

# **Murano Developers Guide**

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# Murano Developers Guide

v0.1

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## Abstract

This document is intended for individuals who wish to use our product or intend to contribute.

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# Chapter 1. How can I use Murano Service?

Murano is intended to get opportunity for non-experienced users to deploy reliable Windows-based environments with 1-Click. This document describes steps for creation Windows Environment with different services. You'll see how it's easy with Murano.

## Document change history

The following table describes the most recent changes:

| Revision Date      | Summary of Changes           |
|--------------------|------------------------------|
| September. 4, 2013 | • Initial document creation. |

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# Chapter 2. Murano dashboard plugin

For a Murano usage you should be familiar with Openstack. Murano Dashboard is just a plugin to Openstack dashboard - Horizon. Please visit [horizon user guide \[http://docs.openstack.org/user-guide/content/\]](http://docs.openstack.org/user-guide/content/) first to see how dashboard is organized and how login to it.

## Creating environment

Once you installed all Murano components and login to horizon dashboard successfully you will see Environments panel:

The screenshot shows the OpenStack Dashboard interface. On the left is a sidebar with the OpenStack logo and a 'DASHBOARD' button. Below it, a 'Project' tab is active, showing the 'CURRENT PROJECT' as 'Anastasia'. A 'Manage Compute' section contains a list of navigation links: 'Overview' (highlighted), 'Instances', 'Volumes', 'Images & Snapshots', 'Access & Security', and 'Other' (which contains a link to 'Environments'). The main content area is titled 'Overview' and features a 'Quota Summary' section with five rows of usage information, each with a progress bar: 'Used 0 of 10 Available Instances', 'Used 0 of 20 Available vCPUs', 'Used 0 MB of 51,200 MB Available RAM', 'Used 0 of 10 Available volumes', and 'Used 0 GB of 1,000 GB Available volume storage'. Below this is a section titled 'Select a month to query its usage:' with a dropdown menu set to 'September' and a year selector set to '2013'. A summary line reads 'Active Instances: - Active RAM: - This Month's VCPU-Hours: 456.5'. The 'Usage Summary' section at the bottom shows a table with the header 'Instance Name' and a 'V' column, but it is currently empty, displaying 'Displaying 0 items'.

## Overview

### Quota Summary

Used 0 of 10 Available Instances

Used 0 of 20 Available vCPUs

Used 0 MB of 51,200 MB Available RAM

Used 0 of 10 Available volumes

Used 0 GB of 1,000 GB Available volume storage

### Select a month to query its usage:

September ▼ 2013

Active Instances: - Active RAM: - This Month's VCPU-Hours: 456.5

### Usage Summary

| Instance Name | V |
|---------------|---|
|---------------|---|

Displaying 0 items

First you need to do is to create an environment - virtual Windows Data Center which will contain different Windows services. Navigate to "Environments" page and click "Create Environment". After setting name to your virtual environment it will be created. Just created environment has status *Ready to configure*.



The screenshot displays the OpenStack dashboard interface. On the left, the OpenStack logo is at the top, followed by a 'DASHBOARD' button. Below this is a 'Project' tab, and under it, the 'CURRENT PROJECT' is listed as 'Anastasia'. A 'Manage Compute' section contains links for 'Overview', 'Instances', 'Volumes', 'Images & Snapshots', and 'Access & Security'. At the bottom of this sidebar is an 'Other' section with a link to 'Environments'. The main content area on the right is titled 'Environments' and contains a table with columns 'Name' and 'Sta'. The table is currently empty, with a message 'Displaying 0 items' at the bottom.

| Name               | Sta |
|--------------------|-----|
| Displaying 0 items |     |

## Creating service prototype

All services should be created within the framework of Environment - virtual Windows Data Center. First you need to create one or more service's prototypes and then send Environment to deploy process. After that one or more instances with your service be spawned on Openstack. To create service prototype navigate to environment services by clicking on environment name (or on "Services" button) and press on "Create Service" button.

