
Atellica Data Manager IT Release Notes and Pre-Installation Guide for Software Version 1.3

Atellica® Data Manager (Atellica DM) manages connectivity to and result information from medical devices that analyze patient samples within a laboratory.

This document is intended to guide experienced customer IT personnel through the procedures and specifications required before installing Atellica DM. Customer IT personnel must complete the procedures herein and ensure the lab IT environment meets the listed specifications to ensure reliable processing of patient samples and timely reporting of patient results.

Revision History

This version of content includes the following items:

- Disaster Recovery added to the VA / VA+ / VA2+ in *System Requirements Per Configuration*.
- Drive formats when clustering is used in *System Requirements Per Configuration*.
- Clarification for UAC setting and Group Policy in *Additional Guidance on OS Configuration Settings*.
- Host file updates in *Hosts File Example*.
- Clarification on OS accounts in *Mandatory Local OS Accounts*.
- CSV clarification in *About Automatic Failover*.
- “Logical Processors” term updated throughout.
- VN configuration Optional RAID 1 update in *System Requirements Per Configuration*.

Knowledge Required

The following knowledge is required to understand and execute this document:

- Prior industry experience in building, managing, and troubleshooting virtual machines and virtual environments with proprietary detailed specifications
- Managing and applying security patches and OS updates in a validated environment

For customers purchasing High Availability (HA) and Disaster Recovery (DR), the following additional knowledge is required to understand and execute in this document:

- Prior industry experience with High Availability
- Expertise or capability in Microsoft Failover Clustering and IT-level Microsoft Windows functionality
- Prior industry experience with Disaster Recovery
- Expertise or capability in Microsoft Windows facilities, functionality, command line,

firewalls, troubleshooting Microsoft Windows, and logical drive volumes as well as the following:

- Networking
- Virtual Machines
- Database support

Good Manufacturing Practice Guidelines

Every release of Atellica DM follows Good Manufacturing Practice (GMP) guidelines that ensure products in the medical industry are consistently produced, verified, validated, and controlled according to quality standards.

Related Documentation

The following reference documents are available on Document Library at <https://doclib.healthcare.siemens.com>:

- *Atellica Data Manager Release Notes*
- *Atellica Data Manager Systems Virtualized Environment Whitepaper (SMN 11316842)*
- *Atellica Data Manager Security Whitepaper*
- *ADM-CentraLink Security Updates*
- *High Availability for Atellica Data Manager*
- *Disaster Recovery for the Atellica Manager System*
- *Network Management Monitoring for Atellica Data Manager*
- *Pre-Implementation Checklist for Upgrading to Atellica Data Manager, EN, 11557887*
- *Atellica Data Manager Adjusting Daylight Saving Time and Enabling Auto-Adjustments, EN, 114199220*

Creating the Environment for Atellica DM

Complete the items on the following checklist before creating the environment for Atellica DM.

	<p>Atellica DM requires a dedicated virtual or physical environment. Other non-supportive, resource intensive applications must not run on the server dedicated for Atellica DM.</p> <p>NOTE</p> <p>Third-party software and other Siemens Healthineers applications are not supported into the same environment as Atellica DM. Only the following supportive and monitoring applications are permitted:</p> <ul style="list-style-type: none"> • Virus scanners • Whitelist applications • NMS agents
	Hypervisor loss must be accounted for if combining multiple VMs onto 1 host.
	To identify server requirements, review the available volume configurations in <i>System Requirements Per Configuration</i> . A Siemens Healthineers support representative (local technical support) can help determine the appropriate volume configuration and server requirements.
	Review <i>Server Environment Requirements</i> .
	Create the virtual environment based on the applicable <i>System Requirements Per Configuration</i> (VA or VA+). If applicable, add the operating system to the domain.
	Customer IT must define some firewall rules manually. See the <i>Firewall</i> table for firewall rules that require manual definition and rules that AIT defines automatically.
	<p>Review the account requirements in the following tables:</p> <ul style="list-style-type: none"> • <i>Mandatory Local OS Accounts</i>. • <i>Optional Local OS Accounts and Groups</i>
	<p>Review and configure according to the following sections:</p> <ul style="list-style-type: none"> • <i>Server Environment Requirements</i> – Security patch update • <i>Client Environment Requirements</i>
	Review <i>About the Automated Installation Tool</i> .
	<p>Install the AIT (<i>Installing the Automated Installation Tool</i>).</p> <p>Perform the steps to add prowin.exe to the Trusted sites website list for each operating system (OS) user.</p>
	<p>Email the audit summary log file to a Siemens Healthineers support representative.</p> <p>NOTE: Siemens Healthineers support personnel cannot begin Atellica DM installation until receiving a successful audit.</p>
	If installing Microsoft Active Directory, review <i>About Active Directory and Pre-Installation Requirements</i> .
Application Configuration	
	<p>Perform the following application configuration activities prior to Siemens Healthineers support personnel arrival on site:</p> <ul style="list-style-type: none"> • Create user and group accounts that are specifically for use with Atellica DM. • These Atellica DM-specific accounts require secure zone configuration. • Create the accounts locally or in Active Directory, if applicable. • To create the accounts locally, see <i>Mandatory Local OS Accounts</i>. <ul style="list-style-type: none"> ○ To create the accounts in Active Directory, see <i>About Active Directory and Pre-Installation Requirements</i> for creating user groups that correspond with Atellica DM default roles.

System Prerequisites and Constraints

Ensure the information below is understood and complied with before starting any work:

- The number of logical processors determines the server capacity.
 - For information on server volume configurations, see *System Requirements Per Configuration*.
 - NIC requirements:
 - All NICs must be enabled and connected to allow network connectivity.
 - All NICs must be on separate subnets.
 - After installing the Atellica DM software, administrators must not change the MAC Addresses of the NICs. The system uses one of the MAC Addresses to generate a server identifier that licenses the Atellica DM software. Changing the MAC Addresses may cause the Atellica DM software to stop working because a new license is required.
 - Atellica DM minimum storage requirements call for combined number of input and output operations per second (IOPS) across all storage disks used in the configuration.
 - Siemens Healthineers performance metrics are achieved by meeting the following specifications:
 - Storage throughput specifications:
 - Throughput is not lower than the required performance metrics of the storage system. Throughput is measured using a 4K clusters size inside the OS.
 - Required disk throughput is achieved by increasing host controller and OS controller driver queue depths for VMware or any other virtualization platform when necessary.
 - Methods for evaluating storage throughput and optimizing configuration are confirmed with virtualization platform support team.
 - RAID10 configuration for 15K RPM HDD or SSD disks when multiple systems or VMs share a SAN. Other configurations might require dedicated configuration and optimization.
 - A minimum of 16 GB/s RAID HBA with 32 MB cache for VA+ and VA2+ configurations with SAN storage. See *System Requirements Per Configuration*.
 - Configuring VMs that contain the OS and the Atellica DM application with at least 2 virtual controllers. Option 1 or 2 below. See *System Requirements Per Configuration* for mapping between partitions and drive letters.
- Option 1:
- OS partition and general storage partition: single LSI Logic SAS controller
 - Atellica DM Database partition and archive database partition: Paravirtualized small computer system interface (PVSCSI) controller
 - Database extents partition: PVSCSI controller
 - Database temporary partition and archive database partition: PVSCSI controller

