



FORMVERSE EAP TECHNICAL REQUIREMENTS GUIDE & CUSTOMER PRE-INSTALLATION CHECKLIST

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FORMVERSE ENTERPRISE AUTOMATION PLATFORM (EAP) COMPONENTS

1. **FORMVERSE REGISTRY SERVER** (delivered as a set of Web Services) Provides access to structured data, FORMVERSE users and dispatching & processing rules required by FORMVERSE components. A second instance of the FORMVERSE Registry Server can be installed in a “Shadow Mode” configuration on a separate server. This will allow “outside-the-network” users to have access to specific and limited functionality and to ensure compliance with security requirements. This also includes the FORMVERSE Web App, allowing browser access.
2. **MICROSOFT OUTLOOK ADD-IN (OPTIONAL):** Provides users access to the Application interface, the ability to interact with Applications, as well as access to history right from their Microsoft Outlook email client (.msi package or .exe formats). Only required for Microsoft Outlook 2010. Optional for Outlook 2013/2016.
3. **FORMVERSE WEB ADMIN** (delivered as a set of Web Services) Provides the administration interface for all FORMVERSE components. Here administrators can orchestrate a FORMVERSE deployment and manage Accounts and the FORMVERSE database. Installed on the same server as the FORMVERSE Registry Server.
4. **FORMVERSE MULTI-TENANCY** Provides the option of creating multiple client instances of FORMVERSE websites within a single install of FORMVERSE. These clients operate under the same main website but have separate databases which means information is individual to each instance and can only be access by the users of that instance.
5. **FORMVERSE TEMPLATE EDITOR** Implemented as a standard Microsoft Windows Application, this module provides the administrators the ability to create and modify FORMVERSE Application Templates.
6. **FORMVERSE DATABASE (MS SQL SERVER)** Stores and serves the FORMVERSE Application Templates to end-users as and all Application data and metadata. Installed as a new database on a new or existing SQL Server instance (created during installation).
7. **FORMVERSE APPLICATION TEMPLATES** A FORMVERSE Application Template is the container that holds all of the components that are used to automate a single business use case or process.

HARDWARE AND SOFTWARE REQUIREMENTS

This document describes the hardware and software requirements for an on-premise installation where the FORMVERSE EAP software and its components are installed on servers or virtual servers at your data center or at your hosting provider (AWS, etc.). This guide provides only a high-level overview of the requirements as the software is highly configurable.

Important note: FORMVERSE EAP Software is installed in two or more phases:

- 1) Phase 1: Development/Staging in Sandbox Environment (DEV)/(STG)
- 2) Phase 2: Production Environment (PRD)

Phase 1 – Development/Staging (DEV)/(STG)

During installation in the DEV/STG in sandbox environment, the Software is normally installed on four servers. Some servers may be combined depending on the client environment, best practices and security. The number of servers required will be determined based upon review of the final system architecture requirements.

Phase 2 – Production (PRD)

In the Production Environment (PRD), the FORMVERSE EAP Software is installed on three servers, unless it is configured in "Shadow Mode", in which case four servers are used.

The following tables represent a typical installation in a Production Environment, including configuration in Shadow Mode.

SERVER 1 - FORMVERSE REGISTRY SERVER (RS)

Physical or Virtual (VMware or Hyper-V)
Processor Intel Xenon 2.40 GHZ 2Cores CPU Minimum
Ram 16-32 GB (PROD) 12-16 GB (Test/Sandbox)
Hard Drive Free Space 200 GB minimum (Production) 80 GB Minimum (Test/Sandbox). This will vary based on anticipated users, frequency, steps, data elements, attachments, and other factors.
Microsoft Windows Server 2008 Standard or Enterprise, 2008 R2 Standard or Enterprise, 2012, Standard or Datacenter. Microsoft Windows Server 2016 will be supported upon release.
Microsoft IIS
Microsoft .NET Framework 4.5.2+
Static IP Address needed
For remote installation assistance, FORMVERSE will need access to servers via VPN or RDC/RDP

FORMVERSE INSTALLED COMPONENTS

FORMVERSE Registry Server and FORMVERSE Web Admin

SERVER 2 - FORMVERSE APPLICATION SERVER (APP)

