Feature Scope Description
SAP NetWeaver 7.52 for SAP S/4HANA 1709
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# Document History

<table>
<thead>
<tr>
<th>Document Version</th>
<th>Date</th>
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<tbody>
<tr>
<td>1.0</td>
<td>15-Sep-2017</td>
<td>Initial version</td>
</tr>
<tr>
<td>1.1</td>
<td>31-Jan-2018</td>
<td>Added section <strong>Embedded Business Warehouse</strong> [page 18]</td>
</tr>
<tr>
<td>1.11</td>
<td>31-Jan-2018</td>
<td>Added key feature <strong>Maintaining Employees</strong> in section <strong>Operating the Application Server for ABAP</strong> [page 4]</td>
</tr>
<tr>
<td>1.12</td>
<td>16-May-2018</td>
<td>Document classification changed to “PUBLIC”.</td>
</tr>
</tbody>
</table>
2 Operating the Application Server for ABAP

Administrators can use the concepts and functions of the SAP Application Server for ABAP (AS ABAP) as a basis for the monitoring and administration of AS ABAP.

Key Features

The following features are available:

General Administration Tasks

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing SAP licenses</td>
<td>Assign license keys for SAP systems, determine the number of users and used engines of the SAP software for each system, and consolidate measurement results of one or more systems.</td>
</tr>
<tr>
<td>Configuring AS ABAP</td>
<td>Configure AS ABAP using profile parameters. For central scenarios you do not need to explicitly set parameter values, since defaults are set and values adapt automatically to physical conditions. Manual configuration of additional scenarios is possible.</td>
</tr>
<tr>
<td>Starting and stopping AS ABAP</td>
<td>Start and stop individual instances of your AS ABAP system or the complete system.</td>
</tr>
<tr>
<td>Managing and monitoring your AS ABAP within your system landscape</td>
<td>Use SAP Solution Manager to manage and monitor several AS ABAP systems centrally within your system landscape. The functional scope of SAP Solution Manager that is supported for SAP S/4HANA depends on your SAP maintenance contract. See also <a href="https://support.sap.com/solution-manager/usage-rights.html">https://support.sap.com/solution-manager/usage-rights.html</a>.</td>
</tr>
<tr>
<td>Providing and managing hosts, instances, databases, or systems</td>
<td>Provide, monitor, and control any host, instance, database, or SAP system centrally.</td>
</tr>
</tbody>
</table>
### Key Feature

<table>
<thead>
<tr>
<th>Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing network access to your SAP systems and configuring load balancing</td>
<td>Configure the access you want to allow to your SAP network and define access points for Web requests to your network. Such requests can be distributed (using load balancing) between individual Application Servers of your SAP system.</td>
</tr>
<tr>
<td>Printing</td>
<td>SAP provides its own spool service and a spool database for printing.</td>
</tr>
<tr>
<td>E-mailing</td>
<td>Send e-mails from and receive e-mails within the AS ABAP. Streamline your e-mail correspondence by creating custom templates based on predelivered templates.</td>
</tr>
<tr>
<td>Scheduling batch jobs</td>
<td>Schedule local batch jobs in your AS ABAP system.</td>
</tr>
<tr>
<td>Backing up and restoring your SAP system</td>
<td>Back up and restore your SAP system on operating system level and database level, if required.</td>
</tr>
<tr>
<td>Archiving your data</td>
<td>Use the data archiving functions to archive any completed business transactions that are no longer relevant for your daily operations, and so significantly reduce the load on the database. SAP S/4HANA uses the functions for archiving provided by SAP NetWeaver.</td>
</tr>
<tr>
<td>Managing the lifecycle of current and historical data</td>
<td>Move large amounts of data within a database to gain more working memory. You can manage the current and historical data using the data aging framework.</td>
</tr>
<tr>
<td>Managing the lifecycle of live data and archived data based on rules</td>
<td>Use SAP Information Lifecycle Management (SAP ILM) to manage the lifecycle of live and archived data based on rules.</td>
</tr>
<tr>
<td></td>
<td>- Optimize the data volume of an application system by moving data that is no longer required for operations into a storage system. The live data and stored data can be destroyed according to legal requirements.</td>
</tr>
<tr>
<td></td>
<td>- Enable the decommissioning of legacy systems by transferring legacy data into an ILM Retention Warehouse. The legacy data can be retained or destroyed independently of the legacy system according to legal requirements.</td>
</tr>
<tr>
<td>SAP ILM requires an additional license.</td>
<td></td>
</tr>
<tr>
<td>Enabling your system for SAP remote support</td>
<td>Set up a remote service connection for each ABAP system to use SAP remote services (for example, SAP EarlyWatch or Remote Consulting), or if you would like to permit an SAP support consultant to work directly in your system to make a more precise problem diagnosis.</td>
</tr>
</tbody>
</table>
# Local Administration Tasks for AS ABAP

