

EMC[®] ViPR SRM

Version 4.1

Installation and Configuration Guide

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REV 02

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CHAPTER 1

Installing the Virtual Appliance

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VIPR SRM virtual appliance installation overview

You can install ViPR SRM as a virtual appliance (vApp) in a supported VMware environment. This guide describes the deployment process using the vSphere vCenter Client. The ViPR SRM vApp can also be installed using the vSphere Web-based Client, but the details are different and not included in this guide.

Any new vApp (4VM or 1VM) installations require vSphere 5.x or 6.x. This includes adding a vApp 1VM to an existing installation.

When you deploy the ViPR SRM vApp on a cluster of ESX servers, the vCenter DRS function (Cluster features) must be enabled. If it is not enabled in your vCenter environment, set DRS to on and set the vCenter DRS Automation level to Manual. After you complete the ViPR SRM deployment, you can disable the DRS function.

The vApp is based on SuSE Enterprise Linux 11 SP3.

The MySQL version included with the product is 5.7.17 MySQL Community Server (GPL).

Do not add any binary VMs into the vApp container (including any ViPR SRM binary VMs).

The procedures enable you to install two types of software:

Core software

The core software is a reporting solution built on a scalable architecture of backends, frontends, and distributed collectors. When you install the core software, you establish the foundation for the product, which provides common capabilities, functions, and user interfaces. In addition, the following separate software products are pre-installed with ViPR SRM: ViPR SRM 4.1 SOFTWARE IMAGE (453-010-807) and SLES 11 SP3 SW GPL3 OPEN SOURCE SOFTWARE (453-010-808).

SolutionPacks

SolutionPacks are software components that support EMC and third-party storage infrastructure components. Each SolutionPack enables you to select a specific report in the UI. To learn more about the SolutionPacks that ViPR SRM supports, see the following documents:

- *EMC ViPR SRM Support Matrix*
- *EMC ViPR SRM Release Notes*
- *EMC ViPR SRM SolutionPack Guide*

ViPR SRM vApps are distributed using Open Virtualization Format (OVF) files. Depending on your environment's requirements, you will use the 4VM vApp OVF or the 1VM vApp OVF files.

4VM vApp OVF

Enables you to install four VMs (Frontend, Primary Backend, Additional Backend and one Collector). A vApp VM will include an ADG directory that is used by the autoconfiguration process of the vApp VMs. The 4VM vApp automatically configures the Collector host to have 48 GB of memory and 8 CPUs. The following SolutionPacks are pre-installed on the Collector host:

- Brocade FC Switch
- Cisco MDS/Nexus

- Isilon
- Physical Hosts
- Unity/VNX/VNXe
- VMAX/VMAX 2
- VMAX 3/VMAX All Flash
- VMware vCenter
- VPLEX
- XtremIO

1VM vApp OVF

Enables you to install a single vApp VM. The options are Frontend, Primary Backend, Additional Backend, Collector and All-in-One. You can use this option to install additional Collectors and Additional Backend VMs to scale out the existing ViPR SRM installation. You can add a single vApp VM (Collector or Additional Backend) to an existing vApp container that was created with the 4VM vApp. When you restart the vApp container, the new VMs will be autoconfigured into ViPR SRM. vApp VMs include an `ADG` directory that is used by the autoconfiguration process. You can also use the 1VM vApp for small All-In-One proof of concept solutions.

The Collector host deployed with the 1VM is configured with 16 GB of memory and 4 CPUs.

ViPR SRM vApp VMs have properties that are used to configure the host level networking information. If the vApp VM/folder needs to be moved from one vCenter to another, you must use the vCenter export and import procedure. Do not use the vCenter remove from inventory method. For additional details, refer to *Guidelines for Managing VMware vApp Solutions (h15461)*.

ViPR SRM vApps fully support the VM vMotion and Storage vMotion DRS functions of vCenter.

Installing the 4VM vApp

You can deploy the ViPR SRM 4VM appliance from an OVF template using a vCenter Client. The installer creates the vApp container and deploys 4 vApp VMs (Frontend, Primary Backend, Additional Backend, and one Collector) inside the vApp container.

Before you begin

- If you are installing ViPR SRM on a cluster of ESX Servers, DRS must be enabled.
- Gather the following information:
 - vCenter location where you plan to deploy the appliance
 - A single DataStore is needed for deployment. After completing the deployment, you can use Storage vMotion to move the VM's storage to different DataStores. The final storage size per VM will be provided by EMC.
 - Static IP address for each VM. This IP address must be registered in DNS with forward and reverse lookup before you begin the deployment.
 - Gateway
 - Netmask

- DNS servers
- Domain search strings. For a distributed ViPR SRM environment, the domains for all the ViPR SRM servers must be entered for each of the ViPR SRM servers.

Procedure

1. Navigate to the Support by Product page for ViPR SRM (https://support.emc.com/products/34247_ViPR-SRM).
2. Click **Downloads**.
3. Download the **ViPR SRM <version number> vApp Deployment** zip file.
Each download has a checksum number. Copy the checksum number and validate the integrity of the file using an MD5 checksum utility.

The host being connected to the vCenter should be local to the ESX servers for the quickest deployment. Locate the 4VM OVF deployment file on the host running the vCenter client or place the files on the DataStore.
4. Open vCenter Client and connect to the vCenter Server that manages your VMware environment.

Do not run vCenter Client on a VPN connection.

For the fastest deployment time, the host running vCenter Client should be local to the ESX servers.
5. Select where in the vCenter ESX cluster/server you want to deploy the VMs for ViPR SRM.
6. Select **File > Deploy OVF Template**.
7. In the **Source** step, locate the 4VM OVF template file.
8. Click **Next**.
9. In the **OVF Template Details** step, review the details of the loaded OVF file, and then click **Next**.
10. In the **End User License Agreement** step, review the license agreement. Click **Accept**, and then click **Next**.
11. In the **Name and Location** step:
 - a. Specify a new name or accept the default name for the appliance.
 - b. Specify an inventory location for the appliance in your VMware environment.
 - c. Click **Next**.
12. In the **Resource Pool** step, select the Resource Pool or the folder where the deployment will place the ViPR SRM VMs, and click **Next**.
13. In the **Storage** step, select the destination storage (DataStore) for the virtual machine files, and then click **Next**.

The compatibility window will state if there is insufficient disk space on the selected DataStore, and a warning will display when you click Next.
14. In the **Disk Format** step, select the storage space provisioning method, and then click **Next**.

Option	Description
Thin-provisioned format	On-demand expansion of available storage, used for newer data store file systems.
Thick-provisioned format	Appliance storage that is allocated immediately and reserved as a block.

Note

ViPR SRM is fully supported on thin-provisioned storage at the array or virtualization level. Thin on thin is acceptable, but not recommended.

15. In the **Network Mapping** step, select a destination network for all of the VMs, and then click **Next**.
With ViPR SRM 4.1, the only option is to place all 4 VMs on the same ESX server network. This is known as the simplified network deployment.
16. In the **IP Address Allocation** step, choose the IP allocation policy and IP protocol to use, and then click **Next**.
17. In the **Properties** step, provide the values for each of the VMs, and then click **Next**.
18. In the **Ready to Complete** step, review the list of properties for the appliance, and then click **Finish**.
A pop-up window opens in vCenter Client showing the deployment progress.
19. After the 4VM deployment finishes, in the **Deployment Completed Successfully** dialog box, click **Close**.
20. Before you power on the vApp, make the following changes to the VM configurations:
 - Add additional VMDK disks to expand the file system.
 - Adjust the vCPU and VM Memory as specified in the ViPR SRM design
21. Use the 1VM OVF to add any Additional Backend VMs and Collector VMs as described in the following section.

Install additional ViPR SRM vApp VMs overview

You can scale ViPR SRM larger by adding additional databases (Additional Backends), Collectors, and slave Frontends. Use this procedure to deploy the additional VMs needed to scale the ViPR SRM environment. This process includes adding Additional Backend and Collector VMs to the existing ViPR SRM vApp container and deploying Collector vApp VMs in different data centers.

For POC and lab installs an All-In-One solution is available. (The All-In-One solution is not supported for managing production environments because it will not scale.)

Any new vApp (4VM or 1VM) installations require vSphere vCenter Client 5.x or 6.x. This includes adding a vApp 1VM to an existing installation.

When you deploy the ViPR SRM vApp on a cluster of ESX servers, the vCenter DRS function (Cluster features) must be enabled. If it is not enabled in your vCenter environment, set DRS to on and set the vCenter DRS Automation level to Manual. After you complete the ViPR SRM deployment, you can disable the DRS function.

The vApp is based on SuSE Enterprise Linux 11 SP3.

The MySQL version included with the product is 5.7.17 MySQL Community Server (GPL).

Do not add any binary VMs into the vApp container (including any ViPR SRM binary VMs).

The procedures enable you to install two types of software:

SolutionPacks

Software components that support EMC and third-party storage infrastructure components. Each SolutionPack enables you to select a specific report in the UI. To learn more about the SolutionPacks that ViPR SRM supports, see the following documents:

- *EMC ViPR SRM Support Matrix*
- *EMC ViPR SRM Release Notes*
- *EMC ViPR SRM SolutionPack Guide*

ViPR SRM vApps are distributed using Open Virtualization Format (OVF) files. You will use the 1VM vApp OVF files to scaleout Additional Backends, Collectors, and Frontends.

1VM vApp OVF

Enables you to install a single vApp VM. The options are Frontend, Primary Backend, Additional Backend, Collector and All-in-One. You can use this option to install additional Collectors and Additional Backend VMs to scale out the existing ViPR SRM installation. You can add a single vApp VM (Collector or Additional Backend) to an existing vApp container that was created with the 4VM vApp. When you restart the vApp container, the new VMs will be automatically configured into ViPR SRM. vApp VMs include an ADG directory that is used by the automatic configuration process.

ViPR SRM vApp VMs have properties that are used to configure the host level networking information. If the vApp VM/folder needs to be moved from one vCenter to another, you must use the vCenter export and import procedure. Do not use the vCenter remove from inventory method.

ViPR SRM vApps fully support the VM vMotion and Storage vMotion DRS functions of vCenter.

Deploying Additional Backends and Collectors in an existing container

After completing the 4VM deployment, use this procedure if your design requires additional Databases or Collectors in the same vCenter datacenter.