Physical or Virtual (VMWare or Hyper-V)
Processor Intel Xenon 2.40 GHZ 2Cores CPU Minimum
Ram 8-16 GB (PROD) 8-16 GB (Test/Sandbox)
Hard Drive Free Space 100 GB minimum (Production) 50 GB Minimum (Test/Sandbox)
Microsoft Windows Server 2008 Standard or Enterprise, 2008 R2 Standard or Enterprise, 2012 Standard or Datacenter. Microsoft Windows Server 2016 will be supported upon release.
Microsoft IIS
Microsoft .NET Framework 4.5.2+
Static IP Address needed
Microsoft InfoPath Designer 2013
For remote installation assistance, FORMVERSE will need access to servers via VPN or RDC/RDP

FORMVERSE INSTALLED COMPONENTS

FORMVERSE Template Editor Software

SERVER 3 - SQL SERVER INSTANCE (SQL)

Microsoft SQL Server (Standard or Enterprise): MS SQL 2012 R2, 2014, 2016 Standard (or higher) in mixed SQL and Windows Authentication Mode, SQL Server Express not supported. Enabled TCP/Pipe/and File Stream protocols.

Windows 2012 R2 Standard English (to hold FV Database)

Cores: at least 4 cores. 8 Recommended

32 GB RAM minimum

500 GB HD Free Space (half of the disc space for the database and half for the log file – ideally split equally)

For remote installation assistance, FORMVERSE will need access to servers via VPN or RDC/RDP

FORMVERSE INSTALLED COMPONENTS

FORMVERSE DATABASE and FORMVERSE ATTACHMENTS DATABASE (FORMVERSE installation will create the FORMVERSE databases on the existing instance of SQL Server)

SERVER 4 - FORMVERSE REGISTRY SERVER - SHADOW MODE (SRS)

IMPORTANT NOTE: ONLY REQUIRED IF REGISTRY SERVER SHADOW MODE IS NEEDED

Physical or Virtual (VMWare or Hyper-V)

Processor Intel Xenon 2.40 GHZ 2Cores CPU Minimum

Ram 16-32 GB (Production) 12-16 GB (Test/Sandbox)

Hard Drive Free Space 200 GB minimum (Production) 80 GB Minimum (Test/Sandbox).

Microsoft Windows Server 2008 Standard or Enterprise, 2008 R2 Standard or Enterprise, 2012, Standard or Datacenter. Microsoft Windows Server 2016 will be supported upon release.

Microsoft IIS

Microsoft .NET Framework 4.5.2+

Static IP Address needed

For remote installation assistance, FORMVERSE will need access to servers via VPN or RDC/RDP

FORMVERSE INSTALLED COMPONENTS

FORMVERSE Registry Server Shadow Mode

USER DESTOPS

Microsoft Windows 7, 8.1, or 10 (32 or 64-bit)

Processor 2.00 GHZ CPU Minimum

Ram 4 GB Minimum, 8 GB Recommended

Microsoft Outlook 2010, 2013, 2016 or browser-based Outlook 365 (Optional)

FORMVERSE INSTALLED COMPONENTS

FORMVERSE EAP Outlook Add-in (Not required for Outlook 2013/2016/Office 365 (Browser-based) email

CUSTOMER PRE-INSTALLATION CHECKLIST

OVERALL REQUIREMENTS

VPN and Remote Desktop credentials for all 4 servers. These are required for us to install and configure the software.

FVAdmin email account created in Active Directory. This account will be used as the notification engine for FORMVERSE. Password resets, workflows initiated or taken action on through the WebApp, and general administration emails will be sent from this account. It is important that this account is configured to allow for SMTP. SMTP relay may be used.

The following information will also be required for the FVAdmin email account. Examples have been provided in blue text:

```
Smtper="formverse2015@gmail.com"
SenderMail="formverse2015@gmail.com"
SmtperPassword="password"
SmtperHost="smtp.gmail.com"
SmtperPort="587"
```

FVAdmin Service Account created in Active Directory. The Service Account should have system admin rights on Servers 1, 2 and 4.

