nDesk Installation Guide

Virtual Desktop Infrastructure Deployment on nCSSV Platform

Contents

1 Overview

This document describes the step-by-step procedure to install and deploy **nDesk**, a Virtual Desktop Infrastructure (VDI) platform designed to operate on top of the **nCSSV** hypervisor environment.

The guide provides practical instructions for system administrators to build and configure the nDesk environment, starting from the creation of base virtual machines up to the deployment and initialization of the management console.

The guide covers:

- Preparation of the environment and base virtual machines.
- Installation of required packages for the nDesk cluster.
- Master-slave configuration for high availability and orchestration.
- Deployment of nDesk services and graphical management interface.

2 Environment Preparation

2.1 Base Virtual Machines

Begin by uploading the base image file to the nCSSV platform:

- `openEuler-22.03-x64-minimal-tar.qcow2`

To upload the image, navigate through the nCSSV interface as follows:

- Go to **Resource Center > Resource Pool > Image**
- Click on **Add Image**

Select the `.qcow2` file and complete the upload process as shown in the corresponding screenshot.

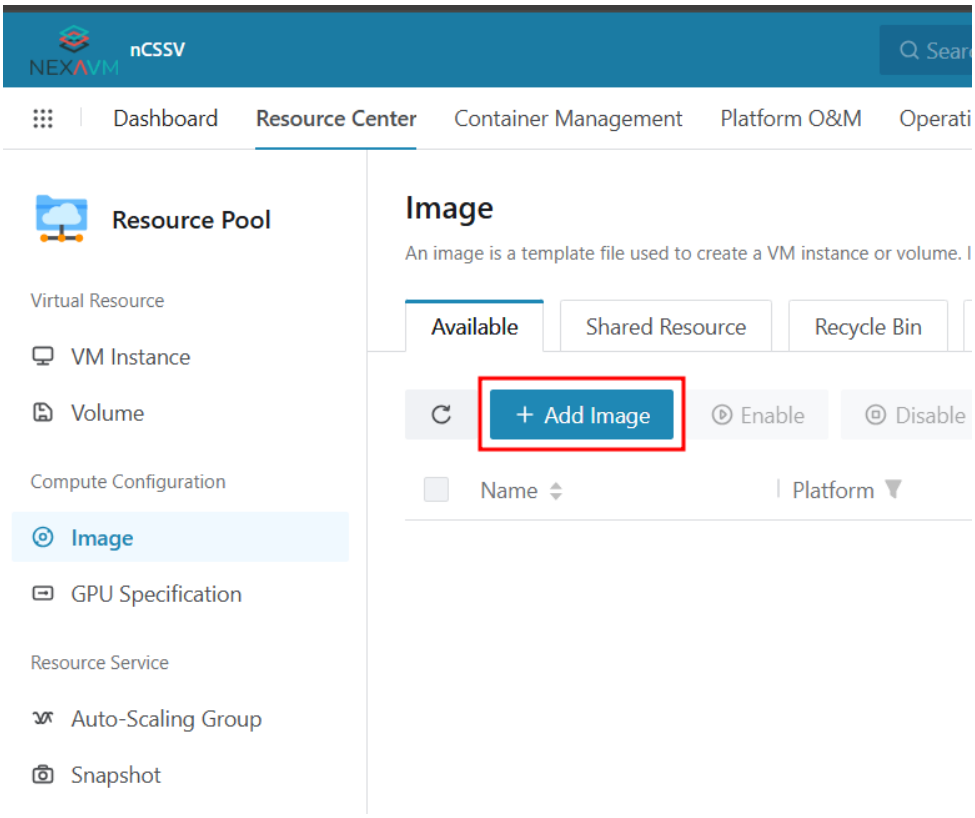

Figure 1: Add Image to nCSSV

Once the image upload is complete, proceed to create the three virtual machines required for the nDesk VDI base setup using the newly uploaded image.

During the creation process, pay close attention to the following configuration details:

- **Operating System:** Select **Linux**
- **Version:** Choose **openEuler 22.03** (as used throughout this guide)
- **CPU Allocation:** Assign a minimum of **8 vCPUs** per virtual machine
- **Memory Allocation:** Assign at least **16 GB of RAM** per virtual machine
- **Image:** Use the previously uploaded `openEuler-22.03-x64-minimal-tar.qcow2` image as the system disk

Note

Ensure that all three VMs (one master and two slaves) share the same hardware configuration and reside on the same network segment. This uniformity is essential for stable communication and synchronization during the nDesk cluster setup.