Option 2:

- OS partition: LSI Logic SAS controller
 - Atellica DM database partition and archive database partition: PVSCSI controller
 - Database extents partition: PVSCSI controller
 - Database temporary drive partition, general storage partition, and archive database backup partition: PVSCSI controller
- Vmxnet 3 driver for VMWare.
- Customer IT must apply all supported Microsoft Windows security updates. See <https://doclib.healthcare.siemens.com>.
- The Siemens Healthineers Atellica DM software USB must be accessed as a local drive from all installed systems. If this is not possible, customer IT must copy the file SMN11536756.iso from the USB drive to the general-purpose drive (G by default) of the Atellica DM Server and, if applicable, the DR Server that requires the software kit.
- Customer IT must use a local administrator account (such as the built-in administrator account) with the following privileges:
 - Full administrator access to the file system, without restrictions or prompts.
 - Access and command execution for all objects defined in *Appendix B - Prerequisites*.
 - This account is for initial setup use only. Afterward, it is recommended that this default admin account be disabled. Sites can create additional admin accounts to use, only if needed.
 - If adding the Atellica DM server to a domain, customer IT must set the local group policy and security objects according to AIT version 1.3 prerequisites and ensure the domain does not overwrite the local group policy and security objects. Adding the Atellica DM server to the domain after installation completes is the recommended workflow.
- The CSV drive labels must not be changed after Atellica DM is deployed in a failover cluster. This will corrupt the CSV configuration.

System Requirements Per Configuration



Atellica DM version 1.3 (v1.3) software is compatible with the following server configurations:

- PN: Physical hardware. Does not support Virtualization or Total Lab Automation (TLA). TLA comprises of Aptio® (SN APT: IRL12345678 is the expected value) or Aptio (SN AP2Z: IRL12345678 is the expected value) and ADVIA® Automation.
- VN: Supports Virtualization. Does not support TLA.
- PA: Physical hardware. Does not support Virtualization but does support TLA.
- VA: Supports Virtualization, TLA, High Availability (HA), and Disaster Recovery (DR).
- VA+: Includes all VA features and Supports High Capacity.
- VA2+: Includes all VA+ features and Atellica DM Archiving functionality.

All configurations support NMS installation.

	PN	VN	PA	VA	VA+ or VA2+	Audit Rules
CPU	4 Logical Processors @ 3.3 GHz	6 Logical Processors @ 2.5 GHz	8 Logical Processors @ 2.6 GHz	12 Logical Processors @ 2.6 GHz	20 Logical Processors @ 2.6 GHz	Failure
CPU Notes	* An audit WARNING is generated when the CPU speed is 90% (or less) of the defined speed. As long as the actual speed is 90% of the defined spec, then this warning can be ignored. * The Logical processor count must be deployed on the system to achieve the defined configuration. * More logical processors with less speed is not equal to less logical processors with more speed for this application.					
RAM	16 GB	16 GB	24 GB	64 GB	64 GB	Warning
Operating System	100 GB	100 GB	200 GB	300 GB	300 GB	Warning
C:\ Partition	No IOPS requirements	No IOPS requirements	200 IOPS 80/20 (Read/Write)	300 IOPS 80/20 (Read/Write)	300 IOPS 80/20 (Read/Write)	
File System	NTFS Format	NTFS Format	NTFS Format	NTFS Format	NTFS Format	
Atellica DM database	200 GB	200 GB	280 GB	280 GB	600 GB	Warning
D:\ Partition (default)	No IOPS requirements	No IOPS requirements	300 IOPS 20/80 (Read/Write)	500-800 IOPS 20/80 (Read/Write)	800-1000 IOPS 20/80 (Read/Write)	
File System	NTFS Format	NTFS Format	NTFS Format	NTFS Format CSVFS Format when WSFC is used.	NTFS Format CSVFS Format when WSFC is used.	
Database Extents drive	200 GB	200 GB	280 GB	280 GB	600 GB	Warning
E:\ Partition (default)	No IOPS requirements	No IOPS requirements	300 IOPS 20/80 (Read/Write)	500-800 IOPS 20/80 (Read/Write)	800-1000 IOPS 20/80 (Read/Write)	
File System	NTFS Format	NTFS Format	NTFS Format	NTFS Format CSVFS Format when WSFC is used.	NTFS Format CSVFS Format when WSFC is used.	
Database Temporary drive	200 GB	100 GB	280 GB	280 GB	1 TB	Warning
F:\ Partition (default)	No IOPS requirements	No IOPS requirements	300 IOPS 20/80 (Read/Write)	500-800 IOPS 20/80 (Read/Write)	800-1000 IOPS 20/80 (Read/Write)	
File System	NTFS Format	NTFS Format	NTFS Format	NTFS Format CSVFS Format when WSFC is used.	NTFS Format CSVFS Format when WSFC is used.	

	PN	VN	PA	VA	VA+ or VA2+	Audit Rules
Archive Backup	Not Supported	Not Supported	Not Supported	Not Supported	For VA+, archiving is optionally available by adding drives. For VA2+, archiving is supported. Z:\ partition (default) Minimum 500 GB *Use the formula provided to estimate the size required for each backup. To estimate the required disk space for the entire archive backup drive, the outcome of the formula needs to be multiplied by the number of backups that are to be maintained on the drive. 300 IOPS	—
DR	Not Supported	Not Supported	Not Supported	See <i>Disaster Recovery Server Configuration</i>	See <i>Disaster Recovery Server Configuration</i>	N/A
RAID	Optional	Optional RAID 1	RAID1 or RAID 10	RAID 10 or RAID 5 for SSD	RAID 10 or RAID 5 for SSD	N/A

	Indicates that each node of a clustered environment (VA, VA+, or VA2+) must meet the specifications in the shaded cells.
	Indicates that in a clustered environment, the drive partitions referenced in the shaded cells are shared resources and only required once per cluster.