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchanging the kernel without system downtime</td>
<td>Use an automated procedure to automatically exchange the kernel in an ABAP system, or to make parameter changes while the system is running.</td>
</tr>
<tr>
<td>Monitoring components of AS ABAP</td>
<td>Check the consistency of an installation, get an overview of all application server instances and their states, monitor processes, users, lock entries, Internet requests, RFC connections, and RFC calls, and cross-component processes.</td>
</tr>
<tr>
<td>Configuring and administering special AS ABAP components</td>
<td>Configure asynchronous RFCs, logon load balancing, operation modes, area menus, and the number range buffer. You can also send important notifications to all users that are logged on to the ABAP system in the form of short messages.</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>Use the trace function, the ABAP dump analysis, and the system log to identify and solve issues.</td>
</tr>
<tr>
<td>Managing concurrent database access</td>
<td>The SAP system is equipped with a special lock mechanism that synchronizes database access. The purpose of the lock mechanism is to prevent two transactions from changing the same data in the database simultaneously. You can configure, administer, and monitor database updates related to ABAP transactions.</td>
</tr>
<tr>
<td>Managing the available memory of your ABAP system</td>
<td>Use profile parameters to configure SAP Memory Management in order to adjust the ABAP Server to hardware and software requirements.</td>
</tr>
<tr>
<td>Managing background processing</td>
<td>Configure and monitor background processing of the AS ABAP, and schedule and manage local background jobs.</td>
</tr>
</tbody>
</table>

# Other Administration-Related Services for AS ABAP

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing alerts</td>
<td>Inform responsible or interested parties immediately via a predefined alert if the application detects a critical situation and triggers the alert management to create the alert.</td>
</tr>
</tbody>
</table>
## Database Administration for SAP HANA

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting and stopping the SAP HANA database</td>
<td>Start and stop the SAP HANA database.</td>
</tr>
<tr>
<td>Monitoring and administering the SAP HANA database</td>
<td>Monitor and administer local or remote SAP HANA databases in SAP systems in an ABAP environment.</td>
</tr>
</tbody>
</table>

## Software Logistics

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing and transporting development objects</td>
<td>Organize ABAP development projects and transport changes between SAP systems in your system landscape. As well as ABAP objects, you can also transport Java objects and SAP-specific non-ABAP applications in your system landscape. A close integration for transporting development objects of ABAP and SAP HANA is provided. You can also copy ABAP clients, and transport languages.</td>
</tr>
</tbody>
</table>

## Other Tasks

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining Employees</td>
<td>Maintain business users with business role “Employee”, with a workplace address, and a user assignment.</td>
</tr>
<tr>
<td>Retrieving personal data</td>
<td>A tool that supports the data subject’s right to get information about their data that is being processed.</td>
</tr>
</tbody>
</table>

## Related Features

- See [Custom Application Development for ABAP](#) for more information about the following key features:
  - Managing database updates
  - Scheduling batch jobs
  - Managing the lifecycle of development activities
- See [Operating the Application Server for Java](#) for more information about Form processing and form printing.
See Software Logistics for SAP NetWeaver 7.52 for SAP S/4HANA 1709 [page 29] for more information about the following key features:

- Installing systems
- Copying systems
- Installing and distributing front-end software
- Renaming existing SAP systems
- Updating and Patching
3 Operating the Application Server for Java

Business Background

Application Server for Java (AS Java) is used as a runtime platform to support form-based processing of business data triggered by both ABAP- and Java-based applications.

Key Features

The following features are available:

Printing Forms

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form processing and form printing</td>
<td>Adobe Document Services (ADS) enable form-based processing of business data triggered by both ABAP- and Java-based applications.</td>
</tr>
</tbody>
</table>

Configuring Application Server for Java

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuring AS Java automatically</td>
<td>Automatically configure your system directly after installation by using the functional unit configuration tool, which makes the technical settings for Java functional units.</td>
</tr>
<tr>
<td>Configuring AS Java manually</td>
<td>Configure AS Java for scenarios that go beyond the automatic configuration.</td>
</tr>
</tbody>
</table>
## Administering Application Server for Java

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifying service, manager, or application properties</td>
<td>View the current system configuration and edit the service, manager, and application properties.</td>
</tr>
<tr>
<td>Managing applications</td>
<td>Manage applications with their modules (Web, Enterprise Java Beans, and so on) and resources (JDBC, JMS, JCA).</td>
</tr>
<tr>
<td>Managing ICM</td>
<td>Administer the Internet Communication Manager (ICM), which is responsible for accepting and forwarding requests in an AS Java instance.</td>
</tr>
<tr>
<td>Managing locks</td>
<td>Administer and monitor SAP locks (held in the lock table by the enqueue server) with different tools.</td>
</tr>
<tr>
<td>Managing the SAP Message Server</td>
<td>Monitor and administer the SAP Message Server.</td>
</tr>
<tr>
<td>Using the Startup Framework of AS Java</td>
<td>Start, stop, and monitor the AS Java using the Startup Framework</td>
</tr>
<tr>
<td>Backing up and restoring</td>
<td>Back up AS Java and the relevant database to prevent data loss. This is essential for the recovery of the server after the system breaks down.</td>
</tr>
<tr>
<td>Managing the gateway</td>
<td>Administer and monitor the gateway that enables SAP systems and external programs to communicate with one another.</td>
</tr>
<tr>
<td>Manage your system landscape information</td>
<td>Store information about technical systems, landscapes, business systems, products, and software components in a central repository.</td>
</tr>
</tbody>
</table>

