PUBLIC
SAP Service and Asset Manager
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SAP Service and Asset Manager for S/4HANA Systems Sizing Guide

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Content

Document History

Before you begin reading this guide, be sure that you have the latest version. Find the latest version at https://help.sap.com/viewer/product/SAP_ASSET_MANAGER/p/en-US.

The following table provides an overview of the most important document changes.

Document Version	Date	Description of Changes
1.0	OCT 2021	Original release of the *SAP Asset Manager for S/4HANA Systems Sizing* guide, version 2110

1 Sizing Guide Introduction

The following guide is intended for service providers and enterprises that plan to deploy SAP Service and Asset Manager, to understand the different technology options and sizing considerations.

Before deploying SAP Service and Asset Manager, you will make several technology decisions based on the requirements of the mobile application. These technologies impact downstream sizing estimates for each component of the system. These guidelines help define the questions and answers related to technologies and sizing that everyone should ask before deploying SAP Service and Asset Manager. Making these assessments and decisions early in the process is essential to ensuring a successful product rollout.

1.1 Functions of SAP Service and Asset Manager

SAP Service and Asset Manager is a mobile solution for managing work orders, notifications, condition monitoring, and material consumption. The application also performs time management and failure analysis.

Regardless of connectivity, SAP Service and Asset Manager allows remote employees to access, complete, and manage their assigned work orders and notifications through their mobile devices. With SAP Service and Asset Manager, they have SAP S/4HANA or SAP ERP data readily available, including task lists, short and long text, repair histories, and material availability. Armed with more information, employees work smarter, have more work time, improve their first-time fix rates and extend asset lives by conducting more preventative maintenance.

SAP Service and Asset Manager comes packaged with the SAP Mobile Add-On. Since an SAP ABAP add-on installs into the SAP namespace in your SAP system, the SAP Mobile Add-On offers tight integration and easier deployment without interference to or from your existing SAP system customizations or standard SAP objects. It allows for full configuration, management, and visibility into your SAP Service and Asset Manager application from within your SAP system infrastructure.

The main features and functions available in SAP Service and Asset Manager include the following.

Work Orders and Notifications

SAP Service and Asset Manager manages work orders by extending either the SAP S/4HANA or the SAP ERP functionality through the following actions:

- Displaying work orders and their details
- Editing work orders and their details
- Creating work orders and their details

SAP Service and Asset Manager uses the SAP Mobile Add-On notification functionality to push notifications to a mobile device. From there, users can perform the following actions:

- Display and edit notification details

- Create and edit existing notifications

Work orders and notifications are used for:

- Push and monitoring
- Historical and pending
- Location and equipment
- Short and long text
- Operations and suboperations
- Field generated work orders and notifications
- Tasks, activities, and items
- Status mapping and filters

Data capture

The client captures data from the following items, and passes the data to the back end during the transmit:

- Time and attendance
- Materials used
- Damage codes
- PM confirmations

Time

SAP Service and Asset Manager extends the necessary time tracking functionality in the SAP Mobile Add-On to the mobile device so field personnel can track their time efficiently and accurately.

Attachments

SAP Service and Asset Manager supports viewing of leading data or transaction data attachments on the mobile device. Attachments include documents such as Microsoft Office documents, PDF files, and other commonly used business documents, including videos, pictures, and audio files. When you select *Attachments*, the details screen displays the attachments that are available for download.

The option to download attachments is on by default. However, you can configure the download option through the Configuration Panel based on work order type. If the job has any attachments, the initial sync fetches only limited information regarding the attachments. The attached content is downloaded to the device through push process only at user request. All attachments are maintained in a central repository and controlled through the Configuration Panel.

You can download attachments for any job. Downloading and uploading attachments are supported for:

- Orders (header level)
- Orders (header level asset)

- Order (object level)
- Operations through Associated Asset
- Notifications (header level)
- Notifications (header level asset)
- Item through Associated Asset
- Equipment
- Functional Locations

Measuring Points and Readings

Measuring points are associated with meters and sensors. Meters and sensors are always associated with assets attached to a work order or notification.