When enabling Server 1 (RS) and Server 4 (SRS) with an IIS security certificate please ensure the following:

- 1) FORMVERSE recommends usage of wildcard certificates from reputable Certification Authority. The certificates must be in .pfx format or at least be exportable to .pfx format including keys.
- 2) The certificates must be in .pfx format or at least exportable to .pfx format.
- 3) They are only required for Server 1 (RS) and Server 4 (SRS). Server 2 (APP) and Server 3 (SQL) do not need certificates unless there is a need to encrypt the data in SQL.
- 4) It is recommended that a wildcard certificate is used. In this case host names such as "fvrs-01" and "fvsm-01" may be used as long as they are mapped to the internal IP address. Host names such as ("fvrs-01.formverse5.com" and "fvsm-01.formvrse5.com") must be declared in the DNS.
- 5) Name-based certificates are also permitted as long as they are bounded to specific machines and the certificate request has been originated on that machine.

Please ensure all servers can communicate with Server 1 (RS) through port 443. You may test this by launching command prompt in administrator mode on Server 1 (RS) and using the following command:

- 1) ping fvrs-01.formverse5.com
 - a. Note: The above is an example and the proper host name / domain should be used for your server.
- 2) Repeat Command 1 on Server 2 (APP), Server 3 (SQL), and Server 4 (SRS) to ensure that all servers can communicate with Server 1 (RS).

Please ensure Server 1 (RS) can communicate with the SQL Server Instance. You may test this by:

- 1) Connect to Server 1 (RS) using the Service Account created for FORMVERSE.
- 2) Create a blank text document on the Server 1 (RS) desktop.
- 3) Make sure file extensions are showing. This can be set in the file explorer by selecting the checkbox in the "View" tab.
- 4) Change the name of the blank text document to "test.udl".
- 5) Open this file and test connectivity to SQL using Windows NT Integrated security.

SERVER 1 - FORMVERSE REGISTRY SERVER (RS)

Enable IIS with security certificate. Allowed external access to the IIS. Windows Integrated security enabled. Open ports 47/80/443/1433 (1701 and 1723 required if FORMVERSE is connecting by VPN for administrative purposes)

- 1) One website must be created in IIS:
 - a. FORMVERSE
- 2) Three application pools must be created in IIS:
 - a. FV_RS
 - i. Set Managed Pipeline Mode to "Classic"
 - ii. The Application Pool identity must be set to the Service Account credentials
 - iii. Set Enable 32-Bit Applications to True in Advanced Settings
 - b. FV_Admin
 - i. Set Managed Pipeline Mode to "Integrated"
 - ii. The Application Pool identity must be set to the Service Account credentials
 - iii. Set Enable 32-Bit Applications to True in Advanced Settings
 - c. FV_OWA
 - i. Set Managed Pipeline Mode to "Integrated"
 - ii. The Application Pool identity must be set to the Service Account credentials
 - iii. Set Enable 32-Bit Applications to True in Advanced Settings

In the Registry Editor, browse to the following register and make sure that the appropriate security protocols are enabled the same way in this server as in SERVER 3 – SQL SERVER INSTANCE:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols

Please Enable the following Role Services in Server Manager:

Web Server

- a) Common HTTP Features
 - i) Static Content
 - ii) Default Document
 - iii) Directory Browsing
 - iv) HTTP Errors

Please Enable the following Features in Server Manager:

- 1) .NET Framework 4.5.2+ Features
 - a) .Net Framework 4.5.2+
 - b) XPS Viewer
 - c) WCF Activation
 - i) HTTP Activation
 - ii) Non-HTTP Activation

<ul style="list-style-type: none"> b) Application Development <ul style="list-style-type: none"> i) ASP.NET ii) .NET Extensibility iii) ISAPI Extensions iv) ISAPI Filters c) Health and Diagnostics <ul style="list-style-type: none"> i) HTTP Logging Request Monitor d) Security <ul style="list-style-type: none"> i) Windows Authentication ii) Request Filtering e) Performance <ul style="list-style-type: none"> i) Static Content Compression 2) Management Tools <ul style="list-style-type: none"> a) IIS Management Console <ul style="list-style-type: none"> i) IIS 6 Management Compatibility <ul style="list-style-type: none"> (1) IIS 6 Meta Base Compatibility (2) IIS 6 WMI Compatibility 	
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SERVER 2 - FORMVERSE APPLICATION SERVER (APP)

