NOC-PS manual

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Installation

System requirements

For easy of use, the NOC-PS software is shipped as a so called "virtual appliance", that requires little configuration to get it up and running.

To install the regular NOC-PS software the following system requirements apply:

- The NOC-PS virtual appliance has to be installed under one of the following hypervisors:
 - Vmware Vsphere
 - Citrix Xenserver
 - HyperV
- The host system must have a processor that supports 64-bit instructions. (all AMD Opteron
 processors and the latest generation of Intel Xeon processor support this).
- The virtual appliance has to be assigned a dedicated public IP-address that has direct Internet connectivity. This is required to be able to automatically download the necessary operating system installation files, upon first use. Proxy servers are NOT supported.
- No other DHCP servers may be active in the appliance's VLAN.

NOC-PS Lite does not require a hypervisor, but runs on a Raspberry Pi instead.

The following requirements apply to the dedicated servers that you wish to provision with NOC-PS:

The servers to be provisioned have to be located in the same VLAN as the NOC-PS appliance.
 -OR-

You have to configure your router to forward DHCP requests to the NOC-PS appliance. This is usually called "DHCP relaying" or "broadcast forwarding"

- The dedicated servers have to support network booting (PXE). Virtually all server grade mainboards and ethernet cards supports this, however this is not guaranteed to be the case with hardware meant for desktop systems.
- To be able to provision servers over the network, they have to be restarted. To automate this it
 is recommend that your servers are equiped with either an IPMI management card or connected
 to a switchable APC power distribution unit. Otherwise an engineer has to go on-site and restart
 the server manually.

				Phoe	nixBIOS	Setup I	Utili	ty	
Ma	in	Advanc	ced	Secur	ity	Power	Bo	oot	Exit
	Network boot from Intel E1000								Item Specific Help
Network boot from Intel E100 -Hard Drive Bootable Add-in Cards Seagate Disk (0:0) +Removable Devices CD-ROM Drive					5				Keys used to view or configure devices: <enter> expands or collapses devices with a + or - <ctrl+enter> expands all <shift +="" 1=""> enables or disables a device. <+> and <-> moves the device up or down.</shift></ctrl+enter></enter>
									<n> May move removable device between Hard</n>
									Disk or Removable Disk <d> Remove a device that is not installed.</d>
F1 Esc	Help Exit	11 S ↔ S	Select Select	Item Menu	-/+ Enter	Change Select	Va lue ► Sul	es b-Me	F9 Setup Defaults mu F10 Save and Exit

- To tell the server to boot from network instead of disk, it is required that:

You modify the BIOS boot order, so that the system first attempts to boot from the network, before falling back to booting from hard drive.

-OR-

Your system has to have an IPMI management card. In that case NOC-PS can instruct the server to boot from network automatically, without having to change the boot order manually.

Network setup

NOC-PS deployment (simple setup, flat network without VLANs)



In a simple setup without VLANs no special router configuration is necessary.

Do make sure that no DHCP servers are active in the network as those can conflict with provisioning.

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Also make sure that if the Spanning Tree Protocol is enabled on your Ethernet switches, portfast is activated on switch ports connected to servers (but not on ports that connect to other switches)

Enabling portfast on all ports for a Cisco rack switch:

```
Switch2> enable
Switch2# configure terminal
Switch2(config)#spanning-tree portfast default
```

If some of your ports are connected to other switches, instead of servers, do not make portfast the default, but set each interface individually.

Using the standard Spanning Tree Protocol without portfast causes problems when booting servers over the network, as it can take 30-50 seconds before the server has network connectivity (the switch port transitions to the forwarding state) and boot firmware is often not that patient.

If your switch does not support portfast, see if it has Rapid STP instead, or disable STP completely.

NOC-PS deployment (datacenter, multiple VLANs)



If you have multiple VLANs you must configure your router or L3 switch to forward DHCP requests from foreign VLANs to the IP-address of your NOC-PS installation.

Usually the command is called "ip-helper address"

ip-helper address 1.2.3.4

Where 1.2.3.4 is the NOC-PS IP.

Look for the term "DHCP relaying" or "Broadcast forwarding" in your router's manual if in doubt.

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Installation under Vmware Vsphere

To install the NOC-PS virtual appliance under Vmware vSphere ESXi:

File	Edit	View	Inventory	Administratio					
	New	,		► it					
	Dep	loy OVI	F Template						
	Exp	ort		•					
	Rep	• a							
	Brow	Browse VA Marketplace							
	Prin	t Maps) E					
	Exit								

- 1) Download the .ZIP from the NOC-PS website, and extract it to a temporarily folder on your hard drive.
- 2) Start the "Vmware vSphere client", and go to the menu "File" \rightarrow "Deploy OVF template"

🚱 Import Virtual Appliance Wizard

Import Location

Where do you want to import a virtual appliance from?

