

# Table of Contents

[RPS v3.1.0 Install Guide](#)

# RPS Install Guide

## Purpose

The purpose of this document is to provide an overview of the Rapid Provisioning System (RPS) Install process and detailed instructions for setting up a virtualized RPS Environment using Hyper-V.

## Audience

This document is intended for anyone evaluating or testing RPS, such as IT Staff or Developers. Users should have some familiarity with core RPS Concepts as well as basic PowerShell and Windows comprehension.

## System Requirements

1. Windows 10/Server 2016
2. PowerShell/WMF 5.1
3. 16GB RAM
4. 100GB HDD free-space
5. Hyper-V PowerShell Module & Management Tools

### NOTE

RPS Authored content is signed, but 3rd party code may not be. RPS Installer was tested with PowerShell Execution Policy set to RemoteSigned.

## Ports and Protocols

Ports and Protocols information can be found in the [Ports and Protocols Guide](#)

## Service Accounts

The following accounts are used by RPS for setup and maintenance of Nodes.

ACCOUNT (ROLE)	DESCRIPTION	PERMISSIONS
DomainAdmin	Create/promote a DC and manage AD Computers, Users, Groups and OUs	AD DomainAdmin*
ServerAdmin	Push certificates and settings, manage DSC configuration, pull files from content store	AD Account w/ Local Admin
LocalAdmin	Manage machine settings for non-domain joined computer	Local Admin

### NOTE

DomainAdmin membership is required to create a new Domain Controller. After initial creation, the account should be removed from DomainAdmins, but should still retain permissions to manage AD Users, Computers, Groups and OUs.

## RPS Installation (Default)

Installing RPS requires the latest RPS release, the install media for SQL, SMA and windows features, and a Hyper-V image for the Windows 2012R2 VMs that will be created. The instructions below can be used to build a default Master RPS Node, which includes a Domain Controller (AD.Master.Rps) and an application server (App.Master.Rps). You can also choose to create a Region Node, Site Node, and an Inception Node, based on available resources.

## Download Content

Before installing RPS in Hyper-V, you must download the RPS Release, static Install Media and a base image for RPS VMs.

1. Download the RPS Release with media (i.e. RpsWithMedia\_v2\_3.zip) from the [RPS Release website](#).
2. Extract **RpsWithMedia\_v2\_3.zip** to a location such as **c:\RPS**

### **i** NOTE

This location will be referred to as **Install Root**.

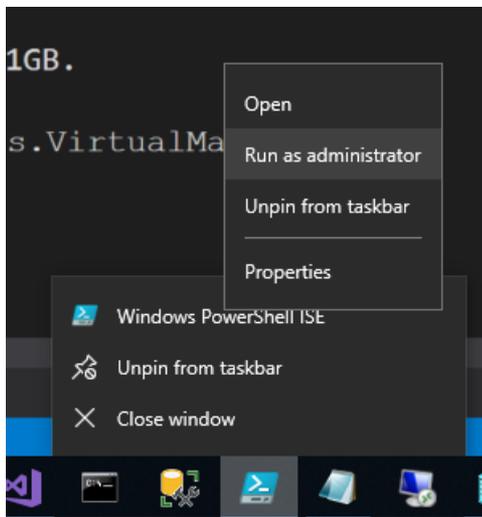
3. Download the Windows Server 2012R2 Hyper-V image from [Windows\\_Server\\_2012\\_R2\\_VL-dev.zip](#).
4. Extract **Windows\_Server\_2012\_R2\_VL-dev.zip** to a location which is **NOT** in **Install Root**. > [!NOTE] > Do not add the .vhdx file into the **Install Root**.

The **Install Root** folder should contain the following sub-directories.

- \ContentStore
  - \Certificates
  - \CMDB
  - \Demos
  - \Documents
  - \DSC
  - \Export
  - \Images
  - \iPxeDistro
  - \Management
  - \Modules
  - \RpsBitsDownloadService
  - \RpsGui
  - \RpsProvisioning
  - \RpsSync
  - \Runbooks
  - \Setup
  - \SqlSecurity
  - \SqlServer2012
  - \SystemCenter2016
  - \Utilities
  - \Windowserver2012

## Install RPS

1. Open PowerShell as Administrator. Right-click the PowerShell Icon from Start Menu or Task Bar and select **Run as administrator**



2. Set location to **Install Root**\ContentStore\ by executing:

```
Set-Location c:\RPS\ContentStore\
```

3. Install RPS and supply the location of the VM Template vhd, the NodeType and if needed, specify specific configuration using -NodeConfigurationName. See examples below:

```
.\Setup\Install-Rps.ps1" -VMTemplateFilename D:\Common\Windows_Server_2012_R2_VL-dev.vhdx -NodeType 'master'
```

```
.\Setup\Install-Rps.ps1 -VMTemplateFilename D:\Common\Windows_Server_2012_R2_VL-dev.vhdx -NodeConfigurationName MN -Enclave SIPR -NodeType Provisioning
```

#### **NOTE**

When using "MN" for the NodeConfigurationName, -Enclave must be specified. For further options, refer to the **Install-Rps Parameter Definition** table below.

