WHITEPAPER

Access Manager

Syslog Configuration for Auditing

Access Manager

Contents

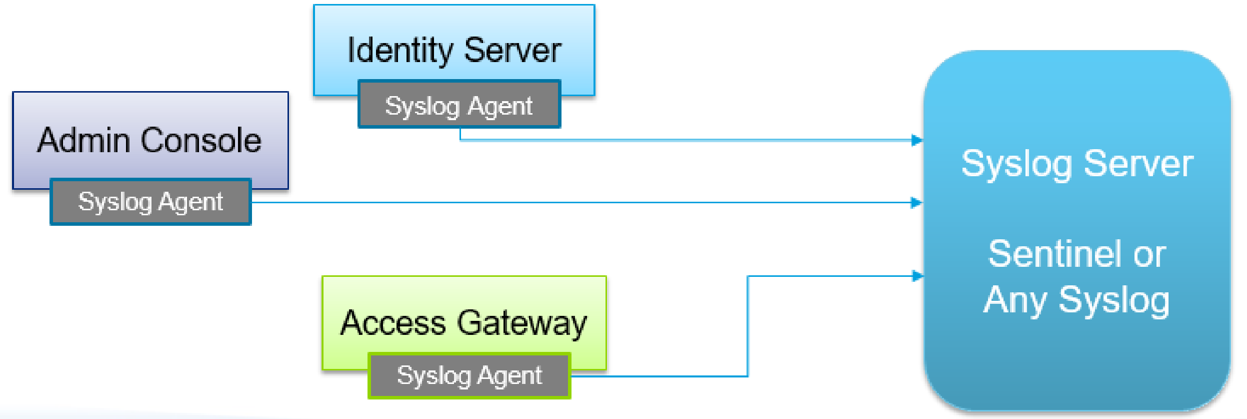
1. Introduction

Access Manager now supports Syslog as the audit channel for forwarding the audit messages to the remote audit server. The traditional NetIQ Platform Agent for auditing is discontinued in the 4.2 release and the customers are encouraged to move to Syslog for auditing.

This whitepaper covers:

- How Access Manager auditing works with Syslog
- Configuring Syslog for Access Manager Auditing
- Advanced configurations like caching and SSL
- Troubleshooting

2. How Access Manager auditing works with Syslog



Syslog Agent

The Access Manager components can be configured to send the audit messages to syslog. A local syslog agent runs on each device to collect the audit messages and forward them to the centralized syslog server. On Linux systems, rsyslog is auto-configured as the local syslog agent and listens on TCP port 1290.

Windows systems do not include a syslog agent. However, many free and paid versions of the syslog client for windows are available in the market. Administrators should procure one and install it manually on each system.

Syslog Server

The central auditing server can be Sentinel or any syslog server. The IP and port of this server can be configured on the Administration Console's Auditing UI.

Note: NAM Auditing over syslog is supported only on TCP.

3. Linux: Configuring Access Manager and Syslog

3.1 Linux Configuration Steps

Perform the following steps to configure Access Manager auditing using syslog:

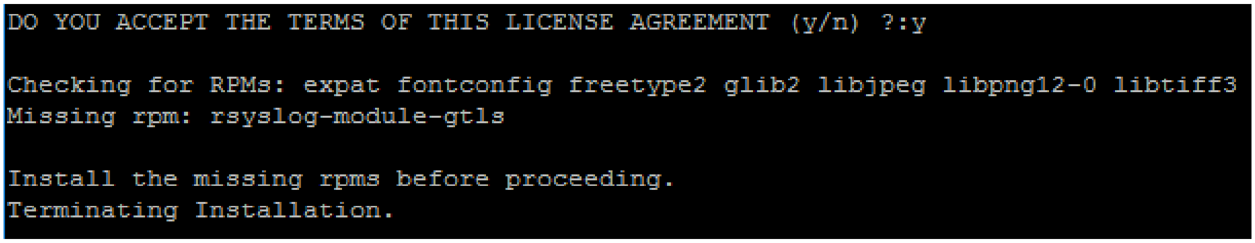
1. Install RSyslog on each Access Manager system.
2. Configure the centralized audit server – Sentinel or third party syslog server.
3. Install or Upgrade Access Manager to 4.2 release.
4. Configure Access Manager auditing – audit server type, IP and port.
5. Configure Syslog on the Administration Console System (cannot be done through UI)
6. Optional: Manually configure caching of messages and/or SSL for syslog (see Advanced RSyslog Configuration).