Allowed external access to the IIS. Windows Integrated security enabled. Open ports 47/80/443/1433 (1701 and 1723 required if FORMVERSE is connecting by VPN for administrative purposes)

Please Enable the following Role Services:	
<ul style="list-style-type: none"> 1) Web Server <ul style="list-style-type: none"> a) Common HTTP Features <ul style="list-style-type: none"> i) Static Content ii) Default Document iii) Directory Browsing iv) HTTP Errors b) Application Development <ul style="list-style-type: none"> i) ASP.NET ii) .NET Extensibility iii) ISAPI Extensions iv) ISAPI Filters c) Health and Diagnostics <ul style="list-style-type: none"> i) HTTP Logging Request Monitor d) Security <ul style="list-style-type: none"> i) Windows Authentication ii) Request Filtering e) Performance <ul style="list-style-type: none"> i) Static Content Compression 	<ul style="list-style-type: none"> 2) Management Tools <ul style="list-style-type: none"> a) IIS Management Console <ul style="list-style-type: none"> i) IIS 6 Management Compatibility <ul style="list-style-type: none"> (1) IIS 6 Meta Base Compatibility (2) IIS 6 WMI Compatibility

SERVER 3 - SQL SERVER INSTANCE (SQL)

Open ports 443, 1433, 1701, 1723, 3389 (1701 and 1723 required if FORMVERSE is connecting by VPN for administrative purposes)

Enable Broker and SQL Services

Domain Name and SQL Server Instance Name should be provided upon install

FILESTREAM Access Level should be set to "Full access enabled" in the Server Properties Advanced tab within SQL Management Studio.

In SQL Server Configuration Manager in the FILESTREAM tab enable the following:

1. Enable FILESTREAM for Transact-SQL access.
2. Enable FILESTREAM for file I/O streaming access.
3. Allow remote clients to have streaming access to FILESTREAM data

The FVAdmin Service Account should have "sysadmin" role on the SQL Server Instance

- i) You may reduce the rights afterwards to DB Owner for the FORMVERSE and FvAttachments databases that are created during the install.
- ii) This Service Account will also need DB Owner rights to the databases in which it reads and writes data (Databases connected to any forms)
- iii) SQL should be configured to allow for Mixed Mode Authentication for the Service Account.

In the Registry Editor, browse to the following register and make sure that the appropriate security protocols are enabled the same way in this server as in SERVER 1 – FORMVERSE REGISTRY SERVER (RS):
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols

IMPORTANT NOTE: AFTER ENABLING FILESTREAM MICROSOFT SQL SERVER MUST BE RESTARTED. PLEASE RESTART MICROSOFT SQL SERVER DURING A MAINTANENCE PERIOD PRIOR TO SCHEDULING INSTALLATION OF FORMVERSE.

Additional Information: RS redirects the data stream to SQL. If the data stream contains an attachment, the metadata it is stored in the FvAttachments table and a data stream is written into the local drive MS SQL\DATA\FvAttachments subdirectory. This subdirectory contains binary representation of the attachment(s), as well as some information required by MS SQL to manage it seamlessly.

Having FILESTREAM enabled implies that the attachment files are written into the FvAttachments database under specific security credentials (FVAdmin or whatever is used under Service Account). This is important, because when a user wants to retrieve this data, RS still goes into the FvAttachments database and requests the data in a security context of the FVAdmin (service account).

SERVER 4 - FORMVERSE REGISTRY SERVER-SHADOW MODE (SRS)

IMPORTANT NOTE: ONLY REQUIRED IF REGISTRY SERVER SHADOW MODE IS NEEDED

Enable IIS with security certificate. Allowed external access to the IIS. Windows Integrated security enabled. Open port 443 (1701 and 1723 required if FORMVERSE is connecting by VPN for administrative purposes)

When configuring the DMZ for the Shadow Registry Server, please ensure this is publicly faced so that it may be accessed outside of your network. The Shadow Registry Server will need to communicate with Server 1 (RS) through port 443.