## Monitoring of Application Server for Java Using SAP NetWeaver Administrator

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using history reports to monitor AS Java</td>
<td>To monitor your local system, you use the SAP NetWeaver Administrator tool History Reports.</td>
</tr>
<tr>
<td>Monitoring and displaying log files</td>
<td>Check the logs regularly for error messages to ensure the stable and error-free operation of the system.</td>
</tr>
<tr>
<td>Key Feature</td>
<td>Use</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Using open SQL monitors</td>
<td>Monitor the execution of SQL statements, the status of the table and catalog buffers, as well as the availability and the use of Open SQL database connections.</td>
</tr>
<tr>
<td>Using JPA monitors</td>
<td>Monitor information about all JPA applications that are running on a given cluster.</td>
</tr>
<tr>
<td>Monitoring JCo connections</td>
<td>Analyze JCo connections, organize the metadata cache, and change the settings for JCo traces.</td>
</tr>
</tbody>
</table>

**Central Monitoring of Application Server for Java Using CCMS**

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring using the CCMS</td>
<td>Monitor the status data of AS Java from a central SAP monitoring system using the CCMS.</td>
</tr>
</tbody>
</table>
4 Custom Application Development for ABAP

Business Background

A key ingredient for business applications is custom development. The ABAP development environment offers a wide range of options for custom application development from extensions and modification of SAP standard applications by customers up to the development of completely new applications.

Key Features

The following key features are available:

**ABAP Language**

ABAP is a fourth-generation (4GL) as well as an object-oriented programming language developed and constantly improved/enhanced by SAP for programming business applications in the SAP environment.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal tables</td>
<td>Store and process mass table data dynamically in the working memory.</td>
</tr>
<tr>
<td>Managing updates of data in the database</td>
<td>Use the concept of the SAP Logical Unit of Work (LUW) integrated into the ABAP runtime environment which enables multiple users to access the central database at the same time.</td>
</tr>
<tr>
<td>Using external interfaces</td>
<td>Use Remote Function Call as an interface to other programming environments. Use the Internet Communication Framework (ICF) as an interface to the Internet. Use the built-in transformation capabilities to support XML and JSON.</td>
</tr>
<tr>
<td>Supporting UIs in multiple languages</td>
<td>Extract language-specific program components from the source code, which are reloaded when the program executes in accordance with the environment.</td>
</tr>
</tbody>
</table>
Data Modeling

Data modeling provides capabilities for defining data models in the database that can be used for business applications.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABAP Dictionary</td>
<td>Maintain data types in a persistent repository that are visible in all repository objects. The database tables of the central database, views, and lock objects are managed in ABAP Dictionary.</td>
</tr>
<tr>
<td>ABAP Core Data Services (CDS)</td>
<td>Implement SAP’s CDS concept for AS ABAP. The concept provides a platform-independent Data Definition Language (DDL) to define CDS views and CDS table functions that implement a semantically rich data model.</td>
</tr>
</tbody>
</table>

Database Access

Database access provides capabilities for accessing database entities.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open SQL</td>
<td>Access data through Open SQL statements integrated into the ABAP programming language. The ABAP statements allow platform-independent access to entities defined in the ABAP Dictionary or by ABAP CDS.</td>
</tr>
<tr>
<td>Native SQL</td>
<td>Platform-dependent access to a database. Native SQL includes an embedded static access (EXEC SQL ABAP statement), a class-based, general purpose access using ABAP Database Connectivity (ADBC), and ABAP-managed database procedures for SAP HANA.</td>
</tr>
</tbody>
</table>

ABAP Application Infrastructure

The ABAP Application Infrastructure adopts technical details from the application development and improves the overall development process.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposing CDS views through OData</td>
<td>Generate OData services based on a CDS view without any additional implementation.</td>
</tr>
<tr>
<td>Supporting stateless transactional applications</td>
<td>Expose application logic through stateless OData services.</td>
</tr>
</tbody>
</table>

Business Object Processing Framework (BOPF)

The Business Object Processing Framework is an ABAP object-oriented framework that provides a set of generic services and functionalities to speed up, standardize, and modularize your development. BOPF manages the entire life cycle of your business objects and covers all aspects of your business application development.
### Key Feature: Creating and defining business objects

Use:
- Create new business objects in order to encapsulate business logic and data to be exposed through common interface.
- Use BOPF tools for developing and testing business objects.

### Key Feature: Enhancing business objects

Use:
- Enhance existing business objects through custom business logic and data.

### Key Feature: Integrating as well as combing business objects and non-BOPF applications

Use:
- Invoke application logic that is not built on BOPF through BOPF objects and vice versa.