Before you begin

- If you are installing ViPR SRM on a cluster of ESX Servers, DRS must be enabled.
- Gather the following information:
 - vCenter location where you plan to deploy the appliance
 - A DataStore is needed for deployment.
 - Static IP address for each VM. This IP address must be registered in DNS with forward and reverse lookup before you begin the deployment.
 - Gateway

- Netmask
- DNS servers
- Domain search strings. For a distributed ViPR SRM environment, the domains for all the ViPR SRM servers must be entered for each of the ViPR SRM servers.

For instructions to add remote Collectors, see [Deploying Collector vApp VMs in different datacenters](#).

Procedure

1. Navigate to the Support by Product page for ViPR SRM (https://support.emc.com/products/34247_ViPR-SRM).
2. Click **Downloads**.
3. Download the **ViPR SRM <version number> vApp Deployment** zip file.
Each download has a checksum number. Copy the checksum number and validate the integrity of the file using an MD5 checksum utility

The host being connected to the vCenter should be local to the ESX servers for the quickest deployment. Locate the 1VM OVF deployment file on the host running the vCenter Client or place the files on the DataStore.
4. Open vCenter Client and connect to the vCenter Server that manages your VMware environment.

Do not run vCenter Client over a VPN connection.

For the fastest deployment time, the host running vCenter Client should be local to the ESX servers.
5. From the list in the vCenter tree, select the location where you want to place ViPR SRM.
6. Select **File > Deploy OVF Template**.
7. In the **Source** step, locate the 1VM OVF template file.
8. Click **Next**.
9. In the **OVF Template Details** step, review the details of the loaded OVF file, and then click **Next**.
10. In the **End User License Agreement** step, review the license agreement. Click **Accept**, and then click **Next**.
11. In the **Name and Location** step:
 - a. Specify a new name or accept the default name for the appliance.
 - b. In the Inventory Location, select the Datacenter and sub-location where the appliance will be deployed. Navigate through the folder levels to define the exact location.
 - c. Click **Next**.
12. In the **Deployment Configuration** step, select the type of appliance VM that you want to install.
13. In the **Host/Cluster** step, select the ESX server or ESX Cluster, and click **Next**.
14. In the **Resource Pool** step, there is a list of the vApps that are already installed. Select the ViPR SRM vApp, and click **Next**.
15. In the **Storage** step, select the destination storage (DataStore) for the virtual machine files, and then click **Next**.

16. In the **Disk Format** step, select the storage space provisioning method, and then click **Next**.

Option	Description
Thin-provisioned format	On-demand expansion of available storage, used for newer data store file systems.
Thick-provisioned format	Appliance storage that is allocated immediately and reserved as a block.

Note

ViPR SRM is fully supported on thin-provisioned storage at the array or virtualization level. Thin on thin is acceptable, but not recommended.

17. In the **Network Mapping** step, select a destination network for the VM, and then click **Next**.
18. In the **IP Address Allocation** step, choose the Fixed IP allocation policy and IP protocol to use, and then click **Next**.
19. In the **Properties** step, provide the values for each field, and then click **Next**.
20. In the **Ready to Complete** step, review the list of properties for the appliance, and then click **Finish**.
- A pop-up menu that shows the deployment progress opens in vCenter Client.
21. After the 1VM deployment finishes, in the **Deployment Completed Successfully** dialog box, click **Close**.
22. Repeat this process for each Additional Backend and Collector needed in this datacenter.

After you finish

After all of the scale-out vApp VMs have been deployed and added to the ViPR SRM vApp container, follow these steps to complete the configuration:

1. Edit the ViPR SRM vApp container settings.
2. Modify the start order of the vApp entities as described in [Modify start order of vApps](#).
3. Adjust the VM memory, CPU settings, and Additional Storage for each of the VMs as described in your EMC ViPR SRM design specification.
4. Power off the vApp container. All of the VMs will perform a Guest Shutdown in the reverse startup order
5. Power on the ViPR SRM vApp container. Right click the vApp and select **Power On**.

A built-in service detects the new VMs and performs the needed configurations to add the scale-out VM to the existing ViPR SRM installation.

Deploying Collector vApp VMs in different datacenters

Use this procedure to deploy remote Collectors in different datacenters.

Procedure

1. Navigate to the Support by Product page for ViPR SRM (https://support.emc.com/products/34247_ViPR-SRM).
2. Click **Downloads**.
3. Download the **ViPR SRM <version number> vApp Deployment** zip file.

Each download has a checksum number. Copy the checksum number and validate the integrity of the file using an MD5 checksum utility.

The host being connected to the vCenter should be local to the ESX servers for the quickest deployment. Locate the 1VM OVF deployment file on the host running the vCenter client or place the files on the DataStore.

4. Open the vCenter Client and connect to the vCenter Server that manages your VMware environment.
5. Select **File > Deploy OVF Template**.
6. In the **Source** step, locate the 1VM OVF file.
7. Click **Next**.
8. In the **OVF Template Details** step, review the details of the loaded .ovf file, and click **Next**.
9. In the **End User License Agreement** step, review the license agreement. Click **Accept**, and then click **Next**.
10. In the **Name and Location** step:
 - a. Specify a new name or accept the default name for the appliance.
 - b. In the Inventory Location, select the Datacenter and sub-location where the appliance will be deployed. Navigate through the folder levels to define the exact location.
 - c. Click **Next**.
11. In the **Deployment Configuration** step, select the Collector Appliance from the drop-down menu.
12. In the **Host/Cluster** step, select the ESX server or ESX Cluster, and click **Next**.
13. In the **Resource Pool** step, select the Resource Pool or the folder where the deployment will place the ViPR SRM VMs, and click **Next**.
14. In the **Storage** step, select the DataStore for the virtual machine files, and then click **Next**.
15. In the **Disk Format** step, select the storage space provisioning method, and then click **Next**.

Option	Description
Thin-provisioned format	On-demand expansion of available storage, used for newer data store file systems.
Thick-provisioned format	Appliance storage that is allocated immediately and reserved as a block.

Option	Description
--------	-------------

16. In the **Network Mapping** step, select a destination network for the VM, and then click **Next**.
17. In the **IP Address Allocation** step, choose the Fixed IP allocation policy and the IP protocol to use, and then click **Next**.
18. In the **Properties** step, provide the values for each field, and then click **Next**.
19. In the **Ready to Complete** step, review the list of properties for the appliance, and then click **Finish**.
A pop-up menu that shows the deployment progress opens in vCenter Client.
20. After the deployment finishes, in the **Deployment Completed Successfully** dialog box, click **Close**.
21. Repeat these steps for each Collector that you need to install in a remote datacenter.
22. Before you power on the vApp, make the following changes to the VM configurations:
 - Add additional VMDK disks to expand the file system.
 - Adjust the vCPU and VM Memory as specified in the ViPR SRM design.
23. If you are adding a remote collector that is deployed in a remote datacenter to the ViPR SRM vApp, use the steps for adding a collector that are described in [Adding Remote Collectors to the existing ViPR SRM deployment](#). These steps will finish the collector configuration and add the collector to the ViPR SRM UI.

After you finish

For Collectors installed in a remote datacenter, you will need to use the ViPR SRM UI to make some configuration changes to the Load Balancer Connectors, generic-rsc, and generic-snmp installed on each Collector.

Post deployment, pre-startup tasks

After you have deployed the vApp VMs, but before you start ViPR SRM, you must make some configuration changes as specified in the ViPR SRM design provided by EMC.

Procedure

1. Complete the following configuration changes:
 - Adjust the Collector VM memory
 - Adjust the Collector VM CPUs
 - Change the vApp VM name in vCenter to conform to naming policies
 - Increase the VM storage per VM
 - Move the vApp VM storage to its assigned datastore
 - Modify the vApp container startup order

Adjusting the VMs

The Collectors (and possibly the Frontend) will need the number of CPUs, the size, and the memory adjusted based on the EMC ViPR SRM design. Edit the settings of each Collector vApp VM to make these adjustments.

Procedure

1. The vApp VMs may need the default VM name changed to meet VM naming standards. Edit the VM settings and select the **Options** tab to make these changes.

Adding disk space

All vApp VMs are deployed with 132GB of storage. Each ViPR SRM VM will need larger storage. The total ViPR SRM VM storage size is based on the EMC ViPR SRM design. Edit the settings of each vApp VM and add a new VMDK (virtual machine disk). Subtract 132GB from the total storage size specified in the sizing plan provided by EMC, and add a new VMDK (virtual machine disk) with the size of the additional storage needed. The VM can be running during this process.

Procedure

1. From the vCenter Console, select the individual VM where you want to add new disk storage.
2. Select **Edit Settings** on the virtual machine and click **Add**.
3. Select **Hard Disk** and click **Next**.
4. Select **Create a new virtual disk** and click **Next**.
5. Specify the disk size, the provisioning type, the location of the disk and click **Next**.
6. Specify the virtual device node (the default value should be **OK**) and click **Next**.
7. Review the options and click **Finish**.
8. After ViPR SRM is up and running, connect to the Linux host. You can access a login prompt through the vCenter Client console or using an SSH tool such as PuTTY.
9. At the root system prompt, type the command `expand_disk.pl`.

The script will merge the new VMDK with the existing files system while the VM is still running. Use the `df -h` command when the script is finished to see the new filesystem size.

DataStores

The 4VM vApp deployment places the 4 VMs on a single DataStore. Migrate the VM from this DataStore to its assigned DataStore. The required storage per ViPR SRM VM can be found in the design provided by EMC.

For reference, the target storage sizes are as follows:

- Frontend – 320 GB
- Primary Backend – 800 GB and larger
- Additional Backends – 1 TB and larger

- Collector – 300 GB or larger

With the VM in a powered off state, use the Storage vMotion feature to move the VM to a new DataStore.

Modifying the start order of the vApps

Modify the start order of the vApps in a ViPR SRM installation whenever you add a vApp VM to the vApp container.

Procedure

1. Right click the vApp and select **Edit Settings**.
2. Navigate to the **Start Order** tab.
3. Move the new VMs into the proper group based on the following:
 - Group 1: All Additional Backends
 - Group 2: Primary Backend
 - Group 3: All Collectors
 - Group 4: Frontend
4. In the **Shutdown Action** section, select **Guest Shutdown** from the **Operation** list.
5. Change the elapsed time to 600 seconds.
6. Click **OK**.