Step 1: Install RSyslog

This is a pre-requisite for the install/upgrade of Access Manager.

Distributed Access Manager Setup (Non-Appliance)

Trying to install/upgrade Access Manager 4.2 without RSyslog will result in the following error:



```
DO YOU ACCEPT THE TERMS OF THIS LICENSE AGREEMENT (y/n) ?:y

Checking for RPMs: expat fontconfig freetype2 glib2 libjpeg libpng12-0 libtiff3
Missing rpm: rsyslog-module-gtls

Install the missing rpms before proceeding.
Terminating Installation.
```

Install the latest rsyslog package from the respective Operating System’s repository.

SLES:

```
zypper in rsyslog-module-gtls
```

Redhat:

Use the “rpm –ivh <rpm name>” or the yum command to install the rsyslog module.

NAM Appliance and MAG Appliance

The rsyslog rpm is available in the update channel in the pattern `NetIQ-Access-Manager`. The Base OS of the Appliance has to be upgraded to SLES11 SP4 and the rsyslog rpm has to be installed before upgrading Access Manager to 4.2

1. Upgrade the base operating system by following the instructions on the documentation site.

2. Install rsyslog using the command:

   ```
   zypper in -t pattern NetIQ-Access-Manager
   ```

3. Confirm that the rpm is available using the command:

   ```
   rpm -qa | grep -i syslog
   ```

Note:

Repeat this step on every Access Manager system – Administration Console, each Identity Server and Access Gateway system.

Step 2: Install / Upgrade to Access Manager 4.2

Follow the usual steps to install or upgrade to Access Manager 4.2.

Step 3: Configure the Centralized Audit Server

If you are using Sentinel as the centralized audit server, an updated NAM collector that supports Syslog is available and can be downloaded from the site: https://www.netiq.com/support/sentinel/plugins/

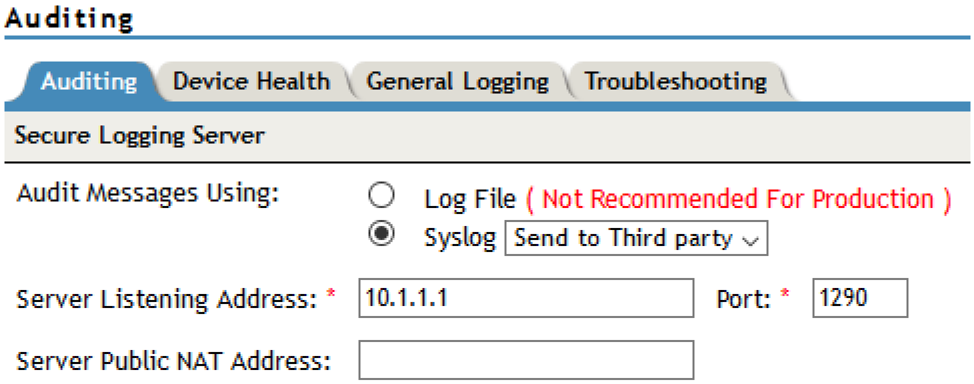
If you plan to use any other Syslog as your centralized audit server, configure it and make sure that it is up and running.

Note: To quickly test this feature, the syslog agent running on the Administration Console can also be used as the centralized syslog server. All the audit events will be written to /var/log/NAM_Audits.log file. **This is not recommended for production systems.**

Step 4: Configure Auditing

Access Manager must be configured to use Syslog.

1. Login to the Administration Console.
2. On the dashboard, clicking **Auditing**.



Secure Logging Server

Audit Messages Using: ○ Log File (Not Recommended For Production) ● Syslog Send to Third party

Server Listening Address: * 10.1.1.1 Port: * 1290

Server Public NAT Address:

3. In the **Audit Messages Using** field:
   - Select **Syslog**.
   - For Sentinel, select **Send to Sentinel.**
   - For all other syslog servers, select **Send to Third Party**. The audit messages will be sent in JSON format to the configured Syslog server.
4. **Server Listening Address:** Specify the IP address or DNS name of the syslog server.

   When the configuration is saved on this UI screen, the local syslog agents running on each system are automatically updated to point to this IP of the remote syslog server. The only exception is that the syslog agent of the Administration Console cannot be modified using the UI for security reasons and hence must be manually updated (see next section).

