

SiteMinder / IIS / Qlik Sense Integration Guide

How-to guide for SiteMinder SSO integration.

August, 2017





Table of Contents

Overview	3
Requirements	3
Setup	3
Virtual Proxy	3
SiteMinder Policy Server	5
SiteMinder Web Agent	5
Test	7
Appendix	8
Internet Information Services 8.5	8
Using Apache as a Reverse Proxy for Authentication with Qlik Sense	10
References	15

Overview

There are three main services that need to be configured for this integration, sections 2-5 will go over these and the three services are as followed:

- Qlik sense
- Internet Information Server
- SiteMinder Policy Server / Web Agent

Requirements

These are the conditions and special features that must be installed:

- Qlik Sense environment installed, licensed and ready to use
- SiteMinder Web Agent must be installed
- SiteMinder Policy Server must be configured
- Internet Information Services version 8.5 (with WebSocket protocol support)
- ARR toolkit must be installed for IIS (incl. UrlRewrite module)

Setup

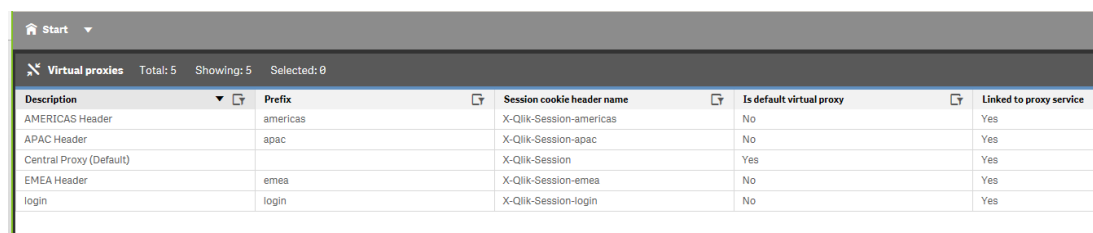
Virtual Proxy

Create a new virtual proxy for your SiteMinder authentication. You will want to use the “static header authentication” module, with the header being “SMUNIVERSAL_ID”. **Note that the header can be any value you would like, but it MUST match the header on the SiteMinder policy server.** The following shows three virtual proxies for the regions: AMERICAS, EMEA, APAC.

Choice of Web Servers

This guide provides setup instructions using IIS 8.5 in the Appendix, as well as how to set up a reverse proxy for Qlik Sense with Apache. There is a note in the Apache guide on what you will need to add for it to work with SiteMinder, but ultimately any reverse proxy will do. That said, WebSockets must be supported.

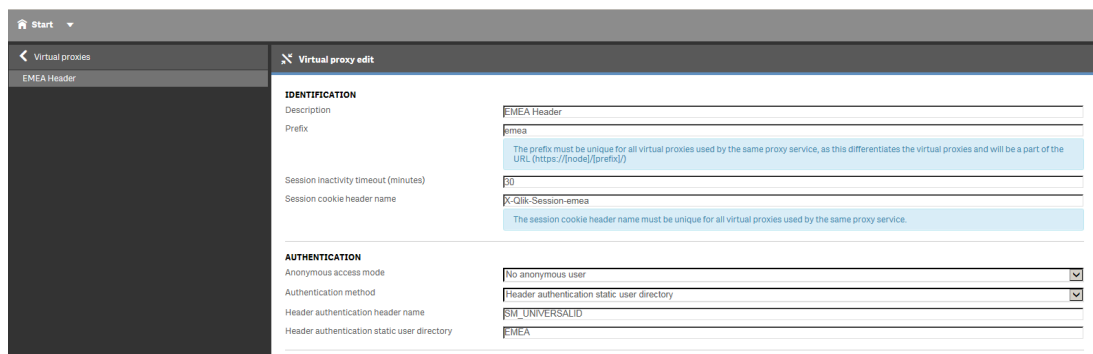
Refer to the Appendix for web server setup guides.



The screenshot shows the 'Virtual proxies' management interface. At the top, it indicates 'Total: 5' and 'Showing: 5'. Below is a table with the following columns: Description, Prefix, Session cookie header name, Is default virtual proxy, and Linked to proxy service. The table lists five proxies: AMERICAS Header, APAC Header, Central Proxy (Default), EMEA Header, and login.

Description	Prefix	Session cookie header name	Is default virtual proxy	Linked to proxy service
AMERICAS Header	americas	X-Qlik-Session-americas	No	Yes
APAC Header	apac	X-Qlik-Session-apac	No	Yes
Central Proxy (Default)		X-Qlik-Session	Yes	Yes
EMEA Header	emea	X-Qlik-Session-emea	No	Yes
login	login	X-Qlik-Session-login	No	Yes

Important – “Session cookie header” name(s) must be:

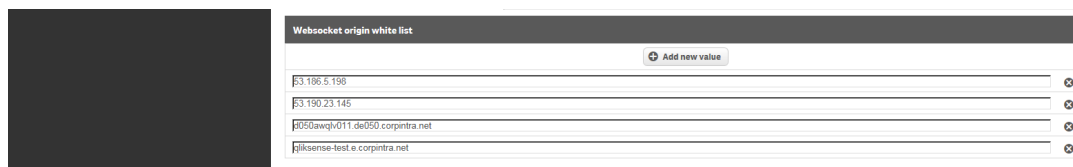


The screenshot shows the 'Virtual proxy edit' form for the 'EMEA Header' proxy. It is divided into two main sections: IDENTIFICATION and AUTHENTICATION. The IDENTIFICATION section includes fields for Description, Prefix, Session inactivity timeout (minutes), and Session cookie header name. The AUTHENTICATION section includes checkboxes for Anonymous access mode and Header authentication static user directory, and text fields for Header authentication header name and Header authentication static user directory.

