SAP Fiori

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About the Tutorial

SAP Fiori is a new user experience (UX) for SAP software and applications. It provides a set of applications that are used in regular business functions like work approvals, financial apps, calculation apps and various self-service apps. SAP Fiori provides 300+ role-based applications like HR, Manufacturing, Finance, etc.

SAP Fiori enables multiple device applications that allow users to start a process on their desktop/laptops and to continue that process on a smartphone or on a tablet. SAP has developed Fiori Apps based on User Interface UI5.

Audience

This tutorial is primarily meant for application developers, solution consultants, presales consultants and system administrators, who work on SAP HANA and are required to create scalable, secure and portable database-driven web-based applications.

Prerequisites

Before you start proceeding with this tutorial, we are assuming that you have a basic understanding of business processes typically addressed in solutions like SAP ERP, SAP CRM, and SAP SCM. A basic programming knowledge including HTML / JavaScript / SAPUI5 is also equally important.

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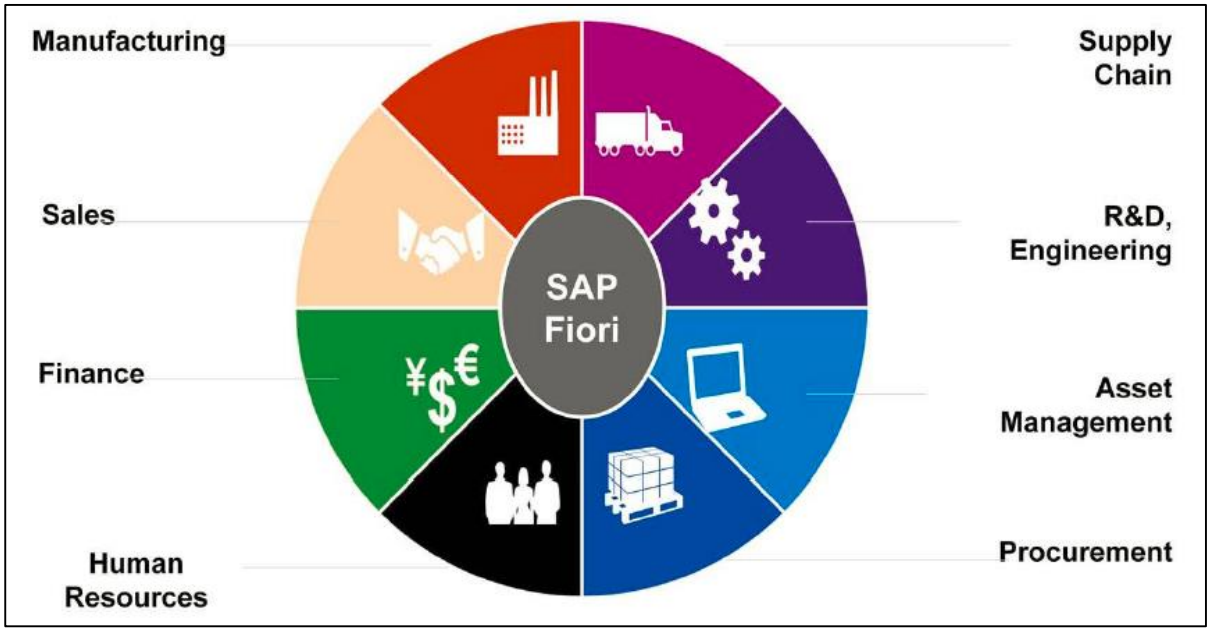
1. SAP Fiori – Introduction

SAP Fiori is a new user experience (UX) for SAP software and applications. It provides a set of applications that are used in regular business functions like work approvals, financial apps, calculation apps and various self-service apps.

SAP Fiori provides 300+ role-based applications like HR, Manufacturing, finance, etc. When you open the SAP Fiori home page application, you will see a picture of the flowers. It is because Fiori means 'flowers' in Italian.



SAP Fiori provides all business roles in real time on compatible hand devices. It offers business roles on easy to use functions, simple with unmatched responsiveness on desktop, smartphones and Tablets.

SAP Fiori enables multiple device applications that allow users to start a process on their desktop/laptops and to continue that process on a smartphone or on a tablet. SAP has developed Fiori Apps based on User interface UI5.

When SAP Fiori is combined with the power of the SAP HANA, it provides an unmatched application response and query-execution time. SAP Fiori user experience (UX) is used to provide a personalized and role-based user experience for enterprise-wide engagement across lines of business.