### Key Feature: Reusing application infrastructure

Use:
- Reduce development and maintenance effort through reuse of existing BOPF services.

### Service Adaptation Description Language (SADL)

SADL enables fast read access to data for scenarios on mobile and desktop applications using query push-down.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating OData services based on SADL models</td>
<td>Establish a mapping between an OData model and an entity (SADL model) that contains modeled associations to other entities.</td>
</tr>
<tr>
<td>Using OData analytics in SADL-based services</td>
<td>Annotate SADL-based Gateway Services to use analytical features.</td>
</tr>
<tr>
<td>Using query options for executing SADL-based Gateway Services</td>
<td>Use query options to parameterize and fine-tune the execution of SADL-based SAP Gateway Services.</td>
</tr>
</tbody>
</table>

### Server Technology

The components of the infrastructure server technology provide a reusable runtime environment for other components that also uses client server technology to process requests.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Server ABAP</td>
<td>Use the ABAP runtime environment as a virtual machine for ABAP programs.</td>
</tr>
<tr>
<td>Building globalized custom applications</td>
<td>Build globalized custom applications using internationalization technologies and data encodings.</td>
</tr>
<tr>
<td>Internationalization</td>
<td>Provides technologies and data encodings for building globalized custom applications.</td>
</tr>
</tbody>
</table>
**ABAP Development Tools**

The ABAP development tools enable ABAP developers to build their own applications and features using the ABAP programming language and the ABAP Application Server capabilities in an Eclipse-based IDE or on the classic SAP GUI-based ABAP Workbench.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating and managing data definitions</td>
<td>Specify ABAP coding such as reports and includes, function modules, classes, and interfaces. Use ABAP Dictionary artifacts such as structures and data elements to create and manage data definitions (metadata).</td>
</tr>
<tr>
<td>Rearranging table columns to application-specific needs</td>
<td>Build CDS views on existing database tables using Core Data Services.</td>
</tr>
<tr>
<td>Converting between ABAP data and XML formats</td>
<td>Describe transformations between ABAP data and XML formats using transformations (XSLT and ST).</td>
</tr>
<tr>
<td>Error handling</td>
<td>Use options such as message classes to inform the user about an error or a status, or to issue a warning.</td>
</tr>
<tr>
<td>Developing SAP standard UI technology</td>
<td>Use Web Dynpro applications to develop SAP solutions of the SAP NetWeaver Application Server.</td>
</tr>
<tr>
<td>Modularizing and encapsulating development objects</td>
<td>Modularize SAP systems and encapsulate development objects using packages and package interfaces.</td>
</tr>
<tr>
<td>Managing the lifecycle of development activities</td>
<td>Modularize, encapsulate, and decouple units in the SAP System using a Package Builder. Transport objects to other SAP systems.</td>
</tr>
<tr>
<td>Creating and managing workflow scenarios</td>
<td>Build scenarios to enable flexible workflow creation, and prepare an environment for modeling workflows.</td>
</tr>
</tbody>
</table>

**ABAP Testing and Quality Tools**

The AS ABAP offers a set of specialized test and analysis tools that are useful at different phases of the software lifecycle (development, testing, and production).

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checking code quality</td>
<td>Use static checks of the ABAP Test Cockpit (ATC) and the Code Inspector to analyze customer code for functional, usability, or performance issues. Use the remote ATC checks to verify code quality on older SAP NetWeaver releases with the latest check version. Use static checks of the Code Vulnerability Analyzer (extra license required) to analyze customer code for possible security vulnerabilities.</td>
</tr>
</tbody>
</table>
### Key Feature

<table>
<thead>
<tr>
<th>Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit testing ABAP programs</td>
<td>Use ABAP Unit test classes to develop and execute test classes that ensure the correct behavior of program logic.</td>
</tr>
</tbody>
</table>

### ABAP Troubleshooting Tools

The ABAP Troubleshooting Tools enable you to detect functional and performance issues through debugging, tracing, monitoring, and logging applications.

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debugging</td>
<td>Set breakpoints and step through a running ABAP application, analyze and change variable values, and examine the call stack to understand the program integration in the general application context. Debug ABAP-managed database procedures (AMDP) and simple transformations.</td>
</tr>
<tr>
<td>Profiling ABAP source code</td>
<td>Create ABAP trace files to analyze the distribution of an application’s time consumption with respect to database and ABAP runtime. Also, to significantly improve the overall performance and detect hotspots such as:</td>
</tr>
<tr>
<td></td>
<td>- SQL accesses</td>
</tr>
<tr>
<td></td>
<td>- ABAP procedures or statements with poor performance</td>
</tr>
<tr>
<td></td>
<td>- redundant executions of same program parts</td>
</tr>
<tr>
<td>Monitoring SQL performance of an ABAP system</td>
<td>Collect essential SQL performance data along with the ABAP contexts of all SQL statements performed in an ABAP system. Analyze the collected data for time intervals of your choice.</td>
</tr>
<tr>
<td>Dynamic logging</td>
<td>Create dynamic logpoints for specific code positions to gain runtime information like the number of executions, variable values, call stack information, or to use them for triggering system functions like the SQL trace. It is not necessary to change source code in order to use dynamic logpoints.</td>
</tr>
</tbody>
</table>