■ Import Location VMTN Virtual Appliance Details End User License Agreement Name and Location Ready to Complete	A virtual appliance is a pre-built, pre-configured, ready-to-run enterprise application packaged along with an operating system inside a virtual machine. Select the location from which you want to import this virtual appliance. Import from the VMware Virtual Appliance Marketplace Choose this option to browse virtual appliances that are available for download from VMware. Import from file: D:\noc-ps\NOC-PS alpha v1\NOC-PS alpha v1.ovf Browse Choose this option to import a virtual appliance from a file (*.ovf), for example your
Help	harddrive or CD drive. Import from URL: http://download3.vmware.com/software/studio/studio20Beta/VMware_Studio v Choose this option to download and install a virtual appliance from a location on the internet (e.g. http://vmware.com/VA/appliance.ovf) < Back

- D X

3) Choose "import from file", browse to the folder where you extracted the files, and select the .ovf file.



4) Choose "next" \rightarrow "next" \rightarrow "finish", and wait for the upload to finish.

Installation under Citrix Xenserver

1) Download the .XVA bestand from the NOC-PS website.



2) Start "Xencenter" and go to "File" \rightarrow "Import VM"

🗷 Import		
Specify the locat	ion and type of the import source	0
Import source Home server Storage Network Finish	Import file name: D:\noc-ps\WOC-PS-alpha-0001-XEN.xva Import type: • Exported VM • Exported template Note: The same file extension (.xva) is used for both exported VMs and exported templates	Browse
	< Previous Next > Finish	Cancel

3) Browse to the downloaded .XVA file, and select the option "exported VM", and click "next" → "next"

💌 Import							
🛄 Configure virtual I	Configure virtual network interfaces for the new VM						
Import source The virtual network interfaces configured for the imported VM are listed below. You can add, modify or remove virtual network interfaces as required. Storage Network							
Finish	Name	<u>م</u>	MAC Address	Network			
citrix.			auto-generate	Network U	Add Delete		
				< Previous Next >	Finish Cancel		

4) IMPORTANT: under "Configure virtual network interfaces for the new VM" add one virtual network card, by pressing "Add"

Press "next" -> "finish", en wait until the upload is complete.

Initial configuration

After the software has been installed, you have to configure the network and login settings.

Go to your (Vmware/Xen) "console" and enter the information there. Depending on your hypervisor this window might look slightly different.

🕝 NOC-PS alpha v1 on vmware	1. je-eigen-domein. nl	
File View VM	ect Floppy 1 🔯 🔯	
<-		Installation procedure
Project NOC	-PS Installation	
Please provide the follow	wing information to start the installation of t	the management webinterface.
	License information	
Licensed to	Beta user	
License type	Time limited beta version	
	Network configuration	
IP-address	1.2.3.4	
Netmask	255.255.255.0	
Gateway	1.2.3.5	
	Admin user	
Username	admin	
Password	*****	
Repeat password	****	
	Configuration	
Auto-detect existing hos	sts in subnet [X] (uses ARP ping/reverse DN	S scanning)
[Start installatio	in the second se	

Enter the following information:

- IP-address, netmask, gateway: the IP-address and network information the NOC-PS software and web interface will use.
- Admin user: the desired administrative username and password. This is the information you use to login to the NOC-PS web interface.
- "Auto-detect existing hosts": NOC-PS can optionally auto-detect existing servers in your network, so that it knows which IP-addresses are available and which are in use. Note: this works only for servers within the same VLAN.

Click on "start installation" to complete the configuration and start installation.

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Overview of web interface



After installation has completed, go to the IP-address you specified during installation, with a normal web browser such as Firefox. You will be prompted for the username and password you specified earlier.



By default two windows are openend, "servers" and "status". By clicking "start" on the bottom-left of the screen, a menu with the other options is presented.

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Overview of the available menu options:

Servers	Provides an overview of all servers. By selecting a server and pressing the "provision" button, it is possible to install a new Operating System on the server.It is possible to show the servers grouped by subnet, by connection to devices such as switches and by pool.
Status	Provides a status overview of the server installations in progress.
Subnets	Can be used to configure additional subnets.
Installation profiles	Installation profile settings.
Users	Add and remove administrative users.
Misc settings	Configures default settings, and the SSL certificate of the web interface.
Pools	Add and remove pools
Update	Updates the NOC-PS software to the latest version.