  
**openstack**  
DASHBOARD

Project

CURRENT PROJECT  
**Anastasia**

Manage Compute

Overview

Instances

Volumes

Images & Snapshots

Access & Security

Other

Environments

Environment: Demo

[environments](#) > environment Demo

Services

|                    | Name | Type | Status |
|--------------------|------|------|--------|
| Displaying 0 items |      |      |        |

You have opportunity to create one of the following services:



## Create Service

**Service Type**

ASP.NET Application ▼

- ASP.NET Application
- ASP.NET Application Web Farm
- Active Directory
- Internet Information Services
- Internet Information Services Web Farm
- MS SQL Server
- MS SQL Server Cluster

**Description:**

The ASP.NET Application Service installs custom application onto one IIS Web Server

If you want your services to work with AD you should create The Active Directory Service first

Once you choose service that you want to create click "Next" and fill the form. Forms for each service are specific. To see more information about filling the form for a specified service follow one of the link below:

- **Active Directory:** Active Directory is a directory service implemented by Microsoft for Windows domain networks. In one installation in addition to primary Domain Controller you can add optional count of secondary Domain Controllers. Any other services you are intending to create can be joined to that domain.
- **Internet Information Service:** IIS is a web server and a set of feature extension modules.
- **Internet Information Web Farm Service:** Murano installs the Web Farm Framework on the controller server, configures the primary server and prepares the secondary servers. In addition load balancer is installed to monitor service statuses.
- **ASP.NET Service:** is a server-side Web application framework designed for Web development to produce dynamic Web pages. Service is able to install custom application onto one IIS Web Server. Murano installs all needed components and make proper configuration.
- **ASP.NET Farm Service:** ASP.NET Farm Service installs a custom application on a load-balanced array of IIS servers
- **MS SQL Service:** Microsoft SQL Service is a relational database management system.
- **SQL Server Failover Cluster:** Murano installs all needed components and configures your SQL Server Cluster the way you want.

On the last step of creating service prototype you have opportunity to set the hardware flavor of the instance which will be created - and the image with the operating system, which will be installed on the instance. Also you may select availability zone, if there are more then one in your environment.

## Create Service

### Instance flavor

m1.medium



### Instance image

Windows Server 2012 Standard



### Availability zone

nova



## Internet Information Services Service

**Instance Configuration:** Specify some instance parameters on which service would be created.

**Instance flavor:** Select registered in Openstack flavor. Consider that service performance depends on this parameter.

**Instance image:** Select valid image for a service. Image should already be prepared and registered in glance.

**Availability zone:** Select availability zone where service would be installed.

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Create

# Active Directory

## Create Service

Domain Name

Instance Count

Account Name

Administrator password

Confirm password

Recovery password

Confirm password

Hostname template

## Active Directory Service

**Domain Name:** Enter a desired name for a new domain. This name should fit to DNS Domain Name requirements: it should contain only A-Z, a-z, 0-9 and (-) and should not end with a dash. DNS service will be automatically set up on each of the Domain Controller instances. Note: Only first 15 characters before first period is used as NetBIOS name.

**Instance Count:** You can create several Active Directory instances by setting instance number larger than one. One primary Domain Controller and few secondary DCs will be created.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be at minimum of 7 characters. Once you forget your password you won't be able to operate the service until recovery password would be entered. So it's better for Recovery and Administrator password to be different.

**Hostname template:** For your convenience all instance hostnames can be named in the same way. Enter a name and use # character for incremental numbering. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# Internet Information Service

## Create Service

Service Name

Administrator password

Confirm password

Domain

Hostname template

## Internet Information Services Service

Standalone IIS Server

**Service Name:** Enter a desired name for a service. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be a minimum of 7 characters.

**Domain:** Service can be joined to the Active Directory domain. If you want to create an AD domain create the AD Service first.

**Hostname template:** For your convenience all instance hostnames can be named in the same way. Enter a name and use # character for incremental numbering. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# Internet Information Web Farm Service

## Create Service

Service Name

Administrator password

Confirm password

Domain

Instance Count

Load Balancer port

Hostname template

## Internet Information Services Web Farm Service

A load-balanced array of IIS servers

**Service Name:** Enter a desired name for a service. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be a minimum of 7 characters.

**Domain:** Service can be joined to the Active Directory domain. If you want to create an AD domain create the AD Service first.