CHAPTER 2

Using the ViPR SRM Setup Wizard

This chapter includes the following topics:

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Using the ViPR SRM Setup Wizard

Use the ViPR SRM Setup Wizard to configure the pre-installed SolutionPacks. This ViPR SRM Setup Wizard is a getting started wizard and does not replace the need to understand how to discover an average size ViPR SRM environment. Refer to the SolutionPack Installation Guide for details on installing and configuring the many different solutions for discovering devices.

These steps use the VMAX 3/VMAX All Flash SolutionPack as an example.

Procedure

1. Log in to the user interface at `http://<Frontend-hostname>:58080/APG`.
The default username is **admin**. The default password is **changeme**.
2. Access the EMC ViPR SRM Setup Wizard at `http://<Frontend-hostname>/device-config-wizard/`.
3. On the **License** page, you can add a permanent license by drag-and-dropping the file onto the license box, or you can click the box and browse to the file. Click **Continue**.
4. On the **Storage Collection** page, enter the FQDN or IP address of the Unisphere for VMAX host. Enter the login credentials and port number. Click **Continue**.
5. The **Confirm Storage** page lists the detected arrays. Select the arrays from which you want to collect data. The meter at the bottom indicates how many more volumes you can collect before you exceed the limit. When you are done adding arrays, click **Start Collection & Continue**.

Note

The **Confirm Storage** page only applies to VMAX systems.

6. On the **Fabric Collection** page, select **Brocade (SMI-S)** or **Cisco (SNMP)** from the drop-down menu. Enter the credentials and configuration options for your switch. Click **Start Collection & Continue**.
Brocade SAN discovery with this wizard is through Brocade SMI-S only. This solution provides limited switch performance and topology information with WWNs. The Brocade SMI-S Data Collector deployed with the 4VM Collector is configured to discover everything through SMI-S. When you deploy the Brocade SolutionPack, the SMI-S Data Collector is configured to restrict the data collection to zoning only. It is a best practice to discover the Brocade SAN using SMI-S for zoning and SNMP for everything else. This will provide performance metrics and the topology will show friendly names.
7. On the **Compute Collection** page, enter the credentials for your VMware vCenter Server. Click **Start Collection and Continue**.
8. The **Collection Status** page displays the status of the data collection and provides links to next steps. Click **Restart** to repeat this process for each of your device types.
9. Remove any pre-installed SolutionPacks and collectors that you do not plan to use:

- a. Access the UI at `https://<Frontend-hostname>/APG`.
 - b. Enter the login credentials.
The default username is `admin`. The default password is `changeme`.
 - c. Navigate to **Administration > Centralized Management > SolutionPacks**.
 - d. Click the SolutionPack that you want to uninstall.
 - e. Click the **Trashcan** icon for each component.
 - f. Click **Remove**.
10. Refer to the *ViPR SRM SolutionPack Guide* for details about installing SolutionPacks that were not pre-installed.

CHAPTER 3

Working with ViPR SRM

This chapter includes the following topics:

- [Starting the vApp](#).....26
- [ViPR SRM Passwords](#).....26
- [Verifying that the services are running](#).....27
- [Logging in to the user interface](#).....27
- [Reconfiguring the LBC, Generic-SNMP, and Generic-RSC](#).....28
- [Verifying MySQL DB Grants](#).....28

Starting the vApp

The ViPR SRM startup order is controlled by the vApp container settings

Before you begin

Edit the start-up as described in [Post deployment, pre-startup tasks](#).

Always start and stop the vApp using the vApp container. Do not stop any of the individual VMs inside the vApp container. You can start and stop Remote Collectors in other datacenters independently. Use vCenter Client to start the vApp.

The initial startup of ViPR SRM will not be ready for login for about 10 minutes after the VMs are shown as started in vCenter because an internal configuration process to configure each VM must complete. You can monitor this process by opening the vCenter Console for the VM.

Procedure

1. ViPR SRM will be ready for login after the additional background processing completes. The URL for logging in is `https://<Frontend-hostname>/APG`

ViPR SRM Passwords

Passwords control access to ViPR SRM and the internal communications.

The web-based user passwords are managed through the **Administration** user interface. The ViPR SRM internal communications passwords are managed through the **Centralized Management > Central Configuration Repository**. For additional details, refer to Security Configuration Guide.

Table 1 Default usernames and passwords

Environment	Default username and password
Web-based console accessed in a browser	admin/changeme Ensure that you change this password.
ws-user	watch4net
MySQL	watch4net
apg user	watch4net
MySQL root user	watch4net
Linux guest OS appliance console accessed through SSH or vCenter	root/Changeme1!

If you choose to change the root user password, the password must conform to the following requirements.:

- Be at least eight characters and no more than 40 characters
- Contain at least one numeric character
- Contain at least one uppercase and one lowercase character
- Contain at least one non-alphanumeric character such as # or !
- Cannot contain the single quote character (') because it is a delimiter for the password string

Note

The web-based requirements do not apply to Linux passwords.

Verifying that the services are running

Verify that the services are running on each host by obtaining the status.

Before you begin

Ensure that you have a login with root, APG, or system administrator privileges. The user `apg` is the account that the application uses instead of root.

Procedure

1. Type the command for your operating system from the `bin` directory of the installation:

Operating system	Command
UNIX	<code>manage-modules.sh service status all</code>
Windows	<code>manage-modules.cmd service status all</code>

2. Verify that each service has a status of running in the output.

Troubleshooting service start-up problems on UNIX

Check the log files when services do not start.

Before you begin

Ensure that you have logged in with root to check the log files.

Procedure

- The default path is `/opt/APG/`.

The list of available log files will vary depending on the type of server (Frontend, Backend, or Collector).

```
Databases/MySQL/Default/data/[SERVER NAME].err
Backends/Alerting-Backend/Default/logs/alerting-0-0.log
Backends/APG-Backend/Default/logs/cache-0-0.log
Collecting/Collector-Manager/Default/logs/collecting-0-0.log
Web-Servers/Tomcat/Default/logs/service.log
Tools/Task-Scheduler/Default/logs/scheduler-0-0.log
Tools/Webservice-Gateway/Default/logs/gateway-0-0.log
```

Logging in to the user interface

Log in to the user interface to use and edit reports, manage users, and customize the interface to meet your needs

Procedure

1. Open a browser and type the following URL:

```
https://<Frontend-hostname>/APG
```

2. Type the login credentials.

The default username is `admin`. The default password is `changeme`.

3. Click **Sign In**.

Note

You are automatically logged off after four hours.

Reconfiguring the LBC, Generic-SNMP, and Generic-RSC

If a collector is powered on outside of the vApp, you must reconfigure the Load Balancer Connector, generic-snmp, and generic-rsc.

Procedure

1. From **Centralized Management**, click **SolutionPacks**.
2. Under **Other Components**, click the **Reconfigure** icon for a Load Balancer Connector for each remote Collector. Use the following settings:
 - Arbiter Configuration: send data to the Primary Backend over port 2020.
 - Alerting on data collection: send data to the Primary Backend over port 2010.
 - Frontend Web service: send data to the Frontend over port 58080.
3. Repeat these steps for each remote Collector's Load Balancer Connector.
4. Under **Other Components**, click the **Reconfigure** icon for a generic-snmp or generic-rsc instance. Use the following settings:
 - Data Configuration: send data to the localhost over port 2020.
 - Frontend Web service: send data to the Frontend over port 58080.
 - Topology Service: send data to the Primary backend.
5. In the **SNMP Collector Name** field, enter the FQDN of the collector host.
6. Repeat the steps for each instance of generic-snmp and generic-rsc.

Verifying MySQL DB Grants

After installing and configuring the ViPR SRM hosts, you can cross check the grant privileges configured for the ViPR SRM servers that are listed in the SRM-Conf-Tools configuration file.

Database grants for Collector hosts are not required.

Where the scripts configure grants for Collector hosts, these are not needed and can be ignored or deleted.

Procedure

1. Run the following script:

```
/opt/APG/bin/mysql-client.sh
```

2. When prompted, select root as the username, mysql for the database, and watch4net as the password.

3. Run the following query:

```
mysql> SELECT user, host, db, select_priv, insert_priv,
grant_priv FROM mysql.db;
```

The following table is an example of the configuration you should see on an Additional Backend host:

user	host	db	select_priv	insert_priv	grant_priv
apg	localhost	compliance	Y	Y	N
apg	localhost	apg	Y	Y	N
apg	localhost	events	Y	Y	N
apg	localhost	master	Y	Y	N
apg	localhost	topology	Y	Y	N
apg	lglba148.lss.emc.com	apg1	Y	Y	N
apg	lglba224.lss.emc.com	apg1	Y	Y	N
apg	lglac142.lss.emc.com	apg1	Y	Y	N
apg	lglba150.lss.emc.com	apg1	Y	Y	N
apg	localhost	apg1	Y	Y	N
apg	lglba148.lss.emc.com	apg2	Y	Y	N
apg	lglba224.lss.emc.com	apg2	Y	Y	N
apg	lglac142.lss.emc.com	apg2	Y	Y	N
apg	lglba150.lss.emc.com	apg2	Y	Y	N
apg	localhost	apg2	Y	Y	N
apg	lglba148.lss.emc.com	apg3	Y	Y	N
apg	lglba224.lss.emc.com	apg3	Y	Y	N
apg	lglac142.lss.emc.com	apg3	Y	Y	N
apg	lglba150.lss.emc.com	apg3	Y	Y	N
apg	localhost	apg3	Y	Y	N
apg	lglba148.lss.emc.com	apg4	Y	Y	N
apg	lglba224.lss.emc.com	apg4	Y	Y	N
apg	lglac142.lss.emc.com	apg4	Y	Y	N
apg	lglba150.lss.emc.com	apg4	Y	Y	N
apg	localhost	apg4	Y	Y	N

CHAPTER 4

ViPR SRM Configuration Tools

This chapter includes the following topics:

- [ViPR SRM configuration tools](#).....32
- [Creating the SRM-Conf-Tools answers file](#).....32

ViPR SRM configuration tools

ViPR SRM Configuration Tools (SRM-Conf-Tools) is installed with the ViPR SRM software in the `/opt/APG/bin` directory. These tools work with both vApp and binary deployments.