### Extensibility

The extensibility configuration framework allows different interface implementations of the application parts to be exchanged during the runtime of an application.
### Key Feature

<table>
<thead>
<tr>
<th></th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Creating custom fields</strong> Create, edit, publish, and delete custom fields for specific business contexts of extensible applications.</td>
</tr>
<tr>
<td></td>
<td>Enable field usage for UIs, reports, email templates, and form templates.</td>
</tr>
<tr>
<td></td>
<td>Make field content relevant for free-text search.</td>
</tr>
<tr>
<td></td>
<td><strong>Creating custom logic</strong> Create, test publish, edit, and delete enhancement implementations for specific business contexts of extensible applications.</td>
</tr>
<tr>
<td></td>
<td>Use the full ABAP language for extensions of AS ABAP implementations.</td>
</tr>
<tr>
<td></td>
<td><strong>Customizing analytical queries</strong> Design a meaningful query for analysing and reporting purposes without knowing query language and other technical details. Perform various operations such as create a new query, copy from the existing query, modify the query, add/remove custom fields, adding dimensions and measures from the data view, defining filters, and preview result set.</td>
</tr>
</tbody>
</table>

### Related Features

See Operating the Application Server for ABAP [page 4] for more information about the following key features:

- Managing concurrent database access
- Scheduling batch jobs
- Managing and transporting development objects
5 Embedded Business Warehouse

Business Background

Embedded Business Warehouse (Embedded BW) is used to support certain business processes in SAP S/4HANA, such as integrated financial planning, using SAP Business Planning and Consolidation for SAP S/4HANA (SAP BPC for SAP S/4HANA). Embedded BW is not intended to be used for data warehousing (EDW) use cases.

As a guideline, the amount of data persisted in the Embedded BW should not exceed 20% of the overall data volume of the system. This applies to:

- Extraction from your own SAP S/4HANA system
- Integration of data from external applications
- Data from planning applications

Key Features

The following key features are available:

Meta Data Management

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating models</td>
<td>• Create meta data entities (characteristics and key figures)</td>
</tr>
<tr>
<td></td>
<td>• Model master data and its attributes and hierarchies</td>
</tr>
<tr>
<td></td>
<td>• Model persistence objects for transactional data and master data</td>
</tr>
<tr>
<td></td>
<td>• Create virtual objects to combine objects</td>
</tr>
<tr>
<td></td>
<td>• Organize meta data objects in data flows to build logical modeling units</td>
</tr>
<tr>
<td>Creating queries</td>
<td>• Create queries by selecting and combining characteristics and key figures or reusable query elements on top of the model as a basis for multi-dimensional data analysis</td>
</tr>
<tr>
<td>Deploying models</td>
<td>• Organize objects using packages to transport from development to production</td>
</tr>
<tr>
<td></td>
<td>• Record and deploy changes of objects</td>
</tr>
</tbody>
</table>
## Data Warehouse Management

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data acquisition</td>
<td>● Load data from various sources (such as a file, DB table, SAP ERP, SAP S/4HANA)</td>
</tr>
<tr>
<td>Data propagation</td>
<td>● Load data between BW persistence objects and transform data</td>
</tr>
<tr>
<td></td>
<td>● Support propagation of changed data</td>
</tr>
<tr>
<td></td>
<td>● Track change history of persistence objects</td>
</tr>
<tr>
<td></td>
<td>● Filter out erroneous data</td>
</tr>
<tr>
<td>Scheduling</td>
<td>● Define the sequence of data processing tasks</td>
</tr>
<tr>
<td></td>
<td>● Scheduling and execution (serial or in parallel)</td>
</tr>
<tr>
<td></td>
<td>● Process management to track the status of each task and support a load status for each persistence object</td>
</tr>
<tr>
<td>Monitoring &amp; troubleshooting</td>
<td>● Monitor the different processes based on persistence objects and modeled process sequences</td>
</tr>
<tr>
<td></td>
<td>● Rollback data loads</td>
</tr>
<tr>
<td></td>
<td>● Restart data loads</td>
</tr>
<tr>
<td>Exposing data</td>
<td>● Generate database views for SAP HANA to enable SQL access</td>
</tr>
<tr>
<td></td>
<td>● Define export format as files, DB tables or other SAP BW-Systems</td>
</tr>
<tr>
<td></td>
<td>● Schedule export of data considering changed data</td>
</tr>
</tbody>
</table>

