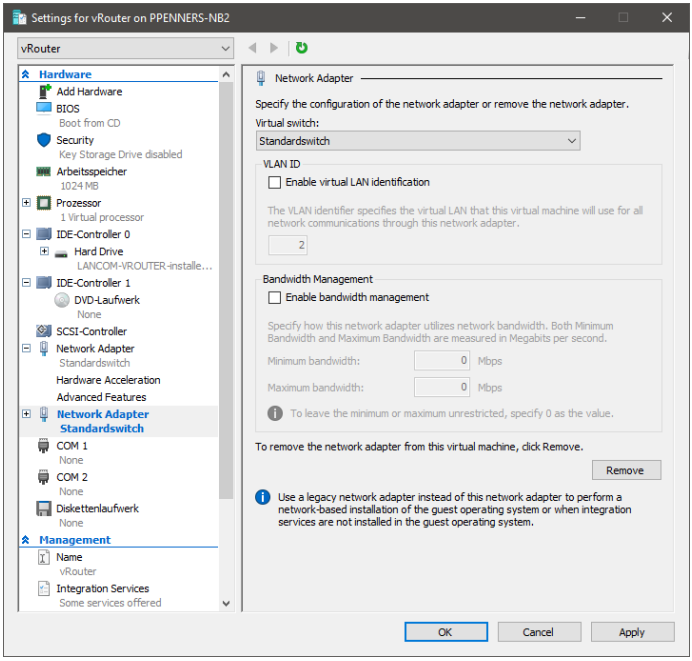


7. Connect the virtual hard disk of the LANCOM vRouter. To do this, select the *.vhdx file you received from LANCOM. If necessary, copy this to the desired location beforehand.

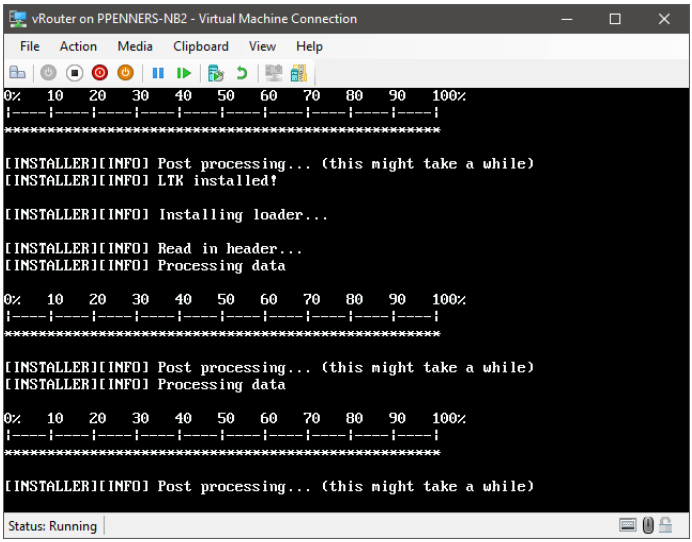
Note that the vRouter makes use of this virtual disk after the installation.



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



9. Start the virtual machine.



10. The LANCOM vRouter will now boot from the connected hard drive and complete the installation of the virtual machine. This phase can take some time.

After installing – commissioning

Note that after installation, the vRouter is unlicensed and the throughput for the LAN ports is limited to 1 Mbps. To remove this limitation, the first step following the installation is to activate the license (see section “Registration & activation” on page 32). After that, it is easier to take further steps such as performing a firmware update.
In particular if you wish to connect the vRouter to the LANCOM Management Cloud, be sure to perform license activation as the first step after installation. Once the license is activated, the vRouter receives a new serial number and device ID. This information is transmitted to the LMC during pairing.

Installation in Microsoft Azure

The following describes the requirements and steps to successfully install a LANCOM vRouter on the cloud platform Microsoft Azure.

Requirements

Following requirements must be met to successfully install the LANCOM vRouter in Microsoft Azure:

→ You need an active Microsoft Azure account with the permission to create virtual machines.