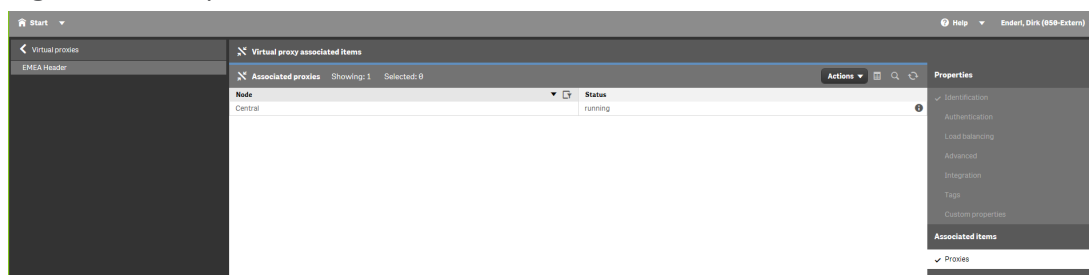
IDENTIFICATION	
Description	EMEA Header
Prefix	emea
Session inactivity timeout (minutes)	30
Session cookie header name	X-Qlik-Session-emea

AUTHENTICATION	
Anonymous access mode	<input checked="" type="checkbox"/> No anonymous user
Header authentication static user directory	<input checked="" type="checkbox"/>
Header authentication header name	SM_UNIVERSALID
Header authentication static user directory	EMEA

In order for Qlik Sense to be accessed, the “Websocket origin white list” must be properly maintained. Here we have the the local IP (public network card) and the computer’s FQDN.

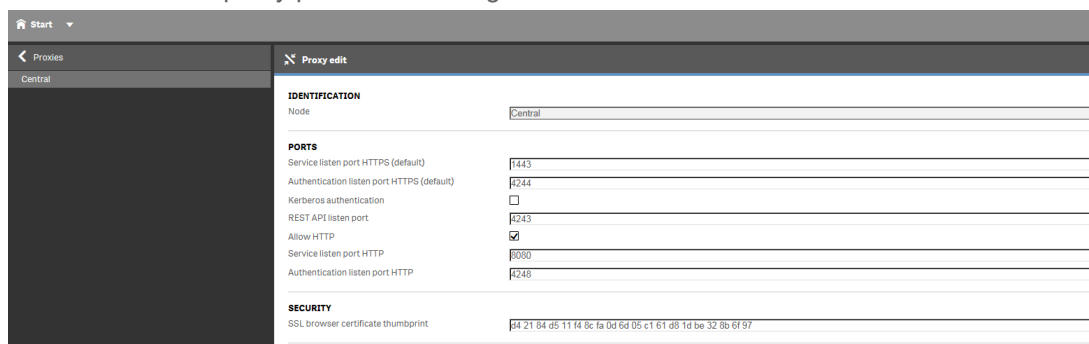


You must then link the virtual proxy to the default proxy. **If the link (Association) is not made, users will receive a 404 error in the hub when attempting to connect via the virtual proxy (example: the EMEA region for access).**



If IIS and Qlik Sense are running on the same server, you will need to change the default port values. The example here shows:

- Running IIS on port 443
- Qlik Sense proxy port 80 is changed to 8080
- Qlik Sense proxy port 443 is changed to 1443



Note: After this change, you will need to use port 1443 to access the QMC!

You will also need to make sure you have licensed your Qlik Sense environment to give users access. Here we are giving users “User access allocations” so they can get access to the Hub. **Important – Unlicensed access to the Qlik Sense Hub is not possible (different to the QlikView AccessPoint, which could be opened without a license)**

User access allocations				
Total: 7 Showing: 7 Selected: 0				
Name	User directory	Status	Last used	
Baluktsian, Angela (050)	EMEA	Allocated	2016-03-09 19:07	
denderl	APAC	Allocated	2016-03-10 10:32	
denderl	AMERICAS	Allocated	2016-03-10 10:31	
E050_APPS_a_denderl	EMEA	Allocated	2016-02-29 11:54	
E050_APPS_a_yitoker	EMEA	Allocated	2015-12-11 13:15	
Enderl, Dirk (050-Extern)	EMEA	Allocated	2016-03-10 10:32	
Rottler, Christian (050-Extern)	EMEA	Allocated	2016-02-13 11:33	

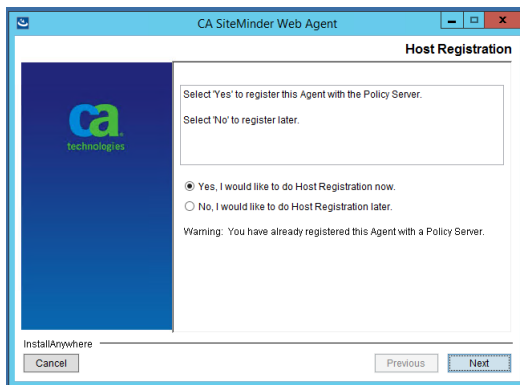
SiteMinder Policy Server

The authentication header "SMUNIVERSAL_ID" must be sent in **all** requests that go to the Qlik Sense proxy (port 1443). SiteMinder is configured in that the default settings specify that no headers will be sent with specific file extensions (such as .js, .css, .png... etc). These defaults are not sufficient for Qlik Sense when using the authentication header. The solution is to configure the "IgnoreExt" parameter on the policy server (not local Web Agent), so it allows extensions with headers.