5. **Server Public NAT Address:** If the auditing server is in the private network, then you have to enter the Public NAT IP Address of the auditing server using which devices can reach the auditing server.
6. **Port:** Specify the syslog server port.
   a. For Sentinel server, the default port is 1468.
   b. For third party syslog servers, specify the configured port of that server.
7. Save the changes.

Step 5: Configuring the Administration Console for auditing with Syslog

In the case of a standalone Administration Console system (with no other Access manager components installed), the configuration changes done on the Auditing UI are not applied to the local files for security reasons. These files must manually updated by logging into the system.

To configure the Administration Console for auditing with syslog, perform the following:

Syslog Agent Configuration

1. Configure the local syslog agent to listen on the TCP port 1290 by adding the following entry in the `/etc/rsyslog.d/nam.conf` file.

```
$InputTCPServerRun 1290
```

2. Configure the local agent to forward the Audit messages to the remote syslog server at 172.16.50.50 on port 1468. This can be done by adding the following to the nam.conf file.

```
$template ForwardFormat,"<%PRI%>%TIMESTAMP:::date-rfc3164%
%HOSTNAME% %syslogtag:1:32%%msg:::sp-if-no-1st-sp%%msg%\n"
local0.* @@172.16.50.50:1468;ForwardFormat
```

Now, the `/etc/rsyslog.d/nam.conf` file should have:

```
$InputTCPServerRun 1290

$template ForwardFormat,"<%PRI%>%TIMESTAMP:::date-rfc3164% %HOSTNAME%
%syslogtag:1:32%%msg:::sp-if-no-1st-sp%%msg%\n"
local0.* @@172.16.50.50:1468;ForwardFormat
```

Access Manager Auditing Configuration

3. Configure the auditing settings for Access Manager by editing the `/etc/Auditlogging.cfg` file.

```
LOGDEST=syslog # syslog or PA
FORMAT=JSON # JSON or CSV
SERVERIP=127.0.0.1 # Don’t change.
SERVERPORT=1290 # Don’t change.
```

LOGDEST : Set to “syslog” to send the audit messages to the local syslog agent.
FORMAT: Set to “CSV” if using Sentinel. Set to “JSON” for all other remote syslog servers.
SERVERIP: Use the default 127.0.0.1 to send the messages to the local syslog agent.
SERVERPORT: Use the default 1290 on which the local syslog agent is communicating.

4. Restart the Administration Console using the command: `/etc/init.d/novell-ac restart`

3.2 Advanced RSyslog Configuration

RSyslog supports additional features that would be beneficial in a production environment. You have to configure them manually if required.

3.2.1 Caching of Audit Events

RSyslog supports queuing to cache the audit events if the remote syslog server is not reachable. When the remote syslog server is back online, the queued events are then relayed to the server. This ensures that there is no loss of any audit events. The complete guide for the RSylog's Queues is available at http://www.rsyslog.com/doc/v8-stable/concepts/queues.html

Add the following to `/etc/rsyslog.d/nam.conf` to cache in-memory:

```
$WorkDirectory /rsyslog/work    # Default location for work (spool) files
$ActionQueueType LinkedList     # Use asynchronous processing
$ActionQueueFileName example_fwd # Set file name, also enables disk mode
$ActionResumeRetryCount -1       # Infinite retries on insert failure
$ActionQueueSaveOnShutdown on    # Save in-memory data if rsyslog shuts down.
```

Note: These changes must be manually done on all systems – Administration Console, each Identity Server and Access Gateways.

3.2.2 Configuring SSL Communication:

We can configure the secure TLS channel auditing between the Access Manager component and the remote Audit server mechanism.