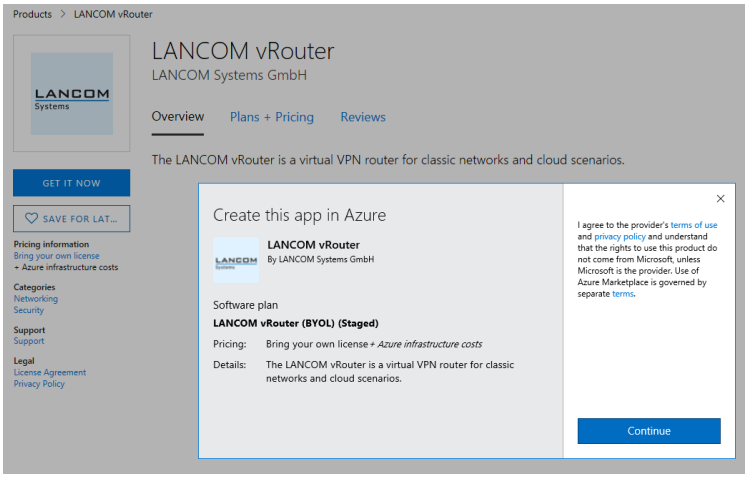
→ The vRouter for Microsoft Azure is provided with the licensing model “BYOL” (Bring Your Own License). This means that the only costs billed directly through Microsoft Azure are the infrastructure costs. The productive operation of the vRouter additionally requires a regular vRouter license.

Installation

The following steps describe how to put the LANCOM vRouter into operation.

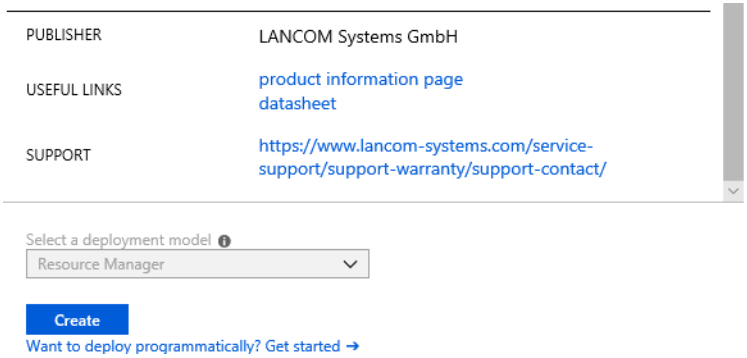
1. Go to the Azure Marketplace: https://azuremarketplace.microsoft.com/en-us/marketplace
2. Search for the “LANCOM vRouter”. Select the LANCOM vRouter from the results list.

3. On the product page, select **Get it now**. Read the terms of use and the data privacy policy linked in the popup that follows and confirm with **Next**.

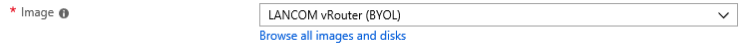


You will then be directed to the page for creating a virtual machine in Azure.

4. On the following page, select **Create** to generate a virtual machine for the vRouter.



5. On the following page, fill in the project details as you wish. Make sure the selected **Image** is “LANCOM vRouter (BYOL)”:



6. Based on your performance requirements, choose one of the following recommendations for the size of the virtual machine to run the vRouter, or set your own size for the VM:
   - D1_v2 Standard – 1 vCPU, 3,5 GB RAM
   - DS2_v2 Standard – 2 vCPUs, 7 GB RAM
   - DS3_v2 Standard – 2 vCPUs, 14 GB RAM

   The B-series machines basically only offer burstable CPU performance and IOPs and are therefore only suitable for small scenarios without committed performance as well as test scenarios. Therefore, at least the Dv2 series is recommended for productive scenarios.
   For small or test scenarios:
   - B1ms Standard – 1 vCPU, 2 GB RAM
   - B2s Standard – 2 vCPUs, 4 GB RAM
   - B2ms Standard – 2 vCPUs, 8 GB RAM