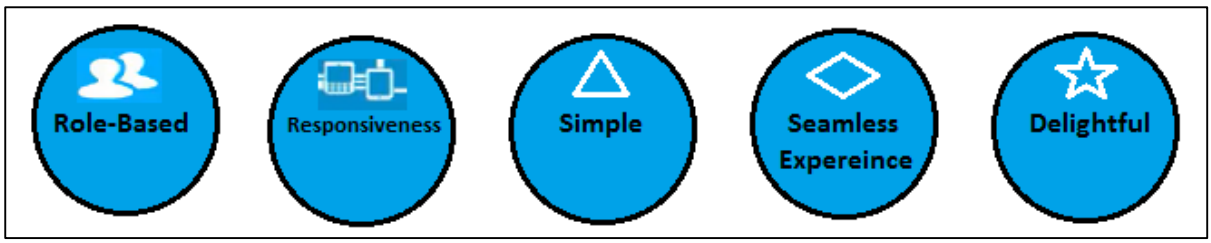
How SAP Fiori was born?

When a research was conducted, it was found that most of the SAP users use **SAP User Interface** to access the applications. These included common applications related to Manager-employee interactions such as leave request, travel request, etc. These GUI had more than 300,000 screens with various functions in it. SAP checked the most frequently used application and then decided to renew these applications. This is how SAP Fiori was born.

SAP Fiori Design Principles

There are five design principles for **SAP Fiori UI5**. These principles make SAP Fiori simple and decompose the different transactions into simple task based UI applications.

- **Role-Based** – SAP has decomposed various SAP transactions and changed them into beautiful user interactive applications that show only most relevant information to the users.
- **Responsiveness** – When SAP Fiori is combined with the power of SAP HANA, it provides an unmatched application response and query executions time.
- **Simple –** To make SAP Fiori simple to match the user demand, SAP has designed it as a **1-1-3** scenario. This means 1 user, 1 use case and 3 screens.
- **Seamless Experience** – SAP has provided all the Fiori apps based on the same language and it does not matter on the deployment and platform.
- **Delightful –** SAP Fiori was designed to work with **ECC 6.0** to make it easy for the users and to deploy on the existing SAP system.



SAP Fiori Apps

SAP Fiori apps are divided into three categories. They are distinguished on the basis of their function and infrastructure requirement.

- Transactional Apps
- Fact sheets
- Analytical Apps

Transactional Apps

The most important features of Transactional Apps are:

- The first release of SAP Fiori included 25 transactional apps.
- Transactional apps in SAP Fiori are used to perform transactional tasks like a manager-employee transactions such as leave request, travel requests, etc.
- Transactional Apps run best on SAP HANA database but can be deployed with any database with acceptable performance. These apps allow a user to run simple SAP transactions on the mobile devices as well as desktop or laptops.

Example: Leave Request, Travel Request, Purchase Order.

Fact sheets

The important features of a Fact sheet are given below.

- Fact sheets are used to drill the key information and contextual information in business operations. In SAP Fiori tiles, you can drill down to further details.
- It also allows you to navigate one-fact sheet to all its related fact sheets.
- Fact sheets also allow you to navigate to **Transactional apps** to run SAP transactions. A few Fact sheets also provide an integration option of geographical maps.
- You can call Fact sheets from Fiori Launchpad search results, from other fact sheets or from Transactional or Analytical apps.
- Fact sheets only run on SAP HANA database and also require an ABAP stack and they cannot be ported to SAP HANA Live tier-2 architecture.

Example: There is a fact sheet app with the center objects having details about vendor contract. You can drill down to further details like vendor details, contract terms, item details, etc.