The detail guides on the steps are available at

http://www.rsyslog.com/doc/v8-stable/tutorials/tls_cert_summary.html

http://www.rsyslog.com/doc/v7-stable/tutorials/tls.html

Configuration steps:

1. Generate the Certificate Authority (CA) Certificate
   - Create a Private Key

   ```
   certtool --generate-privkey --outfile ca-key.pem
   ```

   - Create the self-signed Certificate

   ```
   certtool --generate-self-signed --load-privkey ca-key.pem --outfile ca.pem
   ```

2. Generate the certificate for local syslog client (private Key)

- Create a private key for syslog agent

```
certtool --generate-privkey --outfile rslclient-key.pem --bits 2048
```

```
certtool --generate-request --load-privkey rslclient-key.pem --outfile request.pem
```

- Generate a certificate request for the syslog client

- Generate the certificate and sign it with the Certificate Authorities private key

```
certtool --generate-certificate --load-request request.pem --outfile rslclient-
cert.pem --load-ca-certificate ca.pem --load-ca-privkey ca-key.pem
```

3. Generate the certificate for Remote syslog Server (private Key)

- Remove the previously generated request.pem
- Create a private key for Syslog server

```
certtool --generate-privkey --outfile rslserver-key.pem --bits 2048
```

- Generate a certificate request for the rsyslog Server

```
certtool --generate-request --load-privkey rslserver-key.pem --outfile
request.pem
```

- Generate the machine certificate and sign it with the Certifiate Authorities private key
- Copy certificates from CA to rsyslog server and rsyslog client

```
certtool --generate-certificate --load-request request.pem --outfile rslserver-
cert.pem --load-ca-certificate ca.pem --load-ca-privkey ca-key.pem
```

- Configure the Syslog server for TLS. Sample nam.conf file entries for:

```
# Increase the amount of open files rsyslog is allowed, which includes open tcp sockets
# This is important if there are many clients.
# http://www.rsyslog.com/doc/rsconf1_maxopenfiles.html
$MaxOpenFiles 2048

# make gtls driver the default
$DefaultNetstreamDriver gtls

# certificate files generated on RHEL6 and stored in /root
$DefaultNetstreamDriverCAFile /etc/pki/rsyslog/ca.pem
$DefaultNetstreamDriverCertFile /etc/pki/rsyslog/rslserver-cert.pem
$DefaultNetstreamDriverKeyFile /etc/pki/rsyslog/rslserver-key.pem
```

- Configure the syslog agent for TLS. Sample /etc/rsyslog.d/nam.conf for:

```
# make gtls driver the default
$DefaultNetstreamDriver gtls

# certificate files
$DefaultNetstreamDriverCAFile /etc/pki/rsyslog/ca.pem
$DefaultNetstreamDriverCertFile /etc/pki/rsyslog/rslclient-cert.pem
$DefaultNetstreamDriverKeyFile /etc/pki/rsyslog/rslclient-key.pem

#### GLOBAL DIRECTIVES ####

$ActionSendStreamDriverAuthMode x509/name
$ActionSendStreamDriverMode 1 # run driver in TLS-only mode
```

Note: These changes must be manually done on all systems – Administration Console, each Identity Server and Access Gateways.

3.3 Troubleshooting

Audit events are not reaching the remote server.

- Check the rsyslog package is installed properly in the NAM device
- Check the local TCP port 1290 is listening in the local NAM device
- Check the remote syslog server’s IP address and port numbers provided in Admin console UI is reflecting in /etc/rsyslog.d/nam.conf
- Check the remote audit server is reachable from the NAM devices.

Audit events are not parsed properly from the Sentinel server

- Check in the Administration Console Send to Sentinel is selected as the remote audit Server
- Make sure that you are using the latest NAM Collector for Sentinel available from https://www.netiq.com/support/sentinel/plugins/

Audit events are received in CSV format than JSON format in the remote non-Sentinel syslog audit server

- Check in the Administration Console Send to Third Party is selected as the remote audit server.

4. Windows: Configuring Syslog

4.1 Configuration Steps Overview

To configure Access Manager auditing using syslog, perform the following steps:

1. Configure the centralized audit server – Sentinel or third party syslog server.
2. Install a windows Syslog agent on each Access Manager system. Configure it to send messages to the centralized syslog server.
3. Install or Upgrade Access Manager to 4.2 release.
4. Configure Access Manager auditing – audit server type, IP and port. See the section 4 of the Linux Configuration Steps above.
5. Configure the nam.conf file on each Access Manager system to send messages to the local syslog agent.

4.2 Syslog Agents

The Access Manager distribution does not include a syslog agent for Windows. However, many free and paid versions of the agents are available in the market. An Administrator can manually procure and install these agents on each Access Manager system – Administration Console, each Identity Server and each Access Gateway system.

Check the NetIQ Cool Solutions page for an example configuration using Syslog-ng as an agent on Windows.