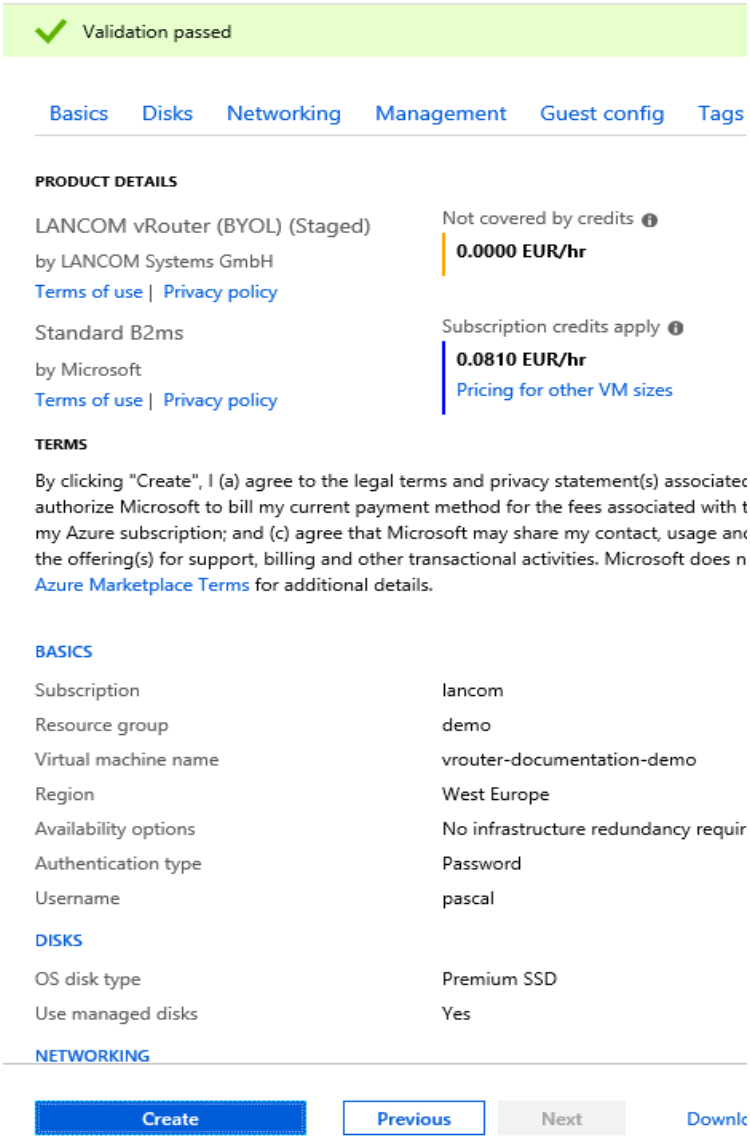
Please note that, in most cases, further increasing the vCPUs does not provide any performance advantages when operating the vRouter.

7. Set the administrator account for the vRouter. You have the option of defining a main device password (authentication type **Password**) or to deposit a public SSH key that is entered in the vRouter instance.

Please note that password authentication by SSH is disabled when you deposit a public SSH key.

If an SSH key is stored, the vRouter automatically generates a random main device password during installation. This will be output to the Serial Console located in the Azure web interface under **Boot Diagnostics** or the **Serial Console**. This password allows you to login to the Serial Console for troubleshooting purposes.

8. Click **Next** to move through the pages and configure the VM according to your requirements.
9. On the final page **Review and create**, check your configuration and choose **Create** to finalize the VM.


Validation passed
Basics
Disks
Networking
Management
Guest config
Tags
PRODUCT DETAILS
LANCOM vRouter (BYOL) (Staged)
by LANCOM Systems GmbH
Terms of use | Privacy policy
Standard B2ms
by Microsoft
Terms of use | Privacy policy
Not covered by credits
0.0000 EUR/hr
Subscription credits apply
0.0810 EUR/hr
Pricing for other VM sizes
TERMS
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated
authorize Microsoft to bill my current payment method for the fees associated with t
my Azure subscription; and (c) agree that Microsoft may share my contact, usage and
the offering(s) for support, billing and other transactional activities. Microsoft does n
Azure Marketplace Terms for additional details.
BASICS
Subscription
lancom
Resource group
demo
Virtual machine name
vrouter-documentation-demo
Region
West Europe
Availability options
No infrastructure redundancy requir
Authentication type
Password
Username
pascal
DISKS
OS disk type
Premium SSD
Use managed disks
Yes
NETWORKING
Create
Previous
Next
Downlo

10. The vRouter is now installed in the VM. This process can take up to 20 minutes. You can follow the progress of the installation using the Serial Console or with the help of screenshots (Boot Diagnostics) from the VM. When the installation is complete, the Azure web interface notifies you that deployment was successful. The vRouter can now be accessed from the network and, if applicable, via its public IP address. Please note that the preset network security group only permits external access via SSH and HTTPS. The network security group can then be extended according to the intended purpose of the vRouter. For example, for operation as a VPN concentrator you may need to enable ports 500 / UDP and 4500 / UDP.

After installing – commissioning

Note that after installation, the vRouter is unlicensed and the throughput for the LAN ports is limited to 1 Mbps. To remove this limitation, the first step following the installation is to activate the license (see section “Registration & activation” on page 32). After that, it is easier to take further steps such as performing a firmware update.
In particular if you wish to connect the vRouter to the LANCOM Management Cloud, be sure to perform license activation as the first step after installation. Once the license is activated, the vRouter receives a new serial number and device ID. This information is transmitted to the LMC during pairing.