**Instance Count:** Several instances with IIS Service can be created at one time.

**Load Balancer port:** Specify port number where Load Balancer will be running

**Hostname template:** For your convenience all instance hostnames can be named in the same way. Enter a name and use # character for incremental. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# ASP.NET Service

## Create Service

Service Name

Administrator password

Confirm password

Domain

 ▼

Git repository

Hostname template

## ASP.NET Application Service

ASP.NET application will be installed onto one IISWeb Server

**Service Name:** Enter a desired name for a service. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be a minimum of 7 characters.

**Domain:** Service can be joined to the Active Directory domain. If you want to create an AD domain create the AD Service first.

**Git repository:** URL of a git repository with the application you want to deploy.

**Hostname template:** For your convenience all instance hostnames can be named in the same pattern. Enter a name and use # character for increments. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# ASP.NET Farm Service

## Create Service

Service Name

Administrator password

Confirm password

Domain

Git repository

Instance Count

Load Balancer port

Hostname template

## ASP.NET Application Web Farm Service

The ASP.NET application will be installed on a number of IIS Web Servers, and load balancing will be configured.

**Service Name:** Enter a desired name for a service. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be a minimum of 7 characters.

**Domain:** Service can be joined to the Active Directory domain. If you want to create an AD domain create the AD Service first.

**Git repository:** URL of a git repository with the application you want to deploy.

**Instance Count:** Several instances with ASP.NET application can be created at one time.

**Load Balancer port:** Specify port number where Load Balancer will be running

**Hostname template:** For your convenience all instance hostnames can be named in the same pattern. Enter a name and use # character for incremental numbering. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# MS SQL Service

## Create Service

Service Name

Administrator password

Confirm password

Domain

Not in domain



☒ Mixed-mode Authentication

SA Password

Confirm password

Hostname template

Optional

## MS SQL Server Service

MS SQL Server

**Service Name:** Enter a desired name for a service. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be a minimum of 7 characters.

**Domain:** Service can be joined to the Active Directory domain. If you want to create an AD domain create the AD Service first.

**Mixed-mode Authentication:** Mixed authentication mode allows the use of Windows credentials but supplements them with local SQL Server user accounts that the administrator may create and maintain within SQL Server. If this mode is on SA password is required

**SA Password:** Set system administrator password for the MS SQL Server.

**Hostname template:** For your convenience all instance hostnames can be named in the same pattern. Enter a name and use # character for incremental. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# SQL Server Failover Cluster

## Create Service

Service Name

Administrator password

Confirm password

☐ Active Directory is configured by the System Administrator

Domain

☒ Mixed-mode Authentication

SA Password

Confirm password

## MS SQL Server Cluster Service

MS SQL Failover Cluster

**Service Name:** Enter a desired name for a service. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Passwords:** Windows requires strong password for service administration. Your password should have at least one letter in each register, a number and a special character. Password length should be a minimum of 7 characters.

**Domain:** Service can be joined to the Active Directory domain. If you want to create an AD domain create the AD Service first.

**Mixed-mode Authentication:** Mixed authentication mode allows the use of Windows credentials but supplements them with local SQL Server user accounts that the administrator may create and maintain within SQL Server. If this mode is on SA password is required

**SA Password:** Set system administrator password for the MS SQL Server.

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☒ **Active Directory is configured by the System Administrator**

**Active Directory User**

**Active Directory Password**

**Confirm password**

**Domain**

 

## Create Service

Cluster Static IP

Cluster Name

Availability Group Name

Availability Group Listener Name

Availability Group Listener IP

SQL User Name

SQL User Password

Confirm password

Instance Count

Hostname template

## MS SQL Server Cluster Service

**Cluster Static IP:** Specify a valid IPv4 fixed IP.

**Cluster Name:** Specify a name of a cluster. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Availability Group Name:** Specify a name of an AG. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Availability Group Listener Name:** Specify a name of an AG Listener. Just A-Z, a-z, 0-9, dash and underline are allowed.

**Availability Group Listener IP:** Specify a valid fixed IP.

**SQL User Name:** User name that will be created to manage cluster instances.

**SQL User Password:** User password that will be created to manage cluster instances.

**Instance Count:** Microsoft SQL Failover Cluster includes up to 5 instances.

**Hostname template:** For your convenience all instance hostnames can be named in the same template. Enter a name and use # character for incremental. For example, host# turns into host1, host2, etc. Please follow Windows hostname restrictions.