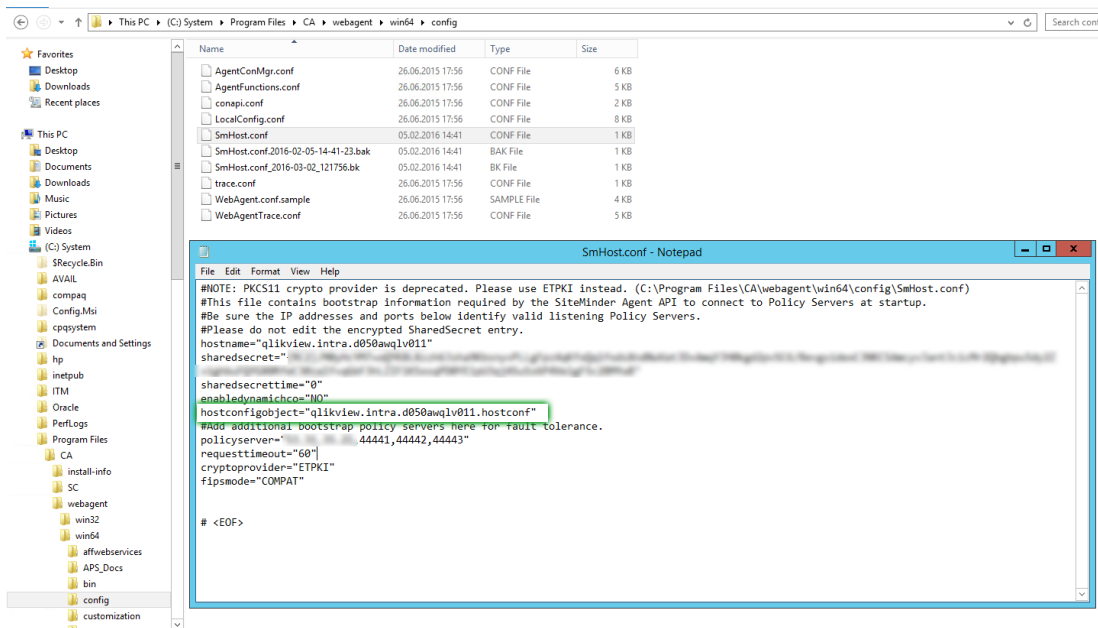
- "IgnoreExt" is the keyword. This is a parameter is used to specify that URLs with a specific extension should be ignored. By default, this flag is turned off, so that SiteMinder authentication checks all URLs. The parameter is used only for the WebAgent, so no change are required for the AppServer.

SiteMinder Web Agent

Install SiteMinder Web Agent



Check that the correct "hostconfigobject" is used:



The following configuration files must be available:

The screenshot displays two Windows File Explorer windows. The top window shows the 'config' directory under 'Program Files > CA > webagent > win64'. It contains a list of files including AgentConMgr.conf, AgentFunctions.conf, conapi.conf, LocalConfig.conf, SmHost.conf, SmHost.conf.2016-02-05-14-41-23.bak, SmHost.conf.2016-03-02_121756.bk, trace.conf, WebAgent.conf.sample, and WebAgentTrace.conf. The bottom window shows the 'IIS' directory under 'Program Files > CA > webagent > win64 > bin'. It contains a list of files including AgentId.dat, LocalConfig.conf, LocalConfig.modifies.conf, WebAgent - Copy.conf, WebAgent.conf, and WebAgent.conf.2016-03-02-12-19-04.bak. Both windows have Notepad open, displaying the contents of LocalConfig.conf and WebAgent.conf respectively.

LocalConfig.conf - Notepad

```
# LocalConfig.conf - sample local configuration file for SiteMinder Web Agents
#
# Make a copy of this file and modify that copy with desired local configuration settings.
# '#' is used as a comment character at the beginning of a line. Values commented out
# can be uncommented once proper values are specified. Many such values in this
# sample file are verbose explanations of what values should be used and not the
# values themselves. To uncomment a line simply remove the '#' from the beginning
# of the line.
#
# Most parameters in this file are also valid in an Agent Configuration Object.
# The exceptions are AgentConfigObject, EnableWebAgent, and HostConfigFile.
#
#4xCompatMode=""
#AgentName="<Agent Name>,<IPAddress>"
#AgentNamesAreFQHostNames="NO"
#AgentWaitTime="5"
#AppendIISServerLog="NO" For IIS and SharePoint
#AutoAuthorizeOptions=""
#BadCSSChars="<,>,';'"
#BadFormChars="<,>,&,%22"
```