Adding new servers

- 1) go to "start" \rightarrow "servers"
- 2) next to "hosts" click "add"
- 3) add the following information:

Servers – 🗆 🗙								
Servers by s	Servers by subnet by connection by pool global search							
Subnet: 192.1	68.178.0							
Hosts: 📀 Add	d 👻 💞 Provision 🛛 県 Console	e 🥜 Properties 🤤 Delete	4	IPMI 📔 SSH				
IP-address 🔺	Add a host			lress				
192.168.178.	Subnet:	192.168.178.0/24		0b:4c:12				
192.168.178.	Main IP-address:	192.168.178.2		10:31:3e				
192.168.178.	Number of IP-addresses:	1		86:01:b1				
192.168.178.	Hostname:	my-server		de:ad:07				
192.168.178.	MAC-address:	0c:c4:7a:0b:51:78	•	26:ac:0e				
192.168.178.	Pool:	None	~	99:a8:da				
192.168.178.	Description (optional):			0b:51:78				
192.168.178.	IPMI IP-address:	192.168.178.200		12:0a:22				
	IPMI username:	admin						
	IPMI type:	IPMI v2.0 with KVM console	~					
	Add Add & provision Cancel							
				_				

- Main IP-address: the first IP-address of the server.
- Number of IP-addresses: the number of IP-address to assign to the server. Note: the IP-address must be numbered sequentally from the first IP.
- Hostname: the name of the server.

- MAC-address: the MAC-address of the server.

Address unknown? Reboot the server, and click on the icon to the right of the MAC-address input field.

	Serve	:rs	- • ×					
Sub	Subnet: 83.149.75.160 🗸							
Hos	sts: 🤇	Hosts that did a DHCP boot recently	_ = ×					
IP-	addres	Last boot MAC-address Hostname						
8:	Add	37 minutes ago 00:0c:29:f1:e0:7d -unknown-						
8:	Sut							
8:	Ma							
	Nui							
	Ho							
	ма							
	Arc							
	De	🛛 🖣 Page 🔢 of 1 📄 🕅 😂 Displaying	1 - 1 of 1					
	IPN	Select	ncel					
<								
		Add Add & provision Cancel						

A list of unknown servers that started recently will be presented.

This does require that the server has been configured to attempt to boot from the network first (in the BIOS boot order, or using IPMI).

- Pool: optionally you can organize your servers into pools. E.g. you can put servers that are currently not in-use into the "available servers" pool.
- Description: optional description of the server.
- IPMI IP-address: if your server is equiped with an IPMI/iLO/DRAC management card, enter its address here.
- IPMI username: IPMI username, for example "admin". Note this is case-sensitive. And some manufacturers use "ADMIN" by default.
- IPMI type: the IPMI or AMT version to use.

4) Click "add" to only add the server to the system for later use, or "add & provision" to install an operating system on the server straight away.

Automated server installations (provisioning)

- 1) go to "start" \rightarrow "servers"
- 2) selectect the server you wish to install, and choose "provision"
- 3) enter the following information:

rovision host	= 🗆 🗙
MAC-address:	00:0c:29:b9:b5:f1
IP-address:	83.149.75.162
Hostname:	server1
Reboot method:	IPMI 🗸
IPMI password:	•••••
Installation profile:	Ubuntu 10.04 🗸
Disk layout:	Standard 🗸
Package selection:	LAMP + FTP server
Extras:	None
	None
Root user	
Password:	•••••
Repeat password:	•••••
Regular user (optiona	al with most profiles)
Username:	charlie
Password:	
Repeat password:	
rovision host (WARNING: (overwrites data on disk) Cancel

- Hostname: the current host name is displayed, which you can edit if desired.
- Reboot method: wheter you would like to use IPMI, an APC switching PDU to automatically reboot the system, or if you are going to do so manually.
- IPMI password: if you would like tell the server to reset and boot from network using IPMI, you need to enter your IPMI password here. For security reasons, passwords are NOT saved by default, and you have to enter them each time.
- Installation profile: the desired operating system.
- Disk layout, package selection and extras: select additions options here ("add-ons"). The

available options differ by installation profile.

- Root user password / confirm password: enter the desired administrative (root) password twice.
- Regular user: in addition to creating an administrative (root) account, it is possible to add a "regular" user account as well. This is optional with most profiles.
- 4) click on "provision host"
- 5) restart the server. (this is done automatically if you selected "IPMI" or "APC PDU" as reboot method)
- 6) The installation will start automatically. You can monitor its progress in the "status" window.

Profiles

CentOS, Ubuntu, Fedora, Debian, FreeBSD:

A minimal Operating System is installed by default, with a static network configuration, a SSH daemon for remote management, and a local DNS server, so that it does not depend on other systems.

Additional software has to be installed manually, or must be added to the "installation profile" settings.

Note that FreeBSD, Ubuntu and Debian do not allow direct root logins through SSH. So always create a regular user as well. If you wish to connect through SSH you need to login with this regular user first, and su for root afterwards.

