NetAct 18A

Prerequisites for Installation and Upgrade

DN1000004071

Version 7

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Approval Date – 08.10.2018

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Summary of changes

|  |  |  |
| --- | --- | --- |
| Version | Date (dd.mm.yyyy) | Description of Change |
| 7 | 26.02.2019 | In Table 22 Free disk space required from VM file systems, updated the required free space for WAS VM (PR407828) |
| 6 | 22.02.2019 | * In section 4.9 Handling customizations in NetAct upgrades, updated the URL of the Customization Guidelines document. * Added a note in section 3.18 Licenses |
| 5 | 13.02.2019 | Updated section 3.17 Licensing Parameters with SharePoint link |
| 4 | 14.11.2018 | Updated the link in section 3.5. |
| 3 | 26.10.2018 | In 4.6 Expanding the datastore for upgrade, added Step 2 and removed the note under Step 3. |
| 2 | 19.10.2018 | Approval date added. |
| 1 | 25.09.2018 | First draft version for NetAct 18A |

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# Introduction

## Purpose

The purpose of this document is to list the prerequisites that must be met before commissioning the NetAct 18A release (by installation or upgrade). This document provides a checklist of tasks that must be completed before installation and upgrade. Information on how to complete these tasks is given where necessary. CI, Managed Service personnel and OSS engineers can use this document to ensure that customer sites are prepared for the installation or upgrade.

## Audience

This document is intended for personnel involved in the commissioning process.

## Updated information

The information contained in this document is subject to change and will be updated when necessary. Make sure that you have the latest version of this document for the software version you are installing or upgrading.

## Maintenance and Delivery contact information

1. Maintenance and delivery contact information

|  |  |
| --- | --- |
| **Nokia SW inquiries** | E-mail:  [nsn.digitaldeliveries@nokia.com](mailto:nsn.digitaldeliveries@nokia.com) |
| **Nokia license key inquiries** | E-mail:  [GLOBAL-NET.LK@nokia.com](mailto:GLOBAL-NET.LK@nokia.com) |
| **OEM SW/license key inquiries** | E-mail:  [nsn.digitaloem@nokia.com](mailto:nsn.digitaloem@nokia.com) |
| **Rollout information, target IDs, resource requests** | E-mail:  [bso.sw-installations@nokia.com](mailto:bso.sw-installations@nokia.com) |

# Overview

## NetAct Installation and upgrade workflows

For a description of the installation and upgrade workflow for NetAct, see NetAct Installation Overview and NetAct Upgrade Overview in **NetAct Operating Documentation → Installation**.

## Supported deployment options

The table below lists different configuration options of NetAct.

VDP, Administration Server and vCenter are also installed in a VM but are not listed here as they are not dependent on the deployment configuration.

1. Supported deployment options in NetAct

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Number of physical HPE Gen8 and Gen9 server hosts (recommended) | Number of physical HPE Gen10 server hosts (recommended) | Number of virtual machines |
| Compact | 2 | 2 | 22 |
| Small | 4 | 4 | 22 |
| Mainstream | 6 | 4 | 28 |
| Large and XXL | 6 | 5 | 34 |

1. Other hardware configurations are described in [NetAct Node Architecture and Resource Plan](#_Software_Installation_documents).

The table below contains the number of new HPE ProLiant Gen10 servers required for different NetAct configurations.

1. Resources (vCPU and vRAM) for optional nodes listed in NetAct Node Architecture and Resource Plan document are not included in the server configuration and this is only for NetAct standard nodes. Additional servers are required for optional VM nodes based on the additional resource (vCPU and vRAM) requirement.
2. HPE ProLiant Gen10 Server details for different NetAct configurations

|  |  |
| --- | --- |
| Target NetAct Configuration | HPE BL460c Gen10 Server |
| Compact | 2 x HPE DL360 Gen10 servers with 2p16c CPU and 384GB RAM |
| Small | 4 x HPE BL460c Gen10 servers with 1p16c CPU and 192GB RAM |
| Mainstream | 4 x HPE BL460c Gen10 servers with 2p16c CPU and 384GB RAM |
| Large and XXL | 5 x HPE BL460c Gen10 servers with 2p16c CPU and 384GB RAM |

Check also the hardware requirements for VMware virtualization.

1. The number of additional VMs required by currently supported optional products

|  |  |  |  |
| --- | --- | --- | --- |
| Configuration | Thresholder & Profiler | SLC | CLS |
| Compact | - | - | 3 |
| Small | 1 | 2 | 3 |
| Mainstream | 2 | 4 | 3 |
| Large | 2 | 4 | 3 |
| XXL | 2 | 4 | 3 |

1. NetAct Compact HW is scaled to work well with mandatory VMs of NetAct small configuration. It is not allowed to install optional VMs apart from CLS (Centralized License Server). In case there is a need to install any other optional VM, contact NetAct Product Management.

## Node mappings

The table below maps some node roles to the Virtual Machines of NetAct\_cluster in the supported configurations. For NetAct Compact, the node roles are the same as for NetAct small.

1. Node mappings

|  |  |  |  |
| --- | --- | --- | --- |
| Node type | VMs in small configuration | VMs in mainstream configuration | VMs in large configuration |
| Administration Server | VM1 | VM1 | VM1 |
| vCenter | VM2 | VM2 | VM2 |
| NetAct | VM3 - VM17 | VM3 - VM23 | VM3 - VM27 |
| VDP | VM40 | VM40 | VM40 |
| Node Manager | VM18 - VM19, VM70 | VM24 - VM25, VM70 | VM28 - VM29, VM70 |
| PM | VM66 - VM67 | VM66 - VM67 | VM66 - VM69 |
| IBM HTTP Server (IHS) | VM85 - VM86 | VM85 - VM86 | VM85 - VM86 |

1. Node mappings in optional products

|  |  |  |  |
| --- | --- | --- | --- |
| Node type | VMs in small configuration | VMs in mainstream configuration | VMs in large configuration |
| T&P | VM44 | VM44 - VM45 | VM44 - VM45 |
| SLC | VM56 - VM57 | VM56 - VM59 | VM56 - VM59 |
| CLS | VM73 - VM75 | VM73 - VM75 | VM73 - VM75 |
| LTEA\_MED | VM81 | VM81 | VM81 - VM82 |

1. LTEA\_MED node type is supported for some customers in the NetAct 18A release. The SAM Mediation, which is to support SAM (5620 Service Aware Management) and NSP (Nokia Network Services Platform) integration, will require the LTEA\_MED VM deployed during installation or upgrade procedure. The vEPC services will also require the LTEA\_MED VM deployed during scratch installation.

# Common prerequisites

This chapter lists all the items you should check and the actions you should take before you can begin the NetAct scratch installation or software upgrade.

Additional prerequisites that are specific to only software upgrades are listed in chapter [Prerequisites for NetAct upgrade](#_Prerequisites_for_upgrades).

Additional prerequisites that are specific to only scratch installation are listed in chapter [Prerequisites for NetAct installation](#_Prerequisites_for_NetAct).

## Contacts

There must be an appointed installation engineer responsible for each customer installation. The engineer appointed for the installation must have the appropriate NetAct installation license, and must be familiar with the following:

* NetAct Administration
* VMware virtualization concepts

The appointed engineer will act as the contact person between the product line and the customer. Maintenance and Delivery should be provided with the contact information of the appointed engineer.

The responsibilities of this contact person include:

* Ensuring that all prerequisites are met before the installation begins
* Being available for consultation during the installation
* Transferring information acquired during the installation to another named person

## Access and passwords

Nokia personnel must have physical access to all premises where the equipment relevant to the installation is located.

Full access to the integrated network elements must also be granted to Nokia personnel. Alternatively, a contact person with such access must be appointed.

Nokia installation engineer must have root user access to all environments and equipment.

## System user password policy

1. During upgrade, it might be necessary to change the NetAct system user passwords. This operation may create downtime which must be taken into consideration when planning the upgrade. You can perform these tasks at any suitable time frame before the upgrade. For instructions and more information, see section *Changing passwords that violate password policy* in NetAct 18A Upgrade Instructions.

The passwords of NetAct system users, such as Oracle database (such as omc, sys and system), Linux OS, and Directory Server users, must comply with the following rules:

* Password must contain minimum eight characters
* Password must not contain the username
* Password must not contain reverse of the username
* Password must begin with an alphabet character
* Password must contain at least three of the following combinations:
* At least one lower case alphabet character
* At least one upper case alphabet character
* At least one numeric character
* At least one special character

Only the following special characters are allowed in system user passwords during installation and upgrade:

1. Allowed special characters in system user passwords during installation and upgrade

|  |  |
| --- | --- |
| Character | Explanation |
| + | Plus sign |
| - | Hyphen-minus |
| . | Full stop |
| : | Colon |
| \_ | Underscore |

## Customer involvement

If the customer wishes to use their own personnel for certain tasks during the installation, such personnel must be appointed in advance. Further, such customer personnel must be available at mutually-agreed times during the procedure.

Tasks to be performed by customer personnel must be agreed with Nokia personnel.

## Ordering hardware

Hardware must be ordered beforehand as per the [NetAct 18.x HW Platform](https://nokia.sharepoint.com/sites/AAHWBL/Solutions/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2Fsites%2FAAHWBL%2FSolutions%2FShared%20Documents%2FNetAct%2FNetAct%20HW%20Sales%20Materials%2FPlatform%20release%20description&FolderCTID=0x012000482BAC7177D95B4CA0DF127E5B2AF5DA&View=%7B65E1B0F1%2DA7AC%2D4BCB%2DAAB8%2DCD811468155D%7D) specification.

1. When using Blade Gen8, NetAct 18A requires more RAM. For detailed information, see the NetAct 18.x HW Platform specification.

Configure the hardware according to NetAct Hardware Configuration Guide which is available in the [Hardware documents](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A/Hardware%20documents) folder.

NetAct Hardware Configuration Guide provides information about all NetAct hardware configurations and the new hardware changes required for each NetAct release.

For NetAct compact, see NetAct Compact Hardware Configuration Guide which is available in the [NetAct Compact](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct/NetAct%20Compact) folder.

## Firmware

NetAct firmware policy is described in the document Firmware Recommendation for NetAct Hardware which is available in the [Hardware documents](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A/Hardware%20documents) folder. The document also includes recommendations for firmware upgrade intervals.