Meter Management

Using Meter Management, technicians can retrieve work orders assigned to them from the SAP system. Meter management allows them to accomplish the following tasks:

- Meter installation
- Meter removal or replacement
- Aperiodic readings
- Meter repair
- Plant maintenance

Crew Management

Crew Management allows you to manage your crew and vehicles with significantly lower cost and greater flexibility. Using Crew Management, technicians can:

- Add, remove, and select crew technicians
- Add, remove, and select vehicles
- Track vehicle usage through odometer readings
- Report, review, and approve time for crew
- View a summary for your crew over a two week period

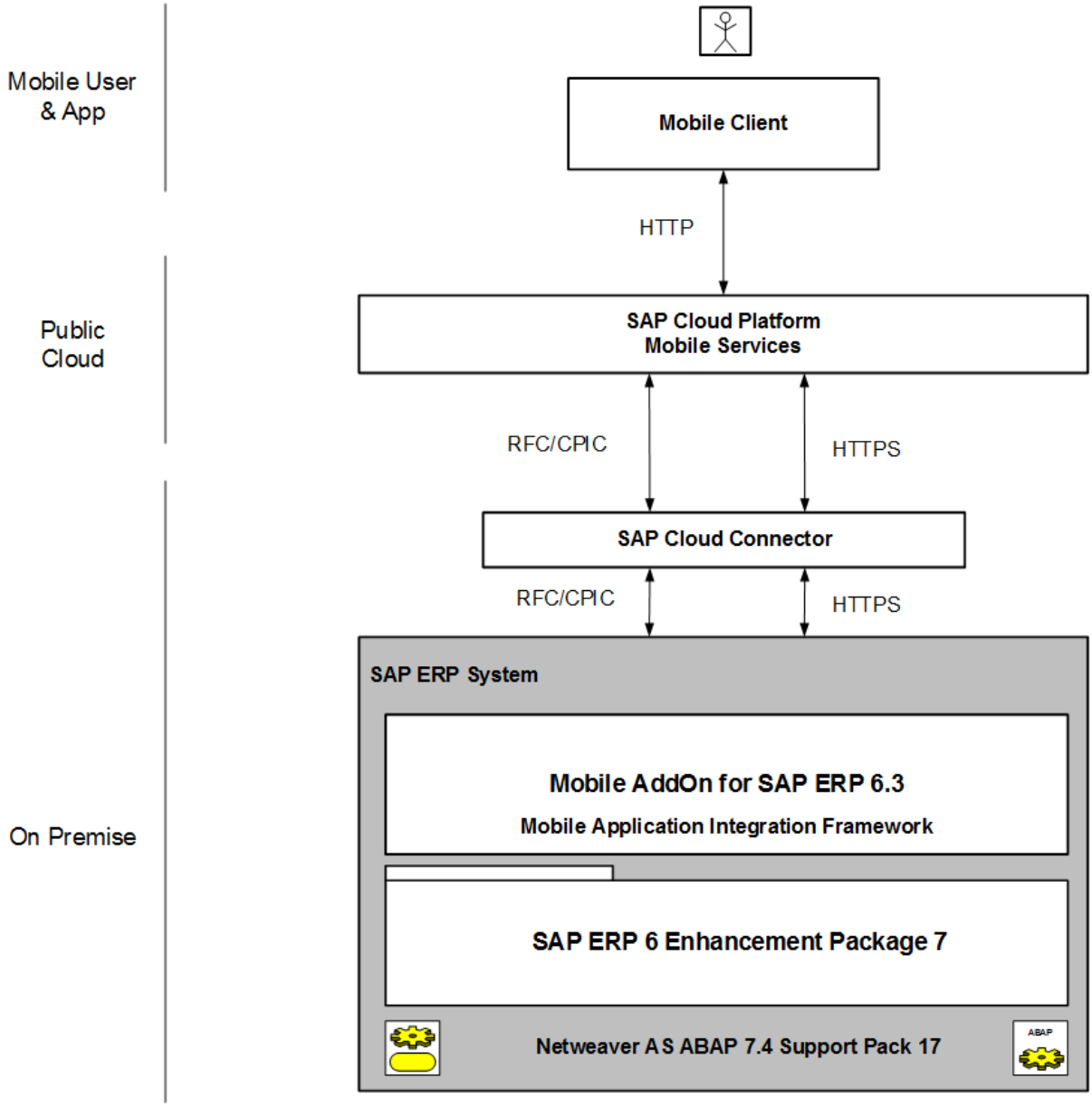
Field Operations Worker Add-On Component

