

Technical Manual

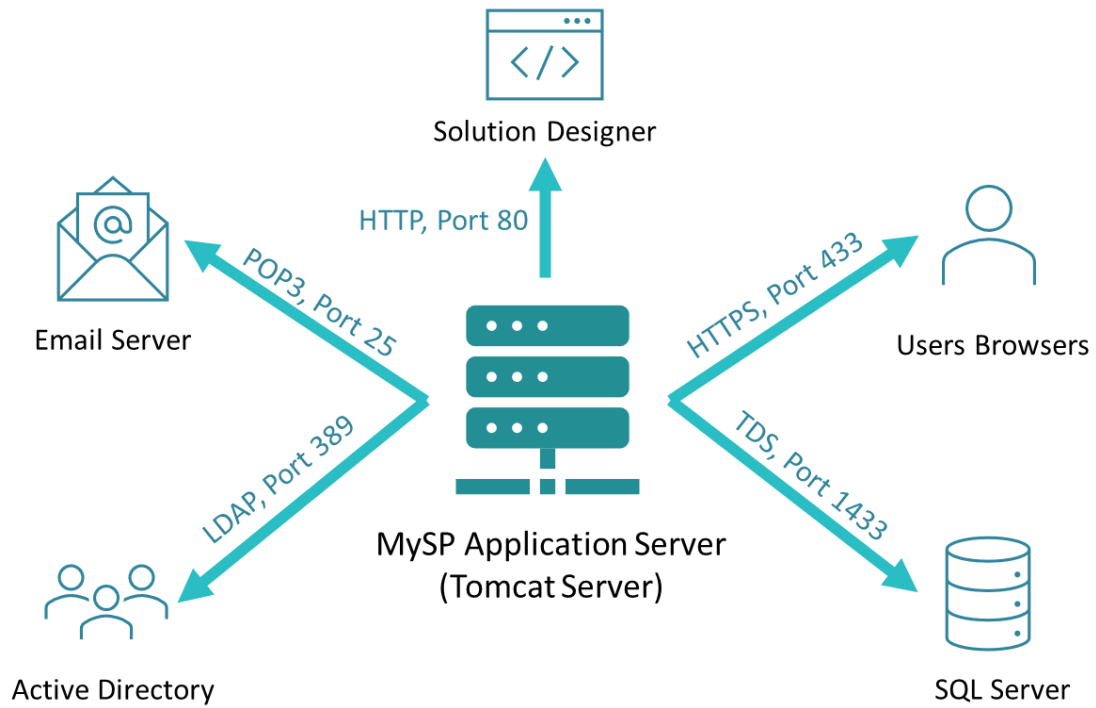


Contents

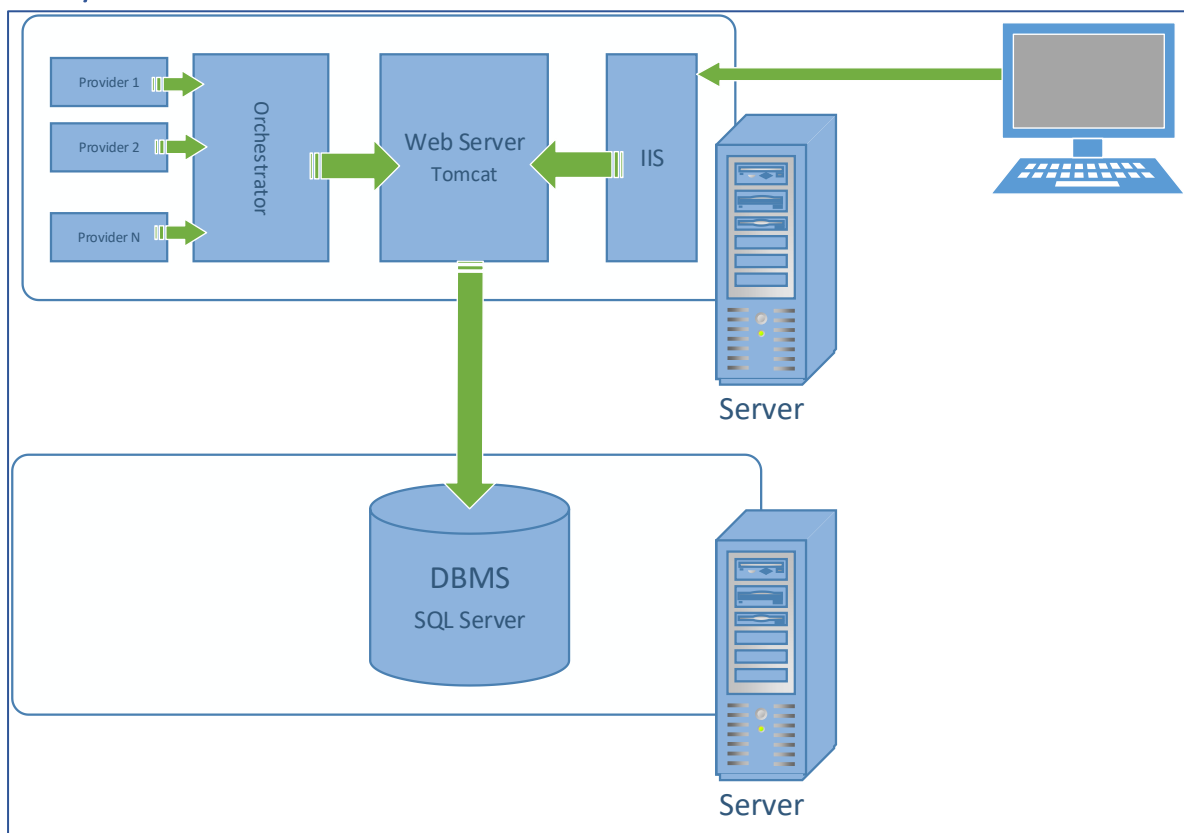
1. Network and System Architecture	3
2. System Installation	4
2.1. Prerequisites	4
2.2. Installation general procedure and SW	4
2.3. Database Deployment	4
2.4. Tomcat Deployment	5
2.5. Configure database connection	5
2.6. Install Tomcat as a service	6
3. Scale Out (Multi server) topology	9
3.1. Prerequisites	10
3.2. Configuring a shared storage	10
3.3. Configuring the “Master server” instance name	10
4. Configuring SAML Authentication.....	11
4.1. Steps for enabling SAML authentication	11
Appendix A - MySP Compatibility Table	13
Appendix B – Sample SAML Metadata	14
Appendix C – Supported Computer displays	16