IIS

WebAgent.conf - Notepad

```
# WebAgent.conf - configuration file for SiteMinder Web Agent
# Web Agent Version = 12.52, Build = 766, Update = 1.2

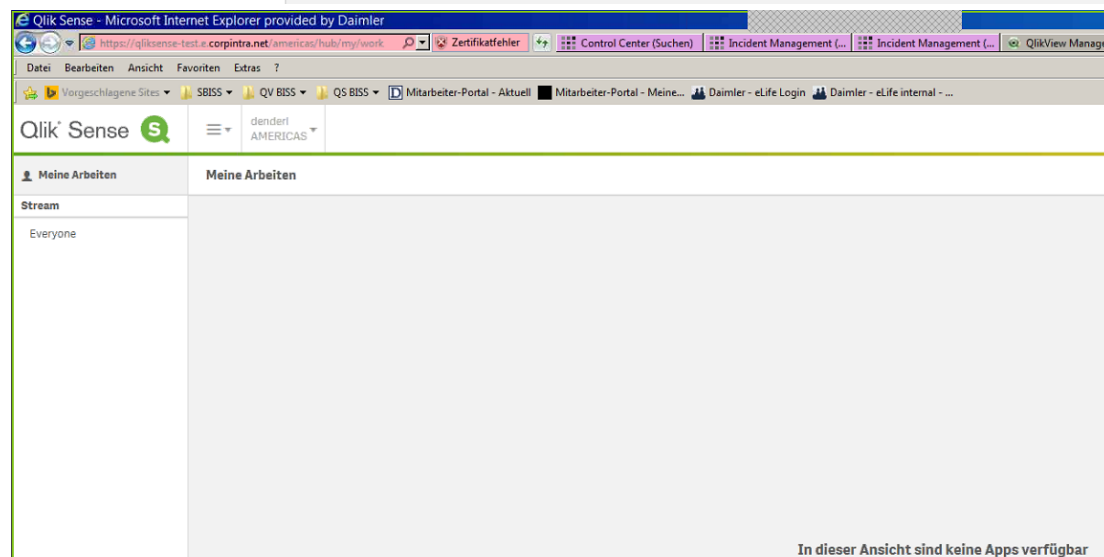
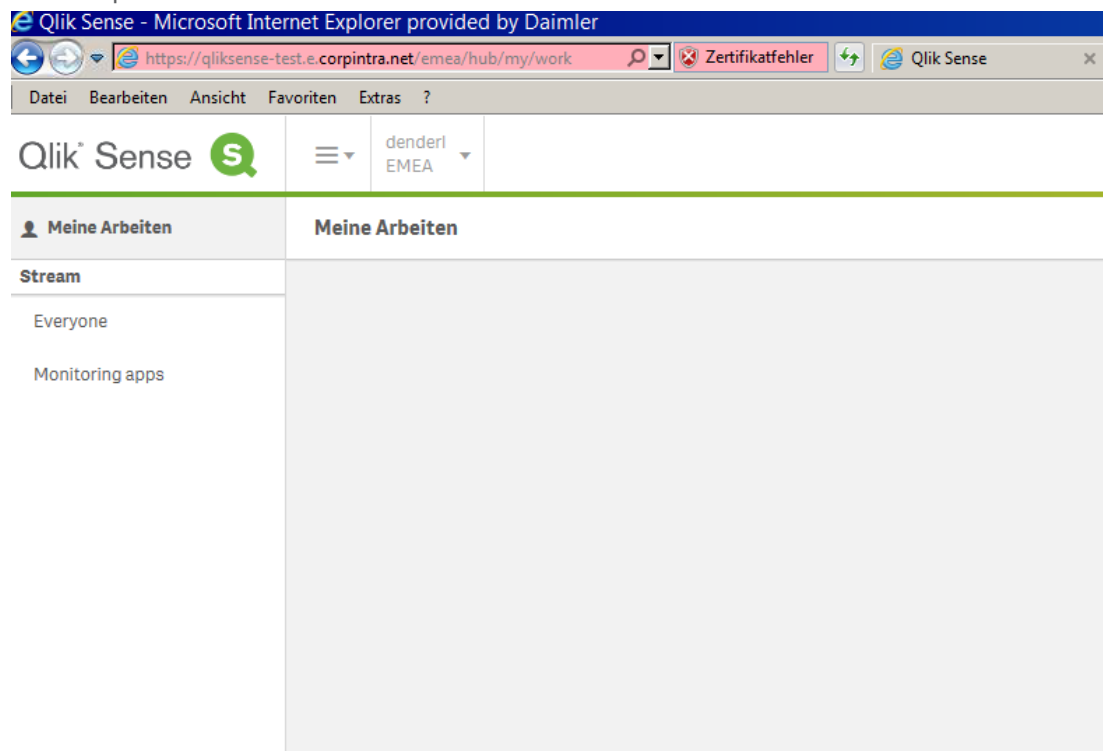
LOCALE=en-US

HostConfigFile="C:\Program Files\CA\webagent\win64\config\SmHost.conf"
AgentConfigObject="qlikview.intra.d050awqlv011.agentconf"
EnableWebAgent="YES"
ServerPath="W3SVC"
#LocalConfigFile="C:\Program Files\CA\webagent\win64\bin\IIS\LocalConfig.conf"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\HttpPlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\Affiliate10Plugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\SAMLAffiliatePlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\TSOPlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\IntroscopePlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\SAMLSDataPlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\OpenIDPlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\DisambiguatePlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\OAuthPlugin.dll"
LoadPlugin="C:\Program Files\CA\webagent\win64\bin\CertSessionLinkerPlugin.dll"
```