## Analytic Manager

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzing data</td>
<td>● Interpret the query definition and the current navigation state</td>
</tr>
<tr>
<td></td>
<td>● Multi-dimensional analysis of data</td>
</tr>
<tr>
<td></td>
<td>● Read data from BW providers, SAP S/4HANA virtual data models (Core Data Services) and SAP HANA DB views using filters</td>
</tr>
<tr>
<td></td>
<td>● Apply aggregation, calculations and conversions</td>
</tr>
<tr>
<td></td>
<td>● Apply sorting and ranking</td>
</tr>
<tr>
<td></td>
<td>● Use master data and hierarchies</td>
</tr>
<tr>
<td></td>
<td>● User-specific access management</td>
</tr>
<tr>
<td></td>
<td>Embedded BW relies on a separate authorization concept. Authorizations from SAP S/4HANA do not apply but need to be mapped if required. For SAP S/4HANA virtual data models only, authorizations from SAP S/4HANA apply.</td>
</tr>
<tr>
<td></td>
<td>● For BW providers only: Support of standardized external interfaces (including certification)</td>
</tr>
<tr>
<td>Key Feature</td>
<td>Use</td>
</tr>
<tr>
<td>-------------</td>
<td>-----</td>
</tr>
</tbody>
</table>
| Supporting enhanced business semantics (for BW providers only) | ● Inventory key figures and stock cover reports  
● Elimination of internal business volume  
● Special time semantics (e.g. fiscal times)  
● Currency translation and unit calculations |
| Planning engine | ● Enabling integrated financial planning, using SAP Business Planning and Consolidation for SAP S/4HANA (SAP BPC for SAP S/4HANA)  
SAP BPC for SAP S/4HANA requires an additional license. |
6 Security

Business Background

In today's world of collaborative business processes and open system environments, security no longer means just adding a firewall and using passwords to log on. It requires a complete approach that not only applies to your own IT landscape, but also to issues that arise beyond your own borders, in which even simple organizational measures can have a significant impact. The infrastructure of the SAP NetWeaver technology platform supports you by delivering comprehensive security features for heterogeneous environments.

Key Features

The following features are available:

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization management</td>
<td>Assign authorizations to users with roles. Create roles. Mass maintenance enables authorization management for many users. ABAP-only: User information system allows for reporting of roles and their authorizations.</td>
</tr>
<tr>
<td>Key Feature</td>
<td>Use</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Identity management</td>
<td>Define user validity. Maintain user master data. Set user types. Support for mass maintenance of user data. Delegated user administration.</td>
</tr>
<tr>
<td>ABAP-only:</td>
<td>User information system allows for reporting of users. Synchronize users with SAP HANA database management system and LDAP.</td>
</tr>
<tr>
<td>Java-only:</td>
<td>Source user data from LDAP or ABAP system. Export and import principal data. Provision and manage principals with an SPML interface. Enable support for self-registration and logon help, such as forgotten passwords. Configure virtual groups based on user attributes. User mapping for principals for single sign-on to back-end systems. Configure e-mail notification for user management events.</td>
</tr>
<tr>
<td>Central user administration</td>
<td>ABAP-only:</td>
</tr>
<tr>
<td></td>
<td>Push users and authorizations from a central system in a system landscape.</td>
</tr>
<tr>
<td>Security policy</td>
<td>Define security policies to control password policies, logon policies, and policies for logon IDs.</td>
</tr>
<tr>
<td>Key Feature</td>
<td>Use</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>User authentication and single sign-on</td>
<td>Configure the authentication methods and policies supported by the system. For the following scenarios, SAP NetWeaver Application Server supports the following authentication and single sign-on (SSO) methods:</td>
</tr>
<tr>
<td></td>
<td>- SAP GUI logon</td>
</tr>
<tr>
<td></td>
<td>○ Password-based authentication</td>
</tr>
<tr>
<td></td>
<td>○ SSO for SAP Shortcuts</td>
</tr>
<tr>
<td></td>
<td>○ SSO with an external SNC product</td>
</tr>
<tr>
<td></td>
<td>- Web-based logon</td>
</tr>
<tr>
<td></td>
<td>○ Password-based authentication</td>
</tr>
<tr>
<td></td>
<td>○ SSO with logon tickets</td>
</tr>
<tr>
<td></td>
<td>○ SSO with logon tickets</td>
</tr>
<tr>
<td></td>
<td>○ Kerberos with SPNego</td>
</tr>
<tr>
<td></td>
<td>- ABAP requires integration with SAP Single Sign-On to support</td>
</tr>
<tr>
<td></td>
<td>○ SSO with external SAML 2.0 identity provider</td>
</tr>
<tr>
<td></td>
<td>○ Java-only:</td>
</tr>
<tr>
<td></td>
<td>Header variables</td>
</tr>
<tr>
<td></td>
<td>- Web Services</td>
</tr>
<tr>
<td></td>
<td>○ Transport level authentication and SSO with user ID and password, X.509 certificates, and authentication assertion tickets.</td>
</tr>
<tr>
<td></td>
<td>○ Message level authentication using user name token, X.509 certificate token, and SAML token. You can also use WS-specific security and authentication mechanisms, such as XML encryption, XML signatures, Message Aging, and WS SecureConversation</td>
</tr>
<tr>
<td></td>
<td>- OAuth 2.0 authorization framework</td>
</tr>
<tr>
<td></td>
<td>○ ABAP:</td>
</tr>
<tr>
<td></td>
<td>Acts as both resource server and authorization server in the same system for OData requests</td>
</tr>
<tr>
<td></td>
<td>Can act as client</td>
</tr>
<tr>
<td></td>
<td>○ Java:</td>
</tr>
<tr>
<td></td>
<td>Acts as both resource server and authorization server in the same system</td>
</tr>
<tr>
<td></td>
<td>A client application can be either one that is deployed on the AS Java or one that is not</td>
</tr>
<tr>
<td></td>
<td>- Log off methods where possible</td>
</tr>
<tr>
<td>Key Feature</td>
<td>Use</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Digital signatures and encryption</td>
<td>Encrypt data during transport: Support of transport layer security (TLS), secure network communication (SNC), and web service security. Offer functions for the encryption of data at rest, whether it is passwords, credit card data, in the database, or in the file system. Digitally sign and verify signed documents. Manage digital keys.</td>
</tr>
<tr>
<td>System security functions</td>
<td>A virus scan interface enables you to connect third-party virus scan software to detect malware during uploads or stored in your system.</td>
</tr>
<tr>
<td></td>
<td>Logging functions record security-related events.</td>
</tr>
<tr>
<td></td>
<td>The audit information system provides an infrastructure for conducting audits in SAP NetWeaver Application Server.</td>
</tr>
<tr>
<td></td>
<td>Store connection information for RFC and HTTP destinations.</td>
</tr>
</tbody>
</table>
7  UI Technologies