1. MySP Solution Architecture

1.1. Network Architecture



1.2. System Architecture



2. System Installation

2.1. Prerequisites

1. Microsoft Windows Server (see Appendix A - MySP Compatibility Table)
2. Microsoft SQL Server (see Appendix A - MySP Compatibility Table)
 - 2.1. SQL Management Studio
3. JAVA jdk1.8.0_211
4. MySP software (Version 1.10.0 and later)
 - 4.1. Recommended: Notepad++, WinRar

2.2. Installation general procedure and SW

5. Download software products
 - 5.1. Apache Tomcat server and extract it (copy Tomcat files from MySP installation files
.. \tomcat\conf\MSP\tomcatfiles
 - 5.2. JAVA jdk1.8.0_91 and install it if not exist already
 - 5.3. MySP Application latest version under core product
6. **Follow installations instructions in the following paragraphs**
7. Get license key (provide computer name) put it in \conf\CSE\license-key\license.key
8. To start the application: /bin/start_tomcat_instance.cmd (install as a service in the end of this document)
9. http://localhost:xxxx/MSP (MSP capital letters!)

2.3. Database Deployment

1. Install MS-SQL Server, mixed mode, according to official documentation
2. Open Microsoft SQL Server Management Studio.
3. Restore the .bak file to create a new database with default schema and data.
4. Database initial settings
 - 4.1. Update ApplicationPreferences table:
 - 4.1.1. select * from ApplicationPreferences where Name like 'APPLICATION_URL'
 - 4.1.2. update ApplicationPreferences set ParamValue =
'http://servername:80XX/MSP/' where Name = 'APPLICATION_URL' – where
servername is the name of the server hosting the tomcat.
 - 4.1.3. Example: update ApplicationPreferences set ParamValue =
'http://localhost:8091/MSP/' where Name = 'APPLICATION_URL'
 - 4.2. Check TCPIP is enabled and configured to 1433
 - 4.2.1. Open SQL Server Configuration Manager
 - 4.2.2. SQL Server Network configuration
 - 4.2.3. Protocols for DB
 - 4.2.4. Choose TCPIP
 - 4.2.5. Protocol – enabled: Yes
 - 4.2.6. IP Addresses – TCP Port – 1433 in every section