Test

Access the DNS name `qliksense-test.e.corpintra.net/emea`, or one of the following as defined in the virtual proxy step in the document:

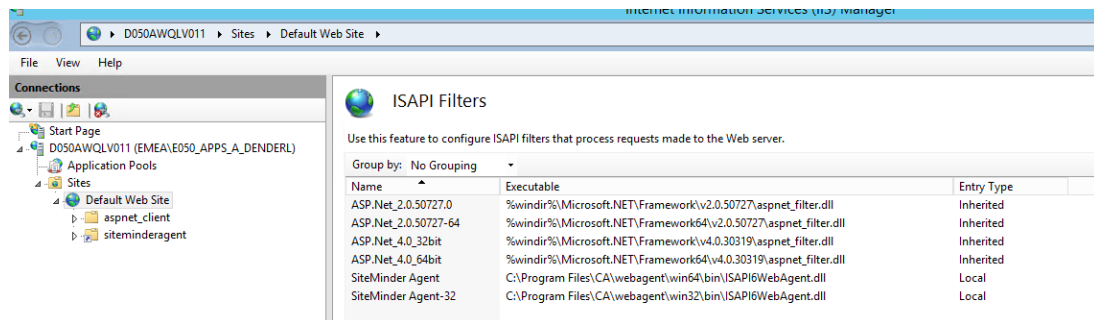
- `/emea` for users in EMEA
- `/americas` for users from AMERICA
- `/apac` for users in APAC



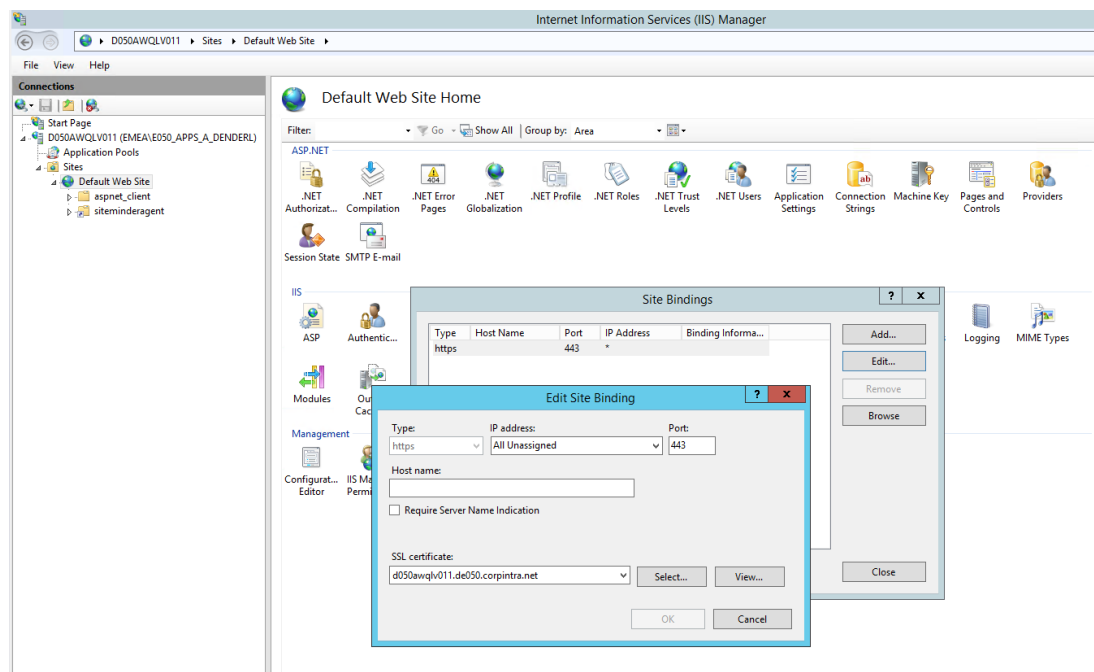
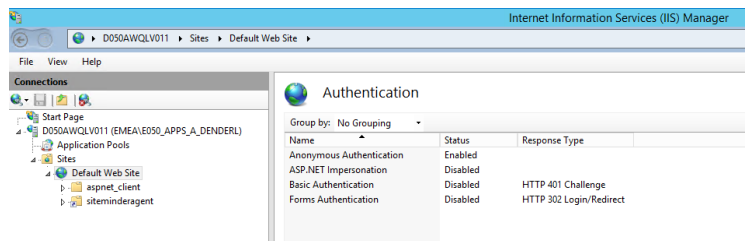
Appendix