*Estimating the required size of the archive disk in MB:

1. Calculate N, the total number of tests per sample minus 3 (the average number of tests per sample). For example, if a sample has 8 tests, then $N = 8 - 3 = 5$.
2. Identify M, the number of small images attached to a sample. If there are no images, then $M=0$. Small image size is based on the size of small images on the ADVIA® 2120i Hematology system.
3. Identify P, the number of large images attached to the sample. If there are no images, then $P=0$. Large image size is based on the size of large images on the ADVIA 2120i Hematology system.
4. Calculate C. $C = 0.007 + (N \times 0.00075) + (M \times 0.01) + (P \times 0.031)$.
5. Calculate the disk size. $\text{Size (MB)} = C \times \text{Daily Volume (Tubes Per Day)} \times 365 \text{ (Days in Year)} \times \text{number of years to store}$.

Server Environment Requirements

Failure to meet requirements will result in an AIT audit failure. Failures and warnings require corrective action before Siemens Healthineers begins Atellica DM installation.

NOTE: If failures and warnings are not resolved, the system is not compliant with Siemens Healthineers specifications and may have performance issues. Siemens Healthineers will notify the customer when non-compliance with specifications causes future troubleshooting.

For a list of warnings and failures see *Appendix A - Automated Installation Tool Failure and Warning Messages*.

Component	Version/Settings	AIT System Audit	Notes
OS	Windows Server 2016 Standard & Datacenter NOTE: Atellica DM v1.3 does not support Microsoft Windows Server 2012 or Microsoft Windows Server 2019.	N/A	Disable the Charms Bar to prevent its display from blocking portions the Atellica DM UI.
Internet Explorer	For required settings, see Appendix B, <i>Additional Guidance on OS Configuration Settings</i> .	N/A	Atellica DM forms and windows display incorrectly if these settings are not configured.
Network	<ol style="list-style-type: none"> Customer lab + Smart Remote Services (SRS) Network – Instruments, Automation, LIS, and SRS – Static IP Customer Management Network – Offloading backup DBs, AD, WSUS, NMS, RDS licensing, any other patching mechanisms – DHCP enabled Disaster Recovery Network – Required for replication traffic 	N/A	<ul style="list-style-type: none"> Must be on different subnets 1 GbE bandwidth for each subnet Average latency 1ms for Customer lab network <p>The specific networks for the functionality of the Siemens Healthineers products must have Static IPv4 addressing and have entries in the Hosts file listed below. For DR, replication must be on a separate subnet.</p>
Hosts File	<p>Configure the Hosts file with the following settings:</p> <ul style="list-style-type: none"> Local NIC IPv4 addresses are defined first Only IPv4 addresses are defined for ethernet based NICS Any change of IPv4 address with a DHCP enabled NIC must be updated in the hosts file If the server is on a domain, the FQDN is defined along with the hostname <p>Original entries are defined after the local NIC entries</p>	N/A	<p>Atellica DM processes use the hostname to communicate locally. The local IPs must be defined in the hosts file to establish the route as fast as possible.</p> <p>For more information, see the <i>Hosts File Example</i>.</p>
TCP Chimney Offload	—	Warning	Must be disabled at the OS level and at the NIC level, if supported. If enabled, network performance issues occur.

Component	Version/Settings	AIT System Audit	Notes
.NET	4.6 and 4.8	Failure	Atellica DM only supports .NET versions 4.6, and 4.8. An audit failure will result with .NET version 4.7. For details on security patches, refer to the latest version of the <i>ADM-CentraLink Security Updates</i> , on the Document Library. Perform security patch update prior to Siemens Healthineers support personnel coming onsite to perform Atellica DM Installation.
IIS WebServer OS Roles	Management Console Feature FTPServer FTPSvc	N/A	Do not install any other IIS WebServer features. Other IIS features are not supported and may present security issues. This is only required when ADVIA 2120i instruments are connected directly to Atellica DM. This also requires the Cerberus software.
Host Name Restriction	—	Failure	The Atellica DM server name must not: <ul style="list-style-type: none"> – Start with a number. Contain an under-score (_). Contain a period (.). – Exceed 15 characters. – Contain any special characters.
Date and Time Zone	—	Warning	For information on date and time zone adjustment, see <i>Atellica Data Manager Adjusting Daylight Saving Time and Enabling Auto-Adjustments</i> , EN, 114199220.
UAC set Never Notify	—	N/A	—
NTP Client	—	Warning	When Automatic Failover or DR are deployed, NTP client connections are required. If upgrading from physical hardware to a virtual environment, see <i>Pre-Implementation Checklist for Upgrading to Atellica Data Manager</i> , EN, 11557887
"Power Profile set to Highest Performance"	—	Warning	Power profile is set on all levels including hypervisor if virtualized: <ul style="list-style-type: none"> – Hypervisor – BIOS Windows Power Options: <ul style="list-style-type: none"> – High Performance Profile set Never put computer to sleep
AntiVirus	—	N/A	See <i>ADM-CentraLink Security Updates</i> on the Document Library for the whitelist and exceptions. AntiVirus software must be disabled during installation. Updating the anti-virus whitelist and exceptions is required after the Siemens Healthineers support-directed portion of the installation is complete.
AudioSrv	Auto-start	N/A	—

Siemens Healthineers Supplied Hardware

For sites with existing Siemens Healthineers-supplied hardware (2nd Generation Standard Capacity Server or 3rd and 4th Generation High Capacity Servers), upgrade kits are available to upgrade the server OS from Microsoft Windows Server 2008 or 2012 to 2016. See the following table for Upgrade Kits required to upgrade the Operating System based on server type:

Server Type	Server SMNs	Upgrade Kit Required	Comment
2 nd Generation Standard Capacity Server	11219635 11536885	11558438*	Microsoft Windows Server 2016 Upgrade Kit, SCS Gen. II
3 rd Generation High Capacity Server	11219634	11558440*	Microsoft Windows Server 2016 Upgrade Kit, HCS Gen. III
4 th Generation High Capacity Server	11315084	11558442*	Microsoft Windows Server 2016 Upgrade Kit, HCS Gen. IV

* The OS Images supplied in the Upgrade Kits implement OS Hardening. It is recommended that customers apply controls for physical and network security.