Field Operations Worker leverages the digital core with the SAP Mobile Add-On for task driven activities and rounds. Field Operations Worker supports workers who perform asset inspections and checks with a focus on measurement points and on smaller services and repairs.

1.2 Mobile Add-On for ERP Technical System Landscape

SAP Service and Asset Manager works with personal and transactional data.

The following diagram describes the technical landscape used by the current SAP Service and Asset Manager version:



A brief explanation of the components:

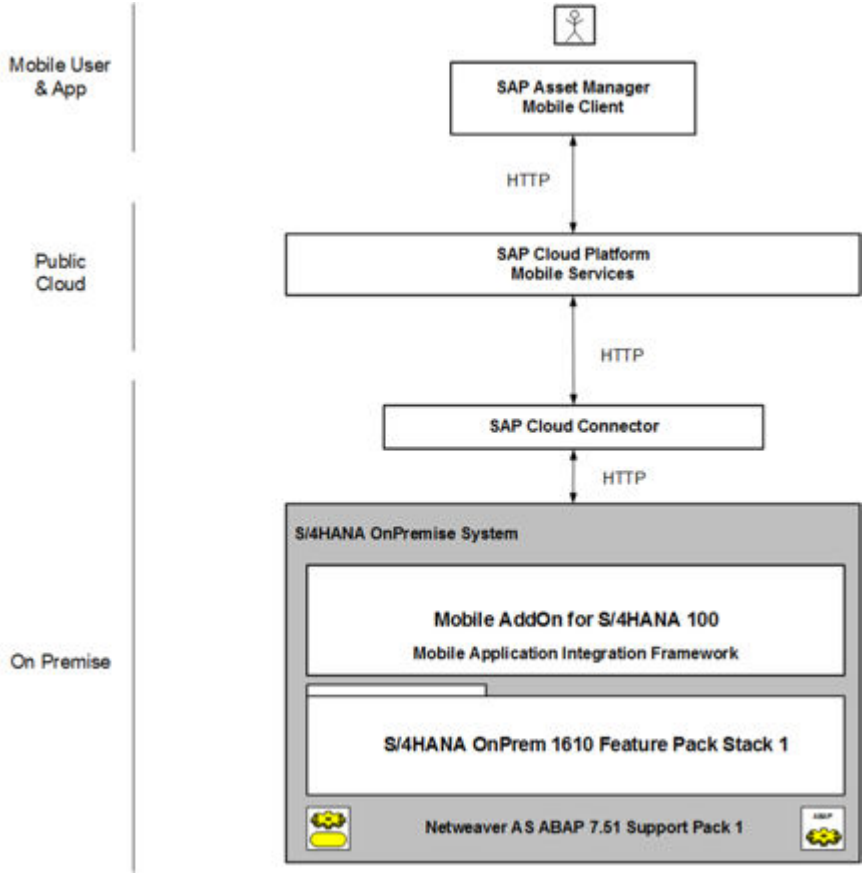
- **SAP Service and Asset Manager mobile client:** Either iOS or Android mobile application
- **SAP Business Technology Platform Mobile Services:** Provides service
- **SAP Cloud Connector:** Connects the SAP Business Technology Platform to the on-premise SAP ERP system

- **SAP ERP 6 Enhancement Package 7 Support Package 14:** The SAP system of the customer running an enterprise business process, such as a plant maintenance module used by the SAP Service and Asset Manager

1.3 Mobile Add-On for S/4HANA Technical System Landscape

SAP Service and Asset Manager works with personal and transactional data.