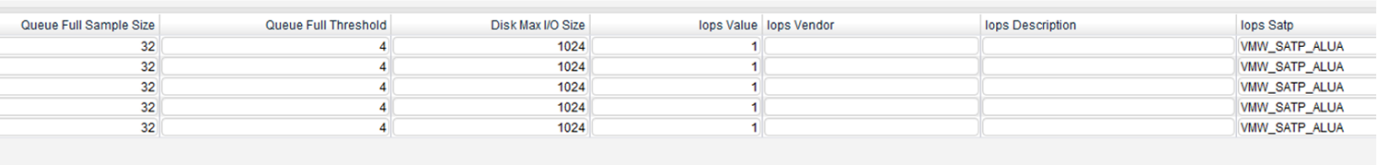
## HPE 3PAR StoreServ Storage and VMware ESXi Best Practices

If HPE 3PAR StoreServ is used as NetAct primary storage, it is mandatory that the default values for VMware ESXi Adaptive queue depth throttling are changed to new values as per HPE 3PAR recommendations.

### 3PAR storage specific settings changes in the ESXi hosts during scratch installation

Certain settings in the infrastructure data need to be modified when 3PAR storage is used. This can be done by editing the values of the **Hosts** parameters when updating parameters in NIPE:

In the **Infrastructure → Hosts** tab, modify the values of **Queue Full Sample Size**, **Queue Full Threshold** and **Disk Max I/O Size** to values **32**, **4** and **1024** respectively, as shown in the figure below.



### 3PAR storage specific settings changes in the VMware ESXi hosts before upgrade

If the storage used is HPE 3PAR with NetAct check the following values are already set in all the ESXi hosts.

The default values for VMware ESXi Adaptive queue depth throttling need to be modified when 3PAR storages are in use.

The values of the ESXi hosts QFullSampleSize, QFullThreshold and DiskMaxIOSize need to be set to values 32, 4 and 1024 respectively.

1. Log in to the ESXi via ssh host as the root user (VI unhardening must be done as a pre-requisite).
2. Check that the QFullSampleSize is set to value **32**. If it is set to **32,** skip the next step 3 and go to step 4. If it is not set, go to step 3.

[root@esx095:~] esxcli system settings advanced list | grep -A 5 "Path: /Disk/QFullSampleSize" | grep -e Path -e "Int Value"

Path: /Disk/QFullSampleSize

Int Value: 0

Default Int Value: 0

1. Set the QFullSampleSize value to **32.**

To set, enter the following command

# esxcli system settings advanced set -o '/Disk/QFullSampleSize' --int-value '32'

To verify, enter the following command

# esxcli system settings advanced list | grep -A 5 "Path: /Disk/QFullSampleSize" | grep -e Path -e "Int Value"

1. Check that the QFullThreshold is set to value **4**. If it is set to **4**, skip the next step 5 and go to step 6. If it is not set, go to step 5.

[root@esx095:~] esxcli system settings advanced list | grep -A 5 "Path: /Disk/QFullThreshold" | grep -e Path -e "Int Value"

Path: /Disk/QFullThreshold

Int Value: 8

Default Int Value: 8

1. Set the QFullThreshold value to **4**.

To set, enter the following command

# esxcli system settings advanced set -o '/Disk/QFullThreshold' --int-value '4'

To verify, enter the following command

# esxcli system settings advanced list | grep -A 5 "Path: /Disk/QFullThreshold" | grep -e Path -e "Int Value"

1. Check the DiskMaxIOSize is set to value **1024**. If it is set to **1024**, skip the next step 7. If is not set, go to step 7.

[root@esx095:~] esxcli system settings advanced list | grep -A 5 "Path: /Disk/DiskMaxIOSize" | grep -e Path -e "Int Value"

Path: /Disk/DiskMaxIOSize

Int Value: 32767

Default Int Value: 32767

1. Set DiskMaxIOSize value to **1024**.

To set, enter the following command

# esxcli system settings advanced set -o '/Disk/DiskMaxIOSize' --int-value '1024'

To verify, enter the following command

# esxcli system settings advanced list | grep -A 5 "Path: /Disk/DiskMaxIOSize" | grep -e Path -e "Int Value"

## Product software

NetAct software can be downloaded via Nokia Online Services (NOLS). The release note in NOLS lists the NetAct images.

Check from the [List of PPs and TSNs for NetAct upgrades](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/List%20of%20PPs%20and%20TSNs%20for%20NetAct%20upgrades.xlsx?d=w9a08cf29fbe347eb844516880101bf97) document if there are any Priority Packages (PPs) or Technical Support Notes (TSNs) which need to be applied before or during the installation or upgrade.

NOLS:

<https://online.networks.nokia.com>

Downloading requires downloading permissions.

To find the software, select **Care → Software Supply Tool**. The products are listed under the **Network and Service Management** section.

After downloading software, check that the checksum of the loaded software matches the ones shown in NOLS.

## DCN solution

The customer-specific DCN solution must be planned.

## NTP

Nokia recommends having at least four external NTP servers.

Nokia also recommends having at least one NTP server accessible via IPv4.

## SMTP

SMTP server is mandatory for scheduling reports and for receiving them by e-mail. Without an SMTP server, scheduled reports are marked as unsuccessful, even if the report result was saved in the file system.

For T&P, the SMTP server is mandatory if the customer expects alarm notifications to be delivered by e-mail.

## DNS

A DNS server is mandatory for installation. All physical (ESXi) host, vCenter and VDP (optional) FQDNs need to be resolvable during installation. If there are multiple NetAct installations at the customer site, the DNS domain name for different NetAct instances must be different.

Administration Server provides DNS functionality for the installation time for the required FQDNs/IPs, but with a certain limitation, Administration Server must be in the top-level domain.

1. For example, this does not work: ESXi hosts are in top level domain nokia.com and Administration Server in subdomain net.nokia.com.

It is required that vCenter and VDP (optional) are in same subnet with NetAct virtual machines (VM Network SB). ESXi hosts and Administration Server can be in separate subnet or subnets.

Commands nslookup or dig can be used to verify that the DNS is working properly.

## Naming rules

DNS, Linux OS and RTE set the requirements for unique hostnames and other names. Server hostnames etc. should follow naming rules:

* Only letters a…z and numbers 0…9
* Hostnames must start with a letter, they cannot start with a number
* Maximum hostname length is 64 characters (for Windows machines the maximum length is 15 characters).

These rules are valid also in the DNS.

Reserved words 'config', 'attributes', 'dmgr' and 'db' are not allowed to be used as a hostname or part of hostname.

The original specification of hostnames in RFC 952 mandated that labels could not start with a digit or with a hyphen and must not end with a hyphen. This is what Oracle recommends for a host name.

## IP addresses

IP addresses should be reserved for NetAct. The number of necessary IPs will vary depending on the customer’s DCN solution and configuration. Future expansions must be also considered when planning the DCN network. When allocating the IP subnet, it is always recommended that at least 25 % of the address space is reserved for future expansion.

* Each physical host needs an IP address
* vMotion IP address for each physical host
* vCenter needs an IP address
* Administration Server needs an IP address
* Each virtual machine (guest) needs an IP address
* NetAct load balancer needs 2 virtual IP addresses
* In the upgrade from NetAct 17.8, an IP address is needed for both two new IHS VMs
* Node Manager Server upgrade needs IP addresses for new Node Manager Servers
* IP addresses must be reserved for Node Manager nodes, new PM nodes, CLS, and SBTS nodes
* Blade rack management connections require their own subnet, separate from the data network. When using the DCN backbone solution the blade rack management network interfaces are connected to the Management VLAN. When connecting blade chassis directly to the customer network the management connection should have a different IP subnet (VLAN) from the data connection.
* The number of IP addresses required for the management is defined by the number of chassis slots, device interconnect bays and iLO interfaces. Generally, at least 26 IP addresses from the management subnet will be needed for a fully equipped blade rack.
* Routers and switches need IP addresses
* External storage IP addresses must be reserved when it is present.

For more information on IP planning, see Integrating DCN Backbone to NetAct in NetAct Operating Documentation.

### IP address requirement for dual-stack installation and upgrade

If dual stack is enabled in scratch installation or upgrade, IPv6 addresses must be planned for all the nodes except for VDP, vCenter, vMotion and ESXi hosts.

If the dual-stack upgrade is planned from a NAT-based IPv6 configuration, then use free additional IPv6 addresses from the same IPv6 subnet. See document [Deploying Juniper JunosV Firefly](https://sharenet-ims.int.net.nokia.com/Overview/D548693514) for identifying already used IPv6 addresses on NAT.

## External storage

The following LUNs are needed for NetAct installation. For more information, see the Hardware documents folder in SharePoint.

Hosts (ESXi hosts) are installed either to storage or local disk. If the hosts are installed to storage, each host requires a separate LUN. Depending on the configuration, 4-6 LUNs are needed for the ESXi hosts.

1. Required LUNs for data stores

|  |  |
| --- | --- |
| Name | Description |
| VMGuestDisk1 | guest operating systems |
| VMGuestDisk2 | guest operating systems |
| VMGuestDisk3 | guest operating systems |
| DBArch | database archive logs |
| DBRedo | database redo logs |
| DBData | database data |
| NFSGlobal | disk for shared data, for example /home directories |
| PMDatastore | REP disk for PM |

1. Optional LUNs

|  |  |
| --- | --- |
| Name | Description |
| Backup | LUN for file system backup |

## Customer name and ID

Official NET customer names and IDs are needed in the Network Element license management installation. Official names and IDs are available in the [NSN Customers](https://sharenet-ims.int.net.nokia.com/Overview/D561555257) document.

A customer name can consist of:

* small and capital letters
* numbers
* spaces
* special characters

There are some limitations in the use of special characters. Some of the limitations originate from License Manager. For example, these characters are not allowed:

* ó, é, á, ç, õ, è, ü and other national characters
* quote (") characters

## Licensing parameters

Target IDs and Cluster Start Alphabet & Cluster End Alphabet are generated by Sw-Installations, Bso (Nokia - Global) <bso.sw-installations@nokia.com> team by request. All new clusters/installations will get Target IDs (8 digits, i.e. 201xxxxx). Target ID is required when ordering licenses and when performing the installation.

For Target ID requests, see the information and fill the template available in the following page:

<https://nokia.sharepoint.com/sites/nm-tps/Maintenance/SitePages/Target%20ID%20generation.aspx>

Target ID request processing takes a minimum of 2 working days.

## Licenses

All licenses must be ordered in time and they must be available before the installation begins. A Target ID for the cluster / installation must exist before licenses can be ordered. For more information about getting a Target ID, see subchapter Licensing parameters.