Business Background

SAP provides a wide set of user interface (UI) technologies for different purposes. The UI frameworks provide capabilities for developing applications tightly integrated into the respective landscapes.

The frameworks and tools available include several that are focused on developing transactional applications, as well as others that help business experts create appealing, state-of-the-art user interfaces without the need for development skills. In the ABAP environment in particular, there are many options available for extending or adapting existing applications. The user interface clients provide a consolidated access to all of these different applications. They provide structured access through role-based navigation, and a harmonized look and feel across the various underlying UI technologies.
# Key Features

The following features are available:

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing and adapting applications</td>
<td>UI frameworks can be used to develop user interfaces by coding or based on a composition and orchestration environment that builds screens with specific UI elements. Use one of the following UI frameworks to develop applications tightly integrated into the corresponding landscapes:</td>
</tr>
<tr>
<td></td>
<td>- SAPUI5 (UI development toolkit for HTML5): Create apps with rich user interfaces for modern Web business applications, responsive across browsers and devices, based on HTML5.</td>
</tr>
<tr>
<td></td>
<td>- Web Dynpro ABAP: Develop Web applications based on ABAP from scratch or use the templates/patterns provided by Floorplan Manager (FPM) for easy and efficient development. Adapt your WDA applications without touching the code, and define the range in which users can personalize these applications further.</td>
</tr>
<tr>
<td></td>
<td>- Dynpro ABAP/ SAP GUI for HTML Create classical SAP GUI transactions.</td>
</tr>
<tr>
<td></td>
<td>- SAP Visual Business: Visualize and combine enterprise data with geographical or 3D real-world scenes</td>
</tr>
<tr>
<td>Creating your own themes</td>
<td>With the UI theme designer you can create your own themes to adapt the visual appearance of applications based on different UI technologies (including SAPUI5 and Web Dynpro ABAP).</td>
</tr>
<tr>
<td>Providing consolidated access to your applications</td>
<td>Use one of the following UI clients to provide structured access through role-based navigation, and a harmonized look and feel across the various underlying UI technologies:</td>
</tr>
<tr>
<td></td>
<td>- SAP Fiori launchpad</td>
</tr>
<tr>
<td></td>
<td>- SAP Business Client</td>
</tr>
<tr>
<td></td>
<td>- SAP GUI</td>
</tr>
</tbody>
</table>
8 Integration and Connectivity

Business Background

Core technologies for communication of the SAP NetWeaver Application Server.

Key Features

The following features are available:

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Function Call (RFC)</td>
<td>Communication via RFC/bgRFC. Communication between applications of different systems in the SAP environment includes connections between SAP systems as well as between SAP systems and non-SAP systems. Remote Function Call (RFC) is the standard SAP interface for communication between SAP systems. RFC calls a function to be executed in a remote system. bgRFC provides additional services, such as queues, and qualities, such as exactly-once-in-order execution of RFC function modules.</td>
</tr>
<tr>
<td>UCON RFC Security</td>
<td>Restricted external RFC access and simplified RFC administration. UCON RFC security allows the administrator to restrict external access to RFC function modules. In addition, it provides simplified administration, for example, by analyzing the required RFC authorizations and creating different RFC user roles.</td>
</tr>
<tr>
<td>UCON HTTP Whitelist</td>
<td>Administration of HTTP trust relationships. The UCON HTTP whitelist allows the administrator of an AS ABAP to specify trusted Web sites with respect to different HTTP functionalities, like embedding of UIs, redirects, or Cross-Origin Resource Sharing (CORS). It provides a learning mode to support the administrator with this task.</td>
</tr>
<tr>
<td>Internet Communication Framework (ICF)</td>
<td>Communication via HTTP. Internet Communication Framework (ICF) enables communication with the SAP system using Internet standard protocols (HTTP, HTTPS, and SMTP). ICF is an integrated component of AS ABAP.</td>
</tr>
</tbody>
</table>
### Key Feature