Further information about operating the vRouter in Azure

By default, the vRouter in Azure is configured with just one virtual network adapter. This is preconfigured as a WAN port, which by default is used to establish a DHCPoE connection to the subnet specified when the VM is created.
For conventional router operation (e.g. for virtual private clouds), it is necessary to configure additional network cards (up to five) for the vRouter. Please noted that only the first network card can be configured as a WAN port. This is because Azure only establishes DHCPoE connections on the first network card of a VM. Further network cards for other subnets need to be configured as LAN ports accordingly.

Conversely, operation as a VPN concentrator in star topologies usually requires just one virtual network card, which is used to terminate the VPN connections.

Installation in Amazon AWS

The prerequisites and individual steps for successfully commissioning a LANCOM vRouter on the Amazon AWS cloud platform are explained below.

Requirements

The following prerequisites must be met for the successful commissioning of the LANCOM vRouter in Amazon AWS:

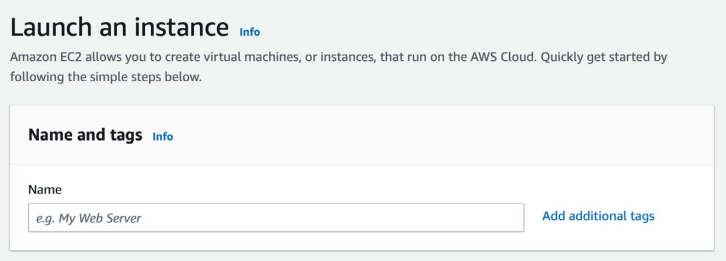
→ You need an active Amazon AWS account that has the authorization to create virtual machines.

→ The vRouter for Amazon AWS is provided free of charge in the AWS Marketplace. This means that only the infrastructure costs (provisioning & usage) are charged via Amazon-AWS. For the productive operation of the vRouter, a commercially available LANCOM vRouter license is also required.

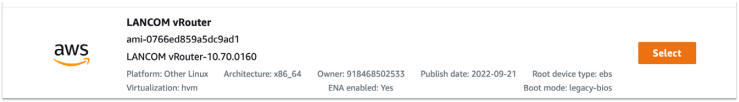
Installation

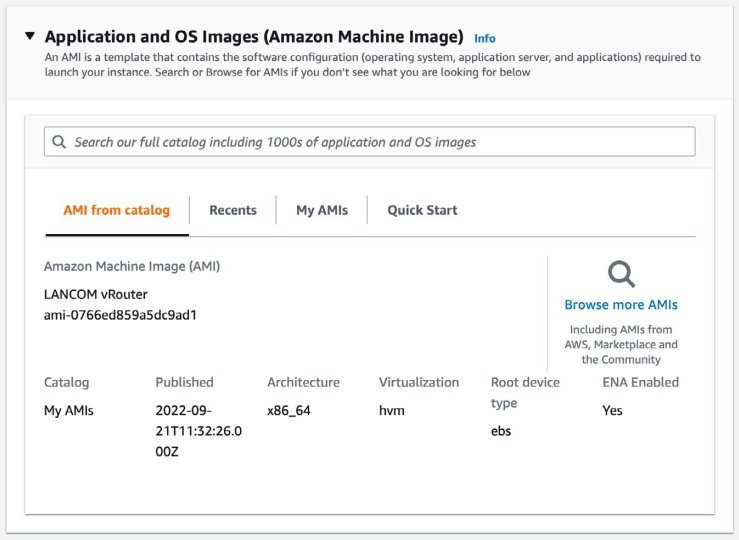
The following section describes the various steps that are necessary to commission the LANCOM vRouter for AWS.

1. Log in to AMAZON AWS in EC2 and click **Launch an Instance** there. Alternatively, click the following link: https://eu-central-1.console.aws.amazon.com/ec2/v2/home?region=eu-central-1#LaunchInstances:
2. Give the instance a name (e.g. LANCOM vRouter).