2.4. Tomcat Deployment

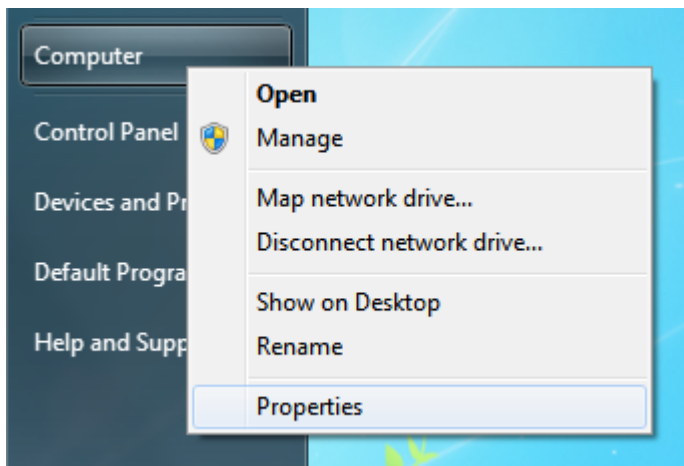
1. Take the current server down.
2. Backup existing tomcat.
3. Backup the DB (in case you need to roll back the upgrade).
4. Extract MSP tomcat server to XXX File folder.
5. Application installation:
 - 5.1. Restore the Blank DB from the BAK file (as mentioned in previous paragraph).
 - 5.2. Copy the new **MSP.war** file to the **/webapps** folder.
 - 5.3. Extract **conf.rar (or MSP.rar)** to the **/conf** folder (it should be MSP folder).
 - 5.4. Duplicate the MSP folder in /conf folder and rename to CSE. Delete all files – not sub folders but keep 2 files: license.key in /license-key folder and hibernate.cfg.xml in /hibernate folder
 - 5.5. Upgrade only - Delete **/logs**, **/work** and **/temp** folders.
 - 5.6. Upgrade only - Delete **MSP.war** file and **MSP folder** inside the **/webapps** folder.
 - 5.7. Upgrade only - Delete **MSP** folder inside the **/conf** folder.
 - 5.8. Upgrade only - Execute the SQL scheme upgrade from the **5.5.4.34** section in the **UPGRADE_SCRIPTS_FOR_RELEASE_5_5_4.sql** file inside the new **MSP** folder (in **conf**).
 - 5.9. Upgrade only - Execute the SQL provisioning updates from the **5.5.4.34** section in the **UPGRADE_PROVISIONING_SCRIPTS_FOR_RELEASE_5_5_4.sql** file inside the new **MSP** folder (in **conf**).
6. Edit /conf/server.xml file:
 - 6.1. <Connector port="80XX" protocol="HTTP/1.1" – with the desired port for Tomcat
 - 6.2. Note that if SSO/IIS will be used, then a different port should be used.

2.5. Configure database connection

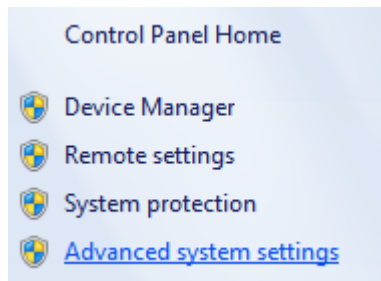
- Edit /conf/CSE/hibernate/hibernate.cfg.xml:
 - Under the property named **connection.url** – enter the SQL server name and database name.
 - Under the property named **username** – enter SQL user. For windows authentication enter *[Domain Name]/[User Name]*
 - Under the property named **password** – enter the user's password.

2.6. Install Tomcat as a service

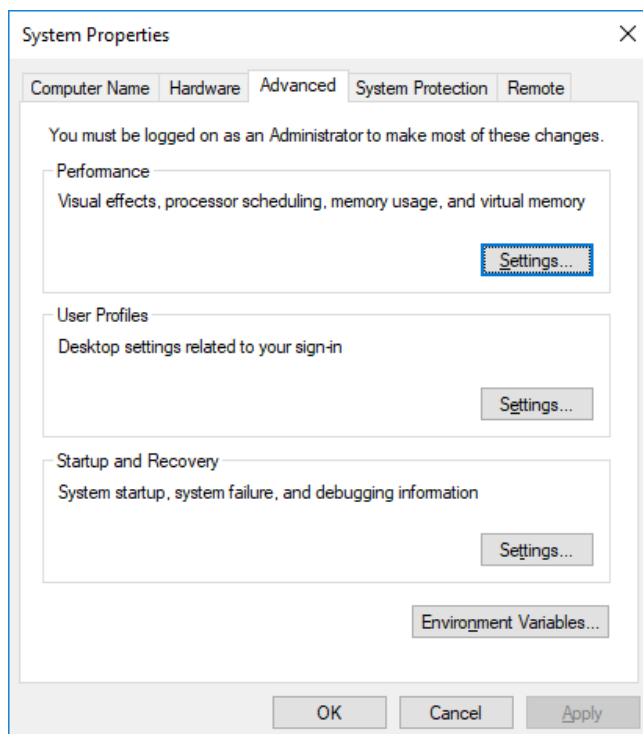
1. Right-click **Computer**, select **Properties**