<table>
<thead>
<tr>
<th>Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABAP Channels (AC)</strong></td>
<td>ABAP Push Channels (APC) provide &quot;push&quot; messages between the ABAP Application Server and Web browsers. ABAP Message Channels (AMC) provide a publish/subscribe messaging inside the ABAP Application Server. TCP sockets enable the ABAP Application Server to communicate directly via simple TCP protocols with programmable logic controllers (PLCs) and other devices.</td>
</tr>
<tr>
<td><strong>ABAP Daemons</strong></td>
<td>Framework providing sessions with unlimited lifetime. ABAP Daemons provide a concept similar to Linux cron jobs or Windows Services. Once started, there is no limit for the lifetime of such sessions. Applications can use daemons to handle events in a reliable way as stateful sessions.</td>
</tr>
<tr>
<td><strong>Web Services ABAP</strong></td>
<td>ABAP Web service provisioning. A Web service is an independent, modular, self-describing application function or service. Based on XML and other standards, this application function can be described, made available, located, or called using Internet protocols. The Web service infrastructure in the ABAP Application Server provides functionality to develop, configure, execute, and monitor both inbound and outbound Web services.</td>
</tr>
<tr>
<td><strong>SAP Web Dispatcher</strong></td>
<td>HTTP(S) load balancing and request routing. SAP Web Dispatcher is a software load balancer and reverse proxy for the HTTP(S) protocol. It supports SAP systems and their load balancing and request routing requirements.</td>
</tr>
<tr>
<td><strong>SAP Gateway Foundation</strong></td>
<td>SAP Gateway Foundation offers development and generation tools to create OData services to a variety of client development tools. It establishes a connection between application or SAP Business Suite data and target clients, platforms, and programming framework.</td>
</tr>
<tr>
<td><strong>SAP Application Interface Framework</strong></td>
<td>Interfaces often transfer important business data between systems. SAP Application Interface Framework provides monitoring and error handling tools that enable business users to easily handle interface-related errors (for example, material 4711 does not exist, or cost center 1234 is locked). In addition, SAP Application Interface Framework provides tools to develop custom interfaces and reusable interface components for various communication technologies.</td>
</tr>
<tr>
<td><strong>Business Network Integration</strong></td>
<td>Business Network Integration is a collection of tools and services that enables SAP applications like Business Suite, SAP S/4 HANA and others, to communicate and exchange business documents in cross application processes with other business networks such as Ariba Business Network, Fieldglass and non-SAP solutions (On Premise and Cloud) using the HTTP/Web services.</td>
</tr>
</tbody>
</table>

---

**Note**

For the interface development feature, you need a separate license. For further information, please contact your SAP Account Executive.
9 Software Logistics for SAP NetWeaver 7.52 for SAP S/4HANA 1709

Business Background

Procedures such as installing SAP S/4HANA, keeping the system up-to-date, and other system- and database-related procedures require the use of a separate toolset, which is available for customers of SAP S/4HANA.

Key Features

Table 1: Software Maintenance for SAP NetWeaver 7.52 for SAP S/4HANA 1709

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing systems</td>
<td>Plan new SAP systems and reliably install and initially configure them in your landscape according to your requirements (for example, as regards the distribution of instances to single hosts).</td>
</tr>
<tr>
<td>Upgrading to SAP S/4HANA 1709</td>
<td>Upgrade to SAP S/4HANA 1709 from the following source releases: SAP S/4HANA, on-premise edition 1511, or SAP S/4HANA 1610.</td>
</tr>
<tr>
<td>Copying systems</td>
<td>Create consistent copies of your SAP system, for example, to create a test system as a copy from production.</td>
</tr>
<tr>
<td>Installing and distributing front-end software</td>
<td>Install/update front-end software (such as SAP GUI) and distribute it to your client computers.</td>
</tr>
<tr>
<td>Renaming existing SAP systems</td>
<td>Change technical characteristics of an existing SAP system, for example, change the SAP system ID, instance number, or host name.</td>
</tr>
<tr>
<td>Updating and patching</td>
<td>Import support packages and deploy patches and SAP Notes to keep your system up to date.</td>
</tr>
</tbody>
</table>
## Key Features

The following key features are available:

<table>
<thead>
<tr>
<th>Key Feature</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building structured record and case views of diverse application data and electronic documents to boost business user productivity</td>
<td>Simplify your business user interaction with complex application data by relating to this data in the way users think. You can orchestrate data from SAP software in cases and records, search and retrieve data, manage cases, and define ad-hoc workflows.</td>
</tr>
<tr>
<td>Creating and managing workflows</td>
<td>Define approval workflows for a line of business or an organization</td>
</tr>
</tbody>
</table>
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