Client Environment Requirements

Item	Notes
RDS services	<p>The maximum number of RDS Clients must equal or exceed the number of purchased and licensed Atellica DM Clients.</p> <p>Additional RDS Notes:</p> <ul style="list-style-type: none"> Atellica DM only supports Remote Desktop Clients for accessing the VM. RDS must be enabled and configured for Atellica DM client access. Laboratories are fully responsible for the connection configuration and support of any remote access tools other than RDS, such as Citrix. Siemens Healthineers has only validated RDS use and does not currently support any other remote service. Perform RDS licensing on a separate server from the Atellica DM server for optimal performance. <p>NOTE: When using Auto Failover or DR, labs must perform RDS licensing on a separate server from the Atellica DM Virtual server.</p>
Audio	Standard Audio is required for Hematology Instruments. See the setting for Enable Audio Redirection in <i>Additional Guidance on OS Configuration Settings</i> .
Video	Minimum resolution: 1920 x 1080 resolution minimum
Peripherals	<p>Keyboard.</p> <p>2 button wheel mouse.</p> <p>USB 2.0 minimum controller.</p>
Desktop	Create an RDS shortcut on the desktop to Atellica DM server for ease of access.

About the Automated Installation Tool

The AIT automates the installation and configuration of Atellica DM.

The installation and configuration functions in the following phases:

- Phase 1: The AIT verifies that the customer server and software meet system requirements and initializes the server for installation or upgrade. This includes the system audit and determining procedures based on the system.
- Phase 2: The procedures are executed to install the Atellica DM software on the system.
- This document only contains the procedure for Phase 1.

NOTE: The Atellica DM software is in read-only format on a USB drive. Customer IT must mount it as a local drive to the VM guest. If customer IT cannot mount the USB drive directly, they must copy the file SMN11536756.iso from the USB drive and mount it locally to each Atellica DM server or DR server that requires the software kit.

Installing the Automated Software Tool

1. Log into the Atellica DM server with an administrator account.

NOTE: Ensure that all Atellica DM sessions and the Operator's Guide PDF are closed prior to installing or upgrading. Open Atellica DM sessions or an open Operator's Guide PDF will cause errors in the install or upgrade.

2. Copy SiemensAIT_v1.x.x.zip to the root of the general-purpose drive (default is the G:\ drive). The AIT is provided by the local technical support provider.
3. Unzip the SiemensAIT_v1.x.x.zip and accept the default path "G:\SiemensAIT_v1.x.x.x" to extract the files.

NOTE: The absolute path cannot contain white space.

4. Execute **init_adm_v1.bat**. A system audit and verification occur.

NOTE: The results of the audit are stored in G:\SiemensAIT_v1.x.x\data\serverAudit\AuditSummary_HostName.log file.

5. If the console displays the message *INSTALLATION PREREQUISITE(S) HAVE WARNINGS!*, perform the following steps:
 - a. Acknowledge the warning prompts by selecting **ENTER**. The procedure continues.
 - b. Warnings result from configurations that do not comply with best practices for Atellica DM and must be reported to the local Siemens Healthineers technical support provider.
6. If the console displays the message: *INSTALLATION PREREQUISITES NOT MET!*, perform the following steps:
 - a. Acknowledge the error by selecting **ENTER** at the message window. The procedure continues.
 - b. Errors result from configurations that will prevent software installation. Resolve the issues that caused the message.
7. After the audit completes, perform the following steps:
 - a. Review the AUDIT_SUMMARY.log file that displays on the desktop.

- b. Review all warnings and errors.
 - c. Report warnings to the local technical support provider.
 - d. Resolve errors and re-execute the **init_adm_v1.bat**.
 - e. If unmet prerequisites persist, contact the local technical support provider.
8. Close the **AUDIT_SUMMARY.log** file. The procedure will not continue until the **AUDIT_SUMMARY.log** is closed.

NOTE: Initialization does not continue if prerequisites remain unmet.

NOTE: Initialization continues in the event of warnings. However, warnings and failures must be resolved before performing installation or upgrade.

9. Select **Yes** at the completion of the script.
 10. Siemens Healthineers must confirm the **AUDIT_SUMMARY.log** file to begin phase 2.
- NOTE:** The installation scripts will be created only after no errors are found by the audit.

Performing a Standalone Audit Check for Atellica DM Software

1. Navigate to **G:\SiemensAIT_v1.x** and execute **00_AuditServer**.
2. Close the console window.
3. View the **AuditServer.log** file in the **G:\SiemensAIT_v1.x\data\serverAudit** directory.
4. Email the **AUDIT_SUMMARY.log** file to the local technical support provider. This confirms the local technical support provider can schedule personnel for Atellica DM installation.
5. For sites implementing Atellica DM in a Microsoft Failover Clustering environment, execute **init_adm_v1.bat** on Node 1 and execute **00_AuditServer** on each additional Node.

NOTE: Email the **AUDIT_SUMMARY.log** file from each Node and the MS Cluster validation tool report to the local technical support provider.

About Active Directory and Pre-Installation Requirements

Usage of Microsoft Active Directory is optional. To use Active Directory, contact Siemens Healthineers technical support for setup and configuration after completing installation or upgrade of Atellica DM v1.3.

NOTE: The following information applies to both new installations of Atellica DM v1.3 and upgrades to Atellica DM v1.3.

Starting with the implementation of Atellica DM v1.3, system administrators have the option to use Active Directory to manage user profiles and settings without accessing the Atellica DM application. However, settings related to Active Directory are located within the Atellica DM application. Only Siemens Healthineers technical support configures Active Directory settings after Atellica DM is installed.

When using Active Directory, user data is configured for each domain, and individual Atellica DM user data is synchronized with AD-DS each time a user access authentication is performed during user log in. Atellica DM can also be configured to synchronize all user data through an automatic, periodic process. Siemens Healthineers recommends automatic user data synchronization and can configure this feature after installation.

NOTE: When using Active Directory, encryption options are Secure Socket Layer (SSL) or Negotiate. If selecting SSL, encryption is mandatory. If selecting Negotiate, Atellica DM uses any available encryption option. Encryption occurs at the operating system level. Supported options are based on the settings that the customer IT team managing Active Directory configuration applies.

After completing Atellica DM installation and Active Directory setup, administrators have the option to manually synchronize AD-DS within Atellica DM by selecting **System management > Options > Synchronize AD-DS User Data**. If necessary, access a login failures screen at **System management > Security > Login failure**.

NOTE: Perform the following steps before Siemens Healthineers technical support personnel arrive on-site to complete Atellica DM installation.