The following diagram describes the technical landscape used by the current SAP Service and Asset Manager version:



A brief explanation of the components:

- **SAP Service and Asset Manager mobile client:** Either iOS or Android mobile application
- **SAP Business Technology Platform Mobile Services:** Provides service
- **SAP Cloud Connector:** Connects the SAP Business Technology Platform to the on-premise SAP S/4HANA system
- **SAP S/4HANA Enterprise Management on-premise 1610 Feature Pack Stack 1:** The SAP system of the customer running an enterprise business process, such as a plant maintenance module used by the SAP Service and Asset Manager application

2 Sizing Fundamentals and Terminology

Sizing determines the hardware requirements of an SAP application, such as the network bandwidth, physical memory, CPU processing power, and I/O capacity.

The size of the hardware and database is influenced by both business aspects and technological aspects. Take into account both the number of users using the various application components and the data load they put on the server.

This topic explains the most important sizing terms. These terms are used extensively in this *Sizing Guide*.

SAP provides general sizing information on the SAP Service Marketplace. For the purpose of this guide, we assume that you are familiar with sizing fundamentals. You can find more information at http://service.sap.com/sizing *Sizing Decision Tree* *General Sizing Information*.

Benchmarking

Determine sizing information using SAP Standard Application Benchmarks and scalability tests (http://www.sap.com/benchmark). Released for technology partners, benchmarks provide basic sizing recommendations to customers by placing a substantial load upon a system during the testing of new hardware, system software components, and relational database management systems (RDBMS). All performance data relevant to the system, user, and business applications are monitored during a benchmark run and are used to compare platforms.

SAP Application Performance Standard (SAPS)

The SAP Application Performance Standard (SAPS) is a hardware-independent unit that describes the performance of a system configuration in the SAP environment. It is derived from the Sales and Distribution (SD) benchmark, where 100 SAPS is defined as the computing power to handle 2,000 fully business processed order line items per hour. (For more information about SAPS, see https://www.sap.com/about/benchmark/measuring.html.

Initial Sizing

Initial sizing refers to the sizing approach that provides statements about platform-independent requirements of the hardware resources necessary for representative, standard delivery, SAP applications. The initial sizing guidelines assume optimal system parameter settings, and standard business scenarios.

Expert Sizing

Expert sizing refers to a sizing exercise where customer-specific data is analyzed and used to put more detail on the sizing result. The main objective of the exercise determines the resource consumption of customized content and applications (not SAP standard delivery) by comprehensive measurements. For more information, see https://service.sap.com/sizing *Sizing Decision Tree* *Expert Sizing* .

Configuration and System Landscaping

Hardware resources and optimal system configuration depend on the requirements of the customer-specific project. These resources and system configuration include the implementation of distribution, security, and high availability solutions by different approaches using various third-party tools. In the case of high availability through redundant resources, for example, adjust the final resource requirements accordingly.

There are some best practices, which may be valid for a specific combination of operating system and database. To provide guidance, SAP created the SAP NetWeaver configuration guides. Find all SAP NetWeaver documentation here:

https://help.sap.com/viewer/p/SAP_NETWEAVER.

3 Initial Sizing for SAP Service and Asset Manager

Many customers and partners are interested in mobilizing their mission critical business applications by modifying SAP standard applications or developing their own applications from scratch using mobile infrastructure.

Since every customer application is different, it is impossible to give concrete sizing figures for any customer application. However, SAP does provide some sample scenarios to serve as guidelines for sizing custom-made mobile applications.

Customers developing their own applications should pay particular attention to the performance chapter in the Mobile Development Kit (MDK). They should also use application-specific tuning options, such as additional indexes on important tables.

> **i** Note
>
> If your data volume is beyond the volume of the largest scenario described in this topic, perform a customer-specific sizing.