Output similar to the following should appear:

```

PS C:\Users\xadmin> C:\ContentStore\Setup\Install-Rps.ps1 -VMTemplateFilename F:\Windows_Server_2012_R2_VL-dev.vhdx -VhdFolderPath F:\vhd -NodeType Master
[13:24:22 INF] Saving Configuration to C:\ContentStore\Export\RpsConfiguration_09.28.2018-13.23.48.xml
[13:24:22 INF] Entering session from TestServer
[13:24:23 INF] Importing Runbooks from C:\ContentStore\Runbooks
[13:24:23 INF] Importing Common RPS TaskMaps
[13:24:23 INF] Importing DSC Partial scripts from C:\ContentStore\DSC\PartialConfigurations
[13:24:37 INF] Defining host node TestServer at null
[13:24:37 INF] VM Storage Location: F:\vhd
[13:24:37 INF] Defining Switch: RPS-VSwitch1
[13:24:37 INF] Defining HyperV Host with template: F:\Windows_Server_2012_R2_VL-dev.vhdx
[13:24:38 INF] New RPS Node Definition: Master
[13:24:38 INF] New RPS Computer: AD.master.rps 192.0.0.100
[13:24:38 INF] New RPS Computer: APP.master.rps 192.0.0.101
[13:24:42 INF] Saving configuration to C:\ContentStore\Export\Waster.xml
[13:24:42 INF] Starting New-HyperVirtualMachine on AD.master.rps
[13:25:03 INF] Starting New-HyperVirtualMachine on APP.master.rps
[13:25:23 INF] Waiting for Computer at 192.0.0.100. Attempt 1/60
[13:25:31 INF] Waiting for Computer at 192.0.0.100. Attempt 2/60
[13:25:39 INF] Waiting for Computer at 192.0.0.100. Attempt 3/60
[13:25:47 INF] Waiting for Computer at 192.0.0.100. Attempt 4/60
[13:25:55 INF] Waiting for Computer at 192.0.0.100. Attempt 5/60
[13:26:03 INF] Waiting for Computer at 192.0.0.100. Attempt 6/60
[13:26:11 INF] Waiting for Computer at 192.0.0.100. Attempt 7/60
[13:26:19 INF] Waiting for Computer at 192.0.0.100. Attempt 8/60
[13:26:27 INF] Waiting for Computer at 192.0.0.100. Attempt 9/60
[13:26:35 INF] Waiting for Computer at 192.0.0.100. Attempt 10/60
[13:26:43 INF] Waiting for Computer at 192.0.0.100. Attempt 11/60
[13:26:51 INF] Waiting for Computer at 192.0.0.100. Attempt 12/60
[13:26:59 INF] Waiting for Computer at 192.0.0.100. Attempt 13/60
[13:27:07 INF] Waiting for Computer at 192.0.0.100. Attempt 14/60
[13:27:15 INF] Waiting for Computer at 192.0.0.100. Attempt 15/60
[13:27:23 INF] Waiting for Computer at 192.0.0.100. Attempt 16/60
[13:27:31 INF] Waiting for Computer at 192.0.0.100. Attempt 17/60
[13:27:39 INF] Waiting for Computer at 192.0.0.100. Attempt 18/60
[13:27:47 INF] Waiting for Computer at 192.0.0.100. Attempt 19/60
[13:27:55 INF] Waiting for Computer at 192.0.0.100. Attempt 20/60
[13:28:03 INF] Waiting for Computer at 192.0.0.100. Attempt 21/60
[13:28:11 INF] Waiting for Computer at 192.0.0.100. Attempt 22/60
[13:28:19 INF] Waiting for Computer at 192.0.0.100. Attempt 23/60
[13:28:19 INF] Starting Set-WinRMSettings on AD.master.rps
[13:30:17 INF] Starting Set-EncryptionSettings on AD.master.rps
[13:30:23 INF] Starting Copy-DscModules on AD.master.rps
[13:31:22 INF] Starting Publish-DscConfiguration on AD.master.rps
[13:31:22 INF] Publishing OSCore to AD.master.rps
[13:31:24 INF] Publishing DomainController to AD.master.rps
[13:31:26 INF] Publishing RpsModule to AD.master.rps
[13:31:27 INF] Publishing SecurityGenReg to AD.master.rps
[13:31:28 INF] Publishing Certificate to AD.master.rps
[13:31:39 INF] Waiting for Computer at 192.0.0.101. Attempt 1/60
[13:31:39 INF] Starting Set-WinRMSettings on APP.master.rps
[13:33:35 INF] Starting Set-EncryptionSettings on APP.master.rps
[13:33:39 INF] Starting Copy-DscModules on APP.master.rps
[13:34:44 INF] Starting Copy-ContentStore on APP.master.rps
[13:41:44 INF] Completed: 75453a29-9af0-48e2-b820-a6eba8874adf
[13:41:44 INF] Starting Publish-DscConfiguration on APP.master.rps
[13:42:01 INF] Publishing OSCore to APP.master.rps
[13:42:11 INF] Publishing SecurityGenReg to APP.master.rps
[13:42:12 INF] Publishing Certificate to APP.master.rps
[13:42:14 INF] Publishing SecTIS to APP.master.rps
[13:42:14 INF] Publishing RpsModule to APP.master.rps
[13:42:15 INF] Publishing RpsGui to APP.master.rps
[13:42:16 INF] Publishing ContentDeliveryNetwork to APP.master.rps
[13:42:17 INF] Publishing SQL to APP.master.rps
[13:42:18 INF] Publishing SMA to APP.master.rps
[13:42:20 INF] Publishing CMDB to APP.master.rps
[13:42:22 INF] Publishing RpsSync to APP.master.rps
[13:42:24 INF] Publishing SmaTde to APP.master.rps
[13:42:24 INF] Publishing NodeRegistration to APP.master.rps
[13:42:25 INF] Publishing RpsProvisioning to APP.master.rps
[13:42:26 INF] Exited session from TestServer
[13:42:26 INF] Completed
PS C:\Users\xadmin>