The SRM-Conf-Tools scripts use an answers file to automatically configure the ViPR SRM servers. You can use the SRM-Conf-Tools for the following scenarios:

- Initial configuration of a Frontend, Primary Backend, and Additional Backend servers
- Adding new Additional Backend servers to an existing ViPR SRM environment
- Adding new Collectors to an existing ViPR SRM environment

Before you begin, deploy all of the Collectors in all of the remote datacenters. They can be Collector vApps, or binary Linux or Windows Collectors.

Binary Collectors are installed using the "Collector" install option for both Linux and Windows. A Collector configuration script in SRM-Conf-Tools finishes the Collector configuration so that it is the same as a vApp collector.

If an SRM-Conf-Tools script configuration fails, you cannot run the script a second time. If the configuration fails, you must clean ViPR SRM from the server and reinstall ViPR SRM. Refer to [Uninstallation](#).

If you are using vCenter Snapshots, power down the VM and take a snapshot before running the `scale-tools` script.

Creating the SRM-Conf-Tools answers file

SRM-Conf-Tools is a command-line utility that can configure and add a single server or multiple servers to your ViPR SRM environment. SRM-Conf-Tools uses an answers file that you create that includes all of the ViPR SRM hosts in all of the datacenters where ViPR SRM is installed.

Before you begin

- The answers file is case sensitive and must be all lowercase.
- Create the file using notepad++ or the Linux vi editor.
- Name the file `srm-hosts`.

The format of the answers file is: `server_type=hostname:os`

Definition	Description
<code>server_type</code>	The four basic types of ViPR SRM servers
<code>hostname</code>	The server's FQDN. It match the setting of the <code>hostname</code> variable in the <code>apg.properties</code> file. For Linux servers, this should always be the hostname plus the domain name (FQDN). For Windows, this could be the hostname (shortname) or the FQDN depending on how the Windows server resolution is configured (DNS, Active DNS, or Wins/NetBios). A Wins resolution will use the hostname (shortname) in uppercase.

Definition	Description
OS	linux-x64 or windows-x64

For example:

```
frontend=lglba148.lss.emc.com:linux-x64
primarybackend=lglba224.lss.emc.com:linux-x64
additionalbackend_1=lglac142.lss.emc.com:linux-x64
collector_1=lglba150.lss.emc.com:linux-x64
```

This answers file can be modified later to add any new Collectors and Additional Backends. When the SRM-Conf-Tools scripts run, they distinguish new servers from existing servers and make the necessary configuration changes.

Because the SRM-Conf-Tools and the answers file can be used for configuring additional servers at a later date, EMC recommends storing the files in a `/sw` directory in the `/` directory instead of the `/tmp` directory because the `/tmp` directory could be deleted at any time.

CHAPTER 5

Configuring Remote Collectors

This chapter includes the following topics:

- [Adding remote Collectors to the existing ViPR SRM deployment.....36](#)
- [Reconfiguring the LBC, Generic-SNMP, and Generic-RSC.....36](#)

Adding remote Collectors to the existing ViPR SRM deployment.

When you add a vApp Collector VM, it is completely configured as a Collector host with all of the components. You can add the Collector through **Centralized Management > Configuration > Server > Register a Server**. If you have multiple remote vApp collectors, you can use the `launch-frontend-scale-collector.sh -c /sw/srm-hosts` script to register the Collectors. For details about using the SRM-Config-Tool, see [ViPR SRM configuration tools](#).

Database grants for Collector hosts are not required.

Use the following procedure to add a binary Collector.

Note

For Windows, use `.cmd` instead of `.sh`, and `/` instead of `\` for directories.

Procedure

1. Install the ViPR SRM software as described in [Installing on UNIX](#) or [Installing on Windows Server](#).
2. Configure the binary collectors:

- a. Navigate to the following directory:

Linux: `cd /opt/APG/bin`

Windows: `cd Program Files/APG/bin`

- b. Run the Collector configuration script:

```
launch-collector-configuration.sh -c /sw/srm-hosts
```

- c. Verify that all of the services are running:

```
manage-modules.sh service status all
```

3. On the Frontend, run the following command:

```
launch-frontend-scale-collector.sh -c /sw/srm-hosts
```

4. Verify the Remote Collector configuration through the ViPR SRM UI.

Reconfiguring the LBC, Generic-SNMP, and Generic-RSC

If a collector is powered on outside of the vApp, you must reconfigure the Load Balancer Connector, generic-snmp, and generic-rsc.

Procedure

1. From **Centralized Management**, click **SolutionPacks**.

2. Under **Other Components**, click the **Reconfigure** icon for a Load Balancer Connector for each remote Collector. Use the following settings:
 - Arbiter Configuration: send data to the Primary Backend over port 2020.
 - Alerting on data collection: send data to the Primary Backend over port 2010.
 - Frontend Web service: send data to the Frontend over port 58080.
3. Repeat these steps for each remote Collector's Load Balancer Connector.
4. Under **Other Components**, click the **Reconfigure** icon for a generic-snmp or generic-rsc instance. Use the following settings:
 - Data Configuration: send data to the localhost over port 2020.
 - Frontend Web service: send data to the Frontend over port 58080.
 - Topology Service: send data to the Primary backend.
5. In the **SNMP Collector Name** field, enter the FQDN of the collector host.
6. Repeat the steps for each instance of generic-snmp and generic-rsc.

CHAPTER 6

Installing Using the Binary Installer

This chapter includes the following topics:

- [Installation options for a standard installation](#)..... 40
- [General ViPR SRM requirements](#)..... 40
- [Linux requirements](#)..... 41
- [Installing on Linux](#)..... 41
- [Installing on Windows Server](#)..... 43
- [Configuring binary ViPR SRM SRM-Conf-Tools](#).....44
- [Installing and configuring the Primary Backend host](#).....45
- [Installing and configuring the Additional Backend hosts](#).....46
- [Installing and configuring the Collector host](#)..... 47
- [Installing and configuring the Frontend host](#)..... 47
- [Scaling-out a ViPR SRM environment with Additional Backend hosts](#).....49
- [Scaling-out a ViPR SRM environment with Collector hosts](#)..... 51
- [Verifying MySQL DB Grants](#).....52
- [Updating firewall ports in Red Hat and CentOS servers](#)..... 53
- [Editing new actions scripts](#)..... 55
- [Verifying that the services are running](#).....55
- [Logging in to the user interface](#)..... 56
- [Connecting to Centralized Management](#).....56

Installation options for a standard installation

Learn how to install the platform using a binary installation package.

The platform infrastructure consists of four types of hosts:

- Frontend host
- Backend hosts (Primary Backend and Additional Backend)
- Collector host
- All-In-One (recommended for POCs and testing only)

You can only have one Primary Backend host. You can add Additional Backend hosts with up to four Time-Series databases on each Additional Backend host.

For ViPR SRM deployments with 5 million metrics or more, EMC recommends that the core ViPR SRM hosts (Frontend, Primary Backend and Additional Backend hosts) use the Linux operating system.

The MySQL version included with the product is 5.7.17 MySQL Community Server (GPL).

Table 2 Installation Options

	Frontend	Primary Backend	Additional Backend	Collector
Linux Installation Options	[f]rontend	[b]ackend	[m]inimal	[c]ollector
Windows Installation Options	Frontend Modules	Backend Modules	Base Installation (with none of the modules selected)	Collector Modules

General ViPR SRM requirements

These requirements are for a minimal deployment. In a production environment, the requirements will vary depending on the provisioned load, and you must include careful planning and sizing before beginning the deployment.

The *ViPR SRM Planner* and the *EMC ViPR SRM Performance and Scalability Guidelines* document associated with your specific release will provide guidance for SolutionPacks and object discovery.

For details about configuring CA SSL certificates, refer to the *EMC M&R Security Configuration Guide*.

The environment must meet the following requirements:

- 64 bit operating system (Linux or Windows)
- Frontend – 16 GB RAM, 4 CPUs, and 320 GB disk storage
- Backends – 24 GB RAM, 4 CPUs, and disk storage determined by the sizing
- Collectors – 16 to 64 GB RAM, 4 to 8 CPUs, and 130+ GB disk storage
- Forward and Reverse IP and DNS lookups must work on each server

Note

The following sections use Linux commands and directories as examples. For Windows, use `.cmd` instead of `.sh`, and `/` instead of `\` for directories.

Linux requirements

The environment must meet the following requirements. Make adjustments to the host before continuing.

- `/tmp` folder larger than 2.5 GB
- SWAP file should be at least equal to the RAM size
- On CentOS or RedHat-like Linux, the SELinux should be disabled or reconfigured
- The graphical desktop environment is not required
- On some Linux distributions:
 - MySQL server requires `libaio1`, `libaio-dev`, or `libaio` to start
 - The installation process requires `unzip`
 - On system restart the `apg` services may not start

Installing on Linux

You can install the product on supported UNIX hosts. This procedure specifically uses the Linux installation procedure as an example.

Before you begin

- Ensure that you have a login with root privileges. This product should only be installed using root and root privileges.
- Ensure that the ports listed in the *Ports Usage Matrix* are enabled and not blocked by a host or network firewall.
Refer to [Updating firewall ports in Red Hat and CentOS servers](#).
- Download the installation file from `support.emc.com`, and place it in a folder (for example `/sw`) on the server.

These instructions are meant to provide a high-level overview of the installation process. Detailed instructions are provided in the following sections.

Procedure

1. Log in to the server as root.
2. Navigate to the `/sw` folder.
3. Change the permissions of the installer.
For example: `chmod +x <file_name>.sh`
4. Run the installer from the directory.
For example: `./<file_name>.sh`
5. Read and accept the End User License Agreement.
6. Accept the default installation directory of `/opt/APG` or type another location.

7. Select the appropriate installation option for the type of host that you are installing. Refer to [Installation Options](#) for details.

Configuring the user process limits for a Linux installation

Increase the user process limits for the apg user account to a maximum of 65534. This modification enables services to open 65534 files and 65534 processes when needed. This step is required for proper functioning of the core software.

Before you begin

- Make sure you have a login with root privileges.
- The core software installed on a server running Red Hat Enterprise Linux 6, CentOS Linux 6, SUSE Linux Enterprise Server (SLES) 11, or any other supported Linux operating systems.