3.1 SAP Service and Asset Manager Requirements and Supported Devices

The SAP Service and Asset Manager 2205 mobile application has the following requirements:

Feature / Function	Supported Devices and Operating Systems	SAP Back End Requirements	SAP Business Technology Platform Mobile Services Requirements
SAP Service and Asset Manager 2205	Apple iPads running iOS versions 12.4.3 or higher Android tablets with Android 8x (Oreo) and 9x (Pie)	SAP S/4HANA on premise edition 1610 Feature Package Stack 01 or higher SAP_GWFND, SAP Gateway Foundation 7.51 SP01 or higher is required when using a SAP ERP system	Member of a valid SAP Business Technology Platform with *Administrator* role *Mobile Services Development & Operations* tile is enabled Installation of SAP Mobile Add-On 1.0 SP03 in an SAP S/4HANA on premise system

3.2 SAP Service and Asset Manager on an SAP S/4HANA System Assumptions

SAP Service and Asset Manager allows remote employees to access, complete, and manage their assigned work orders and notifications through their iPads. It enables them to carry out their daily functions and to stay constantly mobile. Employee or user data such as work orders, notifications, and timesheets are downloaded and synced to the iPad when a connection to the SAP Business Technology Platform is initiated. The synchronization operation executes the client operations, or transactions. Transactions include device initiated update, delete, and insert operations. The device then sends transaction data to the SAP Business Technology Platform for processing. When the client operation is done, the fetch operation starts. During the fetch operation the device sends all object primary keys and last-changed timestamps to the SAP Business Technology Platform and completes the synchronization process. The synchronization process is constantly done by users to manage their daily workload and utilizes much of the SAP Business Technology Platform resources. Therefore, it makes a good candidate for the mobile application sizing exercise.

The following are the assumptions used in this sizing guide:

1. The resource consumption of a synchronization process in SAP Service and Asset Manager depends on the volume of data that is handled by the SAP Business Technology Platform. Therefore, a throughput-based sizing is applied in this guide.
2. All sizing data in this document is related to client-initiated syncs. If heavy volumes of scheduled or on demand pushes are required, more detailed analysis and implementation-specific performance testing is recommended.
3. The business process used to estimate the sizing information was the synchronization of updated and new work orders and notifications. During synchronization, a number of updated and new work orders and notifications on the mobile device were sent to the SAP back end. At the same time, performance and server resource utilization were measured. The Sizing Performance tables outline the different data sets used to simulate this scenario.

Type of Data	Number of Records		
	Data Volume 1 (DV1)	Data Volume 2 (DV2)	Data Volume 3 (DV3)
Update Jobs (5 operations per job)	12	36	60
New Jobs (5 operations per job)	3	9	15
Update Notifications (2 items and 3 tasks per notification)	12	36	60
New Notifications (2 items and 3 tasks per notification)	3	9	15

The primary goal is to measure the resource consumption on both the SAP Business Technology Platform and the SAP back end when an expected peak data volume is synchronized with the back-end system.

During the sync, the data is uploaded and downloaded between the mobile device and the back end. The mobile device tells the SAP Business Technology Platform what new information it has. Then the SAP Business

Technology Platform adds these changes and new information to the SAP back end. Next, the SAP Business Technology Platform checks the SAP back end for new or changed information after the previous sync on the client device and retrieves it. The SAP Business Technology Platform then sends this information down to the client. The entire process is measured for this *Sizing Guide* given the data set above.

To measure the number of SAPS required, the expected peak throughput is simulated using the data volume in the table in this topic. If the expected throughput (sync / hour) during the peak period of operation is 100 syncs / hr and every sync consists of 3 new jobs and 12 updated jobs are translated to:

- Total New Jobs in an hour (3 * 100) = 300 new jobs added to the system
- Total Updated Jobs in an hour (12 *100) = 1200 updated jobs added to the system

3.3 SAP Service and Asset Manager on an SAP S/4HANA System Sizing Guidelines

To size an SAP Service and Asset Manager server, consider which functionality of the application affects the performance of the middleware and back-end servers.