Sysrcd:

Using the "rescue system" you can solve boot issues, or reset forgotten root passwords.

The software will not be installed on the hard drive, but is executed over the network.

After activating the profile, you need to use SSH or VNC to connect to the IP-address of the server, using the supplied root password.

After you finished with the maintenance, press "cancel provisioning" in the "status" window, to end the session. After which you will need to restart the server.

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Creating new VPSes

Instead of adding physical servers to the system, it is also possible to let NOC-PS create new virtual machines on a Vmware vSphere, Xenserver HVM or Proxmox node.

C	🕽 Add 💣 Prop	erties 🤤 Dele	ete				
IP	-address	Туре	Name	e/Description	Error message (if app		
1	Device settings				= 🗆 🗙		
	Name:			proxmox			
	Type of device	e:		Proxmox host			
	IP-address:			192.168.178.30			
	Username:			root			
	SNMP commu	unity/password	:	•••••			
-				Auto-detect server	ſS	H	
				Sa	ve Cancel	┝	

1. Go to "start" → "devices", press "add" and add your hypervisor nodes to the NOC-PS system first.

Server	s					
Servers	Servers by subnet by connection by pool global search					
Subnet: 8	3.149.75.160	*				
Hosts:	Add 🚽 💣 Provi	ision 룆 Cons	ole 🥜 Properties 🤤 De			
IP-add	Server	ie	Description			
83.149	VPS		In use by NOC-PS			
83.149	IP reservation	-75-171				

2. To create a new VPS: go to "start" → "servers", press the arrow down symbol to the right of "Add" and select "VPS"

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Add a VPS	= = ×
Subnet:	83.149.82.224/27
Main IP-address:	83.149.82.232
Hostname:	hostname
Description (optional):	
Hypervisor:	vmware 💌
Datastore:	vmware
Number of IP-addresses:	proxmox
Memory in MB:	512
Disk space in MB:	10000
	Add Add & provision Cancel

- 3. Enter the network information, hostname, description of the VPS.
- 4. Select the "hypervisor" node you want to create the new VPS on.
- 5. And enter the virtual hardware specifications such as "memory" and "disk space"
- 6. Press "add" to just create the new VPS, and "add & provision" if you wish to install an operating system on it straight away.

Console functionality



– Go to "start" \rightarrow "servers" \rightarrow select a server \rightarrow press the "console" button, to view the server's console.

This functionality is available for all virtual machines, and a limited number of physical server models.

The problem with dedicated server support is that the console functionality is not part of the core IPMI specification, but vendor specific.

Server properties

By going to "start" \rightarrow "servers" \rightarrow select a server \rightarrow press "properties" button, you can edit the server's properties.

General

Jpdate a host				
General Connections	Private network Hardware			
MAC-address:	0c:c4:7a:0b:51:78			
Last profile installed:	Collect hardware information			
Subnet:	192.168.178.0			
Main IP-address:	192.168.178.105			
Additional IP-addresses:				
Hostname:	testserver			
Pool:	Available servers			
Description (optional):	[Hw: E3-1241 v3 @ 3.50GHz - 16 GiB - 1024 GB - X10S			
IPMI IP-address:	192.168.178.13			
IPMI username:	ADMIN			
IPMI password: storing passwords is optional				
and at your own risk				
IPMI type:	IPMI v2.0 with KVM console			
Permanent DHCP:	Act as DHCP server for this host			
IPv6 subnet:	None			
IPv6 address(es):				
	Update Cancel			

In the "General" tab one can set network settings, and optionally save the IPMI password in the system.

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Connections

Update a host				
General	Connections	Private network	Hardware	
O Add	😳 Add iSCSI disk	\ominus Delete		
Device	Туре	Port #	Port description	
switch	switch	23	up [ether23-slave-local]	
			Update	Cancel

In the "Connections" tab one can create connections to devices such as Ethernet switches (for data traffic graphing), and remote power switches (for automated rebooting).

Private network



In the "private network" tab, one can assign IP-addresses to secondary network cards.

Note that despite the tab being labeled "private network", you can also set your "public network" settings here if you choose to use a "private network" as your main network for provisioning.

Hardware information

Update a host				
General Connecti	ons Private network Hardware			
Name	Value	Extra info		
Hardware				
BIOS version	2.0 (04/24/2014)			
CPU #1	Intel(R) Xeon(R) CPU E3-1241 v3 @ 3	3.50GHz		
CPU: supports 64-bit	true			
CPU: virtualization	true			
HDD #1	1024 GB Crucial_CT1024M5	14110C0AFFFA		
Mainboard	X10SLM-F	ZM146S015616		
Memory	16 GiB			
NIC #1	Ethernet Connection I217-LM	0c:c4:7a:0b:51:79		
NIC #2	I210 Gigabit Network Connection	0c:c4:7a:0b:51:78		
Storage controller #1	8 Series/C220 Series Chipset Family 6	S-port		
System	X10SLM-F (To be filled by O.E.M.)	0123456789		
🖃 Hardware info repo	rts			
Full info (html)	Ishw.html			
Full info (xml)	lshw.xml			
		Update Cancel		

You can let NOC-PS collect hardware information of the systems by provisioning a server with the "Collect hardware information" profile.