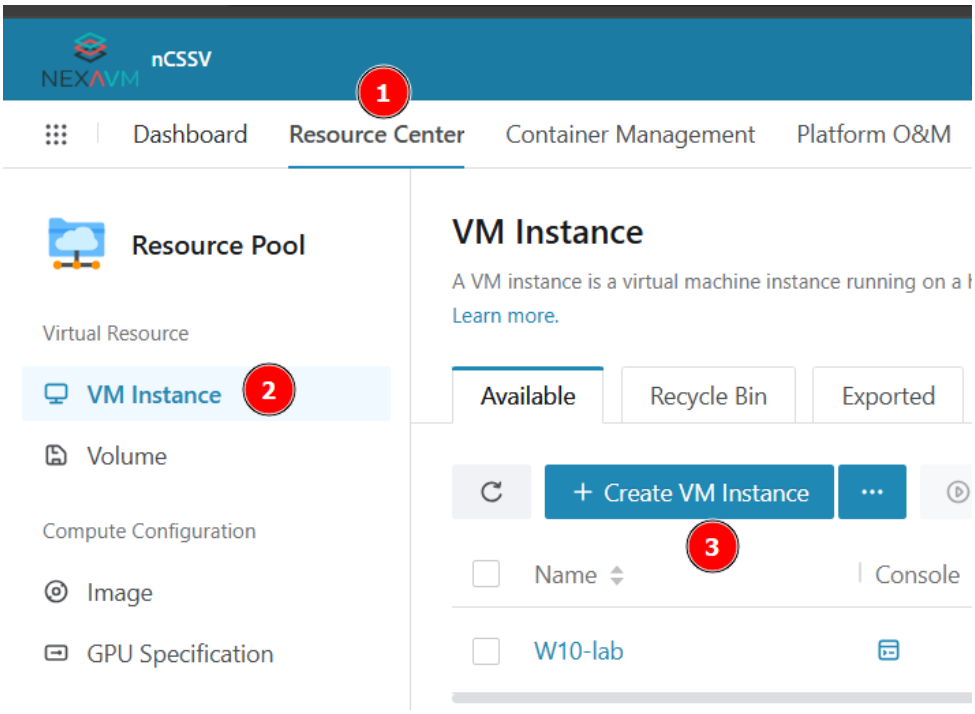

Figure 2: Create VM

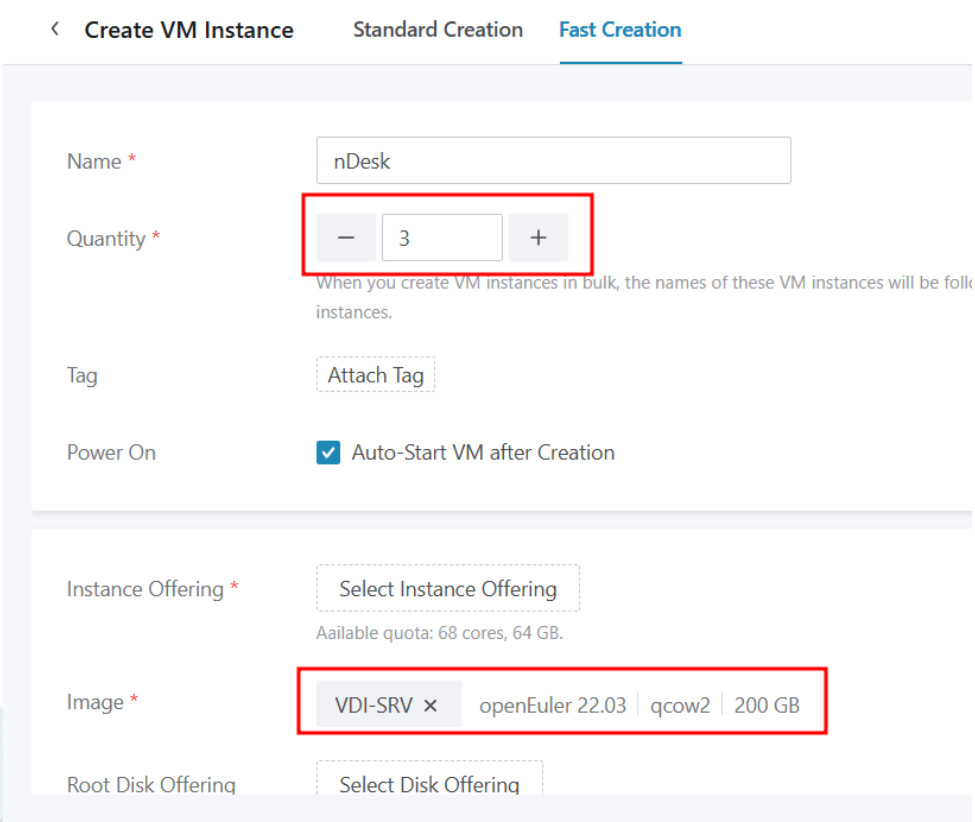

Figure 3: Create VM

Each VM will serve as one of the following nodes:

- 1x Master Node
- 2x Slave Nodes

> **Note**
>
> Ensure that all three VMs are created from the same uploaded image and that they are deployed on the same network segment to ensure proper communication within the nDesk cluster.

2.2 Network Configuration

After creating the VMs, configure network parameters for each of them.

Use the following credentials to access each VM:

- **Username:** root
- **Password:** we@cloud9F!

Edit the corresponding NIC configuration file located in:

```
/etc/sysconfig/network-scripts/[NIC_NAME]
```

Modify or add the following fields:

- `BOOTPROTO=static`
- `IPADDR=[YOUR_IP]`
- `NETMASK=[YOUR_NETMASK]`
- `GATEWAY=[YOUR_GATEWAY]`
- `DNS=[YOUR_DNS]`

2.3 Time Configuration

For consistent time synchronization across nodes, configure the timezone on each host:

```
timedatectl set-timezone Europe/Rome
```

Ensure that the system time reflects **UTC (+01:00) Europe/Rome**.

2.4 DNS Verification

Verify the DNS settings in:

```
/etc/resolv.conf
```

Make sure that the DNS server IP address is correctly set and reachable.

2.5 Installing VM Tools

Before proceeding with the next installation steps, it is necessary to install the **VM Tools** on each virtual machine to enable full functionality and communication with the nCSSV platform.

Installation via nCSSV GUI

To install the VM Tools, select the corresponding virtual machine from the nCSSV management interface. In the **Overview** tab that opens, locate the **GuestTools** entry under the **Configuration Info** group on the left side, and proceed with the installation from there.

As shown in the corresponding screenshot, this action will automatically mount the VM Tools ISO and display the instructions and commands required to complete the installation within the virtual machine console.