A license order is normally made by a Solution Manager or a Specialist. The order must include the License Activator e-mail address (person or resource mailbox) that receives and activates licenses. License order is sent to Logistics coordinator(s) that create SAP sales orders. License file activation in the NOLS/CLicS tool is made against the target ID. Licenses are delivered via NOLS/CLicS tool against customer orders.

You can find more information about license retrieval in [Guideline for License Retrieval](https://sharenet-ims.int.net.nokia.com/Overview/D435697010).

1. When upgrading to NetAct 18A, NetAct 18A SP1810, NetAct 18A SP1811, NetAct 18A SP1812, NetAct 18A SP1901, or NetAct 18A SP1902, if OneNDS and PGW elements need to be integrated and there is no SDL in the network, please refer to *List of Generic Faults for NetAct 18* in [NOLS](https://online.networks.nokia.com/) and follow instructions mentioned in Integration of PGW as part of One-NDS is blocked. This is to order the needed license to ensure successful  Integration of PGW to One-NDS.

### Mandatory licenses for NetAct installation

You need to ensure that the NetAct 18 Level SW licensed feature is available before the NetAct installation.

1. NetAct 18-level SW license

|  |  |
| --- | --- |
| Feature code | Feature name |
| 0000039720 | NetAct 18 Level SW |

The NetAct 18 Level SW licensed feature is provided with the OSSWNR0180LK New Delivery of NetAct 18.x SW LK.

The license must be installed to enable any other NetAct Software License Keys.

### Thresholder and Profiler licenses

A feature-level license is needed for Thresholder and Profiler in NetAct 18A:

1. Thresholder and Profiler license

|  |  |
| --- | --- |
| **Feature code** | **Feature name** |
| 0000047505 | T&P release 18 |

At least one of the following capacity licenses must also be available:

1. Thresholder and Profiler capacity licenses

|  |  |
| --- | --- |
| **Feature code** | **Feature name** |
| 0000029033 | NetAct Thresholder and Profiler Radio |
| 0000029034 | NetAct Thresholder and Profiler Core |

### Thresholder and Profiler/Reporting Suites license expiration

Note that the licenses delivered for the Thresholder and Profiler (T&P) application and/or for Reporting Suites are only temporary, with a 3-month validity period. The permanent licenses must be requested via the following mailbox: [cem\_oss\_license\_mgmt@nokia.com](mailto:cem_oss_license_mgmt@nokia.com)

### Mandatory licenses for Node Manager Server installation

For a new customer installation, the following licenses are needed:

1. Licenses needed in Node Manager Server installation

|  |  |
| --- | --- |
| License | Description |
| Windows Server 2012 R2 x64 | Windows Server 2012 x64 R2 Standard Edition product key is needed. One Windows server license supports 2 Windows virtual machines. License keys are included in the customer delivery. |
| Windows Server 2012 R2 CAL | License for every user or client device is needed. Normally the customer already has licenses if they use MS Office tools. |
| Windows RDS CAL | License for remote connection via RDS. License keys are included in the customer delivery. |
| Citrix XenApp licenses for XenApp 7.6 | The connection license key is delivered via e-mail from Nokia logistics. |

### Mandatory licenses for VMware in NetAct installation

The following VMware licenses are needed for the vSphere in NetAct installation:

1. Mandatory VMware licenses

|  |  |
| --- | --- |
| Sales item ID | Description |
| OSSW6582 | VMware vCenter Server 6.x RLIC |
| OSSW6583 | VMware vSphere Enterp Plus 6.x 1CPU RLIC |
| OSSW6585 | VMware vSphere Enterp Plus 6.x 2CPU RLIC |
| OSSW6586 | VMware vCenter Server 6.x TS |
| OSSW6587 | VMware vSphere Enterp Plus 6.x 1CPU TS |
| OSSW6588 | VMware vSphere Enterp Plus 6.x 2CPUs TS |

In NetAct Compact HW configuration, the standard VMWare license is used which does not include automatic DRS (Distributed Resource Scheduler). It is therefore necessary for the operator to monitor resource utilization and in case the resource utilization is out of balance, a manual VM migration is needed. For more information, see **NetAct Operating Documentation → NetAct Administration → NetAct Administration Overview and Operations → System Reliability → Virtual machines split for NetAct Compact**.

1. Mandatory VMware licenses for NetAct compact

|  |  |
| --- | --- |
| Sales item ID | Description |
| OSSW7570 | VMware vCenter Srv6 Std vSphere6 RLIC |
| OSSW7574 | VMware vSphere 6 Std 2CPU RLIC |
| OSSW7571 | VMware vCenter Srv6 Std vSphere6 1y TS |
| OSSW7575 | VMware vSphere 6 Std 2CPU TS |

## Element managers' compatibility with Windows Server 2012 R2

NetAct 17.2 release included replacement of Windows Server 2008R2 with 2012 R2 for Node Manager Server. However, some of the element managers of currently supported network elements in NetAct 18A are not yet compatible with Windows Server 2012R.

Therefore, the installation engineer and/or the customer team should check with the customer before the NetAct installation or upgrade if there are such element managers in the customer's network and, if necessary, plan the upgrade of such element managers before the NetAct upgrade.

In NetAct 18A, there are some 2G and 3G radio network element managers that are not compatible with Windows 2012 R2. For more details, see the [Element Manager Windows Server compatibility](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2017.2/Element%20Manager%20Windows%20Server%20compatibility.xlsx?d=wc8a6e1197b3245c8a4a7e8a442c475c5) document.

## Backup

It is highly recommended that a backup solution is used, and a scheduled online backup is taken daily. If the database is not backed up, archive logs will fill the db-arc disk space and disturb database functionality.

Nokia provides the possibility to use the VMware VDP backup-restore and a disk-based backup (a so-called file system backup). In installation, either one or both backup systems can be taken in use from NIPE. Note that when using the Nokia provided backup solution it is mandatory to have both VDP and the disk-based backup enabled in NIPE to have a fully recoverable backup of the NetAct system.

1. Administration Server virtual machine must be included in the VDP backup. Starting from NetAct 16.2 this VM contains NetAct software-related information which is needed in consequent upgrades.

Checking that the NetAct backup storage is correctly sized should be done in advance for both NetAct upgrade and installation scenarios. It is strongly recommended to double-check that the backup storage of NetAct is properly sized based on the new guidelines.

NetAct Backup Sizing Guidelines is available in the [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder.

## Planning new resources for the NetAct optional products

In addition to NetAct standard features, the customer may have purchased optional features or applications. Optional products need their own VMs with sufficient resources (vCPU, vRAM, VMDK). Use the NetAct Node Architecture and Resource Plan document for guidance when estimating the need for additional resources for optional products. The document is available in the [Resource Plans](https://nokia.sharepoint.com/sites/DSS_team_site/Shared%20Documents/Resource%20Plans) folder in SharePoint.

The number of additional VMs required by currently supported optional products is shown in chapter [Supported deployment options](#_Supported_deployment_options).

NetAct Compact HW is scaled to work well with mandatory VMs of NetAct small configuration. It is not allowed to install optional VMs apart from CLS (Centralized License Server). In case there is a need to install any other optional VM, contact NetAct Product Management.

## Instructions needed in installation

Installation instructions, more material and information can be found in:

* [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder in SharePoint.
* NetAct Operating Documentation in NOLS/PIC and in the NetAct environment.

### Software Installation documents

1. Instructions for software installation and upgrade

|  |  |  |
| --- | --- | --- |
| Document | Available in | Description |
| NetAct 18A Installation Instructions | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Scratch installation instructions. |
| NetAct 18A Upgrade Instructions | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Instructions for system software upgrades. |
| NetAct 18A Node Manager Server Installation and Configuration Instructions | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Instructions for installing, configuring and integrating NMS when installing NetAct 18A. |
| NetAct 18A Node Manager Server Upgrade Instructions | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Instructions Node Manager Server software upgrades. |
| Integrating the Self-Monitoring Framework to NetAct | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Instructions for integrating the Self-Monitoring Framework to NetAct. |
| NetAct 18A Prerequisites for Installation and Upgrade | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | This document. |
| Restoring the System After a Failed Upgrade | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Rollback instructions |
| Centralized License Server Installation Instructions | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder | Instructions for installing the optional CLS product software. |
| Centralized License Server Upgrade Instructions | [NetAct 18A](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A) folder |  |
| NetAct 18A Reference Configuration | [NOLS](https://online.networks.nokia.com/) | Information on the reference configuration of NetAct 18A. The document focuses on reference information about VMware virtual infrastructure and NetAct configurations |
| NetAct Node Architecture and Resource Plan | Release-specific customer version in [NOLS](https://online.networks.nokia.com/). |  |

### Hardware installation and configuration documents

1. Instructions for hardware installation and configuration

|  |  |  |
| --- | --- | --- |
| Document | Available in | Description |
| NetAct System Racking Guide | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Information about Rack size, power requirements, Cabinet layout, etc. |
| NetAct System Cabling Guide | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Information on DCN, Fiber Channel and KVM cabling, etc. |
| Configuring Storage Area Network | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Installation instructions for Fiber Channel switches in the NetAct system. |
| Installing and Configuring EMC Storage Array with Unisphere | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Covering EMC installation and configuration instructions. |
| Installing and Configuring HP 3PAR Storeserv 7200 and 8200 Storage | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Covering HP 3PAR Storeserv 7200 and 8200 installation and configuration. |
| Storage Array Disk Configuration Guide | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | NetAct Disk configurations. |
| Installing and Configuring HP BladeSystem C7000 | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Step-by-step instructions for configuring the HP Blade center C7000 and OA etc inside the enclosure. |
| NetAct Compact Hardware Configuration Guide | [NetAct Compact](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct/NetAct%20Compact) folder | Information about racking, cabling, references to other needed documents for storage, servers and DCN configuration. |
| Installation Instructions for Enabling EVC | [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder | Instructions for enabling EVC compatibility mode. |

### DCN & DNS documents

1. Instructions for networking

|  |  |  |
| --- | --- | --- |
| Document | Available in | Description |
| DCN configuration templates for NetAct (Switches/routers) | [DCN related documents](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct/DCN%20related%20documents) folder |  |
| NetAct 8 DCN Overview | [DCN related documents](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct/DCN%20related%20documents) folder |  |
| Integrating DCN Backbone to NetAct | NetAct Operating Documentation in NOLS/PIC and in the NetAct environment. |  |
| Open DCN solution description | [DCN related documents](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct/DCN%20related%20documents) folder |  |
| Security Policy in NetAct Firewalls | NetAct Operating Documentation in NOLS/PIC and in the NetAct environment. | Firewall rules for NetAct |
| Administering DNS in NetAct | NetAct Operating Documentation in NOLS/PIC and in the NetAct environment. |  |

# Prerequisites for NetAct upgrade

In addition to the items and actions listed in this chapter you should check all the items and actions in chapter [Common prerequisites](#_Common_prerequisites) in this document.