The results will then be displayed in the "hardware tab" of the server properties.

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Data traffic graphs



Under "start" \rightarrow "data traffic" data traffic statistics and graphs can be displayed.

This does require that the servers have been associated with an Ethernet switch port in the server properties first.

Adding additional subnets

To add additional subnets to the system:

Subnets – 🗆 🗙					
IPv4 IPv6					
🕑 Add 🌼	Properties 🖞 Split 🤤 D)elete			
Subnet 🔺	Netmask	Gatev	vay	VLAN	Description
192.168.178.0	255.255.255.0	192.1	68.178.1	0	
Add a	asubnet				
Su	bnet:	1.2.3.0			
Ne	tmask:	255.255.25	55.0 (/24)		~
Ga	teway:	1.2.3.1			
VL	AN ID (optional):	0			
De	scription:				
Add Cancel					
🕅 🔍 Page	e 1 of 1 🕨 🕅 🧔	5			Displaying 1 - 1 of 1

- 1) go to "start" \rightarrow "subnets".
- 2) click on "add"
- 3) enter the network IP-address, the "netmask and "gateway" and click "add"

Entering a VLAN ID is optional and only used to match Ipv4 subnets to Ipv6 subnets.

Note that if the "subnet" resides in another VLAN than the NOC-PS system, you have to configure your router to use DHCP relaying, to forward DHCP requests to the NOC-PS system.

Usually that is a matter of adding a one-liner like "ip helper-address 1.2.3.4" to the configuration, where 1.2.3.4 is the NOC-PS IP-address.

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Splitting subnets



Subnets – 🗆 🗙						
IPv4 IPv6						
Add Properties V Split Delete						
Subnet 🔺	Netmask	Gateway	VLAN Description			
1.2.3.0	255.255.255.248	1.2.3.1	0			
1.2.3.8	255.255.255.248	1.2.3.9	0			
1.2.3.16	255.255.255.248	1.2.3.17	0			
1.2.3.24	255.255.255.248	1.2.3.25	0			
1.2.3.32	255.255.255.248	1.2.3.33	0			
1.2.3.40	255.255.255.248	1.2.3.41	0			
1.2.3.48	255.255.255.248	1.2.3.49	0			
1.2.3.56	255.255.255.248	1.2.3.57	0			
1.2.3.64	255.255.255.248	1.2.3.65	0			
1.2.3.72	255.255.255.248	1.2.3.73	0			
1.2.3.80	255.255.255.248	1.2.3.81	0			
1.2.3.88	255.255.255.248	1.2.3.89	0			
1.2.3.96	255.255.255.248	1.2.3.97	0			
1.2.3.104	255.255.255.248	1.2.3.105	0			
1.2.3.112	255.255.255.248	1.2.3.113	0 -			
🕅 🖣 Page	🕅 🖣 Page 1 of 1 🕨 🕅 🍣 Displaying 1 - 33 of 33					

It is also possible to add a bigger subnet to the system first, covering your network, and use the "split" subnet button, to split it into smaller subnets.

Adding Windows support (not available in Lite edition)

NOC-PS provides support for Windows server 2008, 2012 and later versions.

However due to licensing issues we cannot ship the necessary installation files, with the NOC-PS software.

To add Windows support, you need to insert a Windows ISO into the virtual DVD drive of the NOC-PS virtual machine

You can either:

- Upload the ISO to the Hypervisor (e.g. VMware)

OR

- Burn it to DVD and put the DVD in the Hypervisor server.

ardware Memory CPUs Floppy Drive 1	Summary 300 MB	Device Status
Memory CPUs Floppy Drive 1	300 MB	
CPUs Floppy Drive 1		Connected
Floppy Drive 1	1	Connect at nower on
	Client Device	
Hard Disk 1	Virtual Disk	Device Type
Network Adapter 1	VM Network	C Client Device
SCSI Controller 0	LSI Logic	Note: To connect this device, you must power on the
CD/DVD Drive 1 (edited)	[datastore1] ISO/N	virtual machine and then click the Connect CD/DVD
		Datastore ISO file [datastore1] ISO/NOCPS_WINDOWS Browse Mode Passthrough IDE (recommended) Gonnect exclusively to this virtual machine Emulate IDE Virtual Device Node
Add Remove		C IDE (0:0) CD/DVD Drive 1

Assign a virtual DVD drive to the virtual machine running the NOC-PS software.