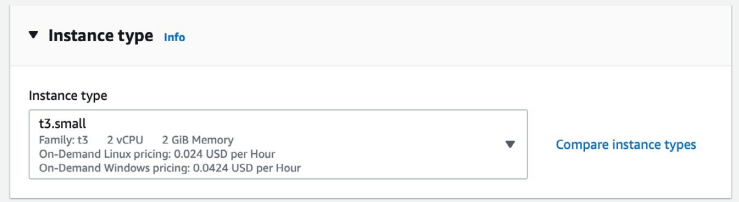


3. In the **Application and OS Images** field, search for **LANCOM vRouter** and select the LANCOM vRouter in the search overview.



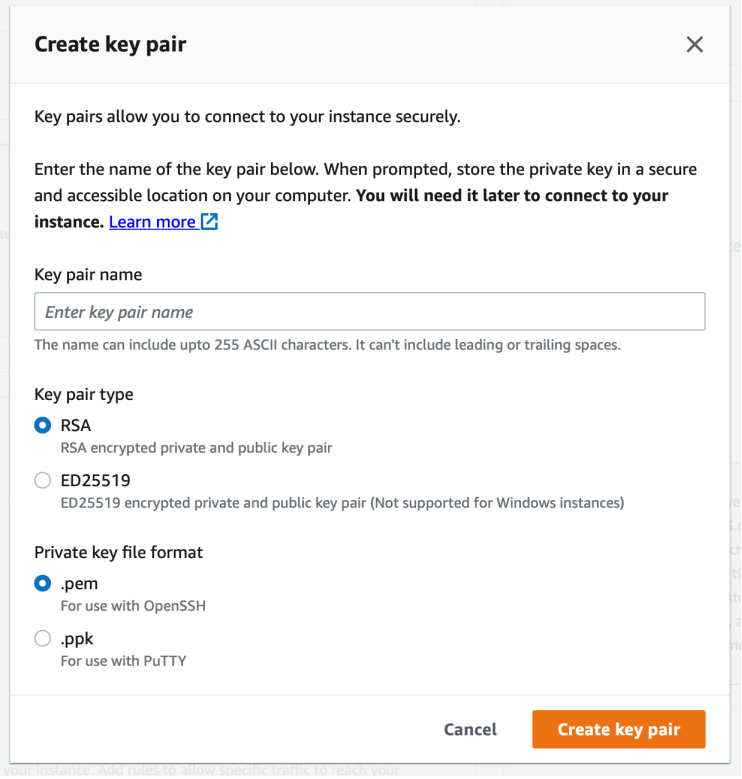


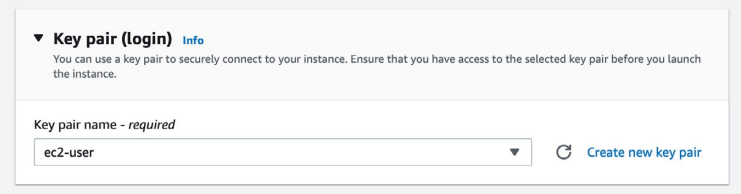
4. As **Instance type**, select a suitable entry that meets your requirements for processing power, RAM, etc.. The instance types **T3**, **T3a**, **C5** and **C5a** are available for selection. Our recommendation here is to select at least **t3.small** for vRouter 50 and 250.
   The following sizings are recommended:
   - vRouter 50 and 250: EC2 Instance with 2 GB RAM
   - vRouter 500 and 1000: EC2 Instance with 4 GB RAM
   - vRouter unlimited: EC2 Instance with 8 GB RAM



5. Next, you need to select a key pair for secure SSH access. You can create a new key pair as well as import an existing key. To create a new key pair, click **Create key pair** in the selection window and follow the instructions. Please make sure that **PEM** is selected as the file type.

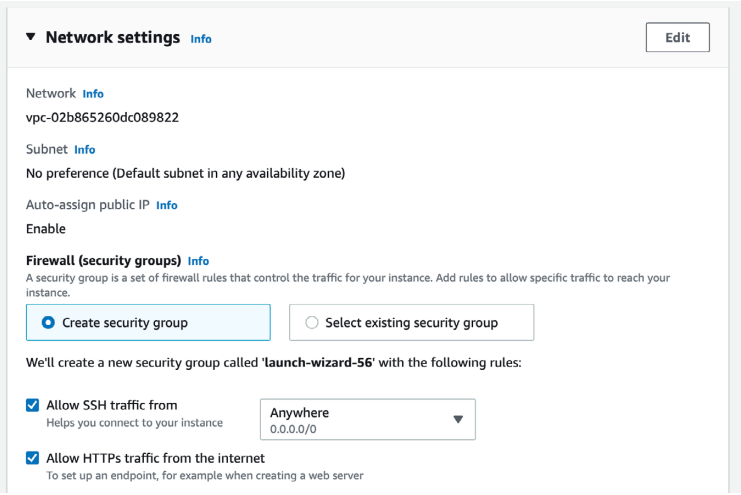
If you already have an SSH key, you can import it in advance. Duplicate the web page and select **Network & Security** > **Key Pairs** in the EC2 menu and click on **Actions** - **Import key pair**.