Upgrade process duration and downtime estimates for the release to be upgraded can be found from the Release Note. Release Note is delivered with the software in NOLS.

Note that downtime may be longer than estimated in the systems having lots of data in the NetAct database.

For PP-specific duration and downtime estimates, see the documentation of each PP.

## General

* Online backup must exist before an upgrade is started.
* All services must be up and running.
* Check if new licenses are needed. Licenses must be ordered beforehand. For more information, see sections Licenses and Ensuring license keys availability.

## Equipping NetAct system with disaster recovery

If this delivery is going to be installed in a system equipped with Disaster Recovery, note that you need to follow the instructions in the document DR equipped NetAct Minor Version Upgrade Guide which is available in the main-release-specific Disaster Recovery folder in SharePoint.

## Disabling scheduled backups

Disabling the backup schedule before the upgrade and enabling the backup schedule after the upgrade is handled automatically via workflow scripts.

However, check the backup schedule time for both VDP and disk-based backup and make sure that the planned upgrade start time is not overlapping with the backup schedule.

If it is overlapping, you must disable the backup schedule manually well in advance of the scheduled time.

1. The VDP backup jobs must be disabled using vSphere Web client.
2. The disk based backup can be disabled manually by executing the following command either on the NFS virtual machine or on the DB virtual machine:

# backuptool.pl -schedule deactivate

1. If you have manually disabled the backup schedules, you also need to manually enable them (both VDP and disk-based backup) after the upgrade.

## Ensuring license keys availability

When the NetAct system is upgraded from the source system to the target system, the existing licenses stay valid. Nevertheless, before the upgrade, you need to ensure that the following licenses are available.

### Checking the availability of license keys

To check if a license is available and valid for the desired target system, make sure that the targetId attribute in the license file is the same as the NetAct 18A Target ID:

* the targetId attribute can be found in the XML license file:

<targetNe targetId="12345678"></targetNe>

* In the upgrade scenario, the NetAct 18A Target ID is the same as the NetAct Target ID in the previous release.

### NetAct SW Release Upgrade License Key

You need to ensure that the NetAct 18 Level SW licensed feature (0000039720) is available in the source system before the upgrade. The feature must be installed to enable any other NetAct Software License Keys.

The NetAct 18 Level SW licensed feature is provided with the OSSWRU0180LK NetAct 18.x SW Release Upgrade LK.

1. The relevant NetAct Level SW licensed feature must be available in the source system as well.

For more information on the license import operation, see **NetAct Operating Documentation → Network Administration → Network Administration Helps → License Manager Help → License operations → Importing licenses to NetAct**.

1. NetAct SW release upgrade license types

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Area | Feature code | Feature name | Feature description | Type of license |
| NetAct Platform | 5146 | NetAct 8 Level SW | The master license protecting the NetAct 8 release and its Enhanced Packages.  Without a valid NetAct 8 SW Release license any other license keys become invalid. | On/Off |
| NetAct Platform | 5442 | NetAct 15 Level SW | The master license protecting the NetAct 15 release.  Without a valid NetAct 15 SW Release license any other license keys become invalid. | On/Off |
| NetAct Platform | 16658 | NetAct 16 Level SW | The master license protecting the NetAct 16 release. Required in upgrade paths from OSS5, NetAct 7, NetAct 8, and NetAct 15 to NetAct 16, as well as in new NetAct 16 systems.  Without a valid NetAct 16 SW Release license any other imported license keys become invalid. | On/Off |
| NetAct Platform | 33595 | NetAct 17 Level SW | The master license protecting the NetAct 17 release. Required in upgrade paths from NetAct 16.x to NetAct 17, as well as in new NetAct 17 systems.  Without a valid NetAct 17 SW Release license any other imported license keys become invalid. | On/off |
| NetAct Platform | 39720 | NetAct 18 Level SW | The master license protecting the NetAct 18 release. Required in upgrade paths from NetAct 17.x to NetAct 18, as well as in new NetAct 18 systems.  Without a valid NetAct 18 SW Release license any other imported license keys become invalid. | On/off |

### License keys for On/Off NetAct features

You need to ensure that license keys for any new NetAct 18A features ordered with the upgrade are available.

## Checking Citrix license for Node Manager Server upgrade

As a prerequisite for Node Manager Server upgrade, ensure that the Subscription Advantage (SA) date of the Citrix license is consistent with Citrix 7.6 LTSR CU3.

Log in to any CTXDC as <domain name>\<administrator account>, open **Citrix Studio → Configuration → Licensing**. Your current Subscription Advantage Date of Citrix license should be **2017.0125** or newer.

If your current SA is older than 2017.0125, send the license file to license@fastcon.fi to update the SA which is consistent with Citrix 7.6 LTSR CU3.

Then import your updated license file using **Citrix License Administration Console → Administration → Vendor Daemon Configuration → Import License**.

By default, the license file locates in C:\Program Files (x86)\Citrix\Licensing\MyFiles

## Expanding the datastore for upgrade

In NetAct upgrades, the existing LUNs for the disks VMGuestDisk1, VMGuestDisk2 and VMGuestDisk3 must be expanded from the physical storage with the amount of disk space mentioned in the following table:

1. Expanding datastore for VMGuestDisks

|  |  |  |  |
| --- | --- | --- | --- |
| NetAct Configuration type (A) | Existing VMGuestDisk1/2/3 Datastores Size in GB  (B) | Target VMGuestDisk1/2/3 Datastores Size in GB  (C) | Differential VMGuestDisk1/2/3 Datastores Size in GB  (D) = C - B |
| NetAct Small | 550 | 600 | 50 |
| NetAct Mainstream | 700 | 750 | 50 |
| NetAct Large & XXL | 900 | 1000 | 100 |

**To expand the VMGuestDisk datastore, complete the steps below:**

**Before you begin**

Ensure that all the 3 VMGuestDisk LUNs are expanded from the physical storage according to Table 20 Expanding datastore for VMGuestDisks. For information on expanding the datastore, refer the respective hardware documents.

1. Log in to Administration Server as the root user.
2. Check if ${systemname}\_vmware\_vconf.yml file is present in /var/builds/hosts/<systemname> directory.
3. If ${systemname}\_vmware\_vconf.yml is not present, then you must decrypt the configuration\_files\_<systemname>.zip by entering:  
     
   [root@admin\_server ~]# /opt/misserver/scripts/decrypt\_configuration\_files.sh -z /var/builds/hosts/<systemname>/configuration\_files\_<systemname>.zip -p <conf\_files\_zip\_passwd> --force
4. View the status of the 3 VMGuestDisk datastores by entering:

root@<admin\_server># vse\_cli datastore list -d <VMGuestDisk> -n -i <VM name> --vcenteruser root --vcenterpass <Password> Logfile: /tmp/vse\_cli.log

Example output for VMGuestDisk1:

root@nokia\_vm1# vse\_cli datastore list -d VMGuestDisk1 -n -i nokia\_vm2 --vcenteruser root --vcenterpass <Password> Logfile: /tmp/vse\_cli.log

Logfile: /tmp/vse\_cli.log

Monitor with command:

tail -f /tmp/vse\_cli.log -n 400

[datastore]

Name : VMGuestDisk1

Capacity(GB) : 899

Free space(GB) : 115

Partitions : naa.60060160a6104700bc727d5a0cf7cabc

VSE\_CLI action executed successfully

Example output for VMGuestDisk2:

root@nokia\_vm1# vse\_cli datastore list -d VMGuestDisk2 -n -i nokia\_vm2 --vcenteruser root --vcenterpass <Password> Logfile: /tmp/vse\_cli.log

Logfile: /tmp/vse\_cli.log

Monitor with command:

tail -f /tmp/vse\_cli.log -n 400

[datastore]

Name : VMGuestDisk2

Capacity(GB) : 899

Free space(GB) : 272

Partitions : naa.60060160a6104700bd727d5ae35b9fa1

VSE\_CLI action executed successfully

Example output for VMGuestDisk3:

root@nokia\_vm1# vse\_cli datastore list -d VMGuestDisk3 -n -i nokia\_vm2 --vcenteruser root --vcenterpass <Password> Logfile: /tmp/vse\_cli.log

Logfile: /tmp/vse\_cli.log

Monitor with command:

tail -f /tmp/vse\_cli.log -n 400

[datastore]

Name : VMGuestDisk3

Capacity(GB) : 899

Free space(GB) : 271

Partitions : naa.60060160a6104700bd727d5ac3a2afd5

VSE\_CLI action executed successfully

1. Expand the datastore by entering:

root@<admin\_server># vse\_cli datastore vertical\_scale\_datastore\_from\_yml -f <YAML file path> -i <vCenter IP> -u <user name> -p <password>

For example:

root@nokia\_vm1# vse\_cli datastore vertical\_scale\_datastore\_from\_yml -f /var/builds/hosts/nokia/config/${systemname}\_vmware\_vconf.yml -i <vCenter IP> -u root -p <password>

Logfile: /tmp/vse\_cli.log

Monitor with command:

tail -f /tmp/vse\_cli.log -n 400

VSE\_CLI action executed successfully

1. Verify that all the 3 VMGuestDisk datastores are expanded.

For example:

root@nokia\_vm1# vse\_cli datastore list -d VMGuestDisk3 -n -i nokia\_vm2 --vcenteruser root --vcenterpass <password> Logfile: /tmp/vse\_cli.log

Logfile: /tmp/vse\_cli.log

Monitor with command:

tail -f /tmp/vse\_cli.log -n 400

[datastore]

Name : VMGuestDisk3

Capacity(GB) : 999

Free space(GB) : 371

Partitions : naa.60060160a6104700bd727d5ac3a2afd5

VSE\_CLI action executed successfully

1. If you have created new LUN for expanding datastore instead of expanding the existing LUNs, then you can expand the disk space in the same datastore by entering:  
     
   root@vm01# vse\_cli datastore extend -n <name of the Datastore which needs to be expanded> -c NetAct\_cluster -t <naa path of the new datastore> -i <vCenter IP> -u root -p <vCenter Password>

## Enabling Enhanced vMotion Compatibility (EVC) mode

1. If the EVC mode is already enabled in the NetAct cluster, skip this section.

The EVC mode must be activated only in the following cases:

* If the target environment has any mixed Gen8 Gen9 and Gen10 server hardware
* If the target environment has server hardware with a mixed set of Intel CPU models/types

For more details and instructions, see the Installation Instructions for Enabling EVC document in the [HW documents for NetAct](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%20hardware%20documents/HW%20documents%20for%20NetAct?csf=1) folder.

