VMWare ESXi Installation

This guide assumes that the ESXi image is already installed on the server when it is delivered.

Licensing

Since ESXi is a free product, you can easily register with VMWare and get the free version or an activation key.

The customer should register and you use the key from the customer on the server.

After registration at VMWare you can see the key under Downloads:



Thank you for registering for VMware vSphere Hypervisor, which includes VMware ESXi and vSphere Client.

Your license and download information can be found below. If you have questions or need support, visit the VMware Technology Network for produ documentation, knowledge bases and other resources, or contact your local authorized VMware partner. Additional support is also available for pur VMware store.

License Information

VMware vSphere Hypervisor 6 License

LICENSE KEYS

5N083-6U10J-P8M89-02026-C5210

Preparation

COMPONENT

wire the server and provide it with a monitor and keyboard.
 Provide at least 2 network ports in the local LAN to connect the servers to the network.

3. Flf 2 ESXi Servers, connect the designated network interfaces together. Cat 6 or Cat 7 is required for 10 GB networks. This can be seen on the cable (it says Cagegory 6 or 7 on it) but especially on the shielding of the plug - this is much more pronounced and usually has a "special" somewhat cooler appearance than Cat 5. see pictures (red is Cat-7, grey is Cat-5)



Configuring RAID

First you have to check if the RAID controller on the server is configured as desired.

This can be checked during start-up using the screen messages. The procedure is different per server / manufacturer.

For performance and redundancy a RAID10 with a hot spare disk is recommended (needs 5 hard disks, the capacity is 2 x disk size, tollerates failure of two disks afterwards the data is gone). RAID6 is also a good choice because the capacity is increased (requires at least 4 disks, with 5 disks 2 can fail before data loss occurs, the capacity is 3 x disk size).

Configure the desired RAID, and then restart the server.

First Steps VMWare

- 1. Switch on the server. These boot up after a few minutes and get an IP address from DHCP. This can be seen on the ESXi screen as soon as it is booted it says here "Download tools to manage this host from: (URL)".
- 2. Diese URL im Browser öffnen, Tools herunterladen (falls noch nicht vorhanden):



Getting Started

If you need to access this host remotely, use the following program to install vSphere Client software. After running the installer, start the client and log in to this host.

- Download vSphere Client for Windows
- Open the VMware Host Client

3. Open vSphere Client and enter the IP address of the VMWare server and "root" (without password) for login.

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a. Note: to start the software in English, change the link - add this in bold after the program name:
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b.

"C:\Program Files (x86)\VMware\Infrastructure\Virtual Infrastructure Client\Launcher\VpxClient.exe" -locale en_US

4. Ignore the license notice for now. The license will be installed later, after all other steps are completed.

Basic configuration

The basic configuration includes:

- Setting up storage.
- Updating the ESXi software to the latest kernel.
- Assigning the IP addresses for the internal LAN.

If necessary, change the IP addresses for the external LAN (Attention: this requires a route in the router at jtel so that this network is accessible).

Setting up storage

- On Home, click "Inventory" (icon), select ESXi Server, and then click Configuration, "Storage".
- Add Storage wählen:

View: Datastores Devices											
Datastores								Refresh	Delete	Add Storage	Rescan All
Identification	~	Device	Drive Type	Capacity	Free	Туре	Last Update	Hardware	Acceleratio	on	

- Select the RAID disk as Disk/ LUN (It is probably the only one).
- As storage name we recommend a reasonable name, for example Internal RAID10, select Maximum Space and create.

Updating VMWare to the latest version

On the console of the VMWare server, F2 (root + password - empty), then Troubleshooting Options, then enable ESXi Shell and SSH.

Log on to the VMWare server with Putty as root.

Enter command:

vmware -vl

If an update is required, proceed as described here:

Download the current ISO from VMWare:

Download Packages



The instructions for updating the ESXi can be found here:

https://www.youtube.com/watch?v=JPE8IP6Peeo

Network Configuration

If the ESXi Server is to be set up on the customer settings, the gate-muc1.jtel.local machine can be reconfigured so that the OPT1 interface matches the customer network settings.

From the ESXi Console or the vSphere Client, change the IP settings of the ESXi Server management interface to match the customer network.

This is done via: F2, enter password, Configure management network.

For Custom DNS suffixes the domain name should be entered, for example jtelacd.local.

Then reconnect to the vSphere Client.

Setting Up an Internal Switch for Communication Between ESXi Servers

Under Configuration, Networking, Add Networking, set up a network for the internal communication between the two VMWare servers, if necessary.

• Add Networking, Virtual Machine, Create a VSphere standard switch, select the network card(s) that should be connected to it: 🖉 Add Network Wizard \times

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Virtual Machines - Network Access

Virtual machines reach networks through uplink adapters attached to vSphere standard switches.

Connection Type Network Access	Select which vSphere standard switch will hand vSphere standard switch using the unclaimed n	e the network tra etwork adapters li	ffic for this connection. You may also create a new isted below.	
Connection Settings	• Create a vSphere standard switch	Speed	Networks	^
Summary	Emulex Corporation Emulex OneCo	nnect 0Ce1400	DO NIC	
	vmnic1	Down	None	
	vmnic2	Down	None	
	vmnic3	Down	None	
	Intel(R) Ethernet Controller X540-	AT2		
	Vmnic4	10000 Full	None	
	vmnic5	10000 Full	None	
	C Use vSwitch0	Speed	Networks	¥
	Preview:			
	Virtual Machine Port Group VM Network 2	-Physical Adapters 		
			≤Back Next ≥ Cancel	ļ

Click through and click OK.