1. Before proceeding with the installation, inform the technical support representative that the site uses Active Directory.
2. Create a new Organizational Unit (OU) within Active Directory for Atellica DM user groups.
3. Create the following user groups (corresponding with Atellica DM default roles) within Active Directory:
 - Atellica DM System Managers
 - Atellica DM Users
 - Atellica DM Guests

NOTE: The Active Directory user groups are Domain Role Aliases within Atellica DM. The technical support representative will map Atellica DM access roles to the Domain Role Aliases during the Active Directory configuration portion of the Atellica DM installation.

At least one user account must be assigned to the System Manager role.

If a user account is assigned to multiple groups, that user is prompted to select a role when logging in to Atellica DM.

4. Within Active Directory, assign the user accounts provided by the laboratory representative to the newly created groups from step 3. Ensure first name, last name, email address, and phone number are specified for each user or synchronization will not occur. Ensure user accounts comply with the following Atellica DM character count limitations:
 - Login name must be 128 characters or less.
 - Password must be 200 characters or less.
 - First name must be 40 characters or less.
 - Last name must be 60 characters or less.
 - Email must be 80 characters or less.
 - Phone number must be 20 characters or less.
5. Determine the name of the account for use with Active Directory synchronization and create a password to provide to technical support for post-installation configuration.

6. Inform the technical support representative that the requested groups have been created, the specified users have been added to the groups, and provide technical support with the following information:
 - The name of the Domain.
 - The names of the Active Directory user groups created for Atellica DM
 - The log in information of the User synchronization account for the Atellica DM configuration.

About Automatic Failover

Atellica DM automatic failover uses the Microsoft Failover Clustering Feature to provide a level of service through a cluster of Atellica DM nodes. Each node must undergo the Atellica DM software installation procedure before the clustering feature configuration is performed.

Custom resource types are created within the cluster services to manage the Atellica DM components. Built in resource types are required as dependencies for the Atellica DM resources.

The CSV is required for the ADM failover cluster. The CSV provides each node with access to the filesystem at all times. This ensures the ADM application can start on any node at any time without the application managing the storage drives to come online.

This is the standard technology required for clustering applications that require local file access. See: <https://docs.microsoft.com/en-us/windows-server/failover-clustering/failover-cluster-csvs>.

The operator cannot add the CSV cluster resources to a specific role.

Before the ADM software is installed (and configured in the cluster), the CSV must be verified on all nodes in the cluster.

A way to test this is to move the core resources between the nodes and ensure the CSV drives (D,E,F,G for standard installs) remain online and available to all nodes in the cluster.

NOTE: The customer IT department is responsible for the setup, configuration, and support of Microsoft Failover Clustering. Refer to the Microsoft knowledge base for information on Failover Clustering in Microsoft Windows Services.



WARNING



Do not use technologies that automatically move hosts and SAN (for example, VMWare vMotion & Storage vMotion) or perform any SAN migration while the Atellica DM system is running. Using these technologies while the Atellica DM system is running can corrupt the database.

For more information on Automatic Failover, see *High Availability for Atellica Data Manager*.

High Availability Server Configuration Requirements

The following table describes the hardware configuration requirements for additional nodes.

Resource	Node 1		Node 2		Node X	
Volume	VA	VA+ or VA2+	VA	VA+ or VA2+	VA	VA+ or VA2+
CPU	12 Logical Processors @ 2.6 GHz	20 Logical Processors @ 2.6 GHz	12 Logical Processors @ 2.6 GHz	20 Logical Processors @ 2.6 GHz	12 Logical Processors @ 2.6 GHz	20 Logical Processors @ 2.6 GHz
RAM	64 GB		64 GB		64 GB	
Operating System C:\ Partition	300 GB		300 GB		300 GB	
Atellica DM database D:\ Partition (default)	280 GB	600 GB	N/A			
Database Extents drive E:\ Partition (default)	280 GB	600 GB				
Database Temporary drive F:\ Partition (default)	280 GB	1 TB				
General Storge G:\ Partition (default)	500 GB	600 GB				
Archive Q:\ Partition (default)	N/A	Minimum* 500 GB				
Archive Backup Z:\ partition (default)		Minimum* 500 GB				

	Indicates that each node in the clustered environment must meet the specifications in the shaded cells.
	Indicates that the drive partitions referenced in the shaded cells are shared resources and only required once per cluster.

*To determine the required size of the archive disk in MB, refer to the formula in *System Requirements Per Configuration*.

About Disaster Recovery

The Atellica DM DR functionality provides real-time, continuous database backup while the Atellica DM server is online.

The Atellica DM server, or source server, sends all committed database transactions to the DR server, or target server, using the replication subsystem. This provides a recoverable duplicate of the latest database in a separate location in the event of an unrecoverable Atellica DM database. The Atellica DM software is not installed on the DR server and cannot act as an Atellica DM production system. The database service on the DR server only accepts connections from the replication subsystem. No other database connections are supported.

Disaster Recovery Server Configuration

Hardware configuration requirements:

CPU	8 Logical Processors @ 2.6 GHz
RAM	24GB
Operating System	C:\ partition 60GB
Atellica DM database	The following required drives must be the same size (in GBs) and have the same drive label as the corresponding drives on the Atellica DM production database server: <ul style="list-style-type: none">• Atellica DM database drive (default D:\)• Database extents drive (default E:\)• General storage drive (default G:\). The database temporary drive F:\ Partition is not required.
Notes	CPU, RAM, and networking are the same as the PA volume configuration. Drives must align with the Atellica DM server; only the VA or VA+ volume configurations are supported. Atellica DM tmp (F:\) is not required.

Software configuration requirements:

The software configuration requirements for the DR server are the same as those for the Atellica DM server (see *Server Environment Requirements*), with the following exceptions:

- Internet Explorer config is not required
- Network - Customer lab is not required
 - The replication network must be dedicated
- AudioSrv is not required

Determining Disaster Recovery Capability



For servers that can support DR, the following message displays in the DR Server Capable field of the audit data file informational section: This system is capable of being configured as a DR server.

NOTE: For the Atellica DM server to support DR, the system must meet the requirements of a VA volume configuration or higher (see *System Requirements per Configuration*).

Migrating Hot Backup to High Availability and Disaster Recovery

The following table describes the requirements for migrating from a Hot Backup (HB) environment to an environment that supports HA and/or DR in single and multi-host clusters.