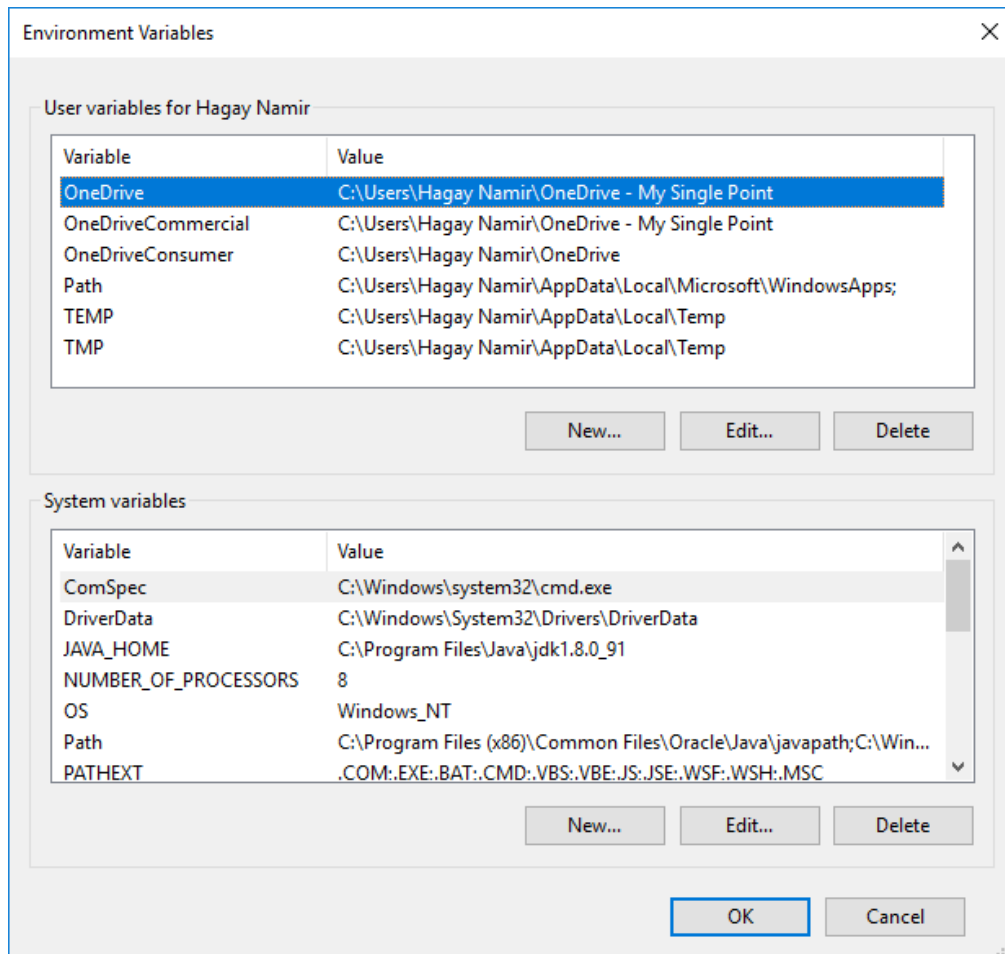
2. Click Advanced system settings link:



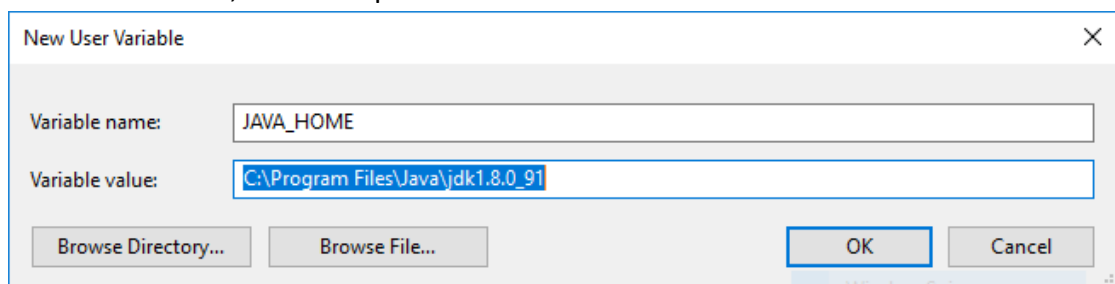
3. Click Environment Variables



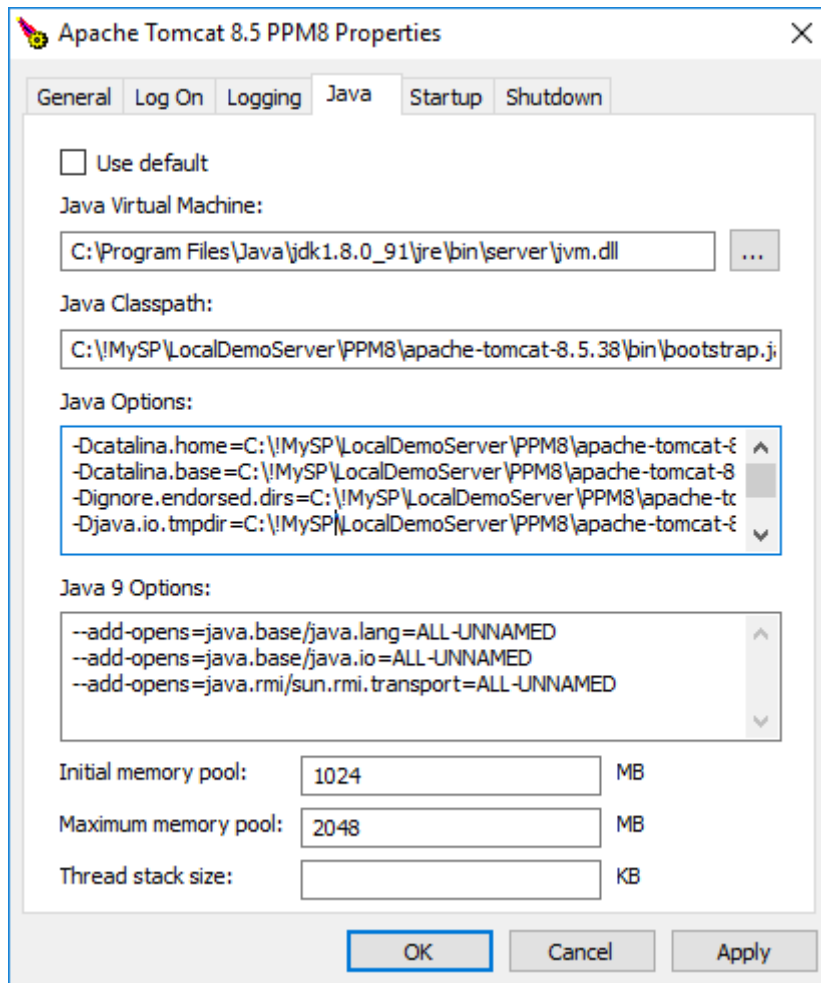
- Under System variables, click New



- In **Variable name**, enter JAVA_HOME
- In **Variable value**, enter the path to the JDK folder



- Click **OK** to close all windows.
- Open **cmd** as Administrator!
 - Go to the **\bin** directory
 - Run: service install "SERVICE NAME", e.g. service install MYSP
 - This will install a service called: **Apache Tomcat 8.5 MYSP**
 - Run: tomcat8w.exe //ES//MYSP
 - Go to Java tab
 - Make sure to update initial and Maximum memory pool:



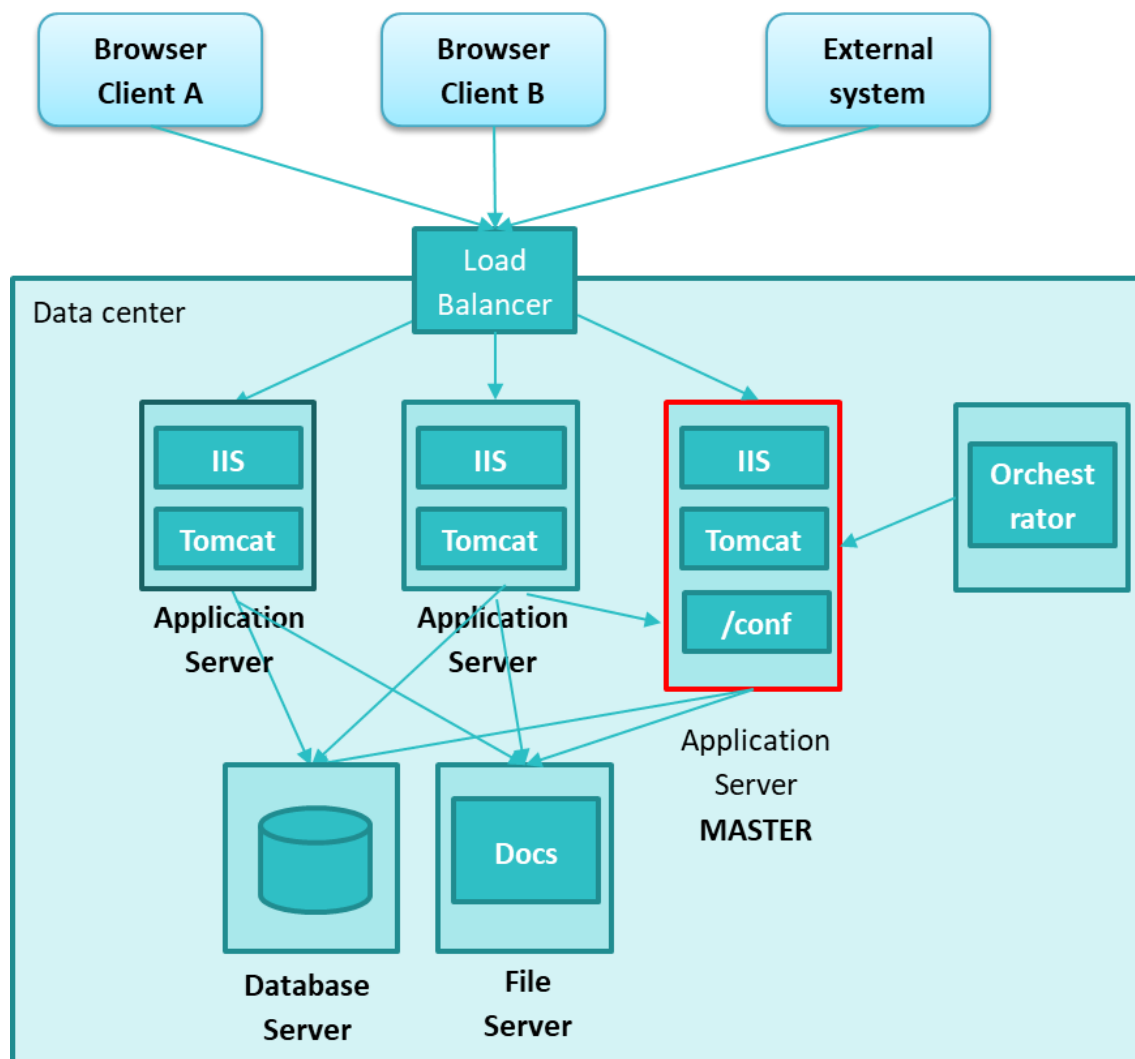
3. Scale Out (Multi server) topology

MySP supports deploying the Tomcat service (MySP Solutions Application Server) on multiple server hosts.

In a multi-server topology, clients will be accessing the Tomcat service (MySP Solutions Application Server) through a load balancer which will route the incoming requests to a specific Tomcat service.

One of the server host must be defined as the “master server”. The master server is responsible for executing the background tasks and need to be protected by high available mechanism (e.g. VMware HS, MS Cluster). The master server also hosts the configurations files and share for the other instances to use.

The documents will be placed on a centralized storage folder (e.g. a File server, SAN storage or the Master Server) accessible to all servers.



3.1. Prerequisites

- Multi server support is only available from MySP version 1.8.0
- All system components must reside on the same local network
- A load balancer must be configured for “sticky session” (i.e. to always route a specific client to the same server host).
 - Configuring a load balancer for sticky session is outside the scope of this manual.
- A shared storage accessible from all server hosts

3.2. Configuring a shared storage

- Create an SMB share for the configuration files on the master server (e.g. [\\MYSconfiguration](#))
- Set the "msp.configuration.path" (environment variable or java property) on each of the server hosts to point to the shared configuration directory (e.g. "\\MYSconfiguration").

3.3. Configuring the “Master server” instance name

- Update the Application Preference “MASTER_SERVER_HOSTNAME” field with the hostname of the main server instance

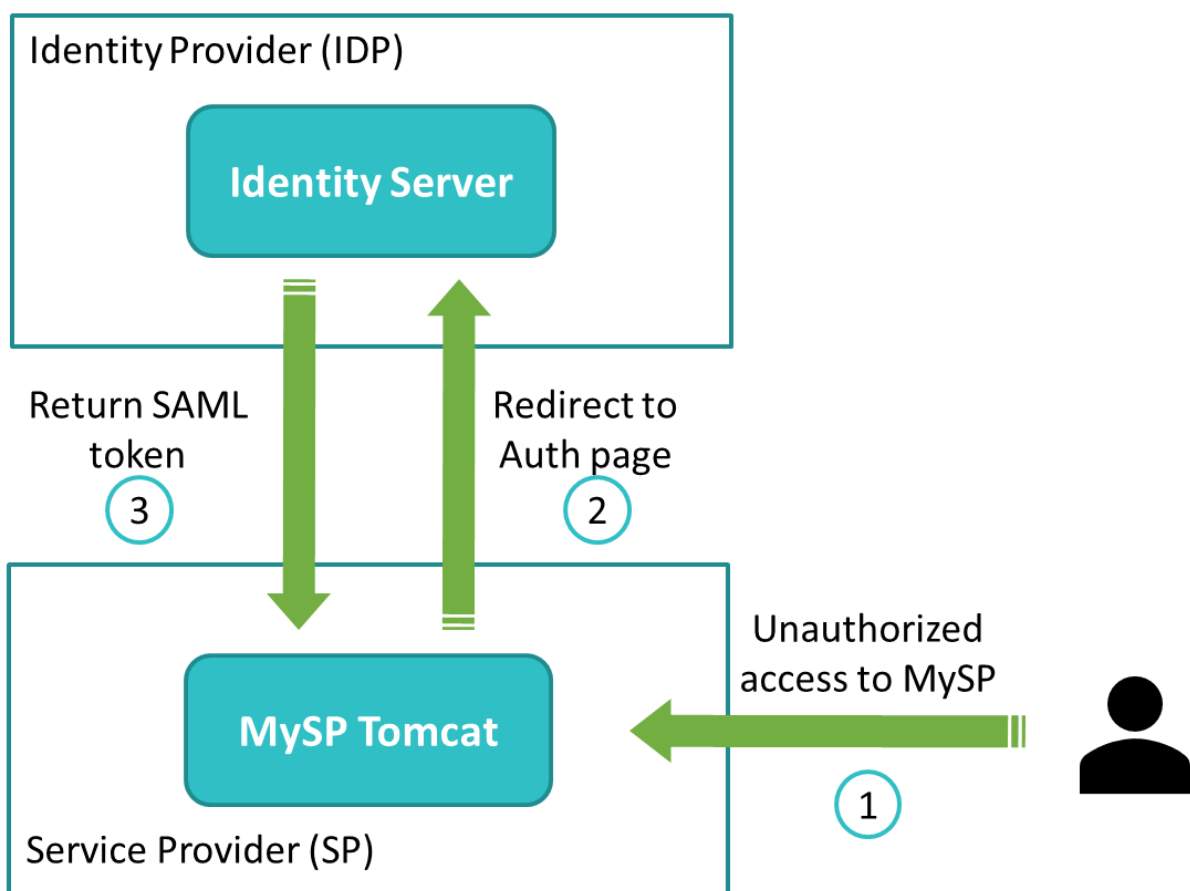
Note: In a standalone configuration the MASTER_SERVER_HOSTNAME must remain empty, or same as the local hostname, otherwise the background job will not get executed.