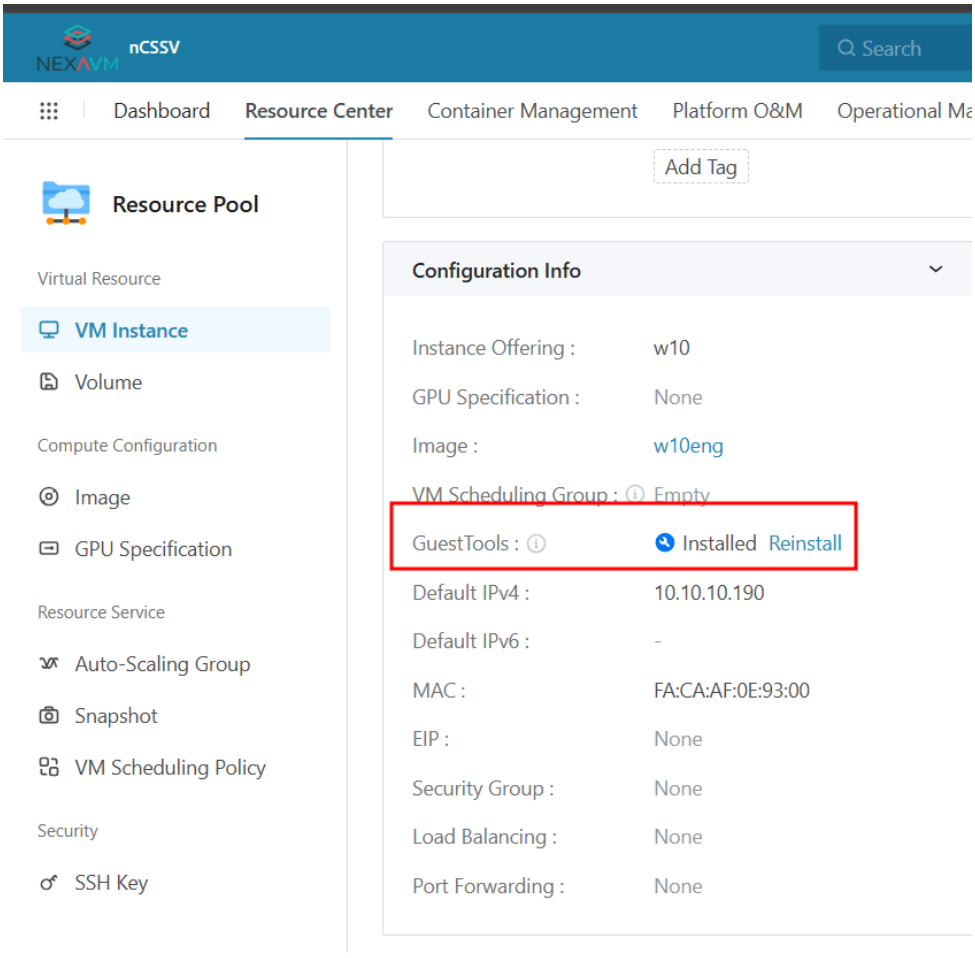

Figure 4: VMTools Installation

Once the installation is complete, unmount the ISO and restart the VM to apply all changes.

> **Note**
>
> Repeat this procedure for all virtual machines (master and slave nodes). After installation, verify that each VM correctly reports its status and IP address in the nCSSV management interface.

3 Installing nDesk Components

3.1 Deploying the K3s Environment

Upload the following installation package to all three VMs:

`astute-k3s-deploy-6.0_oe2203_x64.4.bin`

Installation must follow a specific order:

- First install on both **slave nodes**
- Then install on the **master node**

Slave Node Installation

On each slave node, run:

```
bash ./astute-k3s-deploy-6.0_oe2203_x64.4.bin -- -E
```

Follow the graphical installation steps.

Pay close attention during the installation of the slave nodes when prompted to specify the **host name**. Each slave must be assigned a unique and consistent host name, as these names and their corresponding IP addresses will be required later during the master node installation process.

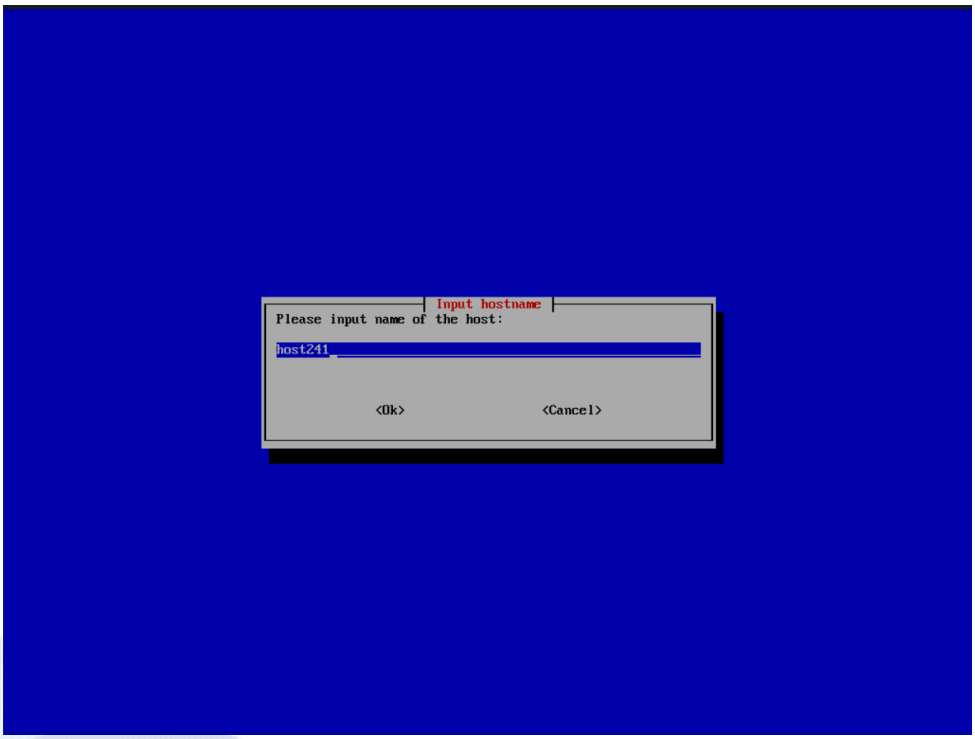

Figure 5: Slave VM

When prompted with the message asking whether the node should act as *master*, select **NO**.