	HB Node 1 Volume: High or VA/ Mega or VA+, VA2+	HB Node 2 Volume: High or VA/ Mega or VA+, VA2+	HA Node 1 Volume: High or VA/ Mega or VA+, VA2+	HA Node 2 Volume: High or VA/ Mega or VA+, VA2+	DR Server
CPU's	12 Logical Processors / 20 Logical Processors @ 2.6 GHz	12 Logical Processors / 20 Logical Processors @ 2.6 GHz	12 Logical Processors / 20 Logical Processors @ 2.6 GHz	12 Logical Processors / 20 Logical Processors @ 2.6 GHz	8 Logical Processors @ 2.6 GHz
RAM	64GB	64GB	64GB	64GB	24GB
C:\ (OS)	60GB / 100GB	60GB / 100GB	300GB	300GB	60GB
D:\ (Atellica DM Database)	280GB / 600GB	280GB / 600GB	280GB / 600GB Shared		280GB / 600GB
E:\ (Database Extents)	280GB / 600GB	280GB / 600GB	280GB / 600GB Shared		280GB / 600GB
F:\ (Database Temp)	280GB / 1TB	280GB / 1TB	280GB / 1TB Shared		N/A
G:\ (General Storage)	500GB / 600GB	500GB / 600GB	500GB / 600GB Shared		500GB / 600GB
Q:\ (Archive)	N/A	N/A	N/A / 500GB Shared		N/A
Z:\ (Archive Backup)	N/A	N/A	N/A / 500GB Shared		N/A

	Indicates additional resources required for HA and/or DR.
	Indicates resources that are transferable from HB to HA and/or DR.

Database Backup

Siemens Healthineers recommends regularly backing up the Atellica DM archive database. To regularly back up the Atellica DM archive database, contact the local technical support provider. The local technical support provider schedules the archive database backup command to perform routinely in Atellica DM as a task.

After backups complete, the operator must transfer the backup files to a secure location on a regular basis. The Tasks and Reports tab in the Atellica DM Watchdog Dashboard contains backup start and end times.

NOTE: When transferring backup files to a secure location, the most recent full Atellica DM archive database backup directory (for example, 202006080756) and file GeneralBackupInfo.xml must exist in the original location of the Atellica DM server for incremental backup to succeed.

The system stores incremental backups in the same directory as the latest full Atellica DM archive database backup.

Kit Contents

The Atellica DM version 1.3 Upgrade Kit will contain the following media:

- 11536756: Atellica DM System Software v1.3 USB
- 11314429: Atellica DM System Certificate

The Atellica DM version 1.3 Installation Kit will contain the following media:

- 11536756: Atellica DM System Software v1.3 USB
- 11314429: Atellica DM System Certificate
- 11220424: Cerberus Volume License

Appendix A - Automated Installation Tool Failure and Warning Messages

The following AIT Failures prevent the installation or upgrade from continuing. The system verification check is the same for all procedures. Warning and failure messages are the same for new installations and systems previously installed incorrectly.

AIT Warnings will not prevent the installation or upgrade from continuing. Correct the warnings before installation for optimal results. Correcting warnings after installation may require manual activity.

Text	Type	Applicable to Installation or Upgrade	Suggested Action	Notes
FAILED - Volume 'Selected Drive Letter' is not online!	FAIL	New Atellica DM installation	Bring the indicated drive online.	Seen during the installADM step when drive letters are being selected for Atellica DM installation
FAILED - Volume 'Selected Drive Letter' does not use a supported filesystem!	FAIL	New Atellica DM installation	Reformat the indicated drive to NTFS.	Seen during the installADM step when drive letters are being selected for Atellica DM installation
Processor Count 'CPU Count' is below the minimum required!	FAIL	New Atellica DM installation	Add more logical processors.	Must have at least four logical processors for PN and VN configurations; see <i>System Requirements Per Configuration</i> for hardware specifications and expected volumes.
OS 'OS Name' is not supported for this procedure!	FAIL	New Atellica DM installation Upgrade from CentraLink 16 to Atellica DM	Reinstall Microsoft Windows 2016 OS.	Microsoft Windows 2012 is only supported for DB upgrades. It is not valid for production systems.
INVALID .NET VERSION - .NET 4.7 is NOT supported for the Atellica DM v1.3 release!	FAIL	New Atellica DM installation Upgrade from CentraLink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Install .NET 4.8 or revert to .NET 4.6	.NET 4.7 is not supported.
HostName 'Host Name' does not meet requirements!	FAIL	New Atellica DM installation	Change the host name to one that meets the <i>System Requirements Per Configuration</i> .	N/A
INVALID CONFIGURATION - Windows Clustering is not initialized!	FAIL	initFailover script	Configure Failover Clustering feature	—

Text	Type	Applicable to Installation or Upgrade	Suggested Action	Notes
INVALID STATE - ADM application is running. ADM application system must be stopped!	FAIL	initFailover script	Stop all system components. On a DR server the 'ADM application' label will be replaced with 'Replication service'	—
INVALID DRIVE - Volume 'C' is invalid for ADM installation!	FAIL	installADM script	Expand the 'C' drive	Refer to the drive size requirements in <i>System Requirements Per Configuration</i> .
INVALID PROGRESS VERSION - Progress version 'Detected Version' is invalid for ADM installation!	FAIL	installADM script	Install latest Progress 64-bit version	The installed version of Progress is not the latest for Atellica DM v1.3
INVALID STATE - ADM is running. ADM application system must be stopped!	FAIL	installADM script	Stop the database system	—
INVALID ADM VERSION - The ADM software is not the latest version! This is required for installation!	FAIL	installADMArchive script	Install Atellica DM v1.3	—
INVALID ADM Version - The ADM software is not the latest version! This is required for installation.	FAIL	installHema script	Install Atellica DM v1.3	—
INVALID FTP Configuration - The IIS-FTPServer role is not installed. This is required for installation.	FAIL	installHema script	Enable the IIS FTP service role and features	—
INVALID DRIVE - Volume 'C' is invalid for Progress installation!	FAIL	installProgress script	Expand the 'C' drive	Refer to the drive size requirements in <i>System Requirements Per Configuration</i> .
INVALID SYSTEM STATE - HotBackup is currently running as a 'role'! HotBackup must be DISABLED to continue!	FAIL	installProgress script	Disable HotBackup The HotBackup disableServer & disableAgent commands are used.	This stops and disables the replication system. Disaster Recovery must be re-initialized after the upgrade has completed.
INVALID ACCOUNT - Licensing@Siemens procedures must be executed by the 'SiemensService' account	FAIL	installSLK script	Execute with 'SiemensService' account	SiemensService is required and is the only account that can be used.
INVALID CONFIGURATION- Licensing@Siemens is not installed properly!	FAIL	installSLK script	SLK has not been installed correctly for an upgrade procedure. Re-install SLK	—