4. Configuring SAML Authentication

Note: By enabling the SAML authentication, MySP will no longer support the default type of authentication - via login screen dialog. All login request will be forwarded to the SAML IDP for authentication.

Note: Users provisioning is not being managed by the SAML authentication mechanism. User s will have to be provision manually or via an alternate mechanism. The user identifier transmitted by the IdP in the SAML token must match the user login name configured in the system.

Note: The certificate must support the PKCS#8 format



4.1. Steps for enabling SAML authentication

- Obtain a x509 certificate type to be used on SAML configuration
 - The following site can be used to generate a certificate:
https://www.samltool.com/self_signed_certs.php
- Create a metadata.xml file to establish trust between MSP (the SP) and the IDP. The URLs and certificate digest should be updated. Below is an example of a metadata file.

- Copy onelogin.saml.properties file into the Tomcat /conf/MSP folder.
- In the onelogin.saml.properties file edit the following SP's and IDP's fields:
 - assertion_consumer_service.url
 - single_logout_service.url
 - x509cert
 - privatekey

Note: Keep the rest of flags as they are - changing the flags will require changes on the IDP as well.

- Set MSP system property SAML_AUTHENTICATION_ENABLED to true. You can do that from the solution designer or directly in the dbo.ApplicationPreferences database table
- Restart the system

Appendix A - MySP Compatibility Table

The table below shows MySP’s compatibility with relevant third-party products

3 rd Party Products	1.X.X
Windows Server 2008 Enterprise	✓
Windows Server 2008 Enterprise R2	✓
Windows Server 2012 Standard	✓
Windows Server 2012 Standard R2	✓
Windows Server 2016 Standard	✓
Windows Server 2019 Standard	✓
Windows 8	✓
Windows 10	✓
SQL Server 2008 Standard/Enterprise	✓
SQL Server 2012 Standard/Enterprise	✓
SQL Server 2014 Standard/Enterprise	✓
SQL Server 2016 Standard/Enterprise	✓
SQL Server 2017 Standard/Enterprise	✓
SQL Server 2019 Standard/Enterprise	✓
Tomcat 8	✓
Java 8	✓
Microsoft Internet Explorer 11.0	✓
Chrome	✓
Firefox	✓
Microsoft Edge (Microsoft Edge Legacy)	✓
Microsoft Edge (Chromium-based)	✓

