Asset Manager

Software Version: 9.63

Windows® and Linux® operating systems

Web Implementation

Document Release Date: April 2017

Software Release Date: April 2017

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Chapter 1: Introduction

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Overview of this guide

This guide brings together information specific to implementations of Asset Manager Web:

- Installation and upgrade
- Single Sign-On implementation
- Two-way SSL implementation
- Customization
- Differences between the Windows and Web clients
- Troubleshooting and tips

Who is this guide intended for?

This guide is intended for:

- Administrators and support staff responsible for implementing, customizing and troubleshooting Asset Manager Web
- End users who would like to understand the differences between the Windows and Web clients

Chapter 2: Installation and upgrade

Installation and upgrade of Asset Manager Web is fully described in the **Installation and upgrade** guide, chapter **Installing, configuring, removing and updating Asset Manager Web**.

Chapter 3: Implementing Single Sign-On

User access to the Asset Manager database can be managed via different authentication systems.

Some of these systems enable Asset Manager Web to access the Asset Manager database using authentication information that they have already provided when accessing another system, and do not require users to re-authenticate.

> **Note: Single Sign-On (SSO) definition** A directory-based software solution that provides an organization's network users seamless access to all authorized resources after users have completed a single network authentication procedure.
>
> A single password lets a user access all multi-platform applications and systems in the organization. Once the user has entered their password during initial authentication, the directory (for example, Active Directory under Windows) sends the password automatically to all other applications that require it without requesting the password information from the user again.
>
> A user can only log on to one active session of the Web client.

> **Caution:** To implement Single Sign-On, Asset Manager Web must be specially configured for use with Single Sign-On.

Single Sign-On implementation is fully described in the **Administration** guide, chapter **Controlling access to the database**, section **Managing user authentication for the Asset Manager database**.

Chapter 4: Implementing two-way SSL

Asset Manager Web client supports the Secure Sockets Layer (SSL) certificate authentication to secure the communication between the web browser and the application servers.

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Overview

Asset Manager supports both of the two connection modes of the SSL: one-way and two-way. In the one-way mode, only the server certificate is verified while the client remains anonymous. In the two-way mode, which is more secure than the one-way mode, the client also holds a certificate so that both the server and client side can verify each other by scrutinizing the identity information in the certificate.

Asset Manager has two levels of two-way SSL implementation.

- Level 1: in this level, the end user needs to provide both the certificate and the account information (login name and password) to log in the Web client.
- Level 2: in this level, the end user only needs to provide the certificate to log in the Web client.

Prerequisites

The identity certificates used in the SSL authentication can be either signed by the certificate creator or by a third-party certificate authority (CA). Before you start to configure the two-way SSL in your Asset Manager system, you have to decide whether you are going to sign your certificate by yourself or a third-party CA. If you choose the former, you have to generate your own CA key and use it to sign the identity certificates.

The following instructs how to generate your own CA key using OpenSSL key tool.

1. Create a private key **ca-key.pem**.

   ```
   C:\OpenSSL\bin>openssl genrsa -out ca/ca-key.pem 1024
   ```

2. Create a certificate signing request (CSR) **ca-req.csr**.

   ```
   C:\OpenSSL\bin>openssl req -sha256 -new -out ca/ca-req.csr -key ca/ca-key.pem
   -----
   Country Name (2 letter code) [AU]:CountryName
   State or Province Name (full name) [Some-State]:StateName
   Locality Name (eg, city) []:CityName
   Organization Name (eg, company) [Internet Widgits Pty Ltd]:OrganizationName
   Organizational Unit Name (eg, section) []:UnitName
   Common Name (eg, YOUR name) []:Root
   Email Address []:ca@OrganizationName.com
   ```

3. `C:\OpenSSL\bin>openssl x509 -req -sha256 -in ca/ca-req.csr -out ca/ca-cert.pem -signkey ca/ca-key.pem -days 3650`

   Use the private key **ca-key.pem** to sign the **ca-req.csr**.

4. Change the suffix of **ca-cert.pem** to **.crt** so that it can be exported to the Internet Explorer as the trusted root certificate.

Configuring Level 1 two-way SSL

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Preparing certificates and trust stores

Certificate for end users

The following uses an example (an end user named Gerald, Colombo) to instruct you how to generate a certificate for an end user.

1. Create a private key **client-key.pem**.

   ```
   C:\OpenSSL\bin>openssl genrsa -out client/client-key.pem 1024
   ```

2. Create a certificate signing request (CSR) **client-req.csr**.

   ```
   C:\OpenSSL\bin>openssl req -sha256 -new -out client/client-req.csr -key
   client/client-key.pem
   -----
   Country Name (2 letter code) [AU]:ca
   State or Province Name (full name) [Some-State]:Ontario
   Locality Name (eg, city) []:Toronto
   Organization Name (eg, company) [Internet Widgits Pty Ltd]:HP
   Organizational Unit Name (eg, section) []:Finance
   Common Name (eg, YOUR name) []:GeraldColombo
   Email Address []:Gerald.Colombo@hp.com
   Please enter the following 'extra' attributes
   to be sent with your certificate request
   A challenge password []:123456
   An optional company name []:Hewlett-Packard
   ```

3. If you choose the third-party CA to sign your key, send the CSR to the CA. Then you will receive the signed certficate from the CA.

   If you choose to act as the CA by yourself, sign the **client-req.csr** using the CA keys generated before

   ```
   C:\OpenSSL\bin>openssl x509 -req -sha256 -in client/client-req.csr -out
   client/client-cert.pem -signkey client/client-key.pem -CA ca/ca-cert.pem -CAkey
   ca/ca-key.pem -CAcreateserial -days 3650
   ```

4. Export the end user certficate **client-cert.pem** into PKCS #12 format **client.p12**.

```
C:\OpenSSL\bin>openssl pkcs12 -export -clcerts -in client/client-cert.pem -
inkey client/client-key.pem -out client/client.p12
Password: changeit
```

Certificate for Web Tier application server

1. Create a private key **webtier-key.pem**

```
C:\OpenSSL\bin>openssl genrsa -out webtier/webtier-key.pem 1024
```

2. Create a certificate request **webtier-req.csr**.

```
C:\OpenSSL\bin>openssl req -sha256 -new -out webtier/webtier-req.csr -key
webtier/webtier-key.pem
-----
Country Name (2 letter code) [AU]:ca
State or Province Name (full name) [Some-State]:Ontario
Locality Name (eg, city) []:Toronto
Organization Name (eg, company) [Internet Widgits Pty Ltd]:HP
Organizational Unit Name (eg, section) []:Finance
Common Name (eg, YOUR name) []: webtier
Email Address []:webtier@hp.com
Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:123456
An optional company name []:tsing
```

3. If you choose the third-party CA to sign your key, send the CSR to the CA. Then you will receive the signed certificate from the CA.

   If you choose to act as the CA by yourself, sign the **webtier-req.csr** using the CA keys generated before.

```
C:\OpenSSL\bin>openssl x509 -req -sha256 -in webtier/webtier-req.csr -out
webtier/webtier-cert.pem -signkey webtier/webtier-key.pem -CA ca/ca-cert.pem -
CAkey ca/ca-key.pem -CAcreateserial -days 3650
```

4. Export the Web Tier certificate **webtier-cert.pem** into PKCS #12 format **webtier.p12**.

```
C:\OpenSSL\bin>openssl pkcs12 -export -clcerts -in webtier/webtier-cert.pem -
inkey webtier/webtier-key.pem -out webtier/webtier.p12
Password: changeit
```

Certificate for Web Service application server

1. Create a private key **webservice-key.pem**.

   ```
   C:\OpenSSL\bin>openssl genrsa -out webservice/webservice-key.pem 1024
   ```

2. Create a certificate request **webservice-req.csr**.

   ```
   C:\OpenSSL\bin>openssl req -sha256 -new -out webservice/webservice-req.csr -key
   webservice/webservice-key.pem
   -----
   Country Name (2 letter code) [AU]:ca
   State or Province Name (full name) [Some-State]:Ontario
   Locality Name (eg, city) []:Toronto
   Organization Name (eg, company) [Internet Widgits Pty Ltd]:HP
   Organizational Unit Name (eg, section) []:Finance
   Common Name (eg, YOUR name) []: webservice
   Email Address []: webservice@hp.com
   Please enter the following 'extra' attributes
   to be sent with your certificate request
   A challenge password []:123456
   An optional company name []:tsing
   ```

3. If you choose the third-party CA to sign your key, send the CSR to the CA. Then you will receive the signed certificate from the CA.
   If you choose to act as the CA by yourself, sign the **webservice-req.csr** using the CA keys generated before.

   ```
   C:\OpenSSL\bin>openssl x509 -req -sha256 -in webservice/webservice-req.csr -out
   webservice/webservice-cert.pem -signkey webservice/webservice-key.pem -CA
   ca/ca-cert.pem -CAkey ca/ca-key.pem -CAcreateserial -days 3650
   ```

4. Export the Web Service certificate **webservice-cert.pem** into .p12 format **webservice.p12**

   ```
   C:\OpenSSL\bin>openssl pkcs12 -export -clcerts -in webservice/webservice-
   cert.pem -inkey webservice/webservice-key.pem -out webservice/webservice.p12
   Password: changeit
   ```

Trust store

A trust store is a repository for trusted certificates or keys. Tomcat currently operates with JKS, PKCS11 or PKCS12 format keystores. The JKS format is Java's standard "Java KeyStore" format, and is the format created by the keytool command-line utility which is included in the JDK.

- For the end user who accesses the Web client through Internet Explorer, there is no need to generate the trust store. Import the **ca-cert.crt** to the trusted root of Internet Explorer, then the Internet Explorer will recognize the certificates signed by the CA.

- For the Web Tier and Web Service, use the following command (where **C:\Java\jdk** is the <JDK installation folder>, you can replace it with the directory in your own environment.) to import the **ca-cert.pem** to the trust store, so that they can recognize all certificates issued by the CA.

  a. Generate the trust store for Web Tier.

  ```
  C:\Java\jdk\bin>keytool -keystore C:\jks\wt-truststore.jks -keypass 222222 -
  storepass 222222 -alias ca -import -trustcacerts -file C:\ca\ca-cert.pem
  ```

  b. Generate the trust store for Web Service.

  ```
  C:\Java\jdk\bin>keytool -keystore C:\jks\ws-truststore.jks -keypass 222222 -
  storepass 222222 -alias ca -import -trustcacerts -file C:\ca\ca-cert.pem
  ```

Configuring the Web Tier and Web Service application server

The following instructs how to configure your Web Tier and Web Service application server if they are deployed in seperate Tomcat instances.