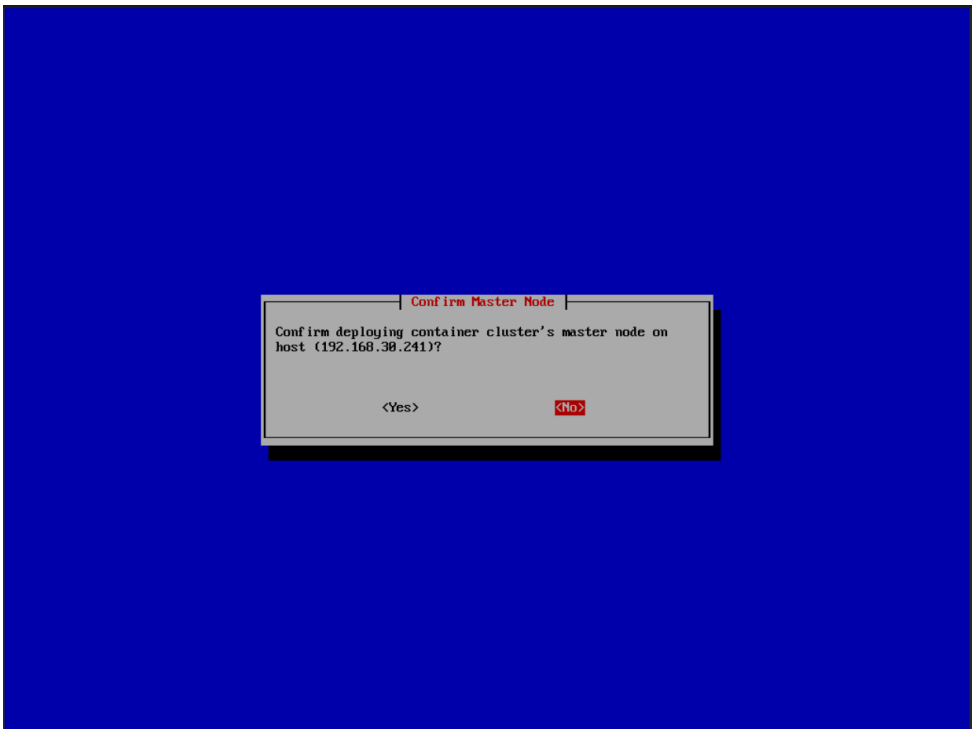

Figure 6: Slave VM

Master Node Installation

Repeat the same installation process on the master node, when prompted to become *master*, select **YES**.

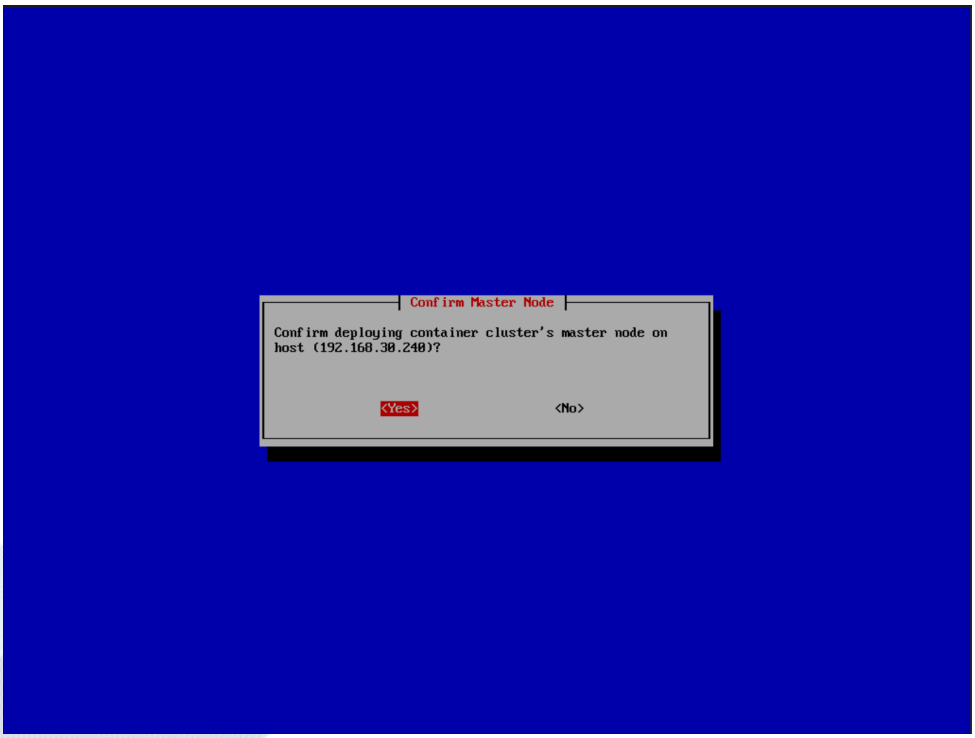

Figure 7: Master VM

When prompted, enter the corresponding **hostname** and **IP address** that you previously recorded for this node, and insert them as shown in the reference screenshot.