This step creates a user **ec2-user** on the device. The SSH key selected here is **used to connect to the LANCOM vRouter**!

6. To allow access to the device (from the Internet), a security group must now be created. The permitted protocols / ports are configured in this group. In the preselection, only access via SSH is initially possible. To enable access to the WEBconfig of the device, we recommend additionally allowing data traffic via HTTPS during the initial installation. To do this, click on **Allow HTTPs traffic from the Internet** under **Network settings**.



7. Finally, a master device password must be assigned to the device. To do this, go to **Advanced Details** and then to **User Data** at the very bottom of the window. Now enter your desired main device password here as follows:

password="typeyourpasswordhere"

Please choose a secure password considering the following minimum requirements:

- At least 8 characters
- At least 3 of the 4 character classes (lowercase letters, uppercase letters, numbers and special characters)

8. Finally, click on **Launch an Instance**.
9. Now the LANCOM vRouter is created under AWS Instances. It can take up to 5 minutes until the device has been successfully rolled out and is accessible from the Internet.
10. Now click **Show all Instances.**
11. In the EC2 menu under **Instances** - **Instances** you will now see the LANCOM vRouter that you have just created. By clicking on the corresponding instance ID, you can now see all the necessary connection information for the LANCOM vRouter. If you want to configure the device via WEBconfig, copy the public IPv4 address and access the device via HTTPS. If, on the other hand, you want to configure the device via SSH, click on **Connect** and then on the **SSH client** tab. There you will see a sample command for console access at the end.

Please make sure to connect to the device with the username **ec2-user** instead of **root**, otherwise access will be denied.

12. Now continue with the item „Initial setup".

If the vRouter has the role of a NAT gateway

By default, source/destination checks are performed on EC2 instances. This means that the instance must be either the source or destination of the traffic it sends or receives. However, a NAT instance must be able to send or receive traffic that it is not the source or destination of. Therefore, you must disable source/destination checking for NAT instances.
You can disable the SrcDestCheck attribute for a NAT instance that was run or stopped from the console or command line.

To disable source/destination checking from the console

1. Open the Amazon EC2 console at https://console.aws.amazon.com/ec2/.
2. In the navigation pane, select **Instances**.
3. Select the NAT instance and then select **Actions**, **Network**, **Change Source/Destination check**.
4. Make sure that the Source / Destination check is finished. Otherwise, select **Stop**.
5. Select **Save**.
6. If the NAT instance has a secondary network interface, select it from **Network interfaces** in the **Networking** tab. Select the interface ID to go to the network interfaces page. Select **Actions** and **Change source / dest. check**, clear **Enable** and select **Save**.

Initial setup

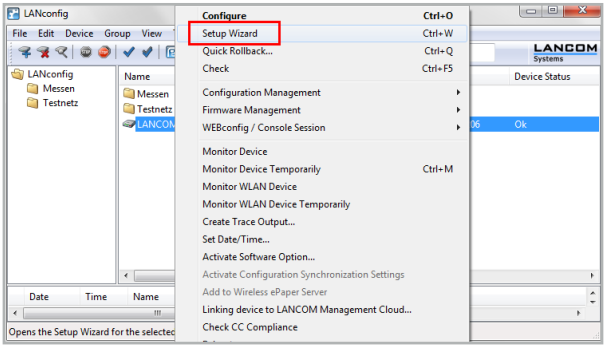
A LANCOM vRouter can be configured via the local area network (LAN). Make sure that the computer you are using for the configuration is on the same LAN as the vRouter. If a DHCP server is active on the same LAN, the vRouter is automatically given an IP address where it can be reached (and found in LANconfig). If the vRouter was installed with an IP address, this can be used to access the device. After the initial setup, the vRouter can (if applicable) be integrated into the LANCOM Management Cloud.
The following options are available for the initial setup:

→ LANconfig
→ WEBconfig

Configuration with LANconfig

LANconfig is a part of LANtools, the free LANCOM solution 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. It is available on the LANCOM website free of charge.