1. Copy the **webtier.p12** and **wt-truststore.jks** file to your <Web Tier Tomcat instance installation folder>.
2. Add the following scripts into <Web Tier Tomcat instance installation folder>\conf\server.xml.

```
<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
               maxThreads="150" scheme="https" secure="true"
               clientAuth="true" sslProtocol="TLS"
               keystoreFile="<Web Tier Tomcat instance installation
folder>\webtier.p12" keystorePass="changeit" keystoreType="PKCS12"
               truststoreFile="<Web Tier Tomcat instance installation
folder>\wt-truststore.jks" truststorePass="222222" truststoreType="JKS"/>
```

3. Copy the **webservice.p12** and **ws-truststore.jks** file to your <Web Service Tomcat instance installation folder>.
4. Add the following scripts into <Web Service Tomcat instance installation folder>\conf\server.xml.

```
<Connector port="8442" protocol="HTTP/1.1" SSLEnabled="true"
               maxThreads="150" scheme="https" secure="true"
               clientAuth="true" sslProtocol="TLS"
               keystoreFile="<Web Service Tomcat instance installation
folder>\webservice.p12" keystorePass="changeit" keystoreType="PKCS12"
               truststoreFile="<Web Service Tomcat instance installation
folder>\ws-truststore.jks" truststorePass="222222" truststoreType="JKS"/>
```

> **Note:** If your Web Tier and Web Service share the same Tomcat instance, you only need to generate one keystore and one truststore file, copy them to the shared Tomcat instance installation folder and configure the shared **server.xml** file correspondingly.

Configuring the Internet Explorer

You need to import the root certificate and client certificate into your Internet Explorer.

Import the root certificate

Internet Explorer maintains a list of trusted root certificates issued by the mainstream registered CAs. If your certificates are issued by these CAs, you do not need to import the root certificate.

However, if your CA is not included in the list or you are using the self-signed certificate, you need to import the public key of your CA into the list of Trusted Root Certification Authorities.

1. Select **Tools/ Internet Options** from Internet explorer.
2. Select the **Content** tab.
3. Click **Certificates**.
4. In the **Trusted Root Certification Authorities** tab, import the root certificate (the **ca-cert.crt** file if you followed this document to sign your own certificates).

   > **Tip:** You do not always need to follow the foregoing steps to import the root certificate. Some certification authorities might prompt you whether you want to trust the certificates issued by them, you only need to follow the promptings and then the root certificate is automatically added to the list of Trusted Root Certification Authorities.

Import the client certificate

1. Select **Tools/ Internet Options** from Internet explorer.
2. Select the **Content** tab.
3. Click **Certificates**.
4. In the **Personal** tab, import the client certificate **client.p12**.

Validating the configuration

After you have finished the configuration, any page of Asset Manager Web client can be requested over a secure socket by prefixing the address with **https:** instead of **http:**. Launch your Web client by accessing **https://<IP of your Web Tier application server>:8443/AssetManager**, note that there is a lock icon beside the address bar.

> **Note:** If you have enabled Level 1 two-way SSL and you are redirected to login page, you can simply leave the user name and password empty and click the **Log in** button to log in with client certificate.

References

The following table lists a reference of the files used in the Level 1 two-way SSL configuration.

	Internet Explorer	Web Tier	Web Service
Certificates	Client.p12	Webtier.p12	Webservice.p12
Trust stores	(Optional) Import the CA public key (ca-cert.crt) to the trusted root	wt-truststore.jks	ws-truststore.jks
Tomcat instance configuration files	NA	<Web Tier Tomcat instance installation folder>\conf\server.xml	<Web Service Tomcat instance installation folder>\conf\server.xml

Configuring Level 2 two-way SSL

There are two phases of authentication in Level 2 two-way SSL. Phase one is the authentication between the end user and the Web Tier; Phase two is the authentication between the Web Tier and Web Service.

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Preparing certificates and trust stores

Certificate for end users

The certificate for the end user in Level 2 two-way SSL authentication is generated in the same way as that in the Level 1 two-way SSL authentication.

See "Certificate for end users" on page 12.

Certificate for Web Tier application server

Web Tier holds two certificates which are used in the two phases of authentication respectively. One is for the end user to recognize the Web Tier, and the other is for the Web Service to verify its identity and allow its access. If you have more than one Web Tier application server, you have to generate two certificates for each of them.

Certificate to prove identity to the end user

This certificate is generated in the same way as the Web Tier certificate in Level 1 two-way SSL authentication.

See "Certificate for Web Tier application server" on page 13.

Certificate to prove identity to the Web Service

Generate the certification using the following command:

```
keytool -genkey -v -alias tomcat -keyalg RSA -keystore "C:\apache-
tomcat\wtws.keystore" -dname
"CN=webtierwebservice,OU=Finance,O=HP,L=Toronto,ST=Ontario,C=ca" -storepass
password -keypass password
```

Where **C:\apache-tomcat** is the <Web Tier Tomcat instance installation folder>, you can replace it with the directiory in your own environment.

Certificate for Web Service application server

This certificate is generated in the same way as the Web Service certificate in Level 1 two-way SSL authentication.

See "Certificate for Web Service application server" on page 14.

Trust store

For the end user who accesses the Web client through Internet Explorer, there is no need to generate the trust store. Import the **ca-cert.crt** to the trusted root of Internet Explorer, then the Internet Explorer will recognize the certificates signed by the CA.

The trust stores for the Web Tier and Web Service are generated in the same way as those in the Level 1 two-way SSL authentication except that you have to import the **wtws.keystore** to the trust store of the Web Service **ws-truststore.jks**, so that Web Service can recognize the **wtws.keystore** certificate from Web Tier.

1. Refer to Trust store to generate the **wt-truststore.jks** and **ws-truststore.jks**.
2. Import **wtws.keystore** to **ws-truststore.jks** using the following commands.

```
keytool -export -alias tomcat -file wtws.crt -keystore wtws.keystore

keytool -import -alias wtws -file wtws.crt -keystore ws-truststore.jks
```

Mapping the certificate DNs to the Asset Manager users

To ensure that the end users can log in the Web client without entering their user name and password, you should map the certificate DNs to the Asset Manager users.

When end users attempt to log in, Asset Manager scans their certificate DNs and match them with the DN information stored in the database. If a matched DN information is found, then Asset Manager identifies the login user as the matched user in the database and allows the login.

By default, the DN information is stored in the **Ldap DN** field on the Employees and departments table (amEmplDept). You can specify other fields to contain the DN information.

1. Log in Asset Manager Windows Client as 'Admin'.
2. Select **Administration/ Database options** from the main menu.
3. Select the **HTTPS** section from the **Edit options** window.
4. Select **Field1** (for example) for the **Current value** property.

> **Note:** If you leave the **Current value** property of the **HTTPS** section as default, you can either use the **sync_dn.scn** scenario to automatically import the DNs from LDAP server to the Asset Manager database in batch or manually populate the DN for each Asset Manager user one by one.

Mapping the Web Tier certificate (webtier.p12) DN to an employee with Administration rights

Choose an existing employee or create a new employee record in the employee list to act as the Web Tier role, and map the Web Tier certificate DN to this record. The employee recognized as the Web Tier should be entitled with the Administration rights. If you have more than one Web Tier application server, select or create several employee records and map them with each of the Web Tier DNs. The following takes the 'Admin' record as an example.

1. Log in Asset Manager Windows Client as 'Admin'.
2. Select **Organization management/ Organization/ Employees and departments** from the navigation bar.
3. Select the 'Admin' record and populate **Ldap DN** in the **Profile** tab with 'CN=webtierwebservice,OU=Finance,O=HP,L=Toronto,ST=Ontario,C=ca', which is the same with keystore in `wtws.keystore`.

> **Note:** The **Ldap DN** value should be consistent with the information in the Web Tier certification that is used to prove its identity to Web Service. You need to increase the length of Field1 in the Application Design to make sure it can contain the long DN information.

Mapping the end user certificate (client.p12) DNs to corresponding employees

- Manual mapping

  For each end user, map the certificate DN to the corresponding employee record. The following takes the 'Gerald Colombo' record as an example.

a. Log in Asset Manager Windows Client as 'Admin'.

b. Select **Organization management/ Organization/ Employees** from the navigation bar.

c. Select the Gerald Colombo record and populate **Ldap DN** in the **Profile** tab with 'EMAILADDRESS=Gerald.Colombo@hp.com, CN=GeraldColombo, OU=Finance, O=HP, L=Toronto, ST=Ontario, C=ca'.

- Using the **sync_dn.scn** scenario
  - Rules

    The **sync_dn.scn** scenario first imports the department DNs then the user DNs. It applies the following rules when reconciling the DNs from the LDAP server to the Asset Manager users.

    - Departments
      - **Rule 1**: the **Ldap DN** is the reconciliation key.
        If a record with the same **Ldap DN** is found in the amEmplDept table, update this record. Otherwise, turn to **Rule 2**.
      - **Rule 2**: the **Name** and the link **Parent** are combined as the reconciliation key.
        The **Name** and **Parent** are extracted from the 'OU' (Organizational Unit Name) and 'O' (Organization Name) property of the DN respectively. The **Parent** link is reconciled based on its **Ldap DN**. If the **Ldap DN** of the **Parent** is null, the **lParentId** is set to 0, indicating that the department has no parent. Otherwise, the parent is reconciled using **Rule 1** and **Rule 2** iteratively until the department has no parent.
    - Employees
      - **Rule 1**: the **Ldap DN** is the reconciliation key.
        Rule 1 of Employees reconciliation is the same as that of the Department reconciliation.
      - **Rule 2**: the **Name** and the link **Parent** are combined as the reconciliation key.
        The **Name** and **Parent** are extracted from the 'CN' (Common Name) and 'OU' (Organizational Unit Name) property of the DN respectively. The **Parent** link is reconciled based on its **Ldap DN**. Because the Department has been imported before, each employee should have a **Parent** link. Therefore, the **Parent** link can be reconciled successfully.
  - Process

    i. Start the HPE Connect-It scenario builder.

    ii. Open the **sync_dn.scn** scenario, which is located in the **/scenario/ldap/ldapam<Asset Manager version number >/** sub-folder of the HPE Connect-It installation folder.

    iii. Configure the LDAP connector.

iv. Configure the Asset Manager connector.

v. Launch the scenario.