Internet Information Services 8.5

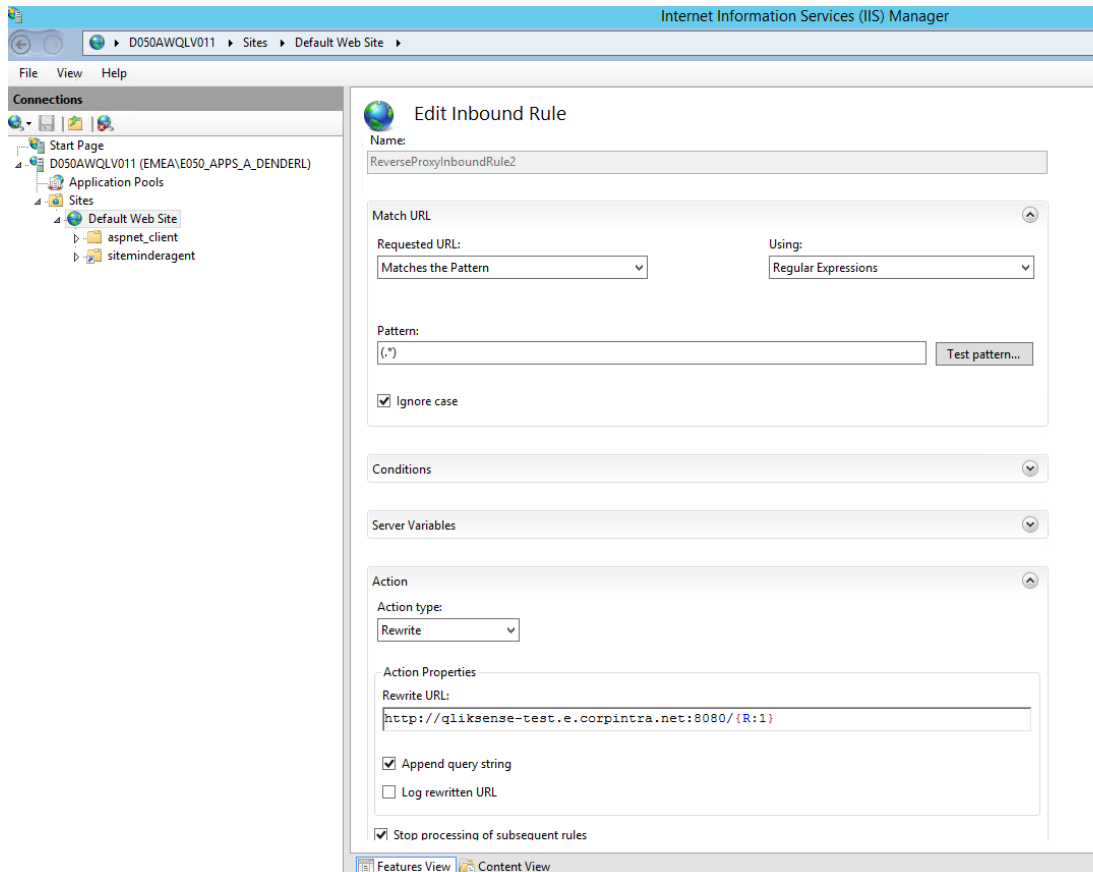
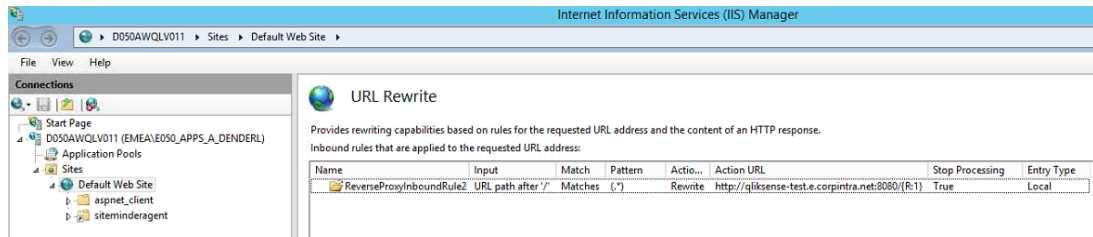
SiteMinder Web Agent must be integrated via ISAPI filter



Default Web Site configuration: Port binding of 443 with certificate and active anonymous authentication

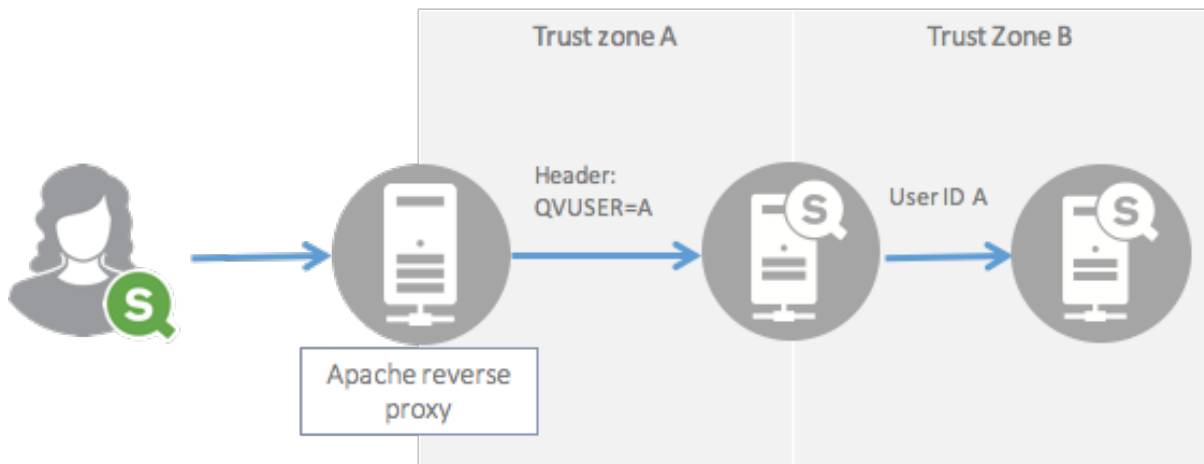


URL Rewrite module must be configured with a reverse proxy (forwarding on DNS name and port 8080)