The transmit, or sync, is one of the functionalities of SAP Service and Asset Manager that users typically execute on a daily or hourly basis. The sync consumes much of the server resources that affect overall performance. These guidelines are based on the transmit function executed with an average payload shown in the table in the SAP Service and Asset Manager on an SAP S/4HANA System Assumptions [page 12] topic.

The *Sizing Performance Tables* section in this topic explains the sizing performance for three servers categorized into small, medium, large, and extra large syncs, and shows the following:

- Sync/hr is a throughput measurement of the total number of client initiated syncs from all concurrent users during a peak hour of activity
- Number of syncs per hour for every server
- SAPS scores are divided into different data volume described in the table in the Assumptions topic

*SAPS, the SAP Application Performance Standard, is a hardware-independent unit of measurement. For information on SAPS sizing, refer to: http://global.sap.com/campaigns/benchmark/measuring.epx

> **i Note**
>
> Consider the minimum certified SAP S/4HANA on premise requirements before using the sizing guide. You can find certified appliances here: https://www.sap.com/dmc/exp/2014-09-02-hana-hardware/enEN/appliances.html.
>
> SAPS measurements in this document are based on SAP Service and Asset Manager load only. Consider any other application load that could execute on a given SAP S/4HANA server when sizing the server.

	Type of Data	Number of Records Work Orders	Number of Records Notifications
Small	New work order	3 work orders with 5 operations each	3 notifications with 2 items and 3 tasks each

	Type of Data	Number of Records Work Orders	Number of Records Notifications
	Updated work orders	12 work orders with 5 operations each	12 notifications with 2 items and 3 tasks each
Medium	New work order	9 work orders with 5 operations each	9 notifications with 2 items and 3 tasks each
	Updated work orders	36 work orders with 5 operations each	36 notifications with 2 items and 3 tasks each
Large	New work order	15 work orders with 5 operations each	15 notifications with 2 items and 3 tasks each
	Updated work orders	60 work orders with 5 operations each	60 notifications with 2 items and 3 tasks each

Sizing Performance Tables

Data Volume 1	
Update jobs (5 operations per job)	12
New jobs (5 operations per job)	3
Update notifications (2 items and 3 tasks per notification)	12
New notifications (2 items and 3 tasks per notification)	3

Sizing

Type of Server	Version	100 syncs/hour	250 syncs/hour	400 syncs/hour	700 syncs/hour
SAP ABAP server (SAPs*)	SAP Service and Asset Manager2205	2500	7000	10000	17500
SAP database server (SAPs*)	SAP Service and Asset Manager2205	1500	4000	6000	10500

> **i** Note
>
> Total Number of Work Orders and Notifications Synced per Hour = Throughput (syncs/hr) * Data Volume 1

Data Volume 2

Update jobs (5 operations per job)	36
New jobs (5 operations per job)	9
Update notifications (2 items and 3 tasks per notification)	36
New notifications (2 items and 3 tasks per notification)	9

Sizing

Type of Server	Version	100 syncs/hour	250 syncs/hour	400 syncs/hour	700 syncs/hour
SAP ABAP server (SAPs*)	SAP Service and Asset Manager2205	6000	14000	22000	38500
SAP database server (SAPs*)	SAP Service and Asset Manager2205	3000	7500	12000	21000

> **i** Note
>
> Total Number of Work Orders and Notifications Synced per Hour = Throughput (syncs/hr) * Data Volume 2

Data Volume 3

Update jobs (5 operations per job)	60
New jobs (5 operations per job)	15
Update notifications (2 items and 3 tasks per notification)	60
New notifications (2 items and 3 tasks per notification)	15

Sizing

Type of Server	Version	100 syncs/hour	250 syncs/hour	400 syncs/hour	700 syncs/hour
SAP ABAP server (SAPs*)	SAP Service and Asset Manager2205	9000	21500	34000	60000
SAP database server (SAPs*)	SAP Service and Asset Manager2205	5000	12000	19000	32500

> **i Note**
>
> Total Number of Work Orders and Notifications Synced per Hour = Throughput (syncs/hr) * Data Volume 3

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