Configuring the Web Tier

1. Specify the location of the certificate that Web Tier uses to prove its identity to the Web Service **wtws.keystore** and the location of the Web Tier trust store **wt-truststore.jks** by adding the following scripts in the <Web Tier Tomcat instance installation folder>\bin\catalina.bat.

   ```
   set JAVA_OPTS=%JAVA_OPTS%
   -Djavax.net.ssl.keyStore=C:\apache-tomcat\wtws.keystore
   -Djavax.net.ssl.keyStorePassword=password
   -Djavax.net.ssl.trustStore=C:\apache-tomcat\wt-truststore.jks
   -Djavax.net.ssl.trustStorePassword=222222
   ```

2. Modify the Web service url and Rest Web service url in **<Web Tier Tomcat instance installation folder>\webapps\AssetManager\WEB-INF\web.xml** so that Web Tier will need certificate authentication when accessing the Web service through this url.
   Modify the Replace the value of Web service url and Rest Web service url as follows:

   ```
     <env-entry>
   <description>Web  service  url</description>
   <env-entry-name>WebService.EndPoint.SOAP</env-entry-name>
   <env-entry-type>java.lang.String</env-entry-type>
   <env-entry-value>https://webservice:8442/AssetManagerWebService/services</env-
   entry-value>
   </env-entry>
   <env-entry>
   <description>Rest  Web  service  url</description>
   <env-entry-name>WebService.EndPoint.REST</env-entry-name>
   <env-entry-type>java.lang.String</env-entry-type>
   <env-entry-value>https://webservice:8442/AssetManagerWebService/rest</env-
   entry-value>
   </env-entry>
     <env-entry>
   <description>Rest Web service url</description>
   <env-entry-name>WebService.EndPoint.RS</env-entry-name>
   <env-entry-type>java.lang.String</env-entry-type>
   <env-entry-value>https://webservice:8442/AssetManagerWebService/rs</env-entry-
   value>
     </env-entry>
   ```

3. Add the 'acwc:x509ProcessingFilter' value to the filterInvocationDefinitionSource property (located in **<Web Tier Tomcat instance installation folder>\webapps\AssetManager\WEB-INF\classes\application-context.xml**).

```
<bean id="acwc:filterChainProxy"
class="org.acegisecurity.util.FilterChainProxy">
    <property name="filterInvocationDefinitionSource">
      <value>
        CONVERT_URL_TO_LOWERCASE_BEFORE_COMPARISON
        PATTERN_TYPE_APACHE_ANT
        /**=
acwc:ACSesssionSerializationFilter,acwc:httpSessionContextIntegrationFilter,acw
c:x509ProcessingFilter,acwc:preAuthenticationFilter,acwc:authenticationProcessi
ngFilter,acwc:ACPostAndInternalUrlFilter,acwc:filterSecurityInterceptor
      </value>
    </property>
  </bean>
```

> **Note:** Make sure that `acws:x509ProcessingFilter` must be between `acws:httpSessionContextIntegrationFilter` and `acwc:preAuthenticationFilter`.

4. **Optional**: Add the acwc:filterChainProxy value to the filterInvocationDefinitionSource property if you want to force the end users to access the Web client only on the security socket (through the https prefixed url).

> **Note:** You can also choose not to add this value, then users can access the Web client through both http and https prefixed urls.

5. Copy the **webtier.p12** and **wt-truststore.jks** file to your <Web Tier Tomcat instance installation folder>.

6. Modify the SSL parameters in **<Web Tier Tomcat instance installation folder>\conf\server.xml** as following:

```
<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
               maxThreads="150" scheme="https" secure="true"
               clientAuth="true" sslProtocol="TLS"
               keystoreFile="<Web Tier Tomcat instance installation
folder>\webtier.p12" keystorePass="changeit" keystoreType="PKCS12"
               truststoreFile="<Web Tier Tomcat instance installation
folder>\wt-truststore.jks" truststorePass="222222" truststoreType="JKS"/>
```

Configuring the Web Service

1. Add an <env-entry> section in the **<Web Service Tomcat instance installation folder>\webapps\AssetManageWebSevicer\WEB-INF\web.xml**. This <env-entry> is to identify whether the request comes from Web Tier or other third-party applications. The value in the <env-entry-value> tag is the DN of the certificate that Web Tier uses to present its identity to Web Service **wtws.p12**. If you have more than one Web Tier application server, enter all of their DNs and separate them with semicolon.

```
<env-entry>
       <description>Whether the request comes from WebTier</description>
       <env-entry-name>Webtier.DN</env-entry-name>
       <env-entry-type>java.lang.String</env-entry-type>
       <env-entry-
value>CN=webtierwebservice,OU=Finance,O=HP,L=Toronto,ST=Ontario,C=ca</env-
entry-value>
     </env-entry>
```

2. Add the 'acws-x509ProcessingFilter' value to the filterInvocationDefinitionSource property (located in **<Web Service Tomcat instance installation folder>\webapps\AssetManagerWebService\WEB-INF\spring\application-context.xml**).

```
<bean id="acws-filterChainProxy"
class="org.acegisecurity.util.FilterChainProxy">
   <property name="filterInvocationDefinitionSource">
     <value>
       CONVERT_URL_TO_LOWERCASE_BEFORE_COMPARISON
       PATTERN_TYPE_APACHE_ANT
       /**=acws-httpSessionContextIntegrationFilter,acws-
x509ProcessingFilter,acws-DNValidateFilter,acws-basicProcessingFilter,acws-
ExceptionTranslationFilter,acws-FilterSecurityInterceptor
     </value>
   </property>
 </bean>
```

> **Note:** Make sure that `acws-x509ProcessingFilter` must be between `acws-httpSessionContextIntegrationFilter` and `acws-DNValidateFilter`.

3. **Optional**: Add the acws-filterChainProxy value to the filterInvocationDefinitionSource property if you want to force the end users to access the Web client only on the security socket (through the https prefixed url).

> **Note:** You can also choose not to add this value, then users can access the Web client through both http and https prefixed urls.

4. Copy the **webservice.p12** and **ws-truststore.jks** file to your <Web Service Tomcat instance installation folder>.
5. Add the following scripts into <Web Service Tomcat instance installation folder>\conf\server.xml.

```
<Connector port="8442" protocol="HTTP/1.1" SSLEnabled="true"
               maxThreads="150" scheme="https" secure="true"
               clientAuth="true" sslProtocol="TLS"
               keystoreFile="<Web Service Tomcat instance installation
folder>\webservice.p12" keystorePass="changeit" keystoreType="PKCS12"
               truststoreFile="<Web Service Tomcat instance installation
folder>\ws-truststore.jks" truststorePass="222222" truststoreType="JKS"/>
```

Configuring the Internet Explorer

See "Configuring the Internet Explorer" on page 16 to configure the Internet Explorer.

Validating the configuration

Startup Tomcat and launch your Web client by accessing **https://<IP of your Web Tier application server>:8443/AssetManager** in Internet Explorer. Then, you can log in as Gerald, Colombo without entering the username and the password.

Using CAC/PIV device

CAC/PIV devices are often used in a mutual authentication.

You do not need to import the client and ca (optional) certificates manually to Internet Explorer. Instead, with a proper smart card reader such as ActivClient of ActivIdentity software, Internet Explorer will read your CAC/PIV device for client certificate and you only need to enter the SmartCard password.

Chapter 5: Customizing Asset Manager Web

Web client customization is fully described in the **Tailoring** guide, part **Customizing Web clients**.

In this part of the **Tailoring** guide, you will learn how to:

- Modify the Web client's default behavior
- Use business home pages
- Aggregate Asset Manager Web and HPE Service Manager Web menus

Tasks you need to do once the database has been customized are described in the **Tailoring** guide, part **Customizing the database**, chapter **Development best practices**, section **Tag the Web services**.

Chapter 6: Differences between the Windows client and the Web client

A user can access the Asset Manager database in different ways:

- Via the Windows client
- Via the Web client

This chapter describes the main differences that exist between both clients and includes:

Overview 27
Minimum client installation and configuration 28
Connecting to the Asset Manager database 28
Differences between the clients 29

Overview

For a standard user, working with Asset Manager consists mainly of managing information stored in the Asset Manager database.

In most cases, the database is stored on a server where it can be accessed by many users.

The Windows client and the Web client are components that allow users to access the Asset Manager database.

The main differences are presented in the following table. More details are given further in the guide.

	Windows client	**Web client**
Supported platforms	Windows	Platforms listed in the Asset Manager Support Matrix
Installation	User's workstation	Any Internet browser listed in the Asset Manager Support Matrix
Available functions	All available functions	Some functions are not available. More functions will be added to the Web client in future versions.

	Windows client	Web client
Interface	Traditional interface	Interface similar to common Web interfaces

Minimum client installation and configuration

- Windows client

  On each client station:

  a. Install the Windows client.

  b. Start the Windows client (**Start/ Programs/ HPE/ Asset Manager 9.63 <language>/ Client** Windows menu).

  c. Create the connection to the database (**File/ Manage connections** menu).

- Web client

  On each client station:

  a. Check that each station has one of the Internet browsers listed in the Asset Manager Support Matrix.

  b. Create a shortcut or bookmark that points to the desired language version of Asset Manager Web Tier.

Connecting to the Asset Manager database

- Windows client

  To connect to the Asset Manager database:

  a. Start the Windows client (**Start/ Programs/ HPE/ Asset Manager 9.63 <language>/ Client** Windows menu).
  The **Connect to database** window is displayed.

  b. Enter information provided by your company's Asset Manager administrator in the fields.

- Web client

  To connect to the Asset Manager database:

a. Start one of the Internet browsers listed in the Asset Manager Support Matrix.
b. Connect to Asset Manager Web Tier via the URL provided by your company's Asset Manager administrator.

Differences between the clients

This section describes the differences between the Web client and the Windows client.

This list is subject to change in future versions of Asset Manager.