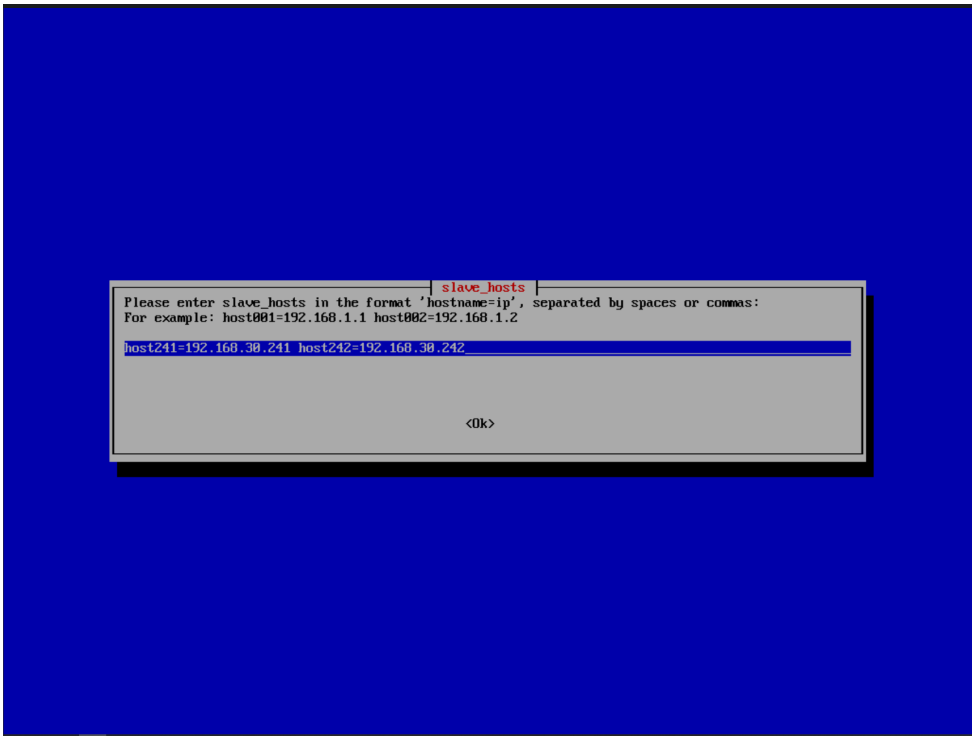

Figure 8: Master VM Slave-Host Names

3.2 Verifying Cluster Status

Once the installation on the master node completes, verify the cluster node registration using:

```
sudo kubectl get nodes
```

You should see all three nodes listed as `Ready`.

4 Installing nDesk Services on the Master Node

After the K3s environment is deployed and confirmed to be operational, proceed with the installation of nDesk service packages.

4.1 Upload the Packages

Upload the following two files to the **master node** only:

```
scp astute-xspace-image.6.0.67.bin xspace@[IP_ADDRESS]:/home/xspace/
```

```
scp astute-xspace-deploy-6.17.19.nexavm.bin xspace@[IP_ADDRESS]:/home/
    xspace/
```

4.2 Execution Order

It is essential to execute the installation packages in the correct order:

1. `image`
2. `deploy`

Execute them sequentially on the master node.

```
bash astute-xspace-image.6.0.67.bin -- -E
```

```
bash astute-xspace-deploy-6.17.19.nexavm.bin -- -E
```

5 Configuration Checks and Validation

5.1 Time Zone Validation in nCSSV

Before initializing nDesk services, verify that the correct timezone is applied in all REST API calls within nCSSV.

To access this parameter, navigate in the nCSSV GUI to **Settings > Global Settings > Advanced**.