Appendix B – Sample SAML Metadata

```
<?xml version="1.0" encoding="UTF-8"?>
<md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata"
  validUntil="2020-07-30T11:16:57Z"
  cacheDuration="PT604800S"
  entityID="https://mysp.com">
  <md:SPSSODescriptor AuthnRequestsSigned="false"
    WantAssertionsSigned="true"
    protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
    <md:KeyDescriptor use="signing">
      <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
        <ds:X509Data>
          <ds:X509Certificate>
```

```
MII CoDCCAgmgAwIBAgIBADANBgkqhkiG9w0BAQ0FADBtMQswCQYDVQQGEWJpbDERMA8GA1UECAwIVGVzIEF2aXYxDTALBgNVBAoMVG15c3AxKTAnBgNVBAMMIGVpdGFtLW15c3AtdGVzdGluZy5pdGdhYXMuZ292LmIsMREwDwYDVQQHDAhURUwGQVZJVjAeFw0yMDA3MjgwODQ5MjBaFw0yMTA3MjgwODQ5MjBaMG0xCzAJBgNVBAYTAmlsMREwDwYDVQQIDAhUZWwgQXZpdjENMAsGA1UECgwEbXlzcDEpMCCGA1UEAwwgZWl0YW0tbXlzcC10ZXN0aW5nLml0Z2Fhcy5nb3YuaWwETAPBgNVBACMCFRFTCBBVkiWMIgFMAOGCSqGSIb3DQEBAQUAA4GNADCBiQKBgQCWPCNG6KQfjRRJ7JKj9V+BMpsKG4meJ9rinmQ4zxS7294A2RHwV4jXpHYHSessWL1QImocrtx+KGZeJO2cUsgc2FOxAUXEmVK5M1piE14mSOVdqxDIVAn4hVAiY7jxGufq6Pe4No+bYZoPeM5AH3mUvYKBPiCdOrHZN0AeFgWymQIDAQABo1AwTjAdBgNVHQ4EFgQUF1jEv90V+QC6kmhHPh7RVGOKRtUwHwYDVR0jBBgwFoAUF1jEv90V+QC6kmhHPh7RVGOKRtUwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQ0FAAOBgQB2DOjGOB02S5Mv80y5roCWzSoJ5uGPYzCPTUPO4aHesBhL92+ixgCAQ9mJ0zr+0n7T6kPzzqQGApRWEJwImBiyHwKqemPd5eLPzt7DJuEiipWvjU0ZONATScb2A1TMzANxZRJUX2NBvQu/L/MtbrFNWSrK+drmgwUSxUk5ZwhlAw==
```

```
</ds:X509Certificate>
</ds:X509Data>
</ds:KeyInfo>
</md:KeyDescriptor>
<md:KeyDescriptor use="encryption">
  <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
    <ds:X509Data>
      <ds:X509Certificate>
```

```
MII CoDCCAgmgAwIBAgIBADANBgkqhkiG9w0BAQ0FADBtMQswCQYDVQQGEWJpbDERMA8GA1UECAwIVGVzIEF2aXYxDTALBgNVBAoMVG15c3AxKTAnBgNVBAMMIGVpdGFtLW15c3AtdGVzdGluZy5pdGdhYXMuZ292LmIsMREwDwYDVQQHDAhURUwGQVZJVjAeFw0yMDA3MjgwODQ5MjBaFw0yMTA3MjgwODQ5MjBaMG0xCzAJBgNVBAYTAmlsMREwDwYDVQQIDAhUZWwgQXZpdjENMAsGA1UECgwEbXlzcDEpMCCGA1UEAwwgZWl0YW0tbXlzcC10ZXN0aW5nLml0Z2Fhcy5nb3YuaWwETAPBgNVBACMCFRFTCBBVkiWMIgFMAOGCSqGSIb3DQEBAQUAA4GNADCBiQKBgQCWPCNG6KQfjRRJ7JKj9V+BMpsKG4meJ9rinmQ4zxS7294A2RHwV4jXpHYHSessWL1QImocrtx+KGZeJO2cUsgc2FOxAUXEmVK5M1piE14mSOVdqxDIVAn4hVAiY7jxGufq6Pe4No+bYZoPeM5AH3mUvYKBPiCdOrHZN0AeFgWymQIDAQABo1AwTjAdBgNVHQ4EFgQUF1jEv90V+QC6kmhHPh7RVGOKRtUwHwYDVR0jBBgwFoAUF1jEv90V+QC6kmhHPh7RVGOKRtUwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQ0FAAOBgQB2DOjGOB02S5Mv80y5roCWzSoJ5uGPYzCPTUPO4aHesBhL92+ixgCAQ9mJ0zr+0n7T6kPzzqQGApRWEJwImBiyHwKqemPd5eLPzt7DJuEiipWvjU0ZONATScb2A1TMzANxZRJUX2NBvQu/L/MtbrFNWSrK+drmgwUSxUk5ZwhlAw==
```

```
</ds:X509Certificate>
</ds:X509Data>
</ds:KeyInfo>
```

```
</md:KeyDescriptor>
<md:SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-Redirect"
  Location="<server address>/MSP/pages/logout.jsp"/>
<md:NameIDFormat>urn:oasis:names:tc:SAML:2.0:nameid-
format:persistent</md:NameIDFormat>
<md:AssertionConsumerService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
  Location="https://<server address>/MSP/pages/login.jsp"
  index="1"/>
</md:SPSSODescriptor>
</md:EntityDescriptor>
```

Appendix C – Supported Computer displays

Overview

Computer display standards are a combination of aspect ratio, display size, display resolution, color depth, and refresh rate. They are associated with specific expansion cards, video connectors and monitors. (Wikipedia)

MySP Solutions, the new versions starting at version 1.0.0 firstly published to the market in 2019, went through major UX/UI improvement transformation and utilizing the Display “real estate” in a much better and smarter way.

Supported computer display resolution

MySP support and recommend using computer displays with the following characteristics and higher:

- Display aspect ratio - 16:9; Display resolution – Full High Definition (1080p, FHD), 1920×1080
- Display aspect ratio - 4:3; Display resolution - Ultra Extended Graphics Array (UXGA), 1600×1200

Lower spec computer display resolution

MySP might work with other computer displays resolution, but not committed to either support or fix any discrepancies, e.g. with the following characteristics:

- Display aspect ratio - 16:9; Display resolution – High Definition (720p, HD), 1280×720 (921k), 1360×768 (1044k) or 1366×768 (1049k)
- Display aspect ratio - 4:3; Display resolution – High Definition (1080p), 1920×1080 and higher
- Display aspect ratio – 5:4; Display resolution - Super Extended Graphics Array (SXGA), 1600×1200