This section includes:

Graphical interface 29
Record lists 36
Records detail 43
Actions on records 50
Actions (including wizards) 53
Reporting 59
Contracts 62
Procurement 63
Bar code 63
Helpdesk 64
Financials 64
Cable and Circuit 64
Advanced functions 65

Graphical interface

Select the display language for multilingual objects

Examples: Menu entries, labels of fields and links, error messages

- Windows client
  a. Add the parameters for the desired language in the Asset Manager database via Asset Manager Application Designer.
  b. Install the Asset Manager client in the desired language.
  c. Start the Windows client of the desired language.
- Web client
  a. Add the parameters for the desired language in the Asset Manager database via Asset Manager Application Designer.
  b. Install the desired language version of Asset Manager Web Tier and Asset Manager Web Service.
  c. Start a supported Internet browser.
  d. Connect to the desired language version of the Asset Manager Web Tier application.

> **Note:** You will need to install an Asset Manager Web Tier / Asset Manager Web Service combination in each of the desired languages.

Use shortcut menus

- Windows client

  When you right-click, a shortcut menu is displayed. Menu items on the shortcut menu depend on where the cursor is on the screen when you right-click.

  For example, in a list, a **Tree view** shortcut menu is available.

- Web client

  Shortcut menus are available in certain areas of the Web client, the menu items are equivalent to those drop-down lists that contain actions, filters and statistics which are valid for a given table or list.

Display multiple windows

- Windows client

  You can display several windows in the Asset Manager workspace.

- Web client

  Only one window at a time of the Asset Manager workspace can be displayed in the Internet browser.

Define interface options

- Windows client

  The **Edit/ Options** menu allows you to configure the behavior of the Windows client interface.

- Web client

  You can modify some of the web client's display parameters.

  See **Tailoring** guide, section **Customizing Web clients**, chapter **Modifying the Web client's default behavior**

Display a window

For example: Display the list and/or details for locations

- Windows client

  Windows are displayed via menu items:

  - On the menu bar
    For example: **Organization management/ Locations** menu
  - On the toolbar.
    For example: The **Locations** icon
  - On the navigation bar
    For example: **Organization management/ Organization/ Locations**

- Web client

  Windows are displayed by clicking the links on the navigation bar.

  For example: **Organization management/ Organization/ Locations**

Use Internet browser buttons

Example using Microsoft Internet Explorer. **Back** and **Forward** buttons

- Windows client

  This functionality is not available.

- Web client

Imagine that you want to change the value of the **FieldLinkX** field or link.

If you click one of the Internet Explorer browser buttons before clicking the **Save** button or before having selected another field or link, changes to **FieldLinkX** will not be saved when other changes are saved (using the **Save** button).

List and detail of records: Available display types

- Windows client

  The following display modes are available:

  - List only
  - Detail only
  - List and detail
- Web client

  The following display modes are available:

  - List only
  - Detail only

List and detail of records: Going from one display mode to another

- Windows client

  You have the following possibilities:

  - **Window/ List only**, **Window/ Detail only** and **Window/ List and detail** menus
  - Corresponding icons on the toolbar
  - **Detail** button
- Web client
  - To go from list to detail:
    Click the link of the record to display in the list.
  - To go from detail to list:
    Click the **Return to list** in the detail.

Display new internal messages automatically

- Windows client

  A dialog box is displayed when new messages are received and asks the user if they would like to read them:

  - When connecting to the database
  - During the connection

  Click **Yes** and a wizard will open to display the messages.

- Web client

  When connecting to the database, a link informs the user that they have new messages.

  A wizard will open when the user clicks the link to read the messages.

Enable/ Disable modules

- Windows client

  The modules are activated/deactivated from the **File/ Manage modules** menu.

- Web client

  This functionality is not available.

Display icons and graphics associated with the records in list and detail screens

Examples: Icon at the upper left of the records' detail, **General** tab for the floor plans.

This functionality is available only in the Windows client.

Display news marquee

- Windows client

  The news marquee is displayed by selecting the **Window/ Display news marquee** menu.

- Web client

  This functionality is not available.

Use views

- Windows client

  Views can be created, changed, deleted and displayed (**Tools/ Views** menu).

- Web client

  Views cannot be created, changed, deleted or displayed. However, You can create an equivalent **screen** instead.

Use screens

- Windows client

  Screens can be created, modified and deleted using Asset Manager Application Designer. They are displayed in the navigation bar.

  See **Tailoring** guide, chapter **Customizing screens**.

- Web client

  Screens can be displayed in the navigation bar but cannot be created, modified or deleted.

  See **Tailoring** guide, chapter **Customizing screens**.

Activate accessibility options (for users with visual impairments)

- Windows client

  This functionality is available in the Windows client itself.

- Web client

  Use the accessibility options of your Internet browser.

Create a favorite

- Windows client

  a. On the navigation bar, select the link to add to your favorites.

  b. Right-click.

c. Select **Add to favorites** from the shortcut menu that is displayed.

- Web client

  To create a favorite in the Web browser:

  a. Display the screen that you want to add to the browser's favorites.

  b. Click the **Add link to my favorites** icon in the upper right corner of the Web client's workspace.

  c. Save the page to **My Favorites**.

  You can click **My Favorites** to open the saved page later.

Print the contents of the current window (list detail, wizard page, and so on)

- Windows client

  This functionality is not available.

- Web client

  Using Microsoft Internet Explorer:

  a. Display the screen that you want to print.

  b. Click the icon at the upper right of the Web client's workspace.
  A new Internet Explorer window is displayed.

  c. Print the window using Internet Explorer's print functions.

The format of list boxes

The format of a list box on the Web client differs from the format of a list box on the Windows client.

- Windows client

  The format on the Windows client is as follows:

  A\|B\|C\

- Web client

  The format on the Web client is as follows:

  A|B|C

Record lists

Filter records in a list

- Windows client

  You can filter records in all lists.

  You have the following possibilities:

  - icon at the bottom of the lists
  - For main lists only: **<Table name>/ No filter**, **<Table name>/ Simple filter** and **<Table name>/ Query filter** menus
  - For main lists only: **Filter on this field** and **Filter on this link** shortcut menus
  - For main lists only: Filter saved in the views

- Web client

  You can filter records in main lists and tab lists.

  Filters can be selected from the **Filters...** drop-down list that is located above the lists.

  For main lists, you can control the contents in the **Filters...** drop-down list through the **Disable extended web filters** option (in the **List/Detail** tab of the screen's detail in Asset Manager Application Designer). By "extended web filters", it points to all filters except "QBE filters" and "query filters".

  This option is selected by default, which indicates that only "QBE filters" and "query filters" are displayed in the drop-down list.

  If you deselect this option for a screen, the **Filters...** drop-down list of this screen list contains:

  - A table index filter, if the index is not on the primary key and only if one of the fields or links is part of the screen.
    If an administrator adds an index that follows these rules to a table using Asset Manager Application Designer, then this new index will appear in the list of filters.
  - A query filter whose context is the table for which the list displays the records.
    If a user adds a query, it will appear in the list of filters.

- A filter if pre-filtering was defined for the screen (**QBE Fields** of the screen's detail in Asset Manager Application Designer)

Sort the records on a given column

- Windows client

  Both the main lists and the secondary lists (lists under the tabs) can be sorted.

  To sort a list for a given column, click the column's name.

  The sort order changes each time you click:

  a. Not sorted
  b. Ascending
  c. Descending
  d. **Not sorted**
  e. Ascending
  f. Descending

- Web client

  The main lists can be sorted but not the secondary lists (lists under the tabs).

  In order to sort a column, a field or link corresponding to the column must:

  - Be part of the table to which the screen belongs.
  - Be either the unique field or link of an index of the table to which the screen belongs.

  To sort a list for a given column, click the column's name.

  The sort order changes each time you click:

  a. Not sorted
  b. Ascending
  c. Descending
  d. Ascending
  e. Descending

  It is not possible to return to the **Not sorted** status in the Web client.

Customize the number of records displayed in the lists and how they are displayed

- Windows client

  The number of records in the lists and how they are displayed is set in the **Edit/ Options/ Lists/ Main lists** or **Edit/ Options/ Lists/ Others lists**.

- Web client

  By default, lists display 20 records per page.

  To modify this number:

  See **Tailoring** guide, section **Customizing Web clients**, chapter **Modifying the Web client's default behavior**, section **Defining the number of lines to display in lists**.

  The **Number of rows per page in list** option on the Web client Preferences pane is equivalent to the **Edit/ Options/ Lists/ Main lists** option from the Windows client menus. However, the **Edit/ Options/ Lists/ Other lists** option is not implemented in the Web client.

Calculate the total number of records in a list

- Windows client

  Click the **x / ?** button at the lower right of the records lists (main and secondary lists) to calculate.

- Web client

  Click the Σ icon at the upper or lower right of the records lists (main lists only).

Select all records in a list

- Windows client

  All records in both the main lists and the secondary lists (lists under the tabs) can be selected (**Edit/ Select all** menu).

- Web client

  All records in both the main lists and the secondary lists (lists under the tabs) can be selected by selecting the check box to the left of the column names.

  > **Note:** Only those records that are visible are selected.

Display a list in tree view

- Windows client

  The list of records from a hierarchical table can be displayed in tree view (**Window/ Tree view** menu).

- Web client

  The list of records from a hierarchical table can be displayed in tree view (icon above the list).

  > **Note:** In a filtered list, the number of nodes displayed in the tree view is defined by the preference property `Number of rows per page in lists`. This number is the sum of all parent and child nodes displayed in the list.
  >
  > In an unfiltered list, the number of nodes displayed in the tree view is defined by both the preference property `Number of rows per page in lists` and the installation package property `Lists.Tree.ChildNode.Count.Maximum`. The `Number of rows per page in lists` property defines the number of parent nodes to be displayed, while the `Lists.Tree.ChildNode.Count.Maximum` property defines the number of the child nodes to be displayed.

Find a record in a list quickly

- Windows client

  To find a record in a list quickly, sort the list on the desired column, then use the **Go to** shortcut menu.

- Web client

  The Go to command is not currently available for the Web client.

Export the contents of a list

- Windows client

  Use the **Utilities/ Export the list** shortcut menu item (main lists only).

- Web client
  - Use the icon above the list (main lists, lists in tabs and lists in wizards).

Select columns to display in a list

- Windows client

  By default, the columns that are displayed in a list correspond to the fields and links that are defined for the screen via Asset Manager Application Designer (**Columns in the list** field).

  The **Utilities/ Configure list** shortcut menu is used to modify the default column selection.