(Vmware: under "Vmware virtual machine properties": "add" \rightarrow "CD/DVD drive")

Tell NOC-PS to copy the files from the ISO image:

To add support for Windows 2008 or 2012 to the system, you need a Windows installation DVD.					
 If you need to add drivers, put all .inf and .sys files in a single .zip (without directories) and upload it here. 					
- The Windows DVD has to be attached to the (virtual) DVD drive of the NOC-PS virtual appliance.					
 Click the "Scan for installation DVD" button to search for the DVD and populate the "Available Windows editions" list. 					
 Select the Windows edition(s) you want to install, and click on the "add" button. 					
License type: Volume licensing					
License key (optional):					
OS language: en-us					
Cache folder on disk to copy files to:					
Extra drivers (optional): Select a .zip file Browse					
Available Windows editions					
Windows Server 2012 R2 Datacenter (Server Core Installation)					
Windows Server 2012 R2 Datacenter (Server with a GUI)					
Windows Server 2012 R2 Standard (Server Core Installation)					
Windows Server 2012 R2 Standard (Server with a GUI)					
Add Scan for installation DVD Cancel					

- 1. Go to "Start" \rightarrow "Profiles"
- 2. Click on "Add windows"
- 3. Enter your license number, select the Windows editions you would like to add, and click on

"Add"

Alternatively: you can leave the license number field blank, and add the license numbers manually to the provisioned servers after installation.

Limitations:

- The hardware of your servers should be supported out-of-the-box by Windows.

While it is possible to add additional drivers, it is not guaranteed to work in all cases, and no support can be given by us on this.

Support for APC switching PDUs

In addition to using IPMI, it is also possible to automatically reboot systems using an APC switching Power Distribution Unit, which can turn the power of the system, off and on again.

First you need to configure SNMP access in the webinterface of your APC PDU:

	ΔΡС		Network
Switched Rack PDU	SNMP		V
IP: Switched Rack PDU Outlets	SNMP Access: Apply Cancel	Enabled v	
Events Data	Access Control		
Network TCP/IP	Community Name	NMS IP/Domain Name	Access Type
DNS	public	0.0.0.0	Disabled •
Telnet/SSH		1.2.3.4	Write
SNMP			Displad -

- 1) Go to "Network" \rightarrow "SNMP". Make sure "access" is "Enabled"
- 2) Under "access control" in the same window, enter a secret community name, the IP-address of the NOC-PS appliance, and select "access type" "write+". Now "apply" the configuration.

Devic	es			_ 🗆 🗙
🕜 Add	Properties	\ominus Delete		
IP-addre	ess Type	Name/Desc	ription	
83.149.	Device settings			
	Name:		apc	
	Type of device	2:	APC remote power switch	~
	IP-address:		83.149.75.2	
	SNMP commu	nity:	•••••	
14 4			Save	ancel

3) In the NOC-PS interface, go to "start" → "devices", and press "add". Enter a friendly name for your device (e.g. "APC unit 123"), "APC remote power switch" as type, the IP-address of the device, and the secret community name. Finish by pressing "save"

You now need to assign the ports of the power switch to individual servers:

Update	e a host		- - ×	
Gene	eral Connections			
🗿 Ad	d 🛛 🥥 Delete			
Devic	e	Туре	Port #	
	1			
	Add device connection			<u>- </u>
	Device:	apc		~
	Port #:	3) Cheetah		~
	Device: if the PDU/switch listed here, add it first by	this server is cor going to "start"	nected to is no > "devices"	t
	Port: only ports that have here.	e not been assign	ed yet, are liste	:d
			Add Car	ncel
		Update	Cancel	

- Go to "start" \rightarrow "servers". Select an individual server, and press "properties"
- Under the tab "Connections", click on "Add". Select the device from the list, and choose the port number.

Profile settings

To change the profile settings:

Installation	profiles	
Base profiles	Add-ons	
📀 Add 🛭 💣 Pro	perties 🛛 🏘 Clone profile 🛛 🤤 Delete	Add Windows
Profile	Profile settings	×
CentOS 5.4	General Disk layout PXE script	Post-installation
CentOS 5.4 (32-b		
Clonezilla (ssh as	Name:	CentOS 5.4
Debian Lenny	Architecture:	64-bit 💌
Debian Lenny (32	Version/edition:	
Fedora 12	Tags:	centos kickstart linux
Fedora 12 (32-bit	License kev:	
FreeBSD 8.0	Download LIBL /mirror:	http://mirror.leaseweb.com/centos/5.4/os/v86.64
Proxmox VE	Casha faldar an disk:	mitp/minor.reaseweb.com/centos/5.4/0s/x00_04
Sysrcd [SSH/VN0	Cache loider on disk.	centos54
Sysrcd [SSH/VNC	ISO file:	
Ubuntu 10.04	TFTP boot files archive:	
A Page	Packages to install:	openssh-server
		# Packages we do NOT need: -anacron -aprid
		Save Cancel Delete cached files