```

## Install-Rps Parameter Definitions

PARAMETERS	DESCRIPTIONS
<b>VMTemplateFilename</b> (Required)	Path to the '.vhdx' file which will serve as the Hyper-V VHDX template.
<b>VhdFolderPath</b>	Path to a folder to store the .vhdx files used to create VMs. If not specified .vhdx files will be stored in same directory path as specified with <b>VMTemplateFileName</b> .
<b>ConfigFileName</b>	Name of file containing the RPS Configuration data. If one is not specified, it will be created in Export directory.
<b>NodeType</b> (Required)	The desired node you want to install. ( <i>i.e. Master</i> ), if you want to install all nodes then choose 'All'
<b>SkipVMCreation</b>	Switch to use Virtual Machines already created and configured with proper networking.
<b>SkipCopyContent</b>	Switch to not copy <b>InstallRoot</b> to the CDN server. ( <i>i.e. CH</i> )
<b>SkipDSCPrep</b>	Switch to not setup DSC MOF Encryption, WinRM HTTPS Listener, and not copy DSC Resources.
<b>ComputerName</b>	Array of the Virtual Machines you want to install from the Node. ( <i>i.e.</i> <code>@("AD.Master.Rps", "App.Master.Rps")</code> )

PARAMETERS	DESCRIPTIONS
<b>SkipDSCPublish</b>	Switch to skip publishing DSC.
<b>CopyCDN</b>	Switch to copy patches that were imported into the configuration.
<b>DeleteVMs</b>	Switch to delete the VirtualMachines if they exist during a new installation.
<b>SkipDscModuleCopy</b>	Switch to not copy <b>Dsc Required Modules</b> to the target's PowerShell module path.
<b>Esxi</b>	Switch to indicate whether the hypervisor is Esxi (default is Hyper-V).
<b>GenerateXmlOnly</b>	Switch to make usability easier to toggle all -Skip* switches.
<b>NodeConfigurationName</b>	The name of the configuration to use for install. Choose either Rps, Lab, or MN currently defaulted to Rps. If MN is selected, the dynamic Enclave parameter must be set as well.
<b>TaskMapName</b>	Name of the desired system task map that will be assigned to the target items. Default value of Install-Rps.
<b>Enclave (Dynamic)</b>	Required if <b>NodeConfigurationName</b> is "MN". Valid options are " <b>SIPR</b> ", " <b>Colorless</b> ", and " <b>Lab</b> ".

## Manual Node Installation/Repair

1. Install-RPSNode will install the Node you specify.

PARAMETERS	DESCRIPTIONS
<b>NodeType</b> (Required)	The desired node you want to install. ( <i>i.e. Master</i> ), if you want to install all nodes then choose 'All'
<b>SkipVMCreation</b>	Switch to use Virtual Machines already created and configured with proper networking
<b>SkipCopyContent</b>	Switch to not copy <b>InstallRoot</b> to the CDN server. ( <i>i.e. CH</i> )
<b>SkipDSCPrep</b>	Switch to not setup DSC MOF Encryption, WinRM HTTPS Listener, and not copy DSC Resources
<b>ComputerName</b>	Array of the Virtual Machines you want to install from the Node. ( <i>i.e. @("AD.Master.Rps", "App.Master.Rps")</i> )
<b>SkipDSCPublish</b>	Switch to skip publishing DSC.
<b>CopyCDN</b>	Switch to copy patches that were imported into the configuration.
<b>DeleteVMs</b>	Switch to delete the VirtualMachines if they exist during a new installation.
<b>SkipDscModuleCopy</b>	Switch to not copy <b>Dsc Required Modules</b> to the target's PowerShell module path.
<b>ConfigFilename</b>	Path to an existing configuration export file. ( <i>i.e. D:\Exports\Master.xml</i> )
<b>ContentStorePath</b>	Path to the content store.
<b>TaskMapName</b>	Name of the desired system task map that will be assigned to the target items. Default value of Install-Rps.

```
Enter-RpsSession -Path "D:\Exports\Master.xml"
Install-RpsNode -NodeType "Master"
```

Note about SMA, Orchestrator process, and Master-Controller starting manually