- Web client

  The default columns that are displayed in a list correspond to the fields and links that are defined for the screen via Asset Manager Application Designer (**Columns in the list** field).

  Which columns display for the current list, and in which order, can be defined for the current user. See **Tailoring** guide, section **Customizing Web clients**, chapter **Modifying the Web client's default behavior**, section **User defined customizations/ Configuring list columns**.

Group records from a list

- Windows client

  Use the **Group by this field** shortcut menu.

- Web client

  This functionality is currently not available.

Display statistics for a list

- Windows client

  Main lists and tab lists only:

  a. Display the list.

  b. Sort on the column for which you want to display statistics.

  c. Select the **Utilities/ Statistics on this column** shortcut menu.

- Web client

  Main lists, tab lists and wizard lists:

  To view statistics for a displayed list:

- Select the statistic from the **Statistics** drop-down list. (Note that this will not be available if the **Display statistics dropdown in lists toolbar** option has been unchecked on the **Preferences** pane.
  For further details, see the **Tailoring** guide, section **Customizing Web clients**, chapter **Modifying the Web client's default behavior**, section **User defined customizations/ Preferences pane**.)

The list displays an entry by:

- Table index, except if the index is on the primary key
- Statistic whose context is on the table

Add the numbers of a column in a list

- Windows client

  Click the calculation icon at the lower left of the list.

- Web client

  This functionality is currently not available.

Display a record prefilter window

- Windows client

  This functionality is availble.

- Web client

  This functionality is currently not availble.

Cut, copy or paste records from a detail list

- Windows client

  Under some conditions, you can use the **Edit** menu or equivalent shortcuts.

- Web client

  This functionality is currently not available.

Text field length restriction

When entering text to a field, you are not allowed to enter more characters than what is defined by the **Size** property for that field in Asset Manager Application Designer

- Windows client

  The **Size** restriction is enforced in the Windows client.

- Web client

  You can enter more characters than what is defined. However, when you click **Save**, your entry will be truncated to the maximum size allowed

Modify a selection of records

Windows client

1. Display the list in **List and details** mode and simultaneously select the records to be modified in the list.
   Asset Manager then displays in the detail window:
   - The fields that can be modified: White background.
   - The fields that cannot be modified: Gray background.
2. Modify the files or links that must have the same value for all of the selected records.
3. Click **Modify** to update the records in the database.

> **Tip:** The other solution, more complex but more powerful, involves exporting the records to modify them outside of Asset Manager, then re-importing them. Refer to Export a list in section Record lists for more information.

Selected records are displayed as being highlighted in the list. The first record is selected by default. You can select another record by moving the cursor with the arrow keys or clicking the item itself. You can select several items by using the CTRL or SHIFT key with the mouse.

Web client

Select the check boxes next to the records. After you select the records, you can click **Edit** to edit the records as a batch.

If a field cannot be modified, the corresponding box will gray out. A field can be modified for multiple records only when:

- The field does not have a unique constraint.
- The field must exist in all the records you selected.
- The value of the following properties must be the same:
  - ReadOnly
  - Irrelevant
  - Mandatory
  - Readable
- For a field with options such as a drop-down list, the options of the field must be the same.

Authorize display of all fields and links in the lists

- Windows client

  By default, a user can only add the fields he/she can access to a list. If the **Authorize display of all fields and links** checkbox is enabled, the user can add all the fields in the **Configure the list** window.

- Web client

  The **Authorize display of all fields and links** checkbox does not take effect on the web client.

Records detail

Create a record on the fly when editing a link in a record's detail

- Windows client

  a. In the link edit zone, enter a value instead of selecting a record in the list.

  b. Place the cursor outside of the link edit zone.
  The Windows client allows you to create a record in the target table of the link.

- Web client

  The Web client returns an error when you enter a nonexistent value when editing the link.

Organization of fields and links within tabs, when these fields are part of the main table or when these links are type 1

For example: detail of a portfolio item, **Acquis.** tab.

- Windows client

  These tabs contain sub-tabs.

  For example: The **Acquis.** tab of the detail of a portfolio item contains the sub-tabs **Price and conditions** and **Procurement**.

- Web client

  These tabs contain frames that correspond to sub-tabs of the Windows client.

  For example: The **Acquis.** tab of the detail of a portfolio item contains the frames **Price and conditions** and **Procurement**.

Organization of links within tabs, when these links are type n

For example: detail of an asset or batch, **Portfolio** tab

- Windows client

  Linked records can be displayed as lists or as a series of tabs.

- Web client

  Linked records can be displayed only as lists.

Display monetary fields

- Windows client

  Exchange values can be displayed for the reference currencies by clicking an icon to the right of the monetary field.

- Web client

  Exchange values for the reference currencies cannot be displayed.

Use customizable itemized lists

- Windows client

  Fields populated via customizable itemized lists have an icon to their right. You can click it to display the list of values.

  You can select a value from the list or enter a value that does not already exist.

  If you enter a nonexistent value, it will be added if the itemized list is open (list of values can be modified by users).

- Web client

  Fields populated via customizable itemized lists do not have an icon to their right. You can place the cursor in the field edit zone to display the list of values.

  You can select a value from the list or enter a value that does not already exist.

  The value will be added if the itemized list is open (list of values can be modified by users).

Configure the list under the tabs to display in a detail screen

- Windows client

  Use the **Configure tabs** shortcut menu.

- Web client

  This functionality is currently not available.

Display planner viewer pages

For example: Detail of work orders, **Preview** tab.

This functionality is available only in the Windows client.

Display the **Tracking** tab for requests, orders, receipts and invoices

This functionality is available only in the Windows client.

Define an alarm for a **Date** type field

- Windows client

  Click the icon to the right of the **Date** type field.

- Web client

  Click the icon to the right of the **Date** type field.

Use the Basic script editor

- Windows client

  Click the icon to the right of the **Basic Script** type fields.

- Web client

  This functionality is currently not available.

Zoom in on the workflow diagram

This operation is performed in the **Workflow** tab of the records detail

This functionality is available only in the Windows client.

View activites to be carried out in a workflow scheme

- Windows client

  The boxes representing these activities blink.

- Web client

  The boxes representing these activities are colored **light** blue while other boxes are colored **dark** blue.

Populate the fields that designate a table in the Asset Manager database.

For example: In the detail of a calculated field, the **Table** (TableName) field.

- Windows client

  Select the table from a list.

- Web client

  You can only view the table's SQL name.

Configure fields or links

- Windows client

  Use the **Configure object** shortcut menu.

- Web client

  This functionality is currently not available.

Save the new creation and continue creating another record

Save the information in the detail window as a new record and start creating another record using the current information.

- Windows client

  Click the button.

- Web client

  This functionality is currently not available.

Populate a link by selecting a record from a drop-down list

- Windows client

  Click .

- Web client

  Type the first letters in the link edit zone and select the value from the drop-down list.

Cut, copy, paste, delete text in the fields

- Windows client

Use the **Edit** menu or equivalent shortcuts.

- Web client

  Use the commands of your operating system or browser.

Modify a document stored in the database

- Windows client
  a. Display the detail of the record to which the document is attached.
  b. Display the **Documents** tab.
  c. Display the detail of the document to modify.
  d. Click **Run**.
  e. When the **Would you like to integrate the changes that you are going to make to the document into the database?** message appears, click **Yes**.
  f. Modify the document.
  g. Save the changes made to the document.
  h. Close the document.
  i. Go back to the **Documents** tab of the record to which the document is attached.
  j. Click **Modify**.
- Web client
  a. Display the detail of the record to which the document is attached.
  b. Display the **Documents** tab.
  c. Display the detail of the document to modify.
  d. Click **Export**.
  e. Save the document to your local disk (somewhere outside of the Asset Manager database).
  f. Edit and modify the document you just saved.
  g. Save your changes made to the document.
  h. Close the document.
  i. Go back to the **Documents** tab of the record to which the document is attached.
  j. Click **Detach**.

k. Select the modified document (button to the right of the **Upload** field).

l. Click **OK**.

Enter a duration

- Windows client
  - You may leave a space between the quantity and its unit.
  - The following decimal separators are valid:
    - .
    - ,
  - If you enter a value without a unit, Asset Manager applies the default unit of the field.
  - When entering a value with no integer, you may enter:
    - 0,1
    - 0.1
    - ,1
    - .1
  - Do not enter any separator between the figures (no periods, commas or spaces).
- Web client
  - You must leave at least one space between the quantity and its unit.
  - The decimal separator that is used is the one that is defined in the application server's regional settings.
  - You cannot enter a number without a unit.
  - You can enter units in any order.

Fields on sub-tabs

- Windows client

  The sub-tabs are located at the bottom of the window.

  > **Note:** If a sub-tab contains only read-only fields and none of the read-only fields has a value, the sub-tab is hidden.

- Web client

  This functionality is currently not available. All fields (including the empty read-only fields) are displayed on the main page.

Actions on records

Create a record composed of another table's sub-records

For example: create an order made up of order lines.

- Windows client
  a. Display the list of orders (**Asset lifecycle/ Procurement lifecycle/ Purchase orders and estimates/ Orders** link on the navigation bar).
  b. Display the detail of a new order (**New** button).
  At this stage, the order is not created. You can cancel the order creation (**Cancel** button).
  c. Populate all required fields and links.
  d. Create the order (**Create** button).
  This is required if order lines are to be added.
  This creates the record. You cannot cancel the creation process. You can, however, delete the record (**Delete** button).
  e. Display the **Composition** tab.
  f. Add an order line (**+** button).
  At this stage, the order line is not created. You can cancel the order creation (**Cancel** button).
  g. Add an order line to the order (**Add** button).
  The order line is created and added to the order. You cannot cancel the creation process. You can, however, delete the record (**-** button).
- Web client
  a. Display the list of orders (**Asset lifecycle/ Procurement lifecycle/ Purchase orders and estimates/ Orders** link on the navigation bar).
  b. Display the detail of a new order (**New** button).
  At this stage, the order is not created. You can cancel the order creation (**Cancel** button).
  c. Populate all required fields and links.

d. Create the order (**Save** button).
   This is required if order lines are to be added.
   This creates the record. You cannot cancel the creation process. You can, however, delete the record (**Delete** button).

e. Display the **Composition** tab.

f. Add an order line (**Add** button).
   At this stage, the order line is not yet created. You can cancel the order creation (**Cancel** button).

g. Add an order line to the order (**OK** button).
   The order line is created and added to the order. You cannot cancel the order creation but you can delete the order and its order lines (**Delete** button).