## Automated pre-checks during upgrade

NetAct 18A includes an automated pre-check tool that checks that there is enough space in the VM Guest Disk data stores in the virtual infrastructure and file systems in the NetAct VMs.

The pre-checks are run at the beginning of executing system configurations and executing the NetAct online upgrade stack in NetAct upgrade.

1. Free disk space required from data stores

|  |  |
| --- | --- |
| Data store name | Free space required (Mb) |
| VMGuestDisk1 | 1024 |
| VMGuestDisk2 | 1024 |
| VMGuestDisk3 | 1024 |

1. Free disk space required from VM file systems

|  |  |  |
| --- | --- | --- |
| NetAct VM | Filesystem mount point | Free space required (Mb) |
| All VMs \* | / | 5120 |
| All VMs \* | /var | 3027 |
| All VMs | /tmp | 1024 |
| NFS VM | /d/oss/global | 23552 |
| NFS VM | /home | 1024 |
| WAS DMGR | /var | 9216 |
| WAS VM | /var | 5120 |
| WAS VM | / | 11264\*\* |
| DB VM | /d/db | 10240 |
| DB VM | /d/db-arc | 30720 |
| DB VM | /d/db-redo | 10240 |
| PM VM | /d/repnb | 100 |

\* With exceptions to some WAS VMs, WAS specific requirements are listed separately.

\*\*The automated pre-check validates for 5120Mb only. Therefore, you must check all WAS nodes manually. For more information on the steps to check available disc space in WAS nodes, see *Executing the NetAct online upgrade stack* and *Executing the NetAct offline upgrade stack* in the NetAct Upgrade document.

## Handling customizations in NetAct upgrades

The system to be upgraded may have been customized after the previous installation, which means that there can be modifications to NetAct software which are not described in Nokia product customer documentation. Such modifications can have an impact on NetAct resource usage and product availability and consequently on system upgrades. For example, upgrades might fail because of insufficient disk space due to customization deployment.

It is good to remember when planning the upgrade that customizations are not handled by upgrade scripts as it is impossible to take all the possible scenarios into account in upgrade tools development. Therefore, the responsibility for collecting the modifications and restoring them after the upgrade must be agreed with the customization team or local upgrade project team before every upgrade. Collecting and restoring modifications can be done either manually or by using tools developed by the customization team. For more information on customization, see [Customization Guidelines](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/NetAct%20Customizations).

Check also if there are any interface changes impacting customizations described in the Release Note or in **Operating Documentation → Release Changes → NetAct Release Changes → Functionality changes in NetAct 18A**.

# Prerequisites for NetAct installation

In addition to the items and actions listed in this chapter you should check all the items and actions in chapter [Common prerequisites](#_Common_prerequisites) in this document.

## Requirements for installation engineer's laptop

The following table presents the requirements on the installation engineer's laptop during installation.

1. Installation engineer's laptop requirements

|  |  |
| --- | --- |
| Virtualization support | Installation engineer's laptop must support virtualization and the virtualization option in the laptop must be enabled in the BIOS settings before starting NetAct installation. |
| Requirements for running Administration Server | The minimum free computing resource requirement for deploying Administration Server in the Oracle VM VirtualBox on the installation engineer's laptop is the following:   * Disk size 100 GB * RAM size 8 GB * CPU 4 core |
| Software requirements | * Adobe Flash for vSphere Web Client * NIPE requires Java (any version between JRE 1.6 and 1.8) * Windows version 7, 8, or 10 * Oracle VM VirtualBox Manager 5.2.0 * VMware client integration plugins 6.0.0 * Virtual VLAN |

1. Software download links

|  |  |
| --- | --- |
| Oracle VM VirtualBox Manager 5.2.0 | <http://download.virtualbox.org/virtualbox/5.2.0/VirtualBox-5.2.0-118431-Win.exe> |
| VMware client integration plugins 6.0.0 | <http://vsphereclient.vmware.com/vsphereclient/VMware-ClientIntegrationPlugin-6.0.0.exe> |
| Virtual VLAN | WIN10:  <https://downloadcenter.intel.com/download/25016/Intel-Network-Adapter-Driver-for-Windows-10>  WIN8:  <https://downloadcenter.intel.com/download/21642/Intel-Network-Adapter-Driver-for-Windows-8->  WIN7:  <https://downloadcenter.intel.com/download/18713/Ethernet-Intel-Network-Adapter-Driver-for-Windows-7-> |

## Physical hardware installation and setup

The hardware of the target servers must be installed and configured for a boot-up and software installation.

NetAct hardware documents are available in the [NetAct hardware documents](https://nokia.sharepoint.com/sites/nm-tps/netact/NetAct%20Support/Forms/TPS.aspx?RootFolder=%2Fsites%2Fnm%2Dtps%2Fnetact%2FNetAct%20Support%2FNetAct%20Installations%2FNetAct%20hardware%20documents&FolderCTID=0x012000F212D9B16A8A7B4F974F6C11C8BBF44D&View=%7B85C0E03A%2D8DAC%2D458B%2DAD63%2DB9E5BCDC50F4%7D) folder.

The hardware must be set up according to [NetAct System Racking Guide](#_Hardware_installation_and). After completing the hardware setup, perform the following tasks:

1. Verify that the cabling is done according to the instructions in the [NetAct System Cabling Guide](#_Hardware_installation_and).
2. Verify that DCN cabling is done according to the instructions in the [NetAct System Cabling Guide](#_Hardware_installation_and).
3. Integrate DCN to NetAct by following the instructions in [Integrating DCN Backbone to NetAct](#_Hardware_installation_and), unless this has been done earlier.
4. In case the Management Network is not in the same VLAN as the VM Network, a DHCP Relay/IP Helper must be configured between the Management Network and the VM Network. Otherwise, the PXE boot for the hypervisors or the virtual machines from the Administration Server might not succeed. It is also possible to create a new NIC for the Management Network in Administration Server.

For more information, see **NetAct Operating Documentation → Integration → Integrating DCN Backbone to NetAct → Configuring a router → Initial configuration of the Cisco router → Optional configurations → Configuring the IP Helper for the Installation Server**.

1. Configure the servers, depending on the server type:
2. Configure the HP Blade Center and Blade servers according to the [Installing and Configuring HP BladeSystem C7000](#_Hardware_installation_and) document.
3. Configure the rack servers according to the [Installing and Configuring Rack Server](#_Hardware_installation_and) document.
4. Configure the SAN switches according to the [Configuring Storage Area Network](#_Hardware_installation_and) document.
5. Configure the external storage, according to the vendor-specific instructions:
6. [Installing and Configuring EMC Storage Array with Unisphere](#_Hardware_installation_and)
7. [Installing and Configuring HP 3PAR Storeserv 7200 Storage](#_Hardware_installation_and)
8. Configure the firewall security policy according to the Security Policy in NetAct Firewalls document in NetAct Operating Documentation.
9. Integrate the firewall cluster to NetAct.
10. If an external DNS is available, then configure the DNS after software installation according to the instructions in **NetAct Operating Documentation → NetAct Administration → NetAct Administration Operating Procedures → Administering DNS**.

## Installing NIPE

This section provides instructions for downloading and installing NetAct Installation Parameter Editor (NIPE).

1. Download the **nipe-18.1.20.zip** file to your computer from the [NetAct 18A](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A?csf=1) folder.
2. Extract the zip file to the desired location.
3. As NIPE requires java (any version between JRE 1.6 and 1.8), check that java is installed and configured correctly. Run the following command in the Windows command prompt:

java -version

## Creating the installation configurations for NetAct

A prerequisite for NetAct installation is filling in the parameters with NetAct Installation Parameter Editor (NIPE). These instructions are specific to NetAct scratch installation. More information on installation parameters is provided in section [NetAct installation parameters](#_NetAct_installation_parameters).

1. Use the ILO login credentials which have Administrator privileges while filling in parameters in NIPE.
2. Download the nipe-conf.zip file from the [NetAct 18A](https://nokia.sharepoint.com/:f:/r/sites/nm-tps/netact/NetAct%20Support/NetAct%20Installations/NetAct%2018A?csf=1) folder to your PC and extract the file.
3. Fetch the **NetAct8\_ini.xml** file from **nipe-conf** folder extracted from the nipe-conf.zip file.
4. Download the NetAct virtualization configuration files from the nipe-conf folder.

See the below table for more details about the selection of NetAct node configurations.