- 1) Go to "start" \rightarrow "profiles
- 2) Select the profile you wish to update and select "properties"

The following information is listed here:

Name	Name of profile
Architecture	Meant for 32-bit or 64-bit systems.
Version/edition	If an operating system has multiple editions, the desired edition is

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	entered here.
Tags	Tags seperated by spaces. Tags are used to determinate which add-ons are related to this profile.
License key	License key (if necessary)
Download URL/mirror	Location where the installation files of the operating system can be found.
Cache folder on disk	Folder on disk where the installation files will be cached. Using the button "delete cached files" you can delete stale files.
ISO file	If a location of an ISO file is supplied. The file will be downloaded, extracted and its contents placed in the cache folder.
TFTP boot files archive	If a location of an archive file (for example .tar.gz) is supplied, its contents will be extracted in the TFTP boot folder.
Packages to install	Which software packages to install.
Tab "disk layout"	Partition layout. Format is specific to each operating system.
Tab "PXE script"	PXE boot script. You can enter specialized kernel parameters here.
Tab "post-installation"	Post-installation script that is executed at the end of installation.
Tab "first boot"	Script that is executed after installation on first boot.

Adding and cloning profiles

To create a new profile, click "add".

To base your new profile on an existing profile, click "clone".

Add-ons

Instead of creating an entire new profile, it is also possible to add small optional modifications to an existing profile, using add-ons.

For example you can use add-ons to specify a custom disk layout, or a post-installation script that installs additional software.



Creating "add-ons" is done under the tab "add-ons" in the window "profiles"

Each add-on is associated with a tag, to determinate to which profiles it is related. E.g. by using the tag "linux" the system knows this add-on applies to all Linux distributions.

Using the tag "kickstart" it only applies to distributions that support the "kickstart" installation mechanism, such as CentOS, Fedora or Ubuntu.

Import data from external system or database.

You can integrate the NOC-PS system with your own software using our XML-RPC or JSON-RPC API.

PHP examples can be found on the NOC-PS website, under "downloads"

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Installing a SSL certificate

You can add a proper SSL certificate to the NOC-PS webinterface.

Defaults Locale Nameser	vers SSL	= 🗆 🗙		
Replacing SSL certificate				
You can replace the default se	elf-signed SSL certificate used by the v	webinterface, with a		
This requires that you generate a CSR file by pressing the button below, use that to request a certificate from a Certificate Authority, and upload the files you receive from them below.				
Certificate file:	Select the .crt file	Browse		
Intermediate CA file:	Select the .crt file	Browse		
Private key file (only if not	Select the .key file	Browse		
using csr):				
	Generate CSR Replace certific	ate files Close		

- 1) Go to "start" \rightarrow "Misc settings"
- 2) Go to the tab "SSL", press the "Generate CSR" button to generate a certificate signing request (CSR), and enter the hostname you like to use for NOC-PS.
- 3) Use the generated CSR file to purchase a certificate from a certificate authority such as RapidSSL.
- 4) Upload the issued certificate file to NOC-PS.

If you have a wilcard certificate (*.provider.com) for use by multiple websites, you can also install that. In that case you do not generate a new CSR, but upload your existing private key and certificate files.

Creating users

You can give multiple users access to the system.

Users - D					
🕑 Add	O Add ∰ Properties ⊖ Delete				
Usernam	ne				
admin	User settings _ 🗆 🗙				
14 4	Username: gebrui Password: •••• Repeat password: •••• Yubikey OTP token (opti Private identity: AES key (hex):	Jiker			
		Save Cancel			

- 1) Go to "start" \rightarrow "users"
- 2) Click "add" and enter the requested username and password.

Warning: the NOC-PS webinterface is meant to be used by administrators only, and as such all users have full administrative rights.

You must integrate our API in your own billing portal if you wish to provide end-users the ability to only manage their own systems.

Programming and configuring Yubikey OTP tokens

For additional security it is possible to require the use of Yubikey OTP tokens in addition to normal password authentication.

First you need to program a shared secret into the Yubikey configration Utility.