Procedure

1. Edit the security file: `vi /etc/security/limits.conf`.
2. Insert the following lines for the apg user below the line with `#<domain>`.

In this example, the user is apg.

```
apg    hard  nofile   65534
apg    soft  nofile   65534
apg    hard  nproc    65534
apg    soft  nproc    65534
```

3. Save the file.
4. To verify the changes, type the following command:

```
su apg -c 'ulimit -n -u'
open files                (-n)    65534
max user processes        (-n)    65534
```

5. In the `/opt/APG/bin/apg.properties` file, edit the hostname to a FQDN host name:

```
#=====
# Common Properties
#=====
hostname=lglba148.lss.emc.com
```

6. To restart the services, type the following commands from the `/opt/APG/bin` directory of the installation:

```
/opt/APG/bin/manage-modules.sh service stop all
/opt/APG/bin/manage-modules.sh service start all
/opt/APG/bin/manage-modules.sh service status all
```

Configuring virus-scanning software

Running virus-scanning software on directories containing MySQL data and temporary tables can cause issues, both in terms of the performance of MySQL and the virus-scanning software misidentifying the contents of the files as containing spam.

After installing MySQL Server, it is recommended that you disable virus scanning on the directory used to store your MySQL table data (such as `/opt/APG/Databases/MySQL/Default/data`). In addition, by default, MySQL creates temporary files in the standard temporary directory. To prevent scanning the temporary files, configure a separate temporary directory for MySQL temporary files and add this directory to the virus scanning exclusion list. To do this, add a configuration option for the `tmpdir` parameter to your `my.ini` configuration file.

Installing on Windows Server

You can install the product on supported Windows Server hosts.

Before you begin

- Ensure that the `\tmp` folder is larger than 2.5 GB.
- Ensure that you have a login with system administrator privileges.
- Ensure that the ports listed in the *Ports Usage Matrix* are enabled and not blocked by the firewall.
- Download the installation file from `support.emc.com`, and place it in a folder (for example, `c:\sw`) on the server.

These instructions are meant to provide a high-level overview of the installation process. Detailed instructions are provided in the following sections.

Procedure

1. Navigate to the `c:\sw` folder.
2. Double-click the `.exe` file.
3. Click **Next** on the **Welcome** screen.
4. Read and accept the End User License Agreement. Click **I Agree**.
5. Select the Destination Folder, and then click **Next**.
6. Select the appropriate installation option for the type of host that you are installing. Refer to [Installation Options](#) for details.
7. Click **Install**.
8. When the installation is complete, click **Next**.
9. Click **Finish**.
10. In the `Program Files\APG\bin\apg.properties` file, verify that the hostname is a FQDN host name. If the hostname is a shortname, edit the file to change the hostname to a FQDN.
11. In the `c:\windows\System32\drivers\etc\hosts` file, verify that the first uncommented line is this host's IP-address, FQDN, and shortname. If this is not first uncommented line, edit the file.
12. STOP: Repeat the ViPR SRM installation and configuration process for all of the servers in this deployment before proceeding.

- Restart the services, and troubleshoot any service that does not show a status of “running.”

```
manage-modules.cmd service restart all
manage-modules.cmd service status all
```

Configuring virus-scanning software

Running virus-scanning software on directories containing MySQL data and temporary tables can cause issues, both in terms of the performance of MySQL and the virus-scanning software misidentifying the contents of the files as containing spam.

After installing MySQL Server, it is recommended that you disable virus scanning on the directory used to store your MySQL table data (such as `C:\Program Files\APG\Databases\MySQL\Default\data`). In addition, by default, MySQL creates temporary files in the standard Windows temporary directory. To prevent scanning the temporary files, configure a separate temporary directory for MySQL temporary files and add this directory to the virus scanning exclusion list. To do this, add a configuration option for the `tmpdir` parameter to your `my.ini` configuration file.

Configuring binary ViPR SRM SRM-Conf-Tools

SRM-Conf-Tools are scripts that are pre-installed on each SRM host in the `/opt/APG/bin` directory. These scripts are used to configure the ViPR SRM hosts the same way the vApp version is configured.

The SRM-Conf-Tools scripts use an answers file to automatically configure the ViPR SRM servers. You can use the SRM-Conf-Tools scripts for the following scenarios:

- Initial configuration of a Frontend, Primary Backend, and Additional Backend servers
- Adding new Additional Backend servers to an existing ViPR SRM environment
- Adding Collectors to the Frontend.

If a SRM-Conf-Tools script configuration fails, running it again could cause a misconfiguration. It is advisable to clean ViPR SRM from that VM/Server and reinstall the product. Refer to [Uninstallation](#).

Creating the SRM-Conf-Tools answers file

SRM-Conf-Tools is a command-line utility that can configure and add a single server or multiple servers to your ViPR SRM environment. SRM-Conf-Tools uses an answers file that you create that includes all of the ViPR SRM hosts in all of the datacenters where ViPR SRM is installed.

Before you begin

- The answers file is case sensitive and must be all lowercase.
- Create the file using notepad++ or the Linux vi editor.
- Name the file `srm-hosts`.

The format of the answers file is: `server_type=hostname:os`

Definition	Description
<code>server_type</code>	The four basic types of ViPR SRM servers

Definition	Description
hostname	The server's FQDN. It match the setting of the hostname variable in the <code>apg.properties</code> file. For Linux servers, this should always be the hostname plus the domain name (FQDN). For Windows, this could be the hostname (shortname) or the FQDN depending on how the Windows server resolution is configured (DNS, Active DNS, or Wins/NetBios). A Wins resolution will use the hostname (shortname) in uppercase.
OS	linux-x64 or windows-x64

For example:

```
frontend=lglba148.lss.emc.com:linux-x64
primarybackend=lglba224.lss.emc.com:linux-x64
additionalbackend_1=lglac142.lss.emc.com:linux-x64
collector_1=lglba150.lss.emc.com:linux-x64
```

This answers file can be modified later to add any new Collectors and Additional Backends. When the SRM-Conf-Tools scripts run, they distinguish new servers from existing servers and make the necessary configuration changes.

Because the SRM-Conf-Tools and the answers file can be used for configuring additional servers at a later date, EMC recommends storing the files in a `/sw` directory in the `/` directory instead of the `/tmp` directory because the `/tmp` directory could be deleted at any time.

Installing and configuring the Primary Backend host

Before you begin

- Identify the host you want to configure as the Primary Backend host.
- Identify the hosts you want to configure as the Frontend, Collectors, and Additional Backends.
- Ensure that you have created an answers file as described in [Creating the SRM-Conf-Tools answers file](#).
- Minimum System Requirements:
 - CPU: 4
 - Memory: 24 GB (refer to your ViPR SRM design document)
 - Disk Space: 132 GB (the final storage size per server will be adjusted later)

Procedure

1. The base ViPR SRM software and OS modifications should already be completed as described in [Installing on UNIX](#).
2. Navigate to `/opt/APG/bin`.
3. Run the Primary Backend configuration script:

```
./launch-primarybackend-configuration.sh -c /sw/srm-hosts
```

- Restart the services and verify that they are running. Troubleshoot any service that does not show a status of “running.”

```
./manage-modules.sh service stop all
./manage-modules.sh service start all
./manage-modules.sh service status all
```

- Check the DB grants as described in [Verifying DB grants](#). (Collectors do not need DB grants.)

Installing and configuring the Additional Backend hosts

Before you begin

- Identify the host you want to configure as the Additional Backend host.
- Identify the hosts you want to configure as the Frontend, Collectors, Primary Backends, and Additional Backends.
- Ensure that you have created an answers file as described in [Creating the SRM-Conf-Tools answers file](#).
- Minimum System Requirements:
 - 64-bit Operating System
 - CPU: 4
 - Memory: 24 GB
 - Disk Space: 132 GB (the final storage size per server will be adjusted later)

Procedure

- The base ViPR SRM software and OS modifications should already be completed as described in [Installing on Linux](#).
- Navigate to `/opt/APG/bin`.
- Run the Additional Backend configuration script:

```
./launch-additionalbackend-configuration.sh -c /sw/srm-hosts
```

- Restart the services and verify that they are running. Troubleshoot any service that does not show a status of “running.”

```
./manage-modules.sh service stop all
./manage-modules.sh service start all
./manage-modules.sh service status all
```

- Check the DB grants as described in [Verifying DB grants](#). (Collectors do not need DB grants.)

Installing and configuring the Collector host

Before you begin

- Identify the hosts you want to configure as the Collector hosts.
- Ensure that you have created an answers file as described in [Creating the SRM-Conf-Tools answers file](#).
- Collector to Mega Collector System Requirements:
 - 64 bit operating system (Linux or Windows)
 - CPU: 4 to 8
 - Memory: 16 GB to 64 GB (refer to your ViPR SRM design document)
 - Disk Space: 132 GB (the final storage size per server will be adjusted later)

Procedure

1. The base ViPR SRM software and OS modifications should already be completed as described in [Installing on UNIX](#) and/or [Installing on Windows Server](#).
2. Navigate to `.../APG/bin`.
3. Run the Collector configuration script:

```
./launch-collector-configuration.sh -c /sw/srm-hosts
```

4. Restart the services and verify that they are running. Troubleshoot any service that does not show a status of “running.”

```
./manage-modules.sh service stop all
./manage-modules.sh service start all
./manage-modules.sh service status all
```

5. The Generic-RSC and Generic-SNMP modules will be installed by default. If you do not plan to use this collector for host discovery or SNMP discovery, you can choose to remove these modules. To remove these modules:

```
./.../APG/bin/manage-modules.sh remove generic-snmp
```

Installing and configuring the Frontend host

Before you begin

- Ensure that the configuration for the Primary Backend host is complete before starting the Frontend configuration.
- Ensure that you have the details of the Frontend host.
- Ensure that you have created an answers file as described in [Creating the SRM-Conf-Tools answers file](#).