If the ESXi servers are connected via switches, you do not need to set anything else (Attention: this is an assumption according to ESXi documentation but not tested because we did not have a 10GB switch to test). The ports must be connected to LACP (Link Aggregation Control Protocol) at the switch.

If the ESXi servers are connected directly to each other, an adapter should be switched to standby:

VM Network 2 Properties

	ns					
oad Balancing	:		Route based on the originating v	irtual port ID		
Network Failover Detection: Notify Switches: Failback:			Link status only Yes			
		☑	Yes			
ailover Order: Override sv Select active a adapters active	witch failover order: nd standby adapter ate in the order spo	: rs for this ecified bel	port group. In a failover situation ow.	, standby		
Name	Speed	Netw	vorks	Move Up		
Active Adap	ters			No. D		
vmnic4 Standby Ada	10000 Full pters	None	2	Move Down		
_						
vmnic5 Unused Ada	10000 Full p ters	None	2			
Vmnic5 Unused Aday	10000 Full pters ils	None	3			
vmnic5 Unused Adap Adapter Deta Name:	10000 Full pters	None	3			
vmnic5 Unused Adap Adapter Deta Name: Location:	10000 Full pters ils	None	3			
Adapter Deta Name: Location: Driver:	10000 Full pters	None	3			

NTP

In vSphere Client click on the ESXi Server. In the tab "Configuration", left click on "Time Configuration". In the upper right corner set to "Properties", "NTP Client Enabled" and press "Option".

æ	Time Configuration	×
	General	
	Date and Time Set the date and time for the host in the vSphere Client's local time.	
	Time: 18:04:06	
	Date: Freitag , 12. August 2016 💌	
	Note: The host will handle the date and time data such that the vSphere Client will receive the host's data in the vSphere Client's local time.	
	Outgoing Port: 123	
	Protocols: udp	
	NTP Client Enabled Options	
	OK Cancel	

The following settings must be made:

Ø	NTP Daemon (ntpd) Options	×
General NTP Settings	Status Stopped Startup Policy Image: Start automatically if any ports are open, and stop when all ports are closed Image: Start and stop with host Image: Start and stop manually Service Commands Image: Start stop Start Stop Restart Image: Start stop	
	OK Can	cel

Ø	NTP Daemon (ntpd) Options	×
General NTP Settings	NTP Servers ptbtime 1.ptb.de ptbtime2.ptb.de ptbtime3.ptb.de Add Edit Restart NTP service to apply changes	
	OK Cano	:el

It is recommended to configure all WIndows hosts with the VMWare tools so that they synchronize the time with the host.

This is done with the following commands:

Status Anzeigen:

"c:\Program Files\VMware\VMware Tools\VMwareToolboxCmd.exe" timesync status

Einschalten:

"c:\Program Files\VMware\VMware Tools\VMwareToolboxCmd.exe" timesync enable

Then switch off the Windows time sync:

ternetzeite	instellungen ie die Internetzeiteinstell	unden:	
Mit einem I	nternetzeitserver synchro	nisieren	
Server:	time.windows.com		Jetzt aktualisierer
		ОК	Abbrecher

Final Tasks

Set root password

Use the VMWare Console or GUI to change the password for root on the ESXi servers

License key VMWare

Enter your VMWare activation key together with the customer.

CPU / RAM and MAC adress

Reserve or set CPU and Mac addresses (the address cannot be copied - it must be set), and establish them, if present for several network cards). It is not well documented what to do here. The first digit must always be < 3F, i.e. copying the last 3 digits of the automatically generated MAC address does not always work. Of course you should test (before installing any licenses) if the MAC address is OK and if the network works correctly.

CPU reservation: divide the total CPU MHz by the number of cores, and then calculate and set the corresponding value (here for example 4 cores reserved from 6 the correct value):

2194 × 4 = 8.776 13164 ÷ 6 = 2.194

2 jtel-1-1-pn-1 (8Server-1) - Virtual Machine Properties

Hardware Options Resources

Settings	Summary	Ι.	Resource
CPU	0 MHz		
Memory	0 MB		Shares:
Disk	Normal		Deservati
Advanced CPU	HT Sharing: Any		Reservau
Advanced Memory	NUMA Nodes: 2		
			Limit
			Linits
			🛆 Limit ba

€ 6000
) 8776 <u>+</u> MHz ▲
A
) 13164 🛨 MHz

Here the RAM reservation for 4GB from 6GB:

🕝 jtel-1-1-pn-1 (8Server-1) - Virtual Machine Properties

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Hardware Options Resources		Virtual Machine
Settings	Summary	Resource Allocation
CPU	8776 MHz	
Memory	0 MB	Reserve all guest memory (All locked)
Disk Advanced CPU Advanced Memory	Normal HT Sharing: Any NUMA Nodes: 2	Shares: Normal G1 Reservation:
		Limit:] 58

e Version: 11 🛝 440 🕂 ю96 🕂 мв 8491 🔆 MB

▲ Limit based on parent resource pool or current host