1) Download and install the Yubikey configuration utility: http://www.yubico.com/developers/personalization/

🕐 Yubikey Configuration Utility - Start page 🛛 🛛 🔀	🕐 Select task 🛛 🔀
Welcome to the Yubikey configuration utility The Swiss Army Knife for the Yubikey	Programming the Yubikey Create a dynamic Yubikey configuration (OTP mode) Create a static Yubikey configuration (password mode) Remove an existing Yubikey configuration
	 Testing the Yubikey Check the Yubikey type and firmware version Test the OTP output of a configured Yubikey
The application version is 2.00.2	C Convert between different number formats
Build timestamp Sep 16 2009 21:55:01	Global settings
Copyright (c) 2009 Yubico	 Review or change program settings Specify a text file for configuration input
< <u>Back</u> [<u>Next</u> >] Exit	< <u>B</u> ack <u>N</u> ext > Exit

- 2) Start the configuration utility, and click "next"
- 3) Choose "create a dynamic Yubikey configuration (OTP mode)" and click "next"

🕐 Specify a public identity	X	
Before the OTP string, a fixed identity can be used as a prefix which identifies a particular Yubikey. The fixed part is sent in clear text as opposite to the OTP part		
Do not use a public identity		
C Use a public identity		
Desired length	(1 - 16 bytes)	
Public ID string		
Public © Fi © In © R	ID string update scheme xed value crement by one Single rand andomize ead from file	
Remember these settings and don't ask next time		
< <u>B</u> ack <u>N</u> ext > Exit		

4) Choose "do not use a public identity" and click "next"

💮 Specify private ide	entity	×
As a part of the OTP, a fixed length of 6 bytes.	n optional private identity (UID) may be specified with a e identity ty	
ID string	5a 2b 44 f2 3f a9	
	Private ID string update scheme Fixed value C Increment by one Randomize C Randomize C Read from file	
Remember these settings and don't ask next time		
	< <u>B</u> ack <u>N</u> ext > Exit	

5) Choose "use a private identity", select "fixed value" and press "single rand" to get a random value. Copy or write down the "ID string" (in this example: 5a 2b 44 f2 3f a9), and click "Next"

🕑 Specify cryptograp	hic key 🛛 🔀
In order to generate an (specify one manually or	DTP, a cryptographic (AES-128) key is needed. Please select it to be automatically generated in a random fashion
AES key (16 bytes)	11 88 bc 7b c6 eb b3 0e 8e fb a2 d6 1e 1b f0 55
	Key update scheme Fixed value Increment by one Randomize Read from file
	F Remember these settings and don't ask next time
	< <u>B</u> ack <u>N</u> ext > Exit

6) Select "key update scheme" "fixed value" and click "single rand" to configure a random key. Copy or write down the "AES key", and click "next"

🕜 Specify output parameters	×
Output format flags Send a TAB character first Send a (reference) string of all Modhex before the fixed part Send a TAB character between the fixed part and the OTP part Send a TAB character after the OTP part Send ENTER as the last keystroke	
Output speed throttling Slow down character output by 20 ms Slow down character output by 40 ms (1 + 2 = 60 ms) Add a short delay before sending the 0TP part Add a short delay after sending the 0TP part	
Strong password policy (Yubikey 2 only) Mix upper- and lower case Mix characters and numeric digits Send a special character as prefix	
□ Remember these settings and don't ask next time < <u>Back</u> Exit Exit	

7) In the output parameters select "Send ENTER as the last keystroke" \rightarrow "Next"

🖸 Programming	3	×
It is now time to Selected task: Public ID Secret ID Key Cur acc code: New acc code: Write to cor	update the key. Review settings, select config and press start Program OTP mode key N/A Fixed string Fixed string N/A N/A N/A Mauration 1 C Write to configuration 2 (Yubikey 2 only)	
Run	Lock / protect configuration 2 (Yubikey 2 only) Insert Yubikey in USB port and press Run	
#	Time Delta (s) Status / public ID	
Passed: 0	Failed: 0	

7) Press the "run" button to program the token.

🔲 Users 📃 🗆 🗙		
O Add Properties O Delete		
Username		
User settings		
Username:	yubifan	
Password:	••••••	
Repeat password:	•••••	
Yubikey OTP tok	en (optional)	
Private identity (hex):	5a 2b 44 f2 3f a9	
AES key (hex):	11 88 bc 7b c6 eb b3 0e 8e fb a2 d6 1e 1b f0 55	
	Save Cancel	

8) In the NOC-PS control panel, go to "Start" → "Users". Select a user, and click on "properties" to edit the settings, and enter the private identity and AES key you wrote down.

Logging in with Yubikey

From now on, you will have to use the Yubikey to login. First you enter your username and password as usual.

And then you press the button on the Yubikey OTP token, when prompted, to complete sign-in.

🔐 Login	
Access to this location is restricted to authorized users only. Please type your username and password.	
Username: Password:	Yubikey X Press the button on your Yubikey OTP token:
Language:	OK Cancel 54
	Close



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