Authorize extended deletions for records

For example: When you delete a location, Asset Manager provides you with the following possibilities:

- Delete employees linked to the location
- Delete the link to the location
- Assign employees to another location

- Windows client

  To configure this possibility:

  a. Select the **Edit/ Options** menu.

  b. Assign the value **Yes** to the **Authorize extended deletions** option.

- Web client

  This functionality is currently not available.

Modify a record (multiple users working on the same record)

- Windows client

  A warning message is displayed for the last user who clicks **Modify**. The user is prompted to either overwrite the other user's changes or cancel their own changes.

- Web client

  A warning message is displayed for the last user who clicks **Save**. The user cannot save his/her changes.

Duplicate a record n times

- Windows client

  Use the **Edit/ Duplicate** menu.

- Web client

  This functionality is currently not available.

Availability of certain controls

Use the following controls:

- ColorCombo
- DistantDet
- Edit
- MultilineLabel
- Notebook
- Picture
- QueryCalc
- ScrollablePicture
- TimerControl

- Windows client

  This controls are supported.

- Web client

  Not supported (In some cases they may display a value in read-only mode but this value cannot be edited)

Actions (including wizards)

Types of supported actions

- Windows client

  All action types are supported in the Windows client.

- Web client

  Dashboard, **Printing**, **DDE**, and **Software distribution** type actions are not supported.

Trigger a non-contextual action

- Windows client

  A non-contextual action can be triggered from:

  - The **Tools/ Actions** menu
  - The **Functions** tab on the navigation bar, if the action is associated with a functional domain

- Web client

  A non-contextual action can be triggered from the tree-structure of the navigation bar if the action is associated with a functional domain.

Trigger a contextual action

- Windows client

  A contextual action can be triggered from:

  - The **Tools/ Actions** menu.
  - The shortcut menu associated with a table, **Actions** sub-menu.

- Web client

  Actions are triggered by selecting the action from the **Actions** list at the top of the list screens.

  For example: In the orders list, receipt of an order is done by selecting the **Receive** action from the **Actions** list.

Complete wizard using action buttons appropriate to context

- Windows client

  Wizard displays action buttons according to context.

- Web client

  Next, **Finish**, **OK**, and **Cancel** buttons are displayed in a wizard regardless of whether mandatory criteria for field content are satisfied.

Refresh a wizard page whose content is dependent on the value of a field from the same page

- Windows client

  The refresh is automatic.

- Web client

  The refresh is not automatic. You must display the wizard's previous or next page, and then return to the page that needs to be refreshed.

  This is not always possible.

  Specific example: The buttons cannot be activated via user activity (for example, when a user populates a required field). Also, most buttons are activated by default in the Web client. This makes them available for when they are needed. Consequently, if a user clicks on one of these buttons at an inappropriate time, an error message is displayed.

Use global variables in the wizards

- Windows client

  Global variables can be defined for the following nodes:

  - Root
  - Long
  - String

- Double
- Date

- Web client

  Global variables can be defined for the following nodes:

  - Long
  - String
  - Double
  - Date

Support of BASIC functions used to handle files

- Windows client

  All functions are supported.

- Web client

  Only the storage of a file in the Asset Manager database is supported.

Display a Asset Manager window that is unrelated to the running wizard

- Windows client

  This is possible with some wizards.

- Web client

  This is not possible. If you try to do this, Asset Manager stops running the wizard and asks you for confirmation.

Use the `lMode` parameter from the `AmMsgBox()` API in a wizard

```
AmMsgBox(strMessage As String, lMode As Long) As Long
```

- Windows client

  All the dialog box types displayed are supported:

- **0** : Simple dialog box with an **OK** button.
- **1** : Dialog box with **OK** and **Cancel** buttons.
- **2** : Dialog box with a **Cancel** button.

- Web client

  OK and **Cancel** buttons are not implemented.

Use the `AmWizChain()` API in a wizard

```
AmWizChain(strWizSqlName As String)
```

- Windows client

  All wizard types referenced by the `strWizSqlName` parameter are supported.

- Web client

  Only wizards whose "Root" node has a **MODAL=FALSE** property are supported (wizard referenced by the `strWizSqlName` parameter).

  Wizards whose "Root" node has a **MODAL=TRUE** are considered as having a **MODAL=FALSE** property.

Use the `AmExecTransition()` API in a wizard

```
AmExecTransition(strTransName As String) As Long
```

This API can be used only in the Windows client.

Define the **TABLE=**, **VALUE=**, and **FIELD=** properties of a **DBEDIT** control used by a wizard

You can use a script to define these properties only in the Windows client.

Use the `AmActionDde()` function in a wizard script

```
long AmActionDde(long hApiCnxBase, char *strService, char *strTopic, char *strCommand, char *strFileName, char *strDirectory, char *strParameters, char *strTable, long lRecordId);
```

You can only use this function in the Windows client.

Use the **XOFFSET** and **YOFFSET** properties in a wizard

This property is only taken into account in the Windows client.

Use the **SERIALIZE** property

This property is only taken into account in the Windows client.

Use the **EDITABLE** property of the **LISTBOX** control

You can only use this property in the Windows client.

Use the **Zoom** property of the **LinkEdit** control

The **Zoom** property defines the visibility of the magnifying glass icon for the **LinkEdit** controls in the **Wizard** type of actions.

This property is not taken into account for wizards run in the Web client.

Use the **DBEDIT** control

- Windows client

  This control can be used without restriction.

- Web client

  This control can be used subject to the following restriction when the control is used on a field (there are no restrictions for links): The magnifier which is used to search for an existing value in the database is not available.

Use the **TickEdit** control

You can only use this control in the Windows client.

Use the **WizTickEdit** control

You can only use this control in the Windows client.

Use the **WizProgressBar** control

You can only use this control in the Windows client.

Use the **ProgressBar** control

You can only use this control in the Windows client.

Associate a wizard or a script with a built-in button

- Windows client

  You can associate a wizard or a script with an Asset Manager built-in button such as the **New**, **Modify**, or the **Delete** button.

- Web client

  This functionality is currently not available. If you try to do this, an error will occur.

The Navigation property

- Windows client

  If the **Navigation** property is set to **True**, the navigation bar is displayed. If the **Navigation** property is set to **False**, the navigation bar is hidden.

- Web client

  The **Navigation** property does not work for wizards on the Web client. The navigation bar is always displayed.

Launch a wizard with multiple records

- Windows client

  You can select multiple records and launch a wizard for these records.

- Web client

  This functionality is currently not available. If you try to do this, the following error message appears:

```
This action is only possible when only one record is selected.
```

DBListbox control

- Windows client

  In a DBListbox control, columns can be dynamically created by scripts.

- Web client

  This functionality is currently not available. If columns are dynamically set, only the headings are created with no content.

Reporting

Display reports that are automatically updated

- Windows client

  Use the **Tools/ Reporting/ Crystal Reports statistics** menu.

- Web client

  This functionality is currently not available.

Display the software dashboard

- Windows client

  Use the **Asset lifecycle/ Software Asset Management /Dashboards / Software dashboard** navigation menu link.

  > **Note:** All components of the dashboard are shown.

- Web client

  Use the **Asset lifecycle/ Software Asset Management /Dashboards / Software dashboard** navigation menu link.

  > **Note:** Only one component of the dashboard is shown.

Display a detail report (a report that displays the detail information for one or more records selected in a list)

- Windows client

  Display the list containing the record that is the object of the report.

  a. Select the record that is the object of the report.
  b. Expand the navigation bar link corresponding to the report's functional domain.
  c. Click the report name in the navigation bar.

  Display the reports (**Administration/ Reporting/ Reports** link on the navigation bar).

  a. Display the report detail.
  b. Click **Preview**.
  c. Select the record that is the object of the report.
  d. Click **OK**.

  Display the list of records that are the object of the report.

  a. Select the records that are the object of the report.
  b. Select the **File/ Print** menu item.
  c. Set the **Type** field to **Detail report (Crystal Reports)**.
  d. Select the report in the **Report** list.
  e. Click **Preview**.

- Web client

  This functionality is currently not available.

Print a detail report

- Windows client

  Method 1:

  a. Expand the navigation bar link corresponding to the report's functional domain (report detail, **Domain** (SQL name: Domain) field)).
  b. Click the **Print** icon.

Method 2:

a. Display the report detail.
b. Click **Preview**.
c. Select the record that is the object of the report.
d. Click **OK**.
e. Click the button.

Method 3:

a. Select the record that is the object of the report.
b. Select the **File/ Print** menu item.
c. **Type**: **Detail report (Crystal)**.
d. **Report**: Select the report.
e. Click the **Print** button.

- Web client

  This functionality is currently not available.

Use new possibilities available in SAP Crystal Reports version XI and above

For example: the possibility to select a record in a list generated when the request to display or print the report is sent.

- Windows client

  Supported for both reports stored in the Asset Manager database and the SAP BusinessObjects Enterprise (or Crystal Reports server previously) database.

- Web client
  - Not supported for reports stored in the Asset Manager database
  - Supported for reports stored in the SAP BusinessObjects Enterprise (or Crystal Reports server previously) database

Import an **.rpt** file into the Asset Manager database

- Windows client

a. Display the report detail.

b. Click the **Import** button.

- Web client

  This functionality is currently not available.

Export an **.rpt** file from the Asset Manager database

- Windows client

  a. Display the report detail.

  b. Click the **Export** button.

- Web client

  This functionality is currently not available.