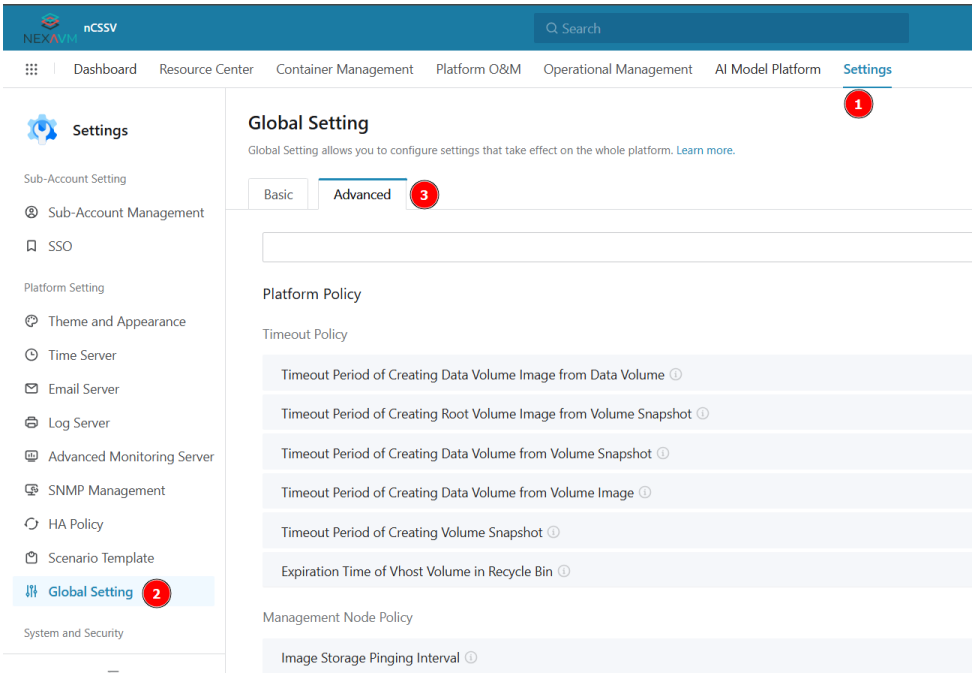

Figure 9: Path to REST API Calls

Ensure that the option **Check Time Zone in REST API Calls** is properly enabled, as shown in the reference screenshots.

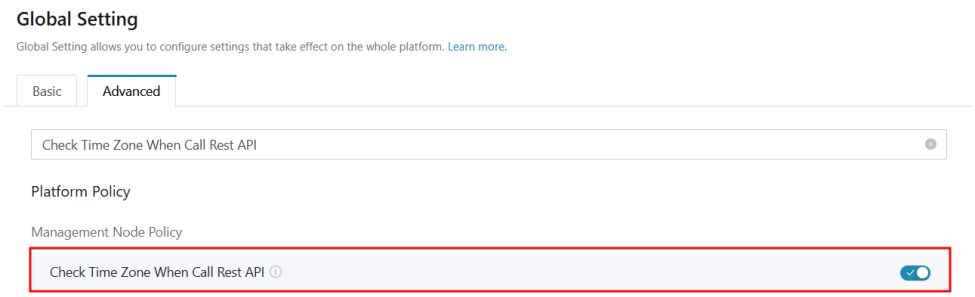

Figure 10: Check Time Zone in REST API Calls

6 First Login and GUI Access

After installation, access the nDesk graphical interface through your web browser.

```
https://[MASTER_NODE_IP]
```

Use the following default credentials to log in:

- **Username:** xspace
- **Password:** we@cloud9F!

7 Connecting nDesk to nCSSV

After logging into the nDesk web interface using the default credentials, the next step is to establish the connection between **nDesk** and the **nCSSV** platform. This integration allows nDesk to communicate directly with nCSSV for the creation, management, and deployment of virtual desktops.

Accessing the Platform Configuration

From the nDesk GUI on the master node, navigate to:

- **Resource > Platform**

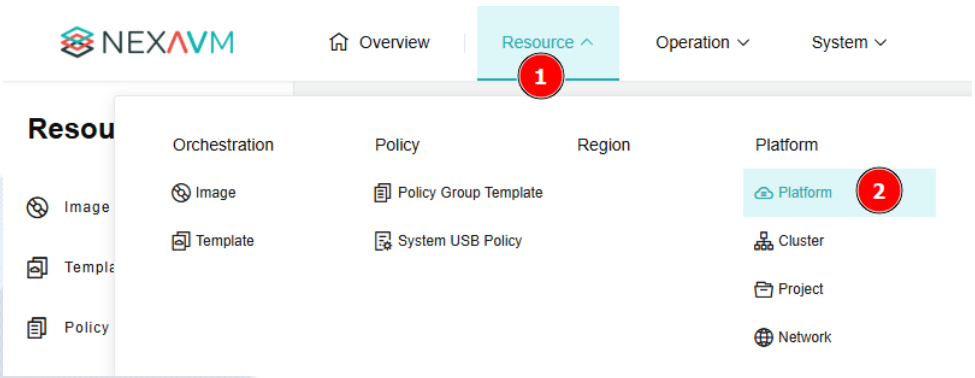

Figure 11: nDesk nCSSV Connection

Click on the **Add** button to begin the configuration process.

Filling Connection Parameters

A new window will appear where you must fill in the required fields to connect to nCSSV. In the **Platform Type** section, select **ZStack** from the dropdown menu.

Complete all fields in the connection form carefully. In particular, the fields **AccessKey ID** and **AccessKey Secret** are mandatory for authentication between nDesk and nCSSV.

> **Note**
>
> The AccessKey credentials are generated directly from the nCSSV platform and must be copied accurately into the corresponding fields within the nDesk configuration window.

Generating AccessKey Credentials in nCSSV

To create the necessary AccessKey credentials, perform the following steps from the nCSSV management console:

- Navigate to **Operational Management > AccessKey Management**
- Click on **Generate AccessKey**
- Copy both the generated values:
  - **AccessKey ID**
  - **AccessKey Secret**
- Return to the nDesk GUI and paste these values into the respective fields of the **Add Platform** form

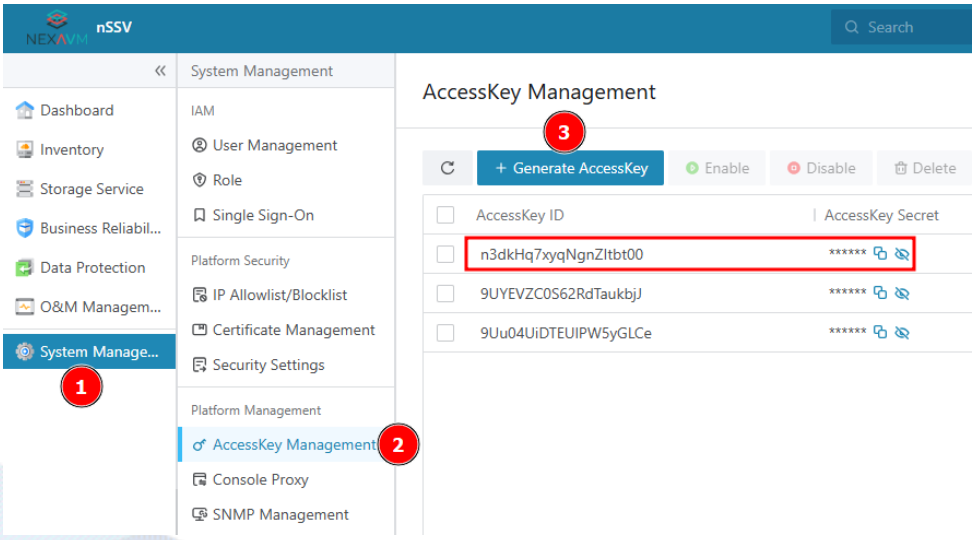

Figure 12: AccessKey Generation in nCSSV

Once all fields are correctly filled in, confirm and save the configuration.

Note

This linkage is essential for enabling nDesk to interact with nCSSV. After the connection is established, nDesk will automatically detect and synchronize available resources, including compute nodes, images, and templates from the nCSSV environment.

8 Conclusion

At this stage, the nDesk environment has been successfully deployed and connected to the nCSSV platform.

The installation process has included:

- Uploading and configuring the base openEuler image.
- Creating the virtual machines for the master and slave nodes.
- Setting up networking and time synchronization.
- Deploying the K3s environment.
- Installing and initializing nDesk services.
- Establishing the connection with the nCSSV platform using AccessKey credentials.

Next Steps:

- Configure user pools and desktop templates.
- Define access policies and assign resources.
- Integrate directory services (LDAP/AD) if required.
- Test and deploy virtual desktop sessions.

Your nDesk infrastructure is now fully operational and ready to deliver Virtual Desktop Infrastructure services through the nCSSV platform.