1. For NetAct Compact, use SMALL configuration only.
2. NetAct configurations

|  |  |
| --- | --- |
| Configuration | File |
| Small | vmware\_vconf\_small.yml |
| Mainstream | vmware\_vconf\_mainstream.yml |
| Large | vmware\_vconf\_large.yml |
| XXL | vmware\_vconf\_xxl.yml |

1. If the installation is to include optional nodes, download the optional node virtualization configuration file from the same nipe-conf folder. See the below table for more details about the selection of optional node configurations.
2. Optional VMs, related NetAct configurations and files

|  |  |  |
| --- | --- | --- |
| Optional product | Related node configuration | File |
| Thresholder & Profiler | Small | tp\_small\_vconf-addnode.yml |
| Mainstream | tp\_mainstream\_vconf-addnode.yml |
| Large | tp\_large\_vconf-addnode.yml |
|  | XXL | tp\_xxl\_vconf-addnode.yml |
| SLC | Small | slc\_small\_vconf-addnode.yml |
|  | Mainstream | slc\_mainstream\_vconf-addnode.yml |
|  | Large | slc\_large\_vconf-addnode.yml |
|  | XXL | slc\_xxl\_vconf-addnode.yml |
| CLS | S/M/L/XXL | cls\_vconf-addnode.yml |
| LTEA\_MED | Small | ltea\_med\_small\_vconf-addnode.yml |
|  | Mainstream | ltea\_med\_mainstream\_vconf-addnode.yml |
|  | Large | ltea\_med\_large\_vconf-addnode.yml |
|  | XXL | ltea\_xxl\_large\_vconf-addnode.yml |

1. Open the extracted NIPE folder (i.e. C:\Downloads\nipe-install-1.0).
2. Start NIPE from the location where the zip file was extracted by running nipe.bat.
3. Initialize the node configuration for NetAct.
4. Select **File → New Configuration…**
5. Select the correct NetAct node configuration from the **Virtual machine config** menu.
6. Set the number of physical hosts (Hypervisors) in the NetAct virtual infrastructure. Change the number of hosts based on [Supported deployment options](#_Supported_deployment_options).
7. To perform the installation with IPv6-enabled, select the Dual stack checkbox.
8. Select **File → Import → Product…** from the menu. Enter the NetAct8\_ini.xml file location in the **File Name** text field.
9. Select and import NetAct node configuration, which matches the selected NetAct virtualization configuration (the configuration chosen in Step 2) by selecting **File → Import → VMware Configuration**. Browse and open vmware\_vconf\_<CONF\_SIZE>.yml.
10. Select and import optional node virtualization configuration, which matches the selected NetAct virtualization configuration by selecting **File → Import → Change Configuration → Add Virtual Machines**.
11. Fill in all the parameter values in each tab in the NIPE application.
12. Leave the DRS Group Name values empty for all Node Manager virtual machines.
13. If LTEA\_MED optional VM is added, then it is mandatory to fill LTEA\_MED variables in the **Installation Attributes** tab.
14. Only if you have set NetAct XXL node configuration: Go to the **fixed\_attributes** tab in **Netact 18** tab and change the value of **CPF.ORACLE.REDO\_SIZE** from the existing value 5242880 to **13631488**. This is needed to change the Oracle DB REDO LOG SWITCH size from its default value of 5 GB to 13 GB only for the XXL configuration.
15. Export NetAct installation configuration files.
16. Select **Export → All...** from the menu.
17. Select a folder where you want to save the files and click **Export**.

The following files are created:

<SYSTEMNAME>\_cluster\_info.txt

<SYSTEMNAME>\_installation\_attr.txt

<SYSTEMNAME>\_vmware\_vconf.yml

<SYSTEMNAME>\_vmware\_install.yml

<SYSTEMNAME>\_crapi.json

1. Close the NIPE application.

# NetAct installation parameters

Installation parameters needed for one NetAct installation are collected from the customer and from customer data. This should be done during a pre-visit if possible.

Parameters are collected with NetAct Installation Parameter Editor (NIPE), and NIPE contains several tabs where the parameters are collected.

The input fields in NIPE may be either optional or mandatory. A valid value must be given to all the mandatory fields for the installation to succeed. Mandatory fields will have a yellow marker if the value is missing. Many of the fields have also syntactic validation for the value. If a value is invalid, the input field will be colored red.

1. All input fields do not have validation, so be careful when filling in the parameter values.

Some hints and tips for filling in the actual values for the selected configuration are provided below. You can also find more information on the parameters in the info row of each parameter by clicking the info sign on the top left corner of the parameter table.

## Administration Server (ViiS tab)

Define the following parameter values for Administration Server in the **ViiS** tab. It is highly recommended that the Administration Server is in the same subnet as NetAct virtual machines.

1. ViiS tab in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| MIS\_HOSTNAME |  | Administration Server short hostname. |
| MIS\_IP |  | Administration Server IP address. |
| MIS\_IPV6 |  | IPv6 address for Administration Server.  Applicable only if Dual stack is selected. |
| MIS\_IPV6\_SUBNET\_PREFIX |  | IPv6 subnet prefix length (0-128).  Applicable only if Dual stack is selected. |
| MIS\_SUBNET |  | Administration Server subnet. |
| MIS\_NETMASK |  | Administration Server netmask. |
| MIS\_GATEWAY |  | Administration Server gateway. |
| MIS\_GATEWAY\_IPV6 |  | IPv6 address of MIS gateway.  Applicable only if Dual stack is selected. |
| MIS\_DOMAINNAME |  | Administration Server domain name. |

## Infrastructure parameters (Infrastructure tab)

The Infrastructure tab contains information specific to hardware and virtualization.

### VDS

The following parameter values define the type of vSphere virtual switch.

1. VDS parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| VD Switch Name | VDSwitch1 | Switch name |
| VD Switch Enabled | off | Defines whether VDS is enabled or not. If the checkbox is checked, VDS will be used instead of the default vSphere Standard Switch (VSS).   1. Even though VDS is user-configurable, it must not be enabled. |
| VD Switch Version | 5.1.0 | Switch version |

#### Portgroups

Portgroups define the networks of the Infrastructure.

1. Portgroup parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Portgroup Name |  | Name of the portgroup |
| Portgroup Type | off | Type of the portgroup |
| Vlan Id | 0 | VLAN Id for the port group |

NIPE provides some pre-defined portgroups. The user can also add and remove portgroups if needed.

If there are no VLANs, the value 0 (denoting untagged networking) should be used. In the customer installations, there should be dedicated VLANs for Management Network, VM network SB (possibly also VM network NB) and vMotion Network. The VLAN Id values should be set for these accordingly.

#### Network Resource Pools

By default, there are no pools defined. The user can add new Network Resource Pools by clicking the Add button under the Resource Pools table in NIPE.

1. Parameters for network resource pools in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Resource Pool Name |  | Name of the resource pool. Use the selection list to select a predefined name for the resource pool. |
| Host Limit | 0 | Host limit in megabits per second. |
| Shares Level | 0 | Physical adapter number of shares, 1 - 100. |

### Backup

File System Backup is a facility for backing up certain data from the database and NFS nodes. If the File System Backup is to be used, the checkbox **Use File System Backup** must be checked.

VDP (vSphere Data Protection) is a backup and recovery solution for virtual machines. If VDP is to be used, the checkbox **Use vSphere Data Protection** must be checked.

NIPE will create a specific Data Store entry for the backup data automatically (named "Backup"), if either of these backup types is selected. The user must define the LUN for the backup Data Store in the **Data Stores** tab.

If VDP is to be used, the following additional parameters need to be filled:

1. Backup parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| VDP Name |  | Short hostname for the VDP node. |
| VDP IP |  | IP Address for the VDP node |
| Data Store Name |  | Name of the Data Store where the backup data (both VDP and File System Backup) is stored.  The name must be found among the entries in the **Data Stores** tab.  Use the value "Backup" for the name. |
| Storage Format | thin | Disk Provisioning |
| VDP DNS |  | Administration Server acts as DNS during installation, so the Administration Server IP address should be used here. |
| VDP Subnet Mask |  | Netmask for VDP |
| VDP Gateway |  | Gateway for VDP |
| VDP Network |  | Network for VDP  Portgroup name of the network, for example, VM Network SB |

### Data Stores

Data Stores represent a storage location for virtual machine files. Each data store is represented by one or more paths, i.e. LUNs.

1. Data stores in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Data Store Name |  | Name of the data store.  Some data stores come pre-defined:  VMGuestDisk1  VMGuestDisk2  VMGuestDisk3  DBArch  DBRedo  DBData  NFSGlobal  Backup  PMDatastore |
| Block Size (MB) |  | Data store block size in megabytes. |
| Sioc Enabled | on for VMGuestDisk, off for others  **Note**: For **NetAct Compact** configuration, you must clear this value. | Storage I/O control activation |
| Congestion Threshold (ms) | 30 | Congestion threshold i.e. latency upper limit in milliseconds, for manual mode |
| Congestion Threshold Mode | manual for VMGuestDisk, automatic for others | Congestion Threshold Mode, manual or automatic |
| Peak Throughput (%) | 90 | Percentage of peak throughput, for automatic mode |

Paths

1. LUN parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Path Name | <dsname>\_path<n> | Name of the data store path |
| Path |  | Unique LUN ID value (NAA id).  Recommendation is to use one path for each data store.  Path must have NAA IDs of correct format, for example: naa.60060e8006d078000000d0780000a11f.  Storage NAA IDs can be checked from storage host LUN properties.  To check the NAA ID of HPE MSA 2040 SAN Storage, open an SSH connection to either of the two storage controller modules and run the command **show volumes details**. |

### Clusters

By default, one cluster, NetAct\_cluster, is created, and all NetAct virtual machines are placed into this cluster. HA is enabled by default as well as Distributed Resource Scheduler (DRS), which provides load balancing. Default values should be applicable as such, but those can be also modified, if needed.

For NetAct Compact, DRS is not used, as VMware is with standard license only.

The HA Cpu and HA Memory values must be changed from the default values based on the number of servers used in the cluster. This value is to reserve 1 server resources out of total number of servers.

For example

1. NetAct Large with 5 x Gen10 servers, this value must be 100/5 = 20, so HA Cpu and HA Memory values must be changed to 20.
2. NetAct Mainstream with 4 x Gen10 servers, this value must be 100/4 = 25, so HA Cpu and HA Memory values must be changed to 25.
3. Cluster parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Cluster Name | NetAct\_cluster | Name of the cluster. |
| HA Enabled | on | Turn vSphere HA on/off. When this option is not selected, it prevents HA from acting when a host failure is detected. |
| DRS Enabled | on  **Note**: For **NetAct Compact** configuration, you must clear this value. | Turn on/off DRS for dynamic load balancing. |
| DRS Automation Level | fullyAutomated | DRS automation level for initial placement of virtual machines and dynamic balancing while virtual machines are running. |
| DRS Power Management | off | When enabled, places (or recommends placing) hosts in standby power mode if sufficient excess capacity is found or powers on hosts if capacity is needed. |
| HA Cpu | 100 / esxi\_host\_amount | Percentage of cluster CPU resources reserved as failover spare capacity. |
| HA Memory | 100 / esxi\_host\_amount | Percentage of cluster memory resources reserved as failover spare capacity. |
| HA Host Monitoring Status | enabled | When enabled, vSphere HA monitors and responds to host failures. |
| HA Admission Control | on  **Note**: For **NetAct Compact** configuration, you must clear this value. | Admission control helps to ensure sufficient resources for providing high availability.  **On:** Disallow VMpower on operations that violate availability of constraints.  **Off:** allow VMpower on operations that violate availability of constraints. |
| HA Admission Control Policy | 1 | Maximum number of host failures the cluster can tolerate or can recover from. |
| HA Host Isolation Response | powerOff | Host Isolation response determines what happens to virtual machines when a host loses the management network but continues running |
| HA Vm Options | medium | Cluster default setting for VM restart priority.  (Disabled, low, medium, high) |
| HA Vm Monitoring | vmMonitoringOnly | Defines what is to be monitored on the cluster level.  VM monitoring restarts individual VMs if their heartbeats are not received within a set time.  Application monitoring restarts individual VMs if their VMware tools application heartbeats are not received within a set time.  (vmMonitoringDisabled, vmMonitoringOnly, vmAndAppMonitoring) |
| Monitoring Enabled | on | Defines whether VM health monitoring is enabled or not. |
| Monitoring Level | vmMonitoringOnly | Defines on the VM level what is to be monitored.  (vmMonitoringDisabled, vmMonitoringOnly, vmAndAppMonitoring) |
| Failure Interval | 60 | If no heartbeat has been received within the time limit, the virtual machine is declared failed.  (time limit in seconds) |
| Min Uptime | 240 | Number of seconds for the virtual machine’s heartbeats to stabilize after the virtual machine has been powered on.  This time should include the guest operating system boot-up time. Virtual machine monitoring will begin only after this period.  (stabilizing period length in seconds) |
| Max Failures | 3 | Maximum number of failures and automated resets allowed during the time that the Max Failure Window parameter specifies.  If <Max Failure Window> is -1 (no window), this represents the absolute number of failures after which automated response is stopped. |
| Max Failure Window | 86400 | The number of seconds for the window during which up to <Max Failures> resets can occur before automated responses stop.  If set to -1, no failure window is specified. |
| Swapfile Location | vmDirectory | Virtual Machine Swapfile location. |