Contracts

Desired action	Using the Windows client	Using the Web client
Manage application service contracts	• **Asset lifecycle/ IT services and virtualization/ ASP/ Application services** navigation menu • **Contracts/ Application services**	**Asset lifecycle/ IT services and virtualization/ ASP/ Application services** navigation menu
Only display **Blanket purchase order** type contracts	• **Asset lifecycle/ Supplier contract management/ Blanket purchase orders** navigation menu • **Contracts / Blanket purchase orders** menu	**Asset lifecycle/ Supplier contract management/ Blanket purchase orders** navigation menu
Only display **Master lease** type contracts	• **Asset lifecycle/ Supplier contract management/ Leasing/ Master leases** navigation menu • **Contracts/ Master leases** menu	**Asset lifecycle/ Supplier contract management/ Leasing/ Master leases** navigation menu
Only display **Leasing** type contracts	• **Asset lifecycle/ Supplier contract management/ Leasing/ Lease schedules** navigation	**Asset lifecycle/ Supplier contract management/ Leasing/ Lease schedules** navigation menu

Desired action	Using the Windows client	Using the Web client
	menu • **Contracts/ Lease schedules** menu	
Accept assets under lease schedule	Detail of contract, **Accept** button	Contract detail, select **Accept** from the **Actions** drop-down list
Renew assets under lease schedule	Detail of contract, **Renew** button	Contract detail, select **Renew** from the **Actions** drop-down list
Buy out assets under lease schedule	Detail of contract, **Buy out** button	Contract detail, select **Buy out** from the **Actions** drop-down list
Return assets under lease schedule	Detail of contract, **Return** button	Contract detail, select **Return** from the **Actions** drop-down list
Add assets to a lease schedule	Contract detail, **Assets (leased)** tab, adding a link	Contract detail, **Assets (leased)** tab, **Add** button

Procurement

Desired action	Using the Windows client	Using the Web client
Display procurement tracking information	Request, estimate, PO, receiving slip or invoice detail, **Tracking** tab	Not available

Bar code

Desired action	Using the Windows client	Using the Web client
Print a catalog	**Portfolio/ Bar-code inventory** menu	Not available

Helpdesk

Helpdesk		
Use the answer-call wizard	**Helpdesk/ Answer call** menu	Not available
Display the helpdesk dashboard	**Helpdesk/ Dashboard** menu	Not available
Display helpdesk statistics	**Helpdesk/ Statistics** menu	Not available
Display helpdesk ticket tracking	**Helpdesk/ Ticket tracking** menu	Not available

Financials

Desired action	Using the Windows client	Using the Web client
Display preview of applicable taxes for a tax jurisdiction on a given date	**Finance/ Tax jurisdictions and rates** menu, **Preview** tab	Not available

Cable and Circuit

Desired action	Using the Windows client	Using the Web client
Use the Cable and Circuit module	Available	Certain functionalities are not available, such as displaying device traces and device cross-connections.

Advanced functions

Desired action	Using the Windows client	Using the Web client
Manage time zones	The Asset Manager database server and the Windows clients can be installed on computers with different time zones.	The Asset Manager database server, the Asset Manager Web Tier server and the Asset Manager Web Service server must be installed on computers using the same time zone. Different time zones can be used for client stations.
Connect to the database using Windows integrated security	Available	Not available
Edit queries	• **Administration/ Queries** navigation menu • **Tools/ Queries** menu	**Administration/ Queries** navigation menu
Edit calendars	**Tools/ Calendars** menu	Not available
Edit news	**Tools/ News** menu	Not available
Display the list of database screens	**Administration/List of screens** menu	Not available
Select the **Preview** tab of the user profiles detail.	This tab displays the results of combining user rights with user profiles	Not available
Edit database options	**Administration/ Database options** menu	Not available
Edit workflow schemes	• **Administration/ Workflows/ Workflow schemes** navigation menu • **Tools/ Workflow/ Workflow schemes...** menu	Not available

Desired action	Using the Windows client	Using the Web client
Edit connections	**File/ Manage connections** menu.	Not available
Import data	**File/ Import** menu	Not available
Modify a user's Asset Manager password	• **Administration/ User actions/ Change password** navigation menu • **Tools/ Change password** menu	**Administration/ User actions/ Change password** navigation menu

Chapter 7: Performance Tips and Problem Diagnosis

This chapter includes:

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Introduction

The ability to optimize performance is key to a successful Asset Manager web client deployment. This process is complex because it involves all the elements of the architecture: database, web tiers, application, and so on.

The goal of this document is to focus on the web tier including:

- Making sure the web tier works correctly
- Identifying possible performance issues
- Optimizing the performance of the web client

You can refer to the Asset Manager sizing guide for hardware recommendations. The Asset Manager Performance Tuning guide will provide tactics and methods for back-end tuning and screen optimization.

Guides for older versions of Asset Manager as well as updated versions of this guide can be found at the following HP website:

https://softwaresupport.hpe.com/

The reference configuration data supplied in this guide is based on an Asset Manager out-of-box (OOB) environment, which includes the Web Tier, Web Service and Automated Process Manager (APM).

Installation of web tier and performance optimization

This section includes:

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Check first that Asset Manager Web Tier works correctly

Tag the web service in amdba, this action will create a static version of the web service stored in Asset Manager. The tag will check the consistency of the web service.

Note that you can check consistency of the web service, service by service, with the Asset Manager Windows client (sysCoreWebServiceCheck wizard). The logging is slightly more precise than with amdba.

While following these steps, any error encountered MUST be immediately dealt with in the database structure (often screen and page definitions). Typical errors include:

- Buttons referring to missing actions
- Look up on exposed pages to screens belonging to non exposed functional domains (seWebService = none or seWebService = “from within parent domain” with parent not exposed))
- Field in a page that no longer exists
- Two links to the same table in a screen with different filters (you must use the APIName property to distinguish the uses of two link)
- A calculated field with wrong format (AQL in text will pass in the Windows client, but not in the web)

Without following these web service consistency check and fix of errors, Asset Manager web client is likely to have errors and even may not start correctly.

Once the web service is successfully tagged, make sure you can connect to the web service (typically: http://WebServiceServer:8080/AssetManagerWebService, deploy a wsdl and verify that it has valid contents (not empty).

Optimize Asset Manager Web Tier Performance

After you make sure that the web tier works correctly, you can start optimize the performance of the web tier.

Log on to a static version of the web service

After having tagged a version of the web service, change the settings in AssetManager.xml file with

```
<Environment name="AssetManager.WS.Version" value="Tagged version"
type="java.lang.String" override="false"/>
```

Split web service and web tier

Have web service and web tiers on two different Tomcat instances, or even better on two different servers (for scalability).

Decrease the size of the Asset Manager web service wsdl

- In Asset Manager, the exposed services reflect the way functional domains are set. Hierarchy of functional domains with the "from within parent domain" setting in the seWebService value will result in a large web service (and a large wsdl) with numerous sub sections in it. If children of the functional domain node are set as “Stand alone”, the web services exposed will be independent, and the wsdl will be much smaller. This independent services structure is highly recommended if functional domain contains numerous screens, actions, wizards and queries. Following this recommendation, performance for opening the parent node will be optimized the first time. A good example for splitting functional domains into independent services is the structure of the OOB “Portfolio” functional domain.
- Do not expose unnecessary data. For instance, if you have some very complex screens or wizards that are very unlikely to be used by the Web Client, it would be better to place them in a functional domain that has “none” as the seWebService value.

Implement the Java Vitual Machine (JVM) tuning guidance

Web Service

The Web Service calls Asset Manager's APIs through jni. It also has to be taken into account that the XMX memory allocated for Java will be solely used for Java, but the overall java program memory (as seen by the OS) will indeed contain both:

- Java memory (with max specified by XMX)
- The extra memory necessary for the AM DLL, DBMS client layers, and so on.

Only the Java memory can be set explicitly with JVM parameter. So generally at least 512 MB free memory should be left in the system for AM DLL to allocate for a few concurrent connections and about 1.5 GB set as both minimal and maximum JVM heap size.

WebTier

The Asset Manager WebTier is based on pure java. XMX can be set to the largest value available for a java application on the system, (2 GB on a sample benchmark Windows Server 2008 system).

Do not restart Tomcat when it is not necessary

The result of restarting Tomcat is that all profiles will have to be loaded the again and all pages will be compiled on the server side, which will considerably slow down the performance until the profiles are loaded again.

For more information about JVM settings for multiple concurrent connections in production environment, refer to Asset Manager Deployment Sizing Guide.

Run a script opening tree view nodes and main pages after a Tomcat re- start.

Tools like wget (http://www.gnu.org/software/wget/) can generate scripts that open wsdls and "warm up" the Web Tier. You can download this free software from the official GNU web site. The ACWPerformancesHintsAndDiagnosis.zip file contains a .bat file that allows opens Asset Manager wsdls. it can be customized to any implementation's environment.

Setting severity level for logs

In Tomcat and WebSphere, you can set severity level for logs. Any warning/error message that is lower than this level will not be logged.

In Tomcat

Add the following lines in the *logging.properties* file under the <*Tomcat_home*>*/conf* folder:

```
javax.faces.level= <level>
com.sun.faces.level= <level>
javax.enterprise.resource.webcontainer.jsf.level = <level>
```

The levels in descending order can be:

- SEVERE
- WARNING
- INFO
- CONFIG
- FINE
- FINER
- FINEST

In Websphere

1. In the Websphere administrator console, click **Troubleshooting** > **Logs and trace**.
2. Click your server on the **Logging and tracing** page.
3. Click **Change log detail levels**.
4. Enter the following content in the text box.

```
  *=info: javax.faces.*=<level>:
javax.enterprise.resource.webcontainer.jsf.*=<level>: com.sun.faces.*=<level>
```

The levels in descending order can be:

- SEVERE
- WARNING
- INFO
- CONFIG
- FINE
- FINER
- FINEST

Troubleshooting performance issues

This section includes:

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Checking performance for diagnosis with performance impact on the system (Tomcat, Windows & Linux) 73

Tracking performance by starting ADBLOGS in Asset Manager Web (Tomcat & Websphere, Windows) 74

Tracking performance by storing the http requests sent (Tomcat, Windows and Linux) 75

Diagnosing errors on the UserLogin and UPPEREmplDept_UserLogin fields of amEmplDept (Oracle and DB2) 76

Checking performance with low impact on the system (Tomcat, Windows & Linux)

> **Note:** This only applies to Web clients with Tomcat as the application server based on Windows and Linux operation system.

Replace the log4j.properties in the WebTier (or edit it to add an Asset Manager Performance trace) to add:

```
## Appender for performances logger
log4j.appender.perflogfile=org.apache.log4j.RollingFileAppender
log4j.appender.perflogfile.File=c:/AssetManagerWeb_perf.log
log4j.appender.perflogfile.MaxFileSize=500KB
```

```
log4j.appender.perflogfile.MaxBackupIndex=5
log4j.appender.perflogfile.layout=org.apache.log4j.PatternLayout
log4j.appender.perflogfile.layout.ConversionPattern=%d{ABSOLUTE} %5p - %c
- %m%n
## uncomment to enable performance logging
## edit the log4J.appender.perflogfile.File property if needed
log4j.logger.PERF=DEBUG,perflogfile
```

In Tomcat this log4j.properties file may be in the `<tomcat>/webapps\AssetManager\WEB-INF\classes` directory.