Text	Type	Applicable to Installation or Upgrade	Suggested Action	Notes
Invalid ADM version 'Detected Version' found!	FAIL	Upgrade	Contact Siemens	Only Centralink v16 and above are supported for Atellica DM v1.3 upgrade
INVALID OS - Only the Windows 2016 OS requires this procedure!	FAIL	removeHB script	Ensure the OS is Microsoft Windows 2016	This procedure is only required for upgrades of 2016 systems where hot backup is running and is no longer required AND the HA and DR features are not being installed
Processor Speed 'CPU GHz' is below the minimum recommended!	WARNING	When using old hardware with: New Atellica DM installation Upgrade from Centralink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3 See notes.	Install on a system with higher speed CPUs.	Warning is generated if speed is < 90% of the specification. Note: for Dedicated Computing High Capacity Servers Gen III & IV there will be a warning around processor speed. This is expected and documented in <i>System Prerequisites and Constraints</i> .
RAM size 'Total RAM' (MB) is below the minimum recommended for this server capacity	WARNING	New Atellica DM installation	Add more memory.	Generated if total RAM is < 90% of the specification.
WARNING - Volume '\$aDriveLetter' total size is below the minimum recommended!	WARNING	New Atellica DM installation	Expand the drives to the proper size.	The script will NOT continue until a drive meets requirements. Seen during the installADM step when drive letters are being selected for Atellica DM installation. Generated if total drive size is < 90% of the specification. Note: If drives D or E are below 100GBs, the installation will FAIL.

Text	Type	Applicable to Installation or Upgrade	Suggested Action	Notes
WARNING - Volume '%aDriveLetter' free space is below the minimum recommended!	WARNING	New Atellica DM Installation Upgrade from CentraLink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Expand the size of the drive or free up space.	Seen during the installADM step when drive letters are being selected for Atellica DM installation. This will be tested for drives C, D, E, F, G. Note: Drives D and E must not have any files removed since these are exclusive for the Atellica DM database
NIC count of '#' is not recommended for the server capacity!	WARNING	New Atellica DM installation Upgrade from CentraLink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Add more NICs.	Based on the detected # of logical processors. '#' is the total count of NICs on the system.
System Locale is not set to 'en-us'! SYSTEM AUDIT WILL BE INACCURATE!	WARNING	New Atellica DM installation Upgrade from CentraLink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	The system locale must be set to English.	Regional settings can be applied as necessary. If the OS language is not English, the audit data will not be accurate and the installation may not be successful.
Power Scheme 'power profile' is not recommended! Should be set to 'High Performance'.	WARNING	New Atellica DM installation Upgrade from CentraLink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Set the profile to high performance.	N/A
NTP Client is NOT ENABLED! The system must be configured to be an NTP client!	WARNING	New Atellica DM installation Upgrade from CentraLink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Configure the NTP client.	Comply with Atellica DM requirements when setting up the NTP client and any potential time changes. NTP client is required only for DR and failover.
Serial Number 'SerialNumberValue' is not valid for an Atellica DM v1.3 upgrade!	WARNING	Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Contact Siemens Healthineers Technical support for assistance.	N/A

Text	Type	Applicable to Installation or Upgrade	Suggested Action	Notes
Hot Backup is currently enabled in role 'Current Role'! Hot Backup must be disabled before installation begins!	WARNING	Upgrade from Centralink 16 to Atellica DM Upgrade from Atellica DM 1.1 or 1.2 to 1.3	Contact Siemens Healthineers Technical support for assistance.	Installation will not continue.
NIC(s) are disabled! Enabling the NIC(s) after install will render an invalid hosts file configuration!	WARNING	New install	Ensure the hosts file entries align with the NIC's properties	See hosts file requirements
NIC(s) are disconnected! If the NIC is set to DHCP this will render an invalid hosts file configuration!	WARNING	New install	Ensure the hosts file entries align with the NIC's properties	See hosts file requirements
TCP Chimney Mode is ENABLED! TCP Chimney Mode should be disabled at the OS and NIC level!	WARNING	New install	Disable TCP Chimney offload	—
Service account '\$ssAccountName' is not active on this system! SLK cannot be installed until this account is active!	WARNING	New install	Create account per requirements	Atellica DM administrator account
'\$admAccountName' is not active on this system! This is the recommended admin account for ADM management!	WARNING	All	Create account per requirements	—
IIS FTP Service is not enabled! Hematology (ADVIA 2120i) cannot be installed without this service!	WARNING	New install	Install IIS FTP role and features	—

Appendix B - Prerequisites

Installed 3rd Party Software

Software	Notes
Progress OpenEdge	Required for Atellica DM product; the applications and services are not defined here
i2iVNC	Required for SRS
i2iAgent	Required for SRS
OSPassManager	Siemens Healthineers account password management
SiemensHACtrl	Required for NMS
SiemensHASrv	Required for NMS
SiemensHAMon	Required for NMS
ADMCLURES	Cluster resource library for HA

Firewall

Name	Direction	Siemens Healthineers Component	Configured by	Notes
SIEMENS LIS Drivers	Inbound	Atellica DM	Customer	Ports are site specific
SIEMENS LIS Upload for FTP	Inbound	Atellica DM	Customer	Ports are site specific
SIEMENS LAS Drivers	Inbound	Atellica DM	Customer	Ports are site specific
Siemens_i2i_Agent	Inbound	SRS	AIT	Firewall rule created during installation and is configured to use application path. Uses ports: 8081, 8083, 8084, 30101
Siemens_i2i_VNC	Inbound	SRS	AIT	Firewall rule created during installation and is configured to use application path. Uses ports: 5900, 8085
Cerberus FTP Server	Inbound	Atellica DM Hematology	AIT	Allocated to service app name
SIEMENS APM	Inbound	Atellica Process Manager	Customer	Ports are site specific
SIEMENS HA Service	Inbound	Disaster Recovery	AIT	Port 4999
SIEMENS ADM PRIMARY DR	Inbound	Disaster Recovery	AIT	Port 5000-5002

Mandatory Local OS Accounts

The following local accounts are required.

Account	Groups	Recommended password	Policy Privileges and Rights	Notes
SiemensService	Local Administrators	Generate a password that meets the default security requirements.	Set password to never expire.	<p>Required for Siemens Healthineers support and management.</p> <p>Password changed on a Monthly rotation.</p> <p>Ensure this account is only a member of the Administrators group and remove the 'Users' group.</p>

Account	Groups	Recommended password	Policy Privileges and Rights	Notes
ADMSYSTEM	Local Administrators	—	Set password to never expire. Set password to never change. Set SeDenyInteractiveLogonRight Set SeDenyRemoteInteractiveLogonRight Set SeServiceLogonRight	This account is used to register and start Atellica DM Windows services. This account has all login functionality removed. <i>See Configuring Windows service accounts in Atellica DM.</i> Ensure this account is only a member of the Administrators group and remove the 'Users' group.
Local (built-in) Administrator Account	—	—	Full administrator access to the file system, without restrictions or prompts. Access and command execution for all objects defined in Appendix B.	This account is for initial setup use only. Afterward, it is recommended that this default admin account be disabled. Sites can create additional admin accounts to use, only if needed.