- **Minimum System Requirements:**
 - 64-bit Operating System
 - CPU: 4
 - Memory: 16 GB
 - Disk Space: 132 GB (the final storage size per server will be adjusted later)

Procedure

1. The base ViPR SRM software and OS modifications should already be completed as described in [Installing on Linux](#).
2. Navigate to `/opt/APG/bin`.
3. Run the Frontend configuration script:

```
./launch-frontend-configuration.sh -c /sw/srm-hosts
```

During the Frontend configuration the management-resources are configured on the Primary Backend server. If the ViPR SRM ports are not open, then this configuration script will fail with this error: "Some operations failed to execute successfully." Review the logs and fix any errors manually. Refer to [Adding Red Hat and CentOS server firewall ports](#) to establish the ViPR SRM ports on all the ViPR SRM servers. Do not attempt to run this script again. You must remove ViPR SRM from the server where you were running the script and reinstall ViPR SRM. Refer to [Uninstallation](#).

4. Restart the services and verify that they are running. Troubleshoot any service that does not show a status of "running."

```
./manage-modules.sh service stop all
./manage-modules.sh service start all
./manage-modules.sh service status all
```

5. Verify that the ViPR SRM management resources have been created:

```
/opt/APG/bin/manage-resources.sh list
```

The following output shows the management resources based on the example configuration used in the document:

```
"dba/APG-DB",
"dba/APG-DB-lglac142-1",
"dba/APG-DB-lglac142-2",
"dba/APG-DB-lglac142-3",
"dba/APG-DB-lglac142-4",
"dba/FLOW-COMPLIANCE-BREACH",
"dba/FLOW-COMPLIANCE-CONFIGCHANGE",
"dba/FLOW-COMPLIANCE-POLICY",
"dba/FLOW-COMPLIANCE-RULE",
"dba/FLOW-EVENTS-GENERIC",
"dba/FLOW-EVENTS-GENERICARCH",
"dba/FLOW-OUTAGE-DB",
"dba/FLOW-PROSPHERE-ARCH",
"dba/FLOW-PROSPHERE-LIVE",
"dba/FLOW-RPE2-ARCH",
```

```

"dba/FLOW-RPE2-LIVE",
"dba/FLOW-SOM-ARCH",
"dba/FLOW-SOM-LIVE",
"dba/FLOW-UCS-LIVE",
"dba/FLOW-VIPR-EVENTS",
"dba/FLOW-VMWARE-EVENTS",
"dba/FLOW-VMWARE-TASKS",
"dba/FLOW-VNX-LIVE",
"dba/FLOW-WHATIF-SCENARIOS",
"mgmt/APG-DB",
"mgmt/APG-DB-lglac142-1",
"mgmt/APG-DB-lglac142-2",
"mgmt/APG-DB-lglac142-3",
"mgmt/APG-DB-lglac142-4",
"rest/EVENTS",
"rest/METRICS"

```

Results

At this point, the basic ViPR SRM configuration is complete and you can log in to the UI. Navigate to **Centralized Management > Physical Overview** to see the four servers that you just configured.

Scaling-out a ViPR SRM environment with Additional Backend hosts

This process completes the configurations for adding the Additional Backend to the existing ViPR SRM environment using the SRM-Conf-Tools. Additional Backend hosts should always be on a Linux OS platform.

Before you begin

- Complete the steps described in [Installing on Linux](#).
- Identify the host you want to configure as the Additional Backend host.
- Get the details of the existing ViPR SRM environment that you want to scale.
- Minimum System Requirements:
 - 64-bit Operating System
 - CPU: 4
 - Memory: 24 GB
 - Disk Space: 132 GB (the final storage size per server will be adjusted later)

Procedure

1. Navigate to `/opt/APG/bin`.
2. Modify the SRM-Conf-Tools answer file (`srm-hosts`) as described in [Creating the SRM-Conf-Tools answers file](#).
3. Add the new Additional Backend to the original `srm-hosts` file in the `/sw` directory.

In the example below, `additionalbackend_2` is the new Additional Backend.

```

frontend=lglba148.lss.emc.com:linux-x64
primarybackend=lglba224.lss.emc.com:linux-x64
additionalbackend_1=lglac142.lss.emc.com:linux-x64

```

```
additionalbackend_2=lglac143.lss.emc.com:linux-x64
collector_1=lppd149.lss.emc.com:linux-x64
```

4. Copy the modified answer file (`srm-hosts`) to these ViPR SRM Frontend, Primary Backend, and Additional Backends. (The modified file is not needed on the existing Collector servers.)
5. Navigate to `/opt/APG/bin`.
6. Run the following script to configure the new Additional Backend host:

```
launch-additionalbackend-configuration.sh -c /sw/srm-hosts
```

7. Restart the services and verify that they are running. Troubleshoot any service that does not show a status of “running.”

```
./manage-modules.sh service stop all
./manage-modules.sh service start all
./manage-modules.sh service status all
```

8. Run the following script on all existing Additional Backend hosts:

```
./launch-additionalbackend-scale-additionalbackend.sh -c / sw/
srm-hosts
```

9. Run the following script on the Primary Backend host:

```
./launch-primarybackend-scale-additionalbackend.sh -c / sw/
srm-hosts
```

10. Run the following script on the Master Frontend host:

```
./launch-frontend-scale-additionalbackend.sh -c / sw/srm-hosts
```

11. List the Management Resources to verify that the Additional Backends hosts were added:

```
./manage-resources.sh list
```

In this example configuration, the following entries would be added to the list of resources:

```
"dba/APG-DB-lglba250-1",
"dba/APG-DB-lglba250-2",
"dba/APG-DB-lglba250-3",
"dba/APG-DB-lglba250-4",

"mgmt/APG-DB-lglba250-1",
"mgmt/APG-DB-lglba250-2",
```

```
"mgmt/APG-DB-lglba250-3",
"mgmt/APG-DB-lglba250-4",
```

12. Restart all of the services on the Additional Backend servers, Primary Backend server, and Frontend Server.
13. Log in to ViPR SRM and confirm that the new Additional Backend is in the UI.

Results

The Additional Backend hosts are added to the existing ViPR SRM configuration. Navigate to **Centralized Management > Physical Overview** to see the five servers that you have configured.

Scaling-out a ViPR SRM environment with Collector hosts

This process completes the configurations for adding Collector hosts to the existing ViPR SRM environment using the SRM-Conf-Tools. Collector software can be installed on a Linux or Windows platform. (Currently the Hyper-V SolutionPack requires a Windows platform.)

Before you begin

- Complete the steps described in [Installing on Linux](#) and/or [Installing on Windows](#).
- Identify the host you want to configure as the Collector host.
- Get the details of the existing ViPR SRM environment that you want to scale.
- Minimum System Requirements:
 - 64-bit Operating System
 - CPU: 4 to 8
 - Memory: 16 to 64 GB (refer to your ViPR SRM design document)
 - Disk Space: 120 GB (the final storage size per server will be adjusted later)

Note

For Windows, convert `.sh` to `.cmd` for the commands and `/` to `\` for directories.

Procedure

1. The base ViPR SRM software and OS modifications should already be completed as described in [Installing on UNIX](#) or [Installing on Windows Server](#).
2. Navigate to `.../APG/bin`.
3. Modify the SRM-Conf-Tools answer file (`srm-hosts`) as described in [Creating the SRM-Conf-Tools answers file](#).
4. Add the new collector to the `srm-hosts` file.

In the example below, `collector_2` is the new Collector.

```
frontend=lglba148.lss.emc.com:linux-x64
primarybackend=lglba224.lss.emc.com:linux-x64
additionalbackend_1=lglac142.lss.emc.com:linux-x64
additionalbackend_2=lglac143.lss.emc.com:linux-x64
collector_1=lppd149.lss.emc.com:linux-x64
collector_2=lglba150.lss.emc.com:linux-x64
```

5. Copy the modified answer file (`srm-hosts`) to the ViPR SRM Frontend, (This new file is not needed on the existing ViPR SRM servers.)
6. Navigate to `.../APG/bin`.
7. Run the following script to configure the new Collector host:

```
./launch-collector-configuration.sh -c /sw/srm-hosts
```

8. Restart the services and verify that they are running. Troubleshoot any service that does not show a status of “running.”

```
./manage-modules.sh service stop all
./manage-modules.sh service start all
./manage-modules.sh service status all
```

9. Run the following script on each Frontend:

```
./launch-frontend-scale-collector.sh -c / sw/srm-hosts
```

Results

The Collector hosts are added to the existing ViPR SRM configuration. Navigate to **Centralized Management > Physical Overview** to see the six servers that you have configured.

Verifying MySQL DB Grants

After installing and configuring the ViPR SRM hosts, you can cross check the grant privileges configured for the ViPR SRM servers that are listed in the SRM-Conf-Tools configuration file.

Database grants for Collector hosts are not required.

Where the scripts configure grants for Collector hosts, these are not needed and can be ignored or deleted.

Procedure

1. Run the following script:

```
/opt/APG/bin/mysql-client.sh
```

2. When prompted, select root as the username, mysql for the database, and watch4net as the password.
3. Run the following query:

```
mysql> SELECT user, host, db, select_priv, insert_priv,
grant_priv FROM mysql.db;
```

The following table is an example of the configuration you should see on an Additional Backend host:

user	host	db	select_priv	insert_priv	grant_priv
apg	localhost	compliance	Y	Y	N
apg	localhost	apg	Y	Y	N
apg	localhost	events	Y	Y	N
apg	localhost	master	Y	Y	N
apg	localhost	topology	Y	Y	N
apg	lglba148.lss.emc.com	apg1	Y	Y	N
apg	lglba224.lss.emc.com	apg1	Y	Y	N
apg	lglac142.lss.emc.com	apg1	Y	Y	N
apg	lglba150.lss.emc.com	apg1	Y	Y	N
apg	localhost	apg1	Y	Y	N
apg	lglba148.lss.emc.com	apg2	Y	Y	N
apg	lglba224.lss.emc.com	apg2	Y	Y	N
apg	lglac142.lss.emc.com	apg2	Y	Y	N
apg	lglba150.lss.emc.com	apg2	Y	Y	N
apg	localhost	apg2	Y	Y	N
apg	lglba148.lss.emc.com	apg3	Y	Y	N
apg	lglba224.lss.emc.com	apg3	Y	Y	N
apg	lglac142.lss.emc.com	apg3	Y	Y	N
apg	lglba150.lss.emc.com	apg3	Y	Y	N
apg	localhost	apg3	Y	Y	N
apg	lglba148.lss.emc.com	apg4	Y	Y	N
apg	lglba224.lss.emc.com	apg4	Y	Y	N
apg	lglac142.lss.emc.com	apg4	Y	Y	N
apg	lglba150.lss.emc.com	apg4	Y	Y	N
apg	localhost	apg4	Y	Y	N

Updating firewall ports in Red Hat and CentOS servers

The Red Hat and CentOS operating systems are installed by default with the OS firewall (firewalld) locked down. Only a few basic ports are open (such as SSH). On these operating systems, the firewall must be modified to allow the ViPR SRM ports.