You need to restart the WebTier server after running this script to make these changes take effect. This will generate a file, in the given example, in the `c:/AssetManagerWeb_perf.log` with information like below. The duration information will show you which web service call takes most time.

```
<Time> DEBUG - PERF - ws call
'{http://openview.hp.com/AssetManager/Custom/101/Currency/Wsdl}retrieveAl
lCurrencyList' duration=297ms
<Time> DEBUG - PERF - ws call
'{http://openview.hp.com/AssetManager/Custom/101/Core/Wsdl}retrieveFirstE
mplDeptListByUserLogin' duration=375ms
<Time> DEBUG - PERF - ws call
'{http://openview.hp.com/AssetManager/Custom/101/Core/Wsdl}retrieveFirstE
mplDeptListByUserLogin' duration=406ms
<Time> DEBUG - PERF - ws call
'{http://openview.hp.com/AssetManager/Custom/101/Administration/Wsdl}retr
ieveProfileBySQLName' duration=1094ms
```

Checking performance for diagnosis with performance impact on the system (Tomcat, Windows & Linux)

Edit the `log4j.properties` file in the WebTier (or edit it to add an Asset Manager Performance trace) to change the first lines from `log4j.rootLogger=ERROR, stdout` to`log4j.rootLogger=DEBUG, stdout`In Tomcat, this file may be in the `<tomcat>/webapps\AssetManager\WEB-INF\classes` directory. You need to restart the WebTier server afterwards to make these changes take effect.This will create a file, in the given example, in `<Tomcat>/logs/AssetManager.log` file with information that can be used for support and pinpointing issues.In addition, if you see an error in `index.jsf`, you need to check the validity of the

`AssetManager.xml` and `AssetManagerWebServices.xml` files in the `<Tomcat>\conf\Catalina\localhost` directory.

Tracking performance by starting ADBLOGS in Asset Manager Web (Tomcat & Websphere, Windows)

The `aamapi9x.ini` file in the `%USERPROFILE%` directory of the account that is starting the WebService is necessary. In this file, the entries enabling the adblog and specification of the log file should be added.

An adblog is a text log file that is used to capture the SQL data sent to the backend from the Asset Manager APIs. It stores a variety of results that can be analyzed by specialists if necessary.

A typical example is as follows.

```
[Option]
/AdbLog/AdbLogFileName=c:\temp\adblog.log
/AdbLog/AdbLogFileSize=83886080
/AdbLog/LogViewer=uedit32
/AdbLog/LogApiCalls=1
#/AdbLog/AdbLogStartup=1
#/Advanced/LogAPICalls=Orcl
#/LDAP/LdapCertDir=c:\temp
#/LDAP/LdapCertFile=ldapcert.crtt
```

See other technical notes with explanations about what an adblog is and how to set it up.

Then, to start the adblog, use the following URL (replace `localhost:8080`) with the correct system and port that is used for the Asset Manager WebService.

To start the log

http://localhost:8080/AssetManagerWebService/adblog?start=-1

Asset Manager web page will display “ACAPI Log started”

To stop the log

http://localhost:8080/AssetManagerWebService/adblog?stop

Asset Manager web page will display “ACAPI Log stopped”

Notice in cases where this setting is not working properly, especially when `Tomcat/WebSphere` is started as a service or when you do not have the license to use the web services directly, the adblog trace can be ran from the beginning by removing the comment tag on this line:

`/AdbLog/AdbLogStartup=1` in aamapi9x.ini. The WebService needs to be restarted to take these changes into account.

Tracking performance by storing the http requests sent (Tomcat, Windows and Linux)

Tomcat can be configured to store all http requests in a file. Basically, this can be set by enabling the **AccessLogValve** valve:

In `<tomcat>/conf/server.xml`, set the line:

```
<Valve className="org.apache.catalina.valves.AccessLogValve" directory="logs"
prefix="localhost_access_log_ws."
suffix=".txt"
pattern="%h %l %u %t %r %s %b %D" resolveHosts="false"/>
```

Refer to Tomcat documentation for more information. HPE does not provide any Tomcat support for Asset Manager implementations. Extra help is available through HPE professional services or third parties companies.

Diagnosing errors on the UserLogin and UPPEREmplDept_UserLogin fields of amEmplDept (Oracle and DB2)

For convenience, this paragraph is written with the Oracle SQLPLUS syntax, it can be applied almost the same way (but the trigger is different) for DB2. No check is necessary for MS SQL Server.

First, connect to the Asset Manager database through sqlplus.

Then, make sure that all the user logon names are in uppercase.

```
select count(1) from amemplDept where (upper(UserLogin)<>UPPEREmplDept_UserLogin or
UPPEREmplDept_UserLogin is null) and Userlogin is not null;
```

If the result is not “0,” it means the Asset Manager database has issues and requires modifications. Please contact Customer Support to solve this issue. Support will guide you. You may refer to technical note TN91311811, "How to diagnose and repair login issues in Asset Manager" to understand the process and make modifications.

Known issues

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Problem with customized functional domains

Out of box, some services are exposed from predefined functional domains like Currencies (AssetManager.WS.CurrencyService), which are called at the logon phase in Asset Manager Web.

Some services use predefined functional domains in Asset Manager.

Description of Web Service	Web service	Functional domain SQL name
ItemizedList service provider	WebService.Service.ItemizedList	Administration
Functional domain service provider	WebService.Service.FunctionalDomain	Administration
Read mail wizard service provider	WebService.Service.ReadMailWizard	Core
Mail service provider	WebService.Service.Mail	Administration
Employee service provider	AssetManager.WS.EmplDeptService	Core
DateAlarm service provider	WebService.Service.DateAlarm	Administration
Functional Domain Homepage service provider	WebService.Service.FunctionalDomainHomePage	Core
Functional Domain Homepage name	WebService.Object.FunctionalDomainHomePage	FuncDomainHomePage
Download service provider	WebService.Service.DocBlob	Administration
Currencies service provider	WebService.Service.Currency	Currency

If you wish to customize the functional domain of any of these Web services, you will need to apply a specific procedure for an xml file.

Customizing a functional domain for Tomcat

Best Practice

Asset Manager Web uses the definition of the WSDL document described in the file **<Tomcat installation folder>\webapps\AssetManager\WEB-INF\web.xml**

For instance, in this file (that should be left unchanged), the Web Provider Service defaults to **Currency**.

```
...
<env-entry>
<description>Currency service provider</description>
<env-entry-name>WebService.Service.Currency</env-entry-name>
<env-entry-type>java.lang.String</env-entry-type>
<env-entry-value>Currency</env-entry-value>
</env-entry>
...
```

If the implementer needs to customize the **Currencies** to use the same Web service as the parent (**Financials** for example), this setting must be replicated to reflect the change in another file: **AssetManager.xml** in the Asset Manager Web Tier (**<Tomcat installation folder>\conf\Catalina\localhost**) .

> **Note:** All predefined functional domains exposed as Web services that are customized in the Asset Manager database need to be added in the **AssetManager.xml** file.

Procedure of customizing a functional domain

If a functional domain:

- Name: **Currencies**
- SQLName: **Currency**
- seWebService: **From within parent domain**

Which is a child of:

- Name: **Financials**
- SqlName: **Finance**
- seWebService: **stand-alone**

Needs a change to its Web service from **Currency** (the sqlName in the out-of-the-box settings in demo database) to **Finance** (the sqlName) will result in an extra line update in the **AssetManager.xml** context section.

```
<Environment name="WebService.Service.Currency" value="Finance"
type="java.lang.String" override="false">
```

As a result, **AssetManager.xml** will look like:

```
<?xml version="1.0" encoding="UTF-16"?>
<Context path="/AssetManager" docBase="C:\Program Files\HPE\AssetManager
5.10
en\webclient\AssetManager.war">
```

```
<Parameter name="isIntegratedInCwc" value="true" override="false">
</Parameter>
<Environment name="WebService.EndPoint.SOAP"
value="http://localhost:8081/AssetManagerWebService/services/"
type="java.lang.String" override="false">
</Environment>
<Parameter name="useRefresh" value="true" override="false">
</Parameter>
<Environment name="Fields.All.Mandatory.Prompt.Aural" value=""
type="java.lang.String"
override="false">
</Environment>
<Environment name="Lists.Paging.Count.Maximum.Default" value="20"
type="java.lang.Integer" override="false">
</Environment>
<Environment name="WebService.Service.Currency" value="Finance"
type="java.lang.String" override="false">
</Environment>
</Context>
All other functional domains listed below for which the OOB Web Service
was modified will need to be modified too with the same technique.
<env-entry>
<description>ItemizedList service provider</description>
<env-entry-name>WebService.Service.ItemizedList</env-entry-name>
<env-entry-value>Administration</env-entry-value>
<env-entry-type>java.lang.String</env-entry-type>
</env-entry>
<env-entry>
<description>Functional domain service provider</description>
<env-entry-name>WebService.Service.FunctionalDomain</env-entry-name>
<env-entry-value>Administration</env-entry-value>
<env-entry-type>java.lang.String</env-entry-type>
</env-entry>
<env-entry>
<description>Read mail wizard service provider</description>
<env-entry-name>WebService.Service.ReadMailWizard</env-entryname>
<env-entry-value>Core</env-entry-value>
<env-entry-type>java.lang.String</env-entry-type>
</env-entry>
<env-entry>
<description>Mail service provider</description>
<env-entry-name>WebService.Service.Mail</env-entry-name>
<env-entry-value>Administration</env-entry-value>
<env-entry-type>java.lang.String</env-entry-type>
</env-entry>
...
```

Customizing a functional domain for IBM Websphere

As opposed to Tomcat, in Websphere, the file **AssetManager.xml** does not exist.

The same procedure as Tomcat applies to the customization, except that the file **web.xml** should be modified directly in the WAR before deployment and the parameters changed accordingly, with respect to the out-of-box parameter structure definition.

Send documentation feedback

If you have comments about this document, you can contact the documentation team by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on Web Implementation (Asset Manager 9.63)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to ovdoc-ITSM@hpe.com.

We appreciate your feedback!