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# Deploying environment

Once all services are prepared you can send environment to deploy and wait while Murano installing and configuring your services. Just press the "Deploy Environment" button.

The screenshot displays the OpenStack Dashboard interface. On the left, the sidebar includes the OpenStack logo, a 'DASHBOARD' button, and a 'Project' tab. Below this, the 'CURRENT PROJECT' is 'Anastasia'. The 'Manage Compute' section lists 'Overview', 'Instances', 'Volumes', 'Images & Snapshots', and 'Access & Security'. The 'Other' section includes 'Environments'. The main content area is titled 'Environment: Demo' with a breadcrumb 'environments > environment Demo'. Below this, the 'Services' section shows a table with two items:

| <input type="checkbox"/> | Name     | Type                                   |
|--------------------------|----------|--|
| <input type="checkbox"/> | demo.com | Active Directory                       |
| <input type="checkbox"/> | IISdemo  | Internet Information Services Web Farm |

At the bottom of the table, it says 'Displaying 2 items'.

You can monitor deploying process. Just go to the Log tab on service detailed page where you can get by clicking on the service name.



The screenshot shows the OpenStack Dashboard interface. On the left is a sidebar with the OpenStack logo and 'DASHBOARD' text. Below it are tabs for 'Project' and 'Admin'. The 'Project' tab is active, showing 'CURRENT PROJECT Anastasia'. Under 'Manage Compute', there are links for Overview, Instances, Volumes, Images & Snapshots, and Access & Security. Under 'Other', there is a link for Environments. The main content area is titled 'Environment: Demo' with a breadcrumb 'environments > environment Demo'. Below this is a 'Services' section containing a table with two items: 'demo.com' (Active Directory) and 'IISdemo' (Internet Information Services Web Farm), both with a 'Ready' status. A 'demo.com' cell is highlighted with a blue box. At the bottom of the table, it says 'Displaying 2 items'.

Environment: Demo  
environments > environment Demo

### Services

| <input type="checkbox"/> | Name     | Type                                   | Status |
|--------------------------|----------|--|--------|
| <input type="checkbox"/> | demo.com | Active Directory                       | Ready  |
| <input type="checkbox"/> | IISdemo  | Internet Information Services Web Farm | Ready  |

Displaying 2 items

And now you can see installation progress.



The screenshot displays the OpenStack dashboard interface. On the left, the OpenStack logo is visible above a 'DASHBOARD' button. Below this, there are tabs for 'Project' and 'Admin'. The 'Project' tab is selected, showing the 'CURRENT PROJECT' as 'Anastasia'. Underneath, there is a 'Manage Compute' section with links for 'Overview', 'Instances', 'Volumes', 'Images & Snapshots', and 'Access & Security'. At the bottom of the sidebar, there is an 'Other' section with a link for 'Environments'.

The main content area is titled 'Service Detail: demo.com'. Below the title, there is a breadcrumb trail: 'environments > environment Demo > service dem'. There are two tabs: 'Service' and 'Logs'. The 'Logs' tab is selected, showing a list of 'Service Logs'.

The 'Service Logs' section contains the following entries:

- 2013-09-05 21:25:41 - Creating instance ad (demo.com\_in
- 2013-09-05 21:28:16 - Instance ad (demo.com\_instance\_0)
- 2013-09-05 21:28:19 - Creating Primary Domain Controlle
- 2013-09-05 21:44:01 - Primary Domain Controller created

Until installation finished environment are in deploying state.

# Detailed information



openstack

DASHBOARD

Project

Admin

CURRENT PROJECT

Anastasia

Manage Compute

Overview

Instances

Volumes

Images & Snapshots

Access & Security

Other

Environments

Service

Logs

Service Detail: IISdemo

environments > environment Demo > service IISdemo

Service Details

Info

Name

IISdemo

ID

83e46d472d3d49199763bec4b4effe44

Type

Internet Information Services Web Farm

Status

Ready

Domain

demo.com

Load Balancer URI

80

Service unit1

Hostname

nvhjfh18hi0713

Service instance name

ef489cd02b66d4abd8b251fedcf0d350f.nvhjfh18hi0713

Service unit2

Hostname

lllchhl8hi0774

Service instance name

ef489cd02b66d4abd8b251fedcf0d350f.lllchhl8hi0774