Using Apache as a Reverse Proxy for Authentication with Qlik Sense

A common scenario that we have used with great success in QlikView is the use of a reverse proxy for authenticating the user. In these scenarios we use what we call header authentication which means that you add a HTTP header to the requests going to Qlik servers that it will trust and use as the user.



Important to maintain the security of this setup is that all traffic going to Qlik Sense need to go through the reverse proxy.

In Qlik Sense this architecture is not as common mainly based on the limited support for websockets in reverse proxies. But now there is a couple that you can use NGINX ([Reverse Proxy with Qlik Sense](#), [NGINX as reverse proxy with Qlik Sense](#)), IIS with Application Routing Request ([IIS as Reverse Proxy for Qlik Sense](#)) and Apache.

In this blog post I will try to explain one configuration that can be used to enable header authentication with Apache Reverse Proxy.

For this to work we need to build it on a Apache version that supports websockets (mod_wstunnel), so I recommend using a version after 2.4.10 as earlier versions even though they support websockets has buggy implementations.

So what configuration do we need to do?

In this example I will use two configuration files the httpd.conf which is the main configuration file for Apache and then httpd-vhosts.conf which is a config file for a virtual host but included in the httpd.conf

The first thing we need to do is to make sure the httpd.conf listen to the right port, in this example 9090

```
Listen 9090
```

We also have to make sure that the httpd.conf load the needed modules

```
LoadModule proxy_module libexec/apache2/mod_proxy.so
LoadModule rewrite_module libexec/apache2/mod_rewrite.so
LoadModule proxy_wstunnel_module libexec/apache2/mod_proxy_wstunnel.so
LoadModule proxy_http_module libexec/apache2/mod_proxy_http.so
LoadModule authn_file_module libexec/apache2/mod_authn_file.so
```

mod_auth_file is only needed for this example and in most cases this module should be replaced by a mod for the type of authentication the customer require.

We also have to make sure the httpd-vhosts.conf is loaded in the httpd.conf

```
# Virtual hosts
Include /private/etc/apache2/extra/httpd-vhosts.conf
```

Now when we are ready with the httpd.conf we can do the configuration of the httpd-vhosts.conf

- **Note that you will want to add your SiteMinder Header (example: "SMUNIVERSAL_ID") in this config file.**

```
# Virtual Hosts
#
# Required modules: mod_log_config
# If you want to maintain multiple domains/hostnames on your
# machine you can setup VirtualHost containers for them. Most configurations
# use only name-based virtual hosts so the server doesn't need to worry about
# IP addresses. This is indicated by the asterisks in the directives below.
#
# Please see the documentation at
# <URL:http://httpd.apache.org/docs/2.4/vhosts/>
# for further details before you try to setup virtual hosts.
#
# You may use the command line option '-S' to verify your virtual host
# configuration.
#
# Qlik Sense Reverse Proxy configuration for header authentication
#
# Qlik Sense configuration needed:
# - Create a new virtual proxy with header authentication static user directory (use
#   QVUSER as header name)
# - Add reverse proxy name and IP address to whitelist of virtual proxy
#Put IP address of reverse proxy as LOCAL_ADDR
#Put IP address of Qlik Sense server as REMOTE_ADDR
#Put your virtual proxy prefix as VIRTUAL_PROXY
#Put name of the HTTP header with the user name in USER_HEADER_FIELD
Define LOCAL_ADDR 10.88.148.228
Define REMOTE_ADDR 10.76.137.17
Define VIRTUAL_PROXY header
Define USER_HEADER_FIELD QVUSER
```

```

<VirtualHost *:9090>
    ServerAdmin name@qlik.com
    DocumentRoot "/Library/WebServer/Documents"
    ServerName ${LOCAL_ADDR}:9090
    ServerAlias reverse-proxy.rdlund.qliktech.com
    # ErrorLog "/var/log/apache2/reverse-proxy.rdlund.qliktech.com-error.log"
    # CustomLog "/var/log/apache2/reverse-proxy.rdlund.qliktech.com-access.log" common
    ProxyRequests Off
    ProxyPreserveHost On
    KeepAlive On

    RewriteEngine On

    #Add header to all requests with the user.
    RewriteRule .* - [E=PROXY_USER:%{LA-U:REMOTE_USER}]
    RequestHeader set ${USER_HEADER_FIELD} %{PROXY_USER}e
    # If it is a websocket request forward as websocket traffic
    RewriteCond %{HTTP:UPGRADE} ^WebSocket$ [NC]
    RewriteCond %{HTTP:CONNECTION} ^Upgrade$ [NC]
    RewriteRule .* ws://${REMOTE_ADDR}%{REQUEST_URI} [P]
    <Proxy *>
        Order deny,allow
        Allow from all
    </Proxy>
    #Protect location with appropriate authentication
    <Location /${VIRTUAL_PROXY}>
        ProxyPass http://${REMOTE_ADDR}/${VIRTUAL_PROXY} connectiontimeout=5
        timeout=300
        ProxyPassReverse http://${REMOTE_ADDR}/${VIRTUAL_PROXY}
        AuthType basic
        AuthName "private area"
        Require valid-user
        AuthBasicProvider file
        AuthUserFile /etc/apache2/extra/users
    </Location>
</VirtualHost>