- 1) One website must be created in IIS:
 - a. FORMVERSE
- 2) One application pool must be created in IIS:
 - a. FV_SRS
 - i. Set Managed Pipeline Mode to "Classic"
 - ii. The Application Pool identity must be set to the Service Account credentials
 - iii. Set Enable 32-Bit Applications to True in Advanced Settings

Please Enable the following Role Services:

- 1) Web Server
 - a) Common HTTP Features
 - i) Static Content
 - ii) Default Document
 - iii) Directory Browsing
 - iv) HTTP Errors
 - b) Application Development
 - i) ASP.NET
 - ii) .NET Extensibility
 - iii) ISAPI Extensions
 - iv) ISAPI Filters
 - c) Health and Diagnostics
 - i) HTTP Logging Request Monitor
 - d) Security
 - i) Windows Authentication
 - ii) Request Filtering
 - e) Performance
 - i) Static Content Compression
- 2) Management Tools
 - a) IIS Management Console
 - i) IIS 6 Management Compatibility
 - (1) IIS 6 Meta Base Compatibility
 - (2) IIS 6 WMI Compatibility

Please Enable the following Features:

- 1) .NET Framework 4.5.2+ Features
 - a) .Net Framework 4.5.2+
 - b) XPS Viewer
 - c) WCF Activation
 - i) HTTP Activation
 - ii) Non-HTTP Activation

USER DESKTOPS

Internal users must be able to reach the IIS FORMVERSE website on Server 1 (RS). This is required for users to reach the FORMVERSE WebApp through an internet browser or access the Outlook Add-in (Optional) through the Outlook Desktop Application. Internal users must also be connected to the internal network either directly or through a VPN.

If you require internal users to access FORMVERSE from outside the internal network, the IIS FORMVERSE website must be exposed publicly on Server 1 (RS). Please keep in mind any additional security risks associated with this.

External users such as vendors will interact with FORMVERSE through Server 4 (SRS) if required.

Outlook Add-in (Optional):

1. Determine if Outlook is 32-bit or 64-bit. File → Office Account → About Outlook
2. Ensure .NET Framework 4.5.2 or higher is installed
3. Unzip the correct Add-In folder (AddIn_x64.zip for 64-bit Outlook or AddIn_x86.zip for 32-bit Outlook).
4. Right Click on setup.exe, select properties, and click Unblock. If this button is hidden, the file is already Unblocked.
5. Run setup.exe as Administrator
6. Select Next
7. Select Install FORMVERSE Outlook AddIn for "Everyone"
8. Select Next
9. Enter in the FORMVERSE Registry Server Address:
(Ex. <https://ComputerName.Domain/RegistryServer/>)
10. Select Next
11. Installation Complete!

MULTI-TENANT INSTANCES

The FORMVERSE owner has the option to setup their FORMVERSE product in a Multi-Tenant instance. This would allow them to operate with multiple isolated FORMVERSE clients which would have separate databases and perform independently from each other.

If you require this setup to be perform, please perform the following changes to your FORMVERSE configuration setup:

1. Complete your FORMVERSE Registry Server and WebAdmin as per the steps above in this manual.
2. You will have to provide a DNS address available for the handling of multiple websites under your domain. If you wish to use 3 tenants as subdomains in the following manner:
 - [tenant1.domain.com](#)
 - [tenant2.domain.com](#)
 - [tenant3.domain.com](#)

You will need to have the 3 domains available in through your provider/net configuration.

3. Locate the following files in the main FORMVERSE directory in the Registry Server:
 - a) Web.config
 - b) ClientConfiguration.xml
 - c) clientBrandingConfiguration.xml
4. Locate the following files in the WebAdmin FORMVERSE directory in the Registry Server:
 - a) Web.config
6. Follow the steps in the following FORMVERSE the section of this manual called "STEPS TO SETUP MULTI-TENANCY FOR WEBAPP"
7. Follow the steps in the following FORMVERSE the section of this manual called "STEPS TO SETUP MULTI-TENANCY FOR WEBADMIN"
8. Verify your set up is correct by watching training video and perform the changes necessary:
<https://drive.google.com/file/d/0B0U1sav7opJ0T1dTU1FIRXQ0cnc/view>
9. The setup is complete.