### vCenter

Specify the following parameters for VMware vCenter Server that provides a centralized platform for managing virtual infrastructure:

1. vCenter parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| VM Name | Vcenterappliance | vCenter VM hostname. |
| Domain Name |  | vCenter domain name. |
| VM IP |  | IP address of the virtual machine running vCenter. |
| Hostname |  | Physical host hostname. |
| Host IP |  | Physical host IP address. |
| Password |  | The password given during installation must comply with the password policy defined in [System user password policy](#_System_user_password).  See the table's info row in NIPE for more information on required characters. |
| DC Name |  | Data center name.  Used when creating a new vSphere data center. |
| Cluster Name |  | vCenter is mapped to NetAct Cluster. |
| Data Store Name | VMGuestDisk1 | Name of data store for vCenter. |
| Portgroup Name |  | Portgroup of vCenter.  In most cases the port group is VM Network SB.  Portgroup must match one of the portgroups defined in the **VDS** tab. |
| Storage Format | eagerZeroedThick | Disk provisioning. |
| Netmask |  | Netmask of VMs. |
| Gateway |  | The IP address of the Gateway server of VMs. |
| DNS IP |  | DNS Server IP address. Use the Administration Server IP address here. |
| NTP Server IP |  | IP address of the external NTP server. |
| Timezone |  | Select the correct value from the drop-down list. |
| Locale |  | Select the correct value from the drop-down list. |
| Memory (GB) |  | vRAM for vCSA. Depends on the configuration. Do not change. |

### Additional NTP server

When additional NTP servers are added, it is mandatory to have one Ipv4 NTP server filled as NTP Server IP in NIPE before adding additional NTP Server IPs (IPv4 or IPv6).

Use the **Add** button to add an extra NTP server.

1. Additional NTP server parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Additional NTP Server Name |  | The name of the server is pre-defined. |
| Additional NTP Server IP |  | Enter the correct IP address. |

### Resource Pools

The resource pool NetActVMpool is mapped to NetAct\_cluster. (A resource pool is a pool of CPU and memory resources.)

Shares specify the relative importance of virtual machines in the resource pool. If a virtual machine has twice as many shares of a resource as another virtual machine, it is entitled to consume twice as much of that resource when these two virtual machines are competing for resources.

The default values should be applicable as such.

1. Resource pools parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Resource Pool Name | NetActVMpool | Name of the Resource pool. |
| Cluster Name | NetAct\_cluster | Name of the cluster.  The value must be found among the cluster names in the **Clusters** tab. |
| Mem Share Level | normal | Number of shares per megabyte of configured virtual machine memory.  high: 20  normal: 10  low: 5 |
| Cpu Share Level | normal | Number of shares per virtual CPU  high: 2000  normal: 1000  low: 500 |

### DRS Groups

vSphere Distributed Resource Scheduler (DRS) groups offer a means to automate resource scheduling.

You can set up two types of DRS groups:

* virtual machine DRS groups, which have virtual machines mapped to them in the VMs tab
* host DRS groups, which have ESXi hosts mapped to them in the Hosts tab

1. DRS Groups parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| DRS Group Name |  | Name of the DRS group.  The following DRS groups come pre-defined:  DRS\_HOSTS  DRS\_VMS |
| DRS Group Type |  | Type of DRS group: vm or host. |
| Db Allowed | false | This parameter is not used for anything currently, so the value does not matter. |

More groups can be added by clicking the Add button and defining the values.

### DRS Rules

There are certain pre-defined sets of DRS rules for NetAct. The set of pre-defined rules depends on the configuration.

1. In NetAct Compact HW configuration, the standard VMWare license is used which does not include automatic DRS. It is therefore necessary for the operator to monitor resource utilization and in case the resource utilization is out of balance, a manual VM migration is needed. For more information, see **NetAct Operating Documentation → NetAct Administration → NetAct Administration Overview and Operations → System Reliability → Virtual machines split for NetAct Compact**.
2. DRS Rules parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| DRS Rule Name | depends on the configuration | Name of the DRS rule.  Following DRS rules come pre-defined:  DRS\_HOSTS  DRS\_VMS |
| DRS Rule Type | Depends on the configuration. Certain VM pairs are defined to be kept separate and certain VM groups are targeted on certain hosts. | Type of DRS rule.  There are two types to select from:  separate:  two given VMs cannot reside in the same host  host:  use the specified host |
| VM | vm<n>  depends on the configuration | First VM to participate in the rule.   1. If the name of a VM referred here is changed in the VMs tab, the name must also be changed here. |
| Another VM | vm<n>  depends on the configuration | Second VM to participate in the rule.   1. If the name of a VM referred here is changed in the VMs tab, the name must also be changed here. |
| Host DRS Group |  | Hosts DRS Group that contains the hosts to participate in the rule.  The value must be found in the DRS Groups tab. |
| VM DRS Group |  | VM DRS Group that contains the VMs to participate in the rule.  The value must be found in the DRS Groups tab. |
| Mandatory | false | Denotes whether the rule is a forcing rule or a suggestive rule.  check-box on: force the rule  check-box off: suggest only  This field only applies to rules that have DRS Rule Type 'host'. |

1. In NetAct Compact HW configuration, the standard VMWare license is used which does not include automatic DRS. Therefore, you must remove all the DRS rules one by one from the **DRS** tab.

### Users

Users can have roles defined for them.

There exist certain pre-defined users.

### Roles

Roles can have one or more privileges.

There exist certain pre-defined roles.

### Hosts

The table below defines some settings common for all ESXi hosts.

1. Hosts parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Esx Login | root  (cannot be changed) | ESXi host login. |
| Esx Password |  | Password of the root user.  The ESXi host root user password given during installation must comply with the password policy defined in [System user password policy](#_System_user_password).  See the table's info row in NIPE for more information on required characters. |
| Subnet |  | Subnet for ESXi hosts. |
| Netmask |  | Netmask for ESXi hosts. |
| Gateway |  | Gateway IP address for ESXi hosts. |
| Domain |  | Domain name for ESXi hosts.  Domain must contain at least two parts separated by a dot. |
| Snmp Host IP |  | HPSIM Virtual Machine IP address (usually the IP address of VM7).   1. Fill a value in this field always, even if it is shown as non-mandatory. |
| Snmp Port | 50162 | Snmp port number. |
| Snmp Community String | cpfpublic | Snmp community string. |

Individual (ESXi) hosts (hypervisors) require the following parameters to be defined:

1. Individual ESXi host parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Hostname |  | Short hostname for the ESXi host. |
| IP Address |  | IP address of the ESXi host. |
| MAC Address |  | Hardware address of the machine. |
| Local Disk | off | Check this check-box if you want to have the Hypervisor installed on the local disk of the ESXi host. In this case, the **Disk Id** field becomes non-mandatory and the value should be left empty. |
| Disk Id |  | NAA ID  This can be seen from storage LUN properties, unique LUN ID. For more information and examples, see the section on [Data Stores](#_Data_Stores).  Fill in a value in this field if storage is used for the ESXi root disk. If Local disk is used, leave this field empty. |
| ILO IP Address |  | IP Address of the iLO. |
| ILO IPv6 Address |  | IPv6 address of the iLO |
| ILO Login |  | iLO Login username. |
| ILO Password |  | Password of the ILO user.  The password should have at least three of the following characteristics:   * One numeric character * One special character * One lowercase character * One uppercase character   Depending on the Minimum Password Length setting on the Access Settings page, the password can have a minimum of zero characters (no password) and a maximum of 39 characters.   1. HP does not recommend setting the Minimum Password Length to fewer than eight characters unless you have a physically secure management network that does not extend outside the secure data center. |
| Default VLAN | 0 | VLAN ID of the management network, defined in the **VDS** tab. |
| Cluster Name | NetAct\_cluster | Name of the cluster.  Must be the same as the value of the **Cluster Name** parameter in the **Clusters** tab. |
| OS | esxi  (do not change) | Operating System |
| Vmotion IP Address |  | IP address of vMotion traffic.  A private network address (e.g. 172.16.0.1) can be used here as vMotion traffic is internal and non-routed. Just make sure that the IP range does not conflict with possible other vSphere clusters. |
| Vmotion Subnet Mask |  | Subnet mask of the vMotion network.  Use a netmask matching the subnet of the given vMotion IP address. |
| DRS Group Name |  | DRS group of the ESXi hosts.  The value must be found among the groups in the DRS Groups tab. |

1. Additional hosts parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Queue Full Sample Size | 0 |  |
| Queue Full Threshold | 8 |  |
| Disk Max I/O Size | 32767 |  |
| Iops Value | 1 |  |
| Iops Vendor |  |  |
| Iops Description |  |  |
| Iops Satp | VMW\_SATP\_ALUA | VMW\_SATP\_ALUA or VMW\_SATP\_ALUA\_CX |

1. The VMware default values of **Queue Full Sample Size=0**, **Queue Full Threshold=8** and **Disk Max I/O Size=32767** are applicable only when NetAct is installed with DELL EMC Storages. When NetAct is installed with HPE 3PAR storage, these three values must be modified to **32**, **4** and **1024** respectively as described in section [3.7.1](#_3PAR_storage_specific)