```

There are a couple of important parts in this configuration file

```

#Add header to all requests with the user.
RewriteRule .* - [E=PROXY_USER:%{LA-U:REMOTE_USER}]
RequestHeader set ${USER_HEADER_FIELD} %{PROXY_USER}e

```

When a user is logged in to apache the user name is stored in the environment variable REMOTE_USER. With this rule we copy this user to a variable and then add the HTTP header QVUSER to all requests with the value of the user id of the logged in user.

```

# If it is a websocket request forward as websocket traffic
RewriteCond %{HTTP:UPGRADE} ^WebSocket$ [NC]
RewriteCond %{HTTP:CONNECTION} ^Upgrade$ [NC]
RewriteRule .* ws://${REMOTE_ADDR}%{REQUEST_URI} [P]

```

The second rule looks in the HTTP headers of requests coming in, if it contains the headers of a websocket upgrade we will forward this as websocket to the Qlik Sense server.

```
#Protect location with appropriate authentication
<Location /${VIRTUAL_PROXY}>
  ProxyPass http://${REMOTE_ADDR}/${VIRTUAL_PROXY} connectiontimeout=5
  timeout=300
  ProxyPassReverse http://${REMOTE_ADDR}/${VIRTUAL_PROXY}
  AuthType basic
  AuthName "private area"
  Require valid-user
  AuthBasicProvider file
  AuthUserFile /etc/apache2/extra/users
</Location>
```

Then we add a default location and protect it using authentication. In this example I've used the build in `mod_auth_file` module for authentication but this should be replaced by what is needed by the customer (SAML, OAuth, LDAP....)

With this configuration, we now have setup Apache to be able to act as a reverse proxy for Qlik Sense. Next step is to configure Qlik Sense

Qlik Sense configuration

The configuration in Qlik Sense consists of adding a Virtual Proxy, configure it for header authentication and adding the Reverse Proxy IP/DNS name to the whitelist.

Below are screenshots of the configuration of the header authentication needed

IDENTIFICATION

Description: header

Prefix: header

Session inactivity timeout (minutes): 30

Session cookie header name: X-Qlik-Session-header

AUTHENTICATION

Anonymous access mode: No anonymous user

Authentication method: Header authentication static user directory

Header authentication header name: QVUSER

Header authentication static user directory: ABC

Here we have configured a Virtual proxy for header authentication. In this case we don't use a prefix but that could be used if needed. We changed the name of the cookie and selected "Header authentication static user directory" as the Authentication method. We added the header name as QVUSER and configured that the users coming in would belong to the UD named ABC.

Then we also add the IP address of the reverse proxy to the whitelist. In most configurations we should also add the DNS name of the reverse proxy.

Edit virtual proxy

IDENTIFICATION

Description

header

Prefix

header

The prefix must be unique for all virtual proxies used by the same proxy service, as this differentiates the virtual proxies and will be a part of the URL (https://[node]/[prefix]/)

Session inactivity timeout (minutes)

30

Session cookie header name

X-Qlik-Session-header

The session cookie header name must be unique for all virtual proxies used by the same proxy service.

ADVANCED

Extended security environment

☐

Select the checkbox to send extended information about the client environment to the engine: OS, device, browser, and IP. Using extended client information will prevent shared app usage between devices and different browser types.

Session cookie domain

Additional response headers

Host white list

+ Add new value

10.88.148.228

With this configuration we are now ready to use the reverse proxy and authenticate to Qlik Sense by writing `http://[Reverse proxy]:9090/hub` in the browser

The configuration of the examples can be found here:

<https://github.com/flautrup/QlikSenseApacheReverseProxy>

References

Lautrup, F. (2016, Sep. 21). Using Apache as a Reverse Proxy for Authentication with Qlik Sense.

Nünning, F. (2016, Mar. 10). Daimler - Qlik Sense / SiteMinder Integration.



150 N. Radnor Chester Road
Suite E120
Radnor, PA 19087
Phone: +1 (888) 828-9768
Fax: +1 (610) 975-5987

qlik.com



© 2017 QlikTech International AB. All rights reserved. Qlik®, Qlik Sense®, QlikView®, QlikTech®, Qlik Cloud®, Qlik DataMarket®, Qlik Analytics Platform®, Qlik NPrinting™, Qlik Connectors™, Qlik GeoAnalytics™ and the QlikTech logos are trademarks of QlikTech International AB which have been registered in multiple countries. Other marks and logos mentioned herein are trademarks or registered trademarks of their respective owners.