Procedure

1. Using a Linux editor, create an xml file and save it as `apg.xml` in the `/etc/firewalld/services` directory.
2. Add the following text to the xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<service>
  <short>TEST</short>
  <description>Add ViPR SRM Ports to Red Hat and CentOS
Firewall</description>
  <port protocol="tcp" port="58080"/>
  <port protocol="tcp" port="2000"/>
  <port protocol="tcp" port="2001"/>
  <port protocol="tcp" port="2100"/>
  <port protocol="tcp" port="2101"/>
  <port protocol="tcp" port="2200"/>
  <port protocol="tcp" port="2201"/>
  <port protocol="tcp" port="2300"/>
  <port protocol="tcp" port="2301"/>
  <port protocol="tcp" port="2400"/>
  <port protocol="tcp" port="2401"/>
  <port protocol="tcp" port="2003"/>
  <port protocol="tcp" port="2008"/>
  <port protocol="tcp" port="2009"/>
</service>
```

```

<port protocol="tcp" port="2010"/>
<port protocol="tcp" port="2012"/>
<port protocol="tcp" port="2020"/>
<port protocol="tcp" port="2022"/>
<port protocol="tcp" port="2040"/>
<port protocol="tcp" port="2041"/>
<port protocol="tcp" port="5480"/>
<port protocol="tcp" port="5488"/>
<port protocol="tcp" port="5489"/>
<port protocol="tcp" port="8082"/>
<port protocol="tcp" port="8189"/>
<port protocol="tcp" port="8888"/>
<port protocol="tcp" port="8889"/>
<port protocol="tcp" port="9996"/>
<port protocol="tcp" port="22000"/>
<port protocol="tcp" port="22020"/>
<port protocol="tcp" port="22020"/>
<port protocol="tcp" port="48443"/>
<port protocol="tcp" port="52001"/>
<port protocol="tcp" port="52004"/>
<port protocol="tcp" port="52007"/>
<port protocol="tcp" port="52569"/>
<port protocol="tcp" port="52755"/>
<port protocol="tcp" port="53306"/>
<port protocol="tcp" port="58005"/>
<port protocol="tcp" port="389"/>
<port protocol="tcp" port="58443"/>
<port protocol="tcp" port="5988"/>
<port protocol="tcp" port="5989"/>
<port protocol="tcp" port="5986"/>
<port protocol="tcp" port="80"/>
<port protocol="tcp" port="443"/>
<port protocol="tcp" port="8080"/>
<port protocol="tcp" port="2707"/>
<port protocol="tcp" port="8443"/>
<port protocol="tcp" port="2443"/>
<port protocol="tcp" port="4443"/>
<port protocol="tcp" port="2682"/>
<port protocol="tcp" port="1521"/>
<port protocol="tcp" port="9004"/>
<port protocol="tcp" port="9002"/>
<port protocol="tcp" port="7225"/>
<port protocol="tcp" port="58083"/>
<port protocol="tcp" port="52755"/>
<port protocol="tcp" port="2060"/>
<port protocol="tcp" port="3682"/>
<port protocol="udp" port="161"/>
<port protocol="udp" port="162"/>
<port protocol="udp" port="2040"/>
<port protocol="udp" port="2041"/>
</service>

```

3. Copy the `apg.xml` file to the `/etc/firewalld/services` directory.
4. Run the following command to add the ports to the existing firewall:

```
firewall-cmd --permanent --add-service=apg
```

5. Check the status of `firewalld`:

```
systemctl status firewalld
```

Editing new actions scripts

Edit actions on the frontend host to send events to the machine on which the event-processing-manager of the alerting-consolidation module is configured.

Procedure

1. In the following file, replace 127.0.0.1 with the primary backend IP address:

Option	Description
Linux	/opt/APG/Custom/WebApps-Resources/Default/actions/event-mgmt/linux/conf
Windows	Program Files\APG\Custom\WebApps-Resources\Default\actions\event-mgmt\windows\conf.cmd

Verifying that the services are running

Verify that the services are running on each host by obtaining the status.

Before you begin

Ensure that you have a login with root, APG, or system administrator privileges. The user apg is the account that the application uses instead of root.

Procedure

1. Type the command for your operating system from the `bin` directory of the installation:

Operating system	Command
UNIX	<code>manage-modules.sh service status all</code>
Windows	<code>manage-modules.cmd service status all</code>

2. Verify that each service has a status of running in the output.

Troubleshooting service start-up problems on UNIX

Check the log files when services do not start.

Before you begin

Ensure that you have logged in with root to check the log files.

Procedure

- The default path is `/opt/APG/`.

The list of available log files will vary depending on the type of server (Frontend, Backend, or Collector).

```
Databases/MySQL/Default/data/[SERVER NAME].err
Backends/Alerting-Backend/Default/logs/alerting-0-0.log
Backends/APG-Backend/Default/logs/cache-0-0.log
Collecting/Collector-Manager/Default/logs/collecting-0-0.log
Web-Servers/Tomcat/Default/logs/service.log
```

```
Tools/Task-Scheduler/Default/logs/scheduler-0-0.log  
Tools/Webservice-Gateway/Default/logs/gateway-0-0.log
```

Troubleshooting service start-up problems on Windows

Check the log files when services do not start.

Before you begin

Ensure that you have logged in with system administrator credentials to check the log files.

Procedure

- Look for log files in these C:\Program Files\APG directory paths.

The list of available log files will vary depending on the type of server (Frontend, Backend, or Collector).

```
Databases\MySQL\Default\data\[SERVER_NAME].err.  
Backends\Alerting-Backend\Default\logs>alerting-0-0.log  
Backends\APG-Backend\Default\logs\cache-0-0.log  
Collecting\Collector-Manager\Default\logs\collecting-0-0.log  
Web-Servers\Tomcat\Default\logs\service.log  
Tools\Task-Scheduler\Default\logs\scheduler-0-0.log  
Tools\Webservice-Gateway\Default\logs\gateway-0-0.log
```

Logging in to the user interface

Log in to the user interface to use and edit reports, manage users, and customize the interface to meet your needs

Procedure

1. Open a browser and type the following URL:

```
https://<Frontend-hostname>/APG
```

2. Type the login credentials.

The default username is `admin`. The default password is `changeme`.

3. Click **Sign In**.

Note

You are automatically logged off after four hours.

Connecting to Centralized Management

Connect to the server so that you can access Centralized Management to install and administer SolutionPacks.

Centralized Management is one of the multiple web applications available in EMC M&R platform.

Procedure

1. Open a browser.
2. Type `https://<Frontend-host-IP>/centralized-management`.

Example:

```
https://myHost.emc.com/centralized-management
```

3. Log in.
 - a. Default username is `admin`.
 - b. Default password is `changeme`.
 - c. Click **Sign In**.

After you finish

You are automatically logged off after four hours.

CHAPTER 7

Automating the Download of Updates

This chapter includes the following topics:

- [Online Update overview](#) 60

Online Update overview

Online Update automatically downloads the latest versions of the SolutionPacks and EMC M&R components from the EMC Update server to the Module Repository on the Centralized Management (CM) server.

In a multi-server environment, the downloaded modules are distributed to all of the remote servers managed by the CM server.

Configuring server settings for online updates

Procedure

1. Click **Administration** .
2. Click **Centralized Management**.
3. Click **Configuration > Online Update**.
4. Ensure that you are on the **Settings** tab.
5. Check the **Enabled** checkbox.
6. Type your EMC Online Support username and password.
7. Click the  icon to test connectivity to the update server.

The  icon indicates that connectivity to the server has been established.

The  icon indicates that connectivity to the server failed.

8. Click **Save**.

Enabling the online update task

Enable the Online Update task to download the latest updates from the EMC Update server automatically.

Procedure

1. Click **Administration** .
2. Click **Centralized Management**.
3. On the **Physical Overview** page, click the **<host_name> - Front End** where the Online Update task needs to run.
4. Click **Tasks**.
5. Type `onlineUpdate` in the **Search** bar.
6. Click the **OnlineUpdate** scheduled task.
7. Click **Enable**.

Note

By default, this task is set to run once everyday at 12AM. You can customize the task schedule by editing the configuration file.

Running the online update task manually

At any time, you can run the Online Update task manually to access the available updates.

Procedure

1. Click **Administration** .
2. Click **Centralized Management**.
3. On the **Physical Overview** page, click the *<host_name>* - **Front End** where the Online Update task needs to run.
4. Click **Tasks**.
5. Type `onlineUpdate` in the **Search** bar.
6. Click the **OnlineUpdate** scheduled task.
7. Click **Run Now**.

Online Update Status

The Online Update Status tab indicates whether or not the last online update check was successful, provides the date and time of the last successful check, and lists any updates that are available for download.

Figure 1 Online Update Status



If a major update of the EMC M&R platform is detected, the Status tab includes a Major Update Status section that describes the version that is available, provides a link to the upgrade documentation, and includes a Start Download button.

Figure 2 Online Update Status with a major version update detected

The screenshot displays the 'Online Update' interface. At the top, there are three tabs: 'Status' (selected), 'History', and 'Settings'. Below the tabs, there are two sections for update content:

- Product Update Content:** Shows a green checkmark and the text 'Last online update check was successful at 5/9/16 10:57 AM.' Below this, it states 'No updates available for download.'
- vApp Update Content:** Shows a green checkmark and the text 'Last online update check was successful at 5/9/16 10:57 AM.' Below this, it states 'No updates available for download.'

Below these sections is the **Major Update Status** section. It contains the following text: 'New major version 6.7 of EMC M&R is available. Clicking on the Start Download button will initiate download of the content. After download is completed, it will be necessary to do a full upgrade. Please refer to the system documentation.' Below this text is a link icon and the text 'Link to major update documentation.'

At the bottom of the interface is a **Download State** box. It contains the text 'The state of the Major Update Download' and a status indicator 'Not Downloaded' with an information icon. To the right of the status indicator is a 'Start Download' button with a download icon.

Downloading a major update

You can use Online Update to download a major version of the EMC M&R platform. You should only download a major version if you intend to immediately complete the full upgrade process.

Procedure

1. Click **Administration** .
2. Click **Centralized Management**.
3. Click **Configuration > Online Update**.
4. Click the **Status** tab.
5. Click **Start Download**. When the download is finished, the Download State will change from "Not Downloaded" to "Complete."
6. Complete the upgrade process as described in the upgrade documentation.

Online Update History

The Online Update History tab provides a download history with the names of the components, the version numbers, and the date and time of the downloads.

The History tab also allows you to search the download history for a particular component name or version number.

Disabling the online update task

You can disable the Online Update task if you prefer to manually download the updates from the EMC Update server.

Procedure

1. Click **Administration** .
2. Click **Centralized Management**.
3. On the **Physical Overview** page, click the *<host_name>* - **Front End** where the Online Update task needs to run.
4. Click **Tasks**.
5. Type `onlineUpdate` in the **Search** bar.
6. Click the **OnlineUpdate** scheduled task.
7. Click **Disable**.

CHAPTER 8

Uninstallation

This chapter includes the following topics:

- [Overview](#)66
- [Stopping EMC M&R platform services on a UNIX server](#)66
- [Uninstalling the product from a UNIX server](#)66
- [Stopping EMC M&R platform services on a Windows server](#)66
- [Uninstalling the product from a Windows server](#)67
- [Uninstalling a SolutionPack](#).....67

Overview

You can uninstall a SolutionPack and uninstall EMC M&R platform from a UNIX or Windows server.

Stop the EMC M&R platform services before uninstalling EMC M&R platform.

Stopping EMC M&R platform services on a UNIX server

Use the `manage-modules.sh service stop` command to stop a specific EMC M&R platform service or to stop all EMC M&R platform services on a UNIX server.

Before you begin

Make sure you have logged in with root or APG privileges.

Note

The list of services varies depending upon which type of installation was performed, for example, vApp, collector, backend, frontend, and so forth.

Procedure

- Type `manage-modules.sh service stop <service_name>` from the `bin` directory of the installation to stop a specific EMC M&R platform service.

This example shows how to stop all EMC M&R platform services:

```
./manage-modules.sh service stop all
```

Uninstalling the product from a UNIX server

Before you begin

Make sure you have a login with root privileges.

Procedure

1. Type `rm -rf /opt/APG` to remove the installation directory.
2. Reboot the server.

Stopping EMC M&R platform services on a Windows server

Use this procedure to stop EMC M&R platform services from the Windows desktop.

Before you begin

Make sure you have logged in with system administrator credentials to manage services.

Note

The list of services varies depending upon which type of installation was performed, for example, vApp, collector, backend, frontend, and so forth.

Procedure

1. Type `manage-modules.cmd service stop <service_name>` from the `bin` directory of the installation to stop a specific EMC M&R platform service.

This example shows how to stop all EMC M&R platform services:

```
./manage-modules.cmd service stop all
```

Uninstalling the product from a Windows server

Before you begin

Make sure you have logged in with system administrator credentials.

Procedure

1. Use the **Windows Control Panel** to uninstall the product.
 - a. Click **Start > Control Panel > Programs**.
 - b. Click **Uninstall a program**.
 - c. Select the **Watch4net Solutions APG** and click **Uninstall**.
2. Reboot the server.

Uninstalling a SolutionPack

If you no longer want to view the reports of a certain SolutionPack, you can uninstall that SolutionPack from the server.

Procedure

1. Log in with administrator credentials for EMC M&R platform and select **Administration**.
2. Select **Centralized Management** in the Administration tree.
3. Select **SolutionPacks** in the tree.
4. Select the SolutionPack that you want to uninstall in the **Installed SolutionPacks** screen.
5. In the **Properties** area, click **Trashcan** icon for each instance of the SolutionPackBlock and click **Remove**.

APPENDIX A

Telnet and Socket Interface Ports

This appendix includes the following topics:

- [Telnet and socket interface ports for each backend](#).....70

Telnet and socket interface ports for each backend

The telnet and socket interface for each backend must be different on that backend host. These ports are open in the Linux firewall setting by default.

Backend Host	Backend	socket interface	telnet interface
Primary Backend (PBE)	DB	2000	2001
Additional Backend #1 (ABE)	DB1	2100	2101
	DB2	2200	2201
	DB3	2300	2301
	DB4	2400	2401
Additional Backend #2 (ABE)	DB- <i>hostname-1</i>	2100	2101
	DB- <i>hostname-2</i>	2200	2201
	DB- <i>hostname-3</i>	2300	2301
	DB- <i>hostname-4</i>	2400	2401
Additional Backend #3 (ABE)	DB- <i>hostname-1</i>	2100	2101
	DB- <i>hostname-2</i>	2200	2201
	DB- <i>hostname-3</i>	2300	2301
	DB- <i>hostname-4</i>	2400	2401
Additional Backend #4 (ABE)	DB- <i>hostname-1</i>	2100	2101
	DB- <i>hostname-2</i>	2200	2201
	DB- <i>hostname-3</i>	2300	2301
	DB- <i>hostname-4</i>	2400	2401
Additional Backend #5 (ABE)	DB- <i>hostname-1</i>	2100	2101
	DB- <i>hostname-2</i>	2200	2201
	DB- <i>hostname-3</i>	2300	2301
	DB- <i>hostname-4</i>	2400	2401
Additional Backend #6 (ABE)	DB- <i>hostname-1</i>	2100	2101
	DB- <i>hostname-2</i>	2200	2201
	DB- <i>hostname-3</i>	2300	2301
	DB- <i>hostname-4</i>	2400	2401

APPENDIX B

SolutionPack Reconfiguration Fields

This appendix includes the following topics:

- [SolutionPack Reconfiguration Fields](#)..... 72

SolutionPack Reconfiguration Fields

You can change the settings for the SolutionPack from the SolutionPack Reconfiguration page.

Table 3 SolutionPack Reconfiguration Fields

Field	Description
Socket Collector port	On this TCP port on the Primary Backend, the Arbiter is accepting the remote connections from all LBCs.
APG Backend hostname or IP address	The hostname of the server where the apg database and its backend service are running. In this deployment, the possible options are backend and backend2. Do not use "localhost" for the default apg on the primary backend.
APG Backend data port	Each apg has a backend and each backend has its own TCP port to receive raw data. The port must be unique only inside the server. Refer to Configuring the Additional Backend . In this installation, the ports are 2000, 2100, 2200, 2300 and 2400.
Web-Service Gateway	Each APG server has a Web-Service Gateway. This hostname must point to the APG server with the backend service.
Backend Web-Service Instance	The backend instance name. In this deployment, the possible values are: <ul style="list-style-type: none"> • Default (the default backend instance name from primary backend) • apg1 • apg2 • apg3 • apg4
Backend database type	MySQL by default.
Backend database hostname or IP address	The hostname where the MySQL database is running. By default, it is same as the APG Backend hostname.
Backend database port number	The port on which MySQL is accepting remote TCP connections. By default, it is 53306 .
Backend Database name	The database name used in MySQL. For example, apg, apg1, apg2.
Backend database username	The user configured in MySQL. The default is "apg"

Table 3 SolutionPack Reconfiguration Fields (continued)

Field	Description
Backend database password	The default password for the MySQL user is "watch4net"

APPENDIX C

Unattended Installation

This appendix includes the following topics:

- [Unattended installation](#)..... 76
- [Unattended installation arguments for Linux](#)..... 76
- [Unattended installation arguments for Windows](#)..... 76

Unattended installation

EMC M&R 6.7 and higher supports fully unattended installations, which are particularly useful for installing the software on remote systems via scripts. This appendix describes the installation of the platform software, but it does not include the installation and configuration of modules or SolutionPacks.

Unattended installation arguments for Linux

- `--silent`
Runs the setup script in unattended mode. No questions are asked, and the default settings are used.
- `--accept-eula`
Accepts the EULA. By providing this switch, you are confirming that you have read and accepted the EULA.
- `--install-dir=<path to installation>`
Overrides the default installation location. The default is typically `/opt/APG`.
- `--user=username`
Overrides the default user for installation of the servers. The default is typically `app`.
- `--script-directory=initd_directory`
Overrides the default script directory. The default is `/etc/init.d`.
- `--runlevel-directory=rc_directory`
Overrides the default runlevels directory (containing `rc[0-6].d/`).
The default is `/etc`.
- `--install-type=installation_type`
Overrides the default installation type. The available options are `default`, `minimal`, `collector`, `backend`, and `frontend`. The command only considers the first letter, so `--install-type=C` is equivalent to `--install-type=collector`. The value of the parameter is not case sensitive.

Example 1 To override the default installation and set the installation type to collector:

```
[root@server ~]# ./linux_setup.sh -- --install-type=collector
```

Example 2 To run a fully unattended installation and install as a collector in an alternate directory:

```
[root@server ~]# ./linux_setup.sh -- --accept-eula --silent --install-type=collector --install-dir=/opt/SRM
```

Unattended installation arguments for Windows

- `/S`
Runs the setup script in unattended mode. No questions are asked, and the default settings are used. This must be the first argument.

- `ACCEPTTEULA = Yes`
Accepts the EULA. By providing this switch, you are confirming that you have read and accepted the EULA. The installer will refuse to run in unattended mode if you have not accepted the EULA.
- `INSTALL-TYPE=installation_type`
Overrides the default installation type. The available options are: default, minimal, collector, backend, and frontend. The command only considers the first letter, so `INSTALL-TYPE=C` is equivalent to `INSTALL-TYPE=collector`. The value of the parameter is not case sensitive.
- `/D`
Sets the default installation directory. This must be the last parameter. It cannot contain any quotes (even if the path contains spaces), and only absolute paths are supported.

Example 3 To run a fully unattended installation and install as a collector in an alternate directory:

```
C:\Users\user1> windows_setup.exe /S /D=C:\SRM /  
ACCEPTTEULA=Yes /INSTALL-TYPE=collector
```