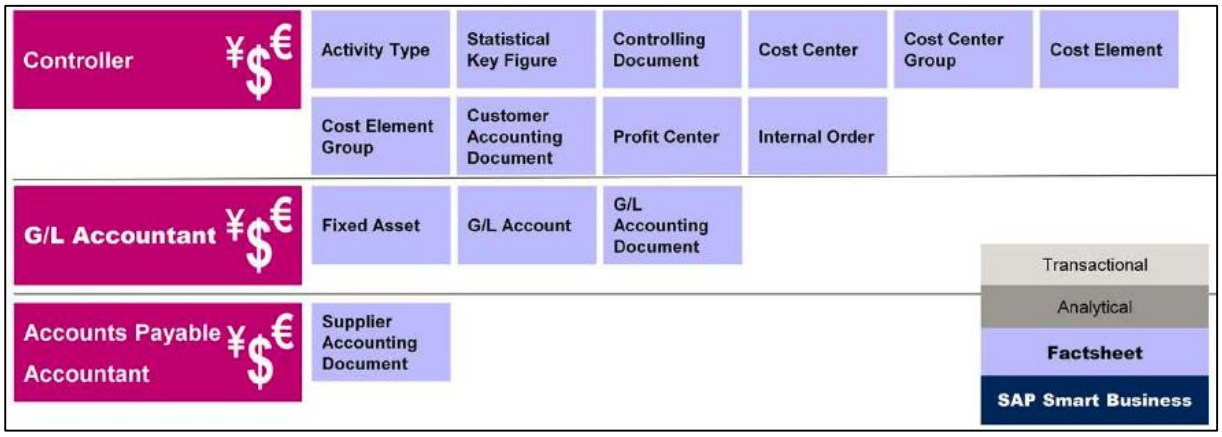
Analytical Apps

Analytical apps are used to provide role-based real time information about the business operations. Analytical apps integrate the power of SAP HANA with SAP business suite. It provides real time information from large volume of data in front-end web browser.

Using Analytical apps, you can closely monitor Key Performance indicators KPIs. You can perform complex aggregations and calculations of your business operations and react immediately as per the changes in the market condition.

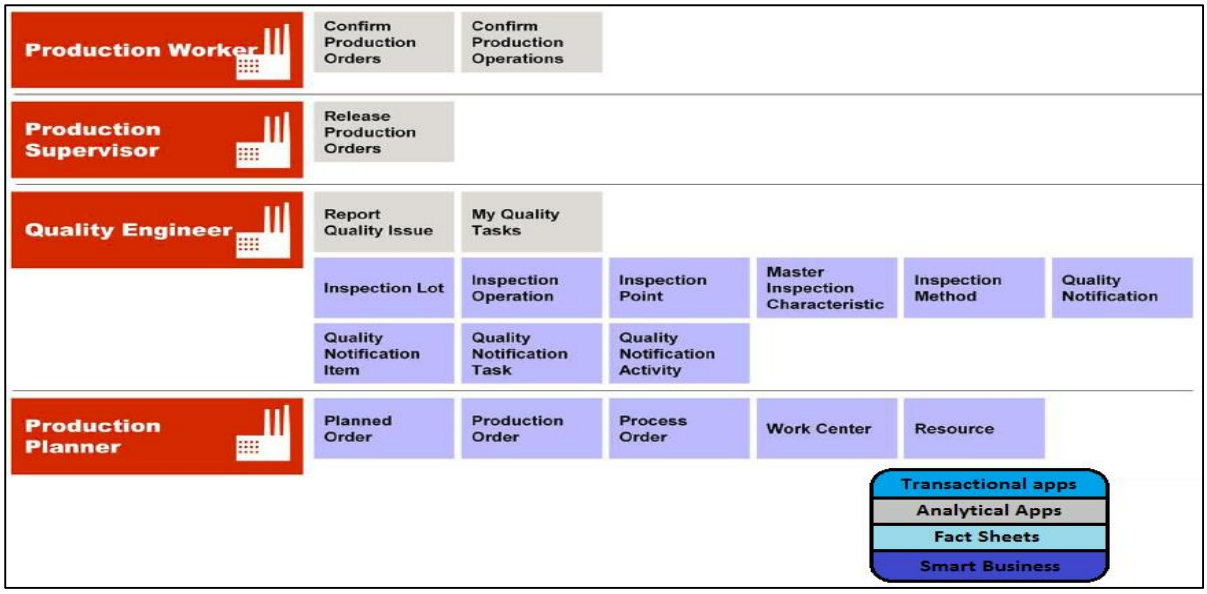
SAP Fiori Analytical apps run on SAP HANA database and use Virtual data models.

Examples



SAP Fiori Apps for Finance

SAP Fiori Apps for Human Resource



SAP Fiori Apps for Manufacturing

SAP UX Strategy

User Experience (UX) is basically, about an overall experience that a person has while using any product, a website or an application. The application may be on either a mobile device, tablet or a desktop or laptop. User Experience should be simple to use so that the users can achieve their goals easily and interact with SAP system.

User Experience comprises of right balance of technology, business needs and desirability.

UX strategy is basically about the following three design principles:

- Technology
- Business
- Human Values

SAP UX strategy consists of three components:

- **New:** New provides a consumer grid user experience for the new applications i.e. all the applications, which are yet to be built.
- **Renew:** Renew is applied to the existing applications.
- **Enable:** Enable is to provide a customer an ability to improve user experience of any SAP software to allow them to decide which business scenario is critical for them.

Prerequisites to Learn SAP Fiori

The following are the requirements for learning **SAP Fiori**:

- ABAP program and objects
- HTML5

- JavaScript
- SAP UI5
- ERP Implementation experience
- OData and SAP NetWeaver Gateway
- SAP HANA