### VMs (Virtual Machines)

Specify the following for each virtual machine:

1. Virtual machine parameters in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| VM Hostname |  | Hostname of the VM, defaults can be used or changed if required.   1. If the default name of the VM is changed, it is necessary to make the same name update also to all DRS rules (in the **DRS Rules** tab) that are referring to the VM with the old name. NIPE tool tries to do this automatically. |
| Guest IP Address |  | IP address of the virtual machine. |
| GUEST IPv6 Address |  | IPv6 address of the virtual machine.  Applicable only in case of Dual Stack selection. |
| Guest MAC Address |  | MAC address of the virtual machine.   1. Fill in the values manually only if the NetAct delivery mode is SW Only. |
| Data Store Name |  | Data store where virtual machine is placed, use default values. |
| Guest OS |  | Different nodes have correct value by default, possible values are in the drop-down list. |
| Node type | depends on the configuration | A tag to explain the role of the node. |
| Memory (GB) | depends on the configuration | Memory allocated for the VM. |
| Reserved Memory | depends on the configuration | Minimum memory required for the VM. |
| VCPU | depends on the configuration | Number of virtual CPUs allocated for the VM. |
| Resource Pool | NetActVMpool | The resource pool name.  The value must be found in the Resource Pools tab. |
| DRS Group Name |  | DRS group of the VM.  The value must be found among the groups in the DRS Groups tab.   1. Leave the DRS Group Name empty for all Node Manager virtual machines. |

#### Disks for each VM

The user can add or remove disks.

1. Disks for each virtual machine

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| Disk Name |  | Name of the disk. |
| Data Store Name |  | Data store where the disk is created. |
| Size (GB) | depends on the configuration | Disk (vmdk file) size in gigabytes.  The disk may have a maximum size restricted to 2 TB, depending on the hardware and software used. |
| Storage Format | eagerZeroedThick | Disk provision type. Mandatory value: eagerZeroedThick. |
| SCSI Id | 0 | SCSi id of the disk.  Default values should be kept (at least for the DB, NFS and backup disks) for the disk setup scripts to work properly.  Default values depend on the disk in question (some disks have non-zero default values for scsi\_id). |
| SCSI Controller Id | 0 | SCSi controller id.  Default values depend on the disk in question (some disks have non-zero default values for scsi\_controller\_id). |
| Disk Mode | persistent or independent\_persistent; depends on the purpose of the disk | Defines how the data persistency is to be handled.  Set this to **persistent** if backup will be handled by VDP, otherwise to **independent\_persistent** |

#### SCSI controllers for each VM

The user can add and remove SCSI Controllers.

1. Parameters for VM SCSI controllers in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| SCSI Controller Id | 0 | There can be no more than four SCSI controllers for a VM, thus the value must be between 0 and 3. |
| SCSI Controller Type | depends on the OS on the VM  **(do not change)** | Do not change the default values, different VMs need different values. |

#### NICs for each VM

The user can add and remove NICs.

1. Parameters for VM NICs in NIPE

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| NIC Name | <vmname>\_nic<n> | Name of the Network Interface Card |
| Nw Adapter Type | depends on the VM  **(do not change)** | Network adapter type:  Vmxnet3  E1000 |
| VD Switch Name | VDSwitch1 | The name should be in line with the name given in the VDS tab. |
| Portgroup Name | VM Network SB | Portgroup defining the network of the NIC.  The value must be one of the portgroup names defined in the **VDS** tab. |

## NetAct product parameters (NetAct 18 tab)

### NetAct General

Specify the following values for NetAct virtual machines:

1. Virtual machine parameters in NetAct General tab

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| OSS.DELIVERY.MODE | normal | NetAct delivery mode: either normal or sw\_only.  Delivery mode normal includes the installation of hardware, virtual infrastructure and NetAct product software.  Delivery mode sw\_only includes the installation of only NetAct product software in a customer-provided data center. |
| OSS.VIRTUALIZATION.PROVIDER | vmware | The provider of virtual infrastructure. Possible values are either **vmware** or **openstack**. |
| OSS.LOAD\_BALANCER.MODE | keepalived | Parameter for the Load Balancer solution to be used. |
| CPF.VMANAGER.VMREBOOT |  | vManager accesses VI and reboots a VM if a critical service is in failed state. The customer decides if this is enabled (true) or not (false). |
| DCFW.VI.PERF\_COLLECTION |  | Parameter for allowing NetAct Performance Data Collection Framework to access the virtual infrastructure for collecting performance data. The customer decides if this is enabled (**true**) or not (**false**). |
| NAS\_SUBNET |  | Administration Server subnet.  Enter the same value as on the MIS\_SUBNET field on the ViiS tab. |
| IPV6\_NAS\_SUBNET |  | IPv6 subnet for NetAct hosts.  Applicable only if Dual stack is selected. |
| NAS\_NETMASK |  | Administration Server netmask.  Enter the same value as on the MIS\_NETMASK field on the ViiS tab. |
| IPV6\_NAS\_NETMASK\_PREFIX\_LENGTH |  | IPv6 netmask for NetAct IP subnet (0-128). Applicable only if Dual stack is selected. |
| NAS\_GATEWAY |  | Administration Server gateway.  Enter the same value as on the MIS\_GATEWAY field on the ViiS tab. |
| IPV6\_NAS\_GATEWAY |  | IPv6 address of the default gateway.  Applicable only if Dual stack is selected. |
| SYSTEMNAME |  | Unique system name for NetAct.  This information is needed for identifying the environment in the DCA configuration files.  Names can only contain letters a…z and numbers 0…9.  System names must start with a letter; they cannot start with a number. |
| DOMAINNAME |  | Domain name for NetAct.  Names can only contain letters a…z and numbers 0…9.  Domain names must start with a letter; they cannot start with a number.  The domain name must contain at least two parts separated by a dot. |
| TIMEZONE |  | Select a value from the drop-down list. |
| KEYBOARD |  | Keyboard layout.  Select a value from the drop-down list. |
| VM\_LOGIN | root | **Do not change the default value.** |
| VM\_PASSWORD |  | Password of the root user. If changed, the password must be manually updated on all NetAct VMs.  The VM root user password given during installation must comply with the password policy defined in System user password policy. |

### DCN

Specify IP addresses for switches and routers. These are needed in the hardware installation only.

### Storage Solutions

There is no need to define any value for the attributes in the **Storage Solutions** tab as they are not used in the installation or upgrade process.

### Installation Attributes

Parameters are described in the NIPE tool, except for the ones that are listed here:

1. Parameters in the Installation Attributes tab

|  |  |  |
| --- | --- | --- |
| Field | Default value (if applicable) | Description |
| NETACT.TARGET.ID |  | Installation numeric ID, 8 digits. For more details, see [Licensing Parameters](#_Licensing_parameters). |
| MERC.CLUSTER\_DISPLAY\_NAME |  | Mercury cluster display name. Alphabetic value for environment identification. For more information, see [Naming rules](#_Naming_rules). |
| NETACT.CLUSTER.NAME |  | NetAct cluster name. Alphabetic value for environment identification. For more information, see [Naming rules](#_Naming_rules). |
| CLS.BE.FQDN |  | FQDN of the Centralized License Server Backend VM (optional). |
| CLS.FE.FQDN |  | FQDN of the Centralized License Server Frontend VM (optional). |
| CPF.LB.LTEA\_MED\_ACCESS\_ADDRESS |  | FQDN of LTE-A mediation Virtual IP.  Mandatory if LTEA\_MED optional VM is added. |
| CPF.LB.LTEA\_MED\_ACCESS\_VIP |  | Virtual IP address for LTE-A mediation service.  Mandatory if LTEA\_MED optional VM is added. |
| CPF.LB.LTEA\_MED\_ACCESS\_VIP\_IPV6 |  | Virtual IPv6 address for LTE-A mediation service.  Mandatory if LTEA\_MED optional VM is added and Dual Stack is enabled. |

# Glossary

1. Terms and abbreviations used in this document

|  |  |
| --- | --- |
| Term | Explanation |
| 3G | Third-Generation Cell-Phone Technology |
| 4G | Fourth-Generation Cell-Phone Technology |
| CI | Customer Integrations |
| CLicS | Central Licensing System |
| Commissioning | Process of bringing software or hardware into use for  the first time (by installation or upgrade) |
| CPU | Central Processing Unit |
| Data Store | Data Stores represent a storage location for virtual machine files. Each data store is one disk/LUN |
| DB | Database |
| DCN | Data Communications Network |
| DCS | Digital Cellular System (1800 MHz implementation of GSM) |
| DNS | Domain Name Service |
| DRS | Distributed Resource Scheduler |
| FQDN | Fully Qualified Domain Name |
| GSM | Global System for Mobile Communications |
| HA | High Availability |
| Installation | Process of placing equipment or software in position, and connecting and adjusting it for use. |
| Integration | Integrating elements to the system or integrating management systems from different suppliers together |
| IP | Internet Protocol |
| LTE | Long Term Evolution |
| LTEA\_MED | LTE-A Mediation |
| LUN | Logical Unit Number |
| MAC Address | Media Access Control address |
| NE | Network Element |
| NFS | Network File System |
| NIPE | NetAct Installation Parameter Editor |
| NOLS | Nokia Online Services |
| NTP | Network Time Protocol |
| OS | Operating system |
| PCS | Personal Communications System (1900 MHZ implementation of GSM) |
| PP | Priority Package |
| Resource pool | Pool of CPU and memory resources |
| RTE | Runtime environment |
| SAM | Service Aware Management |
| SAN | Storage Area Network |
| SAP | Systems Applications and Products |
| SCSI | Small Computer System Interface |
| SLC | Security Log Collector |
| SMTP | Simple Mail Transfer Protocol |
| T&P | Thresholder and Profiler |
| TPS | Technical Product Support |
| Upgrade | Updating from a previous system component/ subsystem release to a more recent one. |
| vCenter | VMware vCenter Server provides a centralized and extensible platform for managing virtual infrastructure. |
| vCPU | Virtual CPU |
| VDP | vSphere Data Protection |
| VDS | vSphere Distributed Switch |
| ViiS | Administration Server, formerly known as Virtualized Installation Server |
| VLAN | Virtual LAN |
| VM | Virtual machine or instance |
| vMotion | vSphere vMotion. Eliminate application downtime from planned server maintenance by migrating running virtual machines between hosts. |