Basic settings
After starting, LANconfig automatically searches the local network for new devices and adds them to the overview.
In the overview, you invoke a context menu for the device with a simple right-click of the mouse. This menu provides the options to **Configure** the device or to start a **Setup Wizard**.
Run the **Setup Wizard**. If the device has not yet been configured (e.g. during deployment on the ESXi or Hyper-V server), a basic setup wizard starts automatically for the configuration of basic parameters such as the main device password, IP address, etc).



The main device password is essential for resetting the vRouter.

After running the basic setup wizard, you can continue with the configuration either manually or by means of the other wizards.

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.

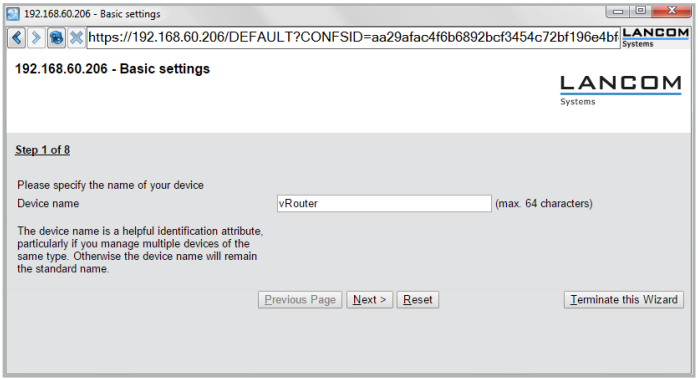
Make sure that the Ethernet port you use for the Internet connection is not connected the LAN that is used to manage the vRouter.

Configuration with WEBconfig

WEBconfig is the web-based configuration interface of LCOS. To start the configuration in WEBconfig, simply open a web browser and type the IP address assigned during the installation into your browser's address bar.

Basic settings

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



The main device password is essential for resetting the vRouter.

After running the basic setup wizard, you can continue with the configuration either manually or by means of the other wizards.

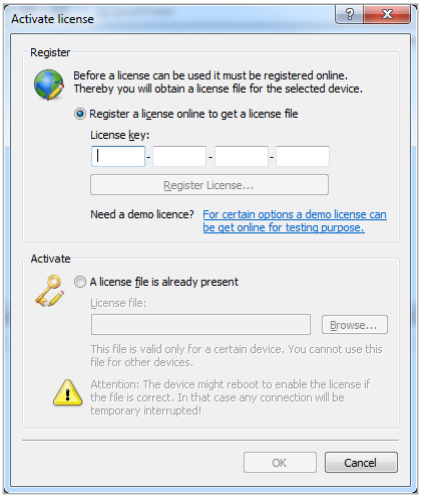
Internet connection
Setting up an Internet connection is easily done with a Setup Wizard. Start the Setup Wizard using the WEBconfig menu item **Setup Wizards**.

Make sure that the Ethernet port you use for the Internet connection is not connected the LAN that is used to manage the vRouter.

Registration & activation

The functional scope of the LANCOM vRouter 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 vRouter without an activated license is limited to a data throughput of 1 Mbps.

Registration using LANconfig
To register the LANCOM vRouter using LANconfig, right-click on the device to open the context menu and select **Activate license**.
In the dialog that opens, enter the purchased license key and click the button **Register license**. Your web browser will then redirect you to the LANCOM Systems website to carry out the registration. After you enter the information, you can download the license file.



Activation using LANconfig

To activate the license, you can either drag & drop the downloaded license file onto the frame next to the button **Browse** 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 vRouter and complete the registration.

Please note: Deleting the vRouter from the ESXi or Hyper-V server also deletes the activated license.

Further information

This chapter contains further information on the administration of the LANCOM vRouter. This includes integrating the vRouter into the LANCOM Management Cloud and resetting the vRouter.

Operation of the vRouter with WLC function as of LCOS 10.30

Depending on the license level, the vRouter supports the management of a certain number of access points with the integrated WLC function. LANCOM Systems recommends operating a vRouter instance either primarily as a VPN gateway / router or as a WLAN controller. The recommended use can also be proportionate; for example, with the license level “vRouter 1000” (200 VPN licenses and 200 AP licenses): 100 simultaneous VPN connections and 100 managed APs or 150 simultaneous VPN connections and 50 managed APs.