Configuring Windows Service Accounts in Atellica DM

The ADMSYSTEM account must be configured in the Atellica DM application for the Atellica DM Windows services to function.

1. Select **Menu > System management > Services > Windows service accounts**.
2. In the Windows service account window, select the **Insert** key.
3. Enter a user account into the Account login name field.
4. Enter a password into the Account Password field.
5. Select **OK**.
6. Select **Cancel**.

Optional Local OS Accounts and Groups

Users must be a part of the local Administrator group for permission to start and stop Atellica DM services. If upgrading the system to a new environment, customers must reference the previous system for existing user accounts.

Additional Guidance on OS Configuration Settings

Ensure the following Local Group Policy objects in **...Computer Configuration\Windows Settings\Security Settings\Local Policies\Security Options** are set accordingly for the duration of the installation procedure:

1. User Account Control: Admin Approval Mode for the built-in Administrator account = Disabled.
2. User Account Control: Run all administrators in Admin Approval Mode = Disabled.

If the system is on a domain, ensure similar domain policy is set. These objects can be set according to laboratory policy once the installation procedure completes. Ensure domain policy does not interfere with Atellica DM operation.

AIT requires an administrator account that has unrestricted administrative access (no prompts or security objects in place) to the OS to execute the commands.

Required Local Group Policy Changes (gpedit.msc)
IE Disable First Run Customize
Computer Configuration > Administrative Templates > Windows Components > Internet Explorer "Prevent running First Run wizard" . Set value to Enabled
Disable Favorites Bar
Computer Configuration > Administrative Templates > Windows Components > Internet Explorer. "Turn off Favorites bar" . Set value to Enabled
Enable Active Scripting
Computer Configuration > Administrative Templates > Windows Components > Internet Explorer > Internet Control Panel > Security Page > Internet Zone. "Allow active scripting" . Set value to Enabled
Enable Audio Redirection
Computer Configuration > Administrative Templates > Windows Components > Remote Desktop Services > Remote Desktop Session Host > Device and Resource Redirection "Allow audio and video playback redirection" . Set value to Enabled

Required Local Security Policy Settings (secpol.msc)
Disable UAC Prompt for Built-in Administrator
Local Policies > Security Options "User Account Control: Admin Approval Mode for the Built-in Administrator account" Set Value to Disabled
Disable User Account Control: Run all administrators in Admin Approval Mode
Local Policies > Security Options "User Account Control: Run all administrators in Admin Approval Mode" Set Value to Disabled

Required Registry Settings (regedit)
Disable Address bar Search Box
HKEY_LOCAL_MACHINE > Software > Policies > Microsoft > Internet Explorer > InfoDelivery > Restrictions "NoSearchBox" =dword:00000001
Disable DHCP Media Sense
HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Services > Tcpip > Parameters "DisableDHCPMediaSense" =dword:00000001

Additional Required Internet Options (for all user profiles that log into this server to use the Atellica DM application)
Add to trusted sites: about:security_prowin.exe
Advanced tab of Internet Properties: Allow active content to run in files on My Computer

Hosts File Example

The following example shows how to configure the hosts file. The local IPv4 addresses are listed in the file first. The remote addresses are then listed as required. ADM does not require remote addresses to be listed but customer workflows may require this.

# IPAddress	FQDN first if applicable	Hostname
192.168.10.245	—	ADMSHCLUS1ND1
192.168.5.77	ADMSHCLUS1ND1.CLUSLAB.LOCAL	ADMSHCLUS1ND1
192.168.1.62	ADMSHCLUS1ND1.SIEMLAB.LOCAL	ADMSHCLUS1ND1

Configuring Atellica DM For Use With Active Directory

Customer IT must perform the following procedure in Atellica DM to configure Active Directory and must supply User synchronization account credentials to technical support for the procedure to work.

1. Select **Menu > System management > Security > Domains**.
2. In the Domains browser window, select the **Insert** key.
3. Perform the following steps in the Domain editor window:
 - a. Type the fully qualified Domain name into the Name field.
 - b. Add a description and comment if appropriate.
 - c. Enter the Login name and Password for the User synchronization credentials.
 - d. Select the User synchronization options to synchronize when the user data is updated in the domain.
 - e. Select the User erasure options to erase when the user is disabled by the Domain Controller.
 - f. Select **OK**.
 - g. Select **Cancel** to close the Domain editor window.
4. Repeat steps 1 – 3 for each domain to be defined.

Glossary

Acronym	Expansion
AIT	Automated installation tool
AD	Active Directory
AD-DS	Active Directory domain services
BIOS	Basic input/output system
CSV	Cluster shared volume
CSVFS	Cluster shared volume filesystem
DB	database
DHCP	Dynamic host configuration protocol
DR	Disaster recovery
FQDN	Fully qualified domain name
FTP	File Transfer Protocol
GbE	Gigabit ethernet
HA	High availability
HBA	Host bus adapter
HB	Hot Backup
HDD	Hard disk drive
IIS	Internet Information Services
IOPS	Input/output operations per second
IPv4	Internet Protocol version 4
LIS	Library information system
LSI	Large scale integration
MAC	Media access control
NIC	Network interface controllers
MSDN	Microsoft Developer Network
NMS	Network management system
NTFS	New technology file system
NTP	Network time protocol
OS	Operating system
OU	Organizational Unit
PN	Physical, no automation
PVSCSI	Paravirtualized small computer system interface
RAID	Redundant array of inexpensive disks
RAM	Random access memory
RDS	Remote desktop services
SAN	Storage area network
SAS	Serial attached small computer system interface
SLK	Software license key

Acronym	Expansion
SRS	Smart Remote Services
SSD	Solid state drive
TCP	Transmission control protocol
TS	Terminal services
UAC	User account control
VA	Virtual, supports automation
VM	Virtual machine
VN	Virtual, does not support automation
WSFC	Windows Server Failover Cluster
WSUS	Windows Server Update Services
4K	4K - shorthand for 4096 byte sector sizes for storage devices.
15K	15K - shorthand for 15 thousand RPMs for spinning media. Spinning media is platter based on HDDs.

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