Resetting the vRouter

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

Reset via the command line interface (CLI)
Open the CLI for the vRouter on the ESXi server or Hyper-V server, or connect to the vRouter via an SSH connection. Once you have logged on, you perform the reset with the command **do /other/reset**. If a main password has been set for the device, this is will be requested before the command is executed. After resetting, the vRouter boots.
Resetting the vRouter deletes all of the configuration settings, passwords and certificates.

Resetting 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 vRouter, you execute a command using the command line interface of the vRouter. Open the CLI for the vRouter on the ESXi server or Hyper-V server,

or connect to the vRouter via an SSH connection. After logging on, enter the following command from the root of the directory tree: **default -r** .

The command **default -r** resets all of the configuration items in the current directory and its subdirectories to the default values. Certificates and the main device password in the vRouter remain unchanged.

Restrictions

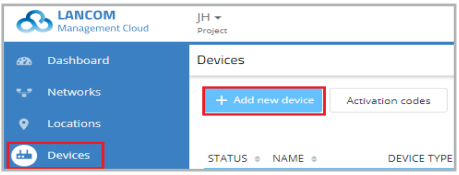
The vRouter configuration should only be backed up via the LANCOM Management Cloud, LANconfig or as a script. The backup mechanisms of the respective virtual server systems (e.g. snapshot at ESXI) are not supported.

Integration into the LANCOM Management Cloud

Integrating the LANCOM vRouter into the LANCOM Management Cloud takes just a few steps.

Create an activation code

1. In the LANCOM Management Cloud, open the **Devices** view and click **Add new device**.



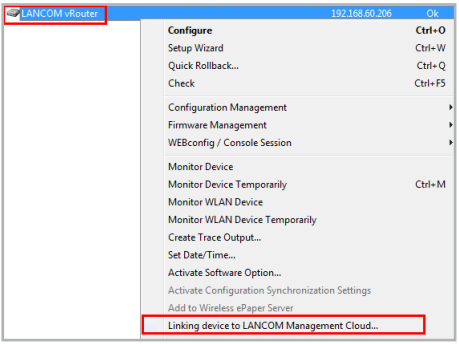
2. In the following window, click the link **No serial number or PIN available?**

3. Create an activation code by following the instructions in the dialog. This activation code allows you to integrate the LANCOM vRouter into the current project.

4 The **Activation code** button displays all of the activation codes created for this project in the **Devices** view

Using the activation code

1. In LANconfig, right-click to open the context menu of the vRouter and select the option **Pair device with LANCOM Management Cloud...**



2. In the dialog window that opens, enter the activation code that you generated previously and click the button **OK**.

If you copied an activation code to the Clipboard, it is automatically entered into the field.

3. Once paired with the LMC, the device will be displayed in the device overview section of the LMC. Furthermore, in LANconfig the LMC symbol appears instead of the device icon, which indicates that pairing was completed successfully.

Documentation

The full documentation for the LANCOM vRouter consists of the following parts:

- → This Installation Guide offers an easy introduction for readers with knowledge of installing network components and routers and who are familiar with the workings of the basic network protocols.
- → The LCOS Reference Manual fully addresses issues concerning the LANCOM operating system LCOS for this and all other models.
- → The LCOS Menu Reference describes all of the parameters of LCOS in full.

The full documentation and the latest firmware and software are available from the download area of the LANCOM website.

LANCOM Service & Support

By choosing a LANCOM product you have opted for maximum reliability. In the unfortunate event that you should have a problem, you are in good hands with us! Just in case, this is a summary of the key information about our Service & Support.

LANCOM Support

Installation Guide / Quick Reference Guide
If you encounter any problems when installing or operating your product, the included installation guide resp. quick reference guide may help you in many cases.

Support from reseller or distributor
You can contact your reseller or distributor for support:
www.lancom-systems.com/how-to-buy/

Online
The LANCOM Knowledge Base is always available via our website:
www.lancom-systems.com/knowledgebase/

In addition you can find explanations of all features of your LANCOM device in the LCOS reference manual:
www.lancom-systems.com/publications/

We offer free end-customer support for selected devices:
www.lancom-systems.com/supportrequest

Firmware
The latest LCOS firmwares, drivers, tools, and documentation can be downloaded free of charge from the download section on our website:
www.lancom-systems.com/downloads/

Partner support
Our partners get additional support access according to their partner level. More information can be found on our website:
www.lancom-systems.com/mylancom/

LANCOM Service

Extras for your individual requirements

Individual support contracts and service vouchers for the best possible support with guaranteed reaction times:
www.lancom-systems.com/support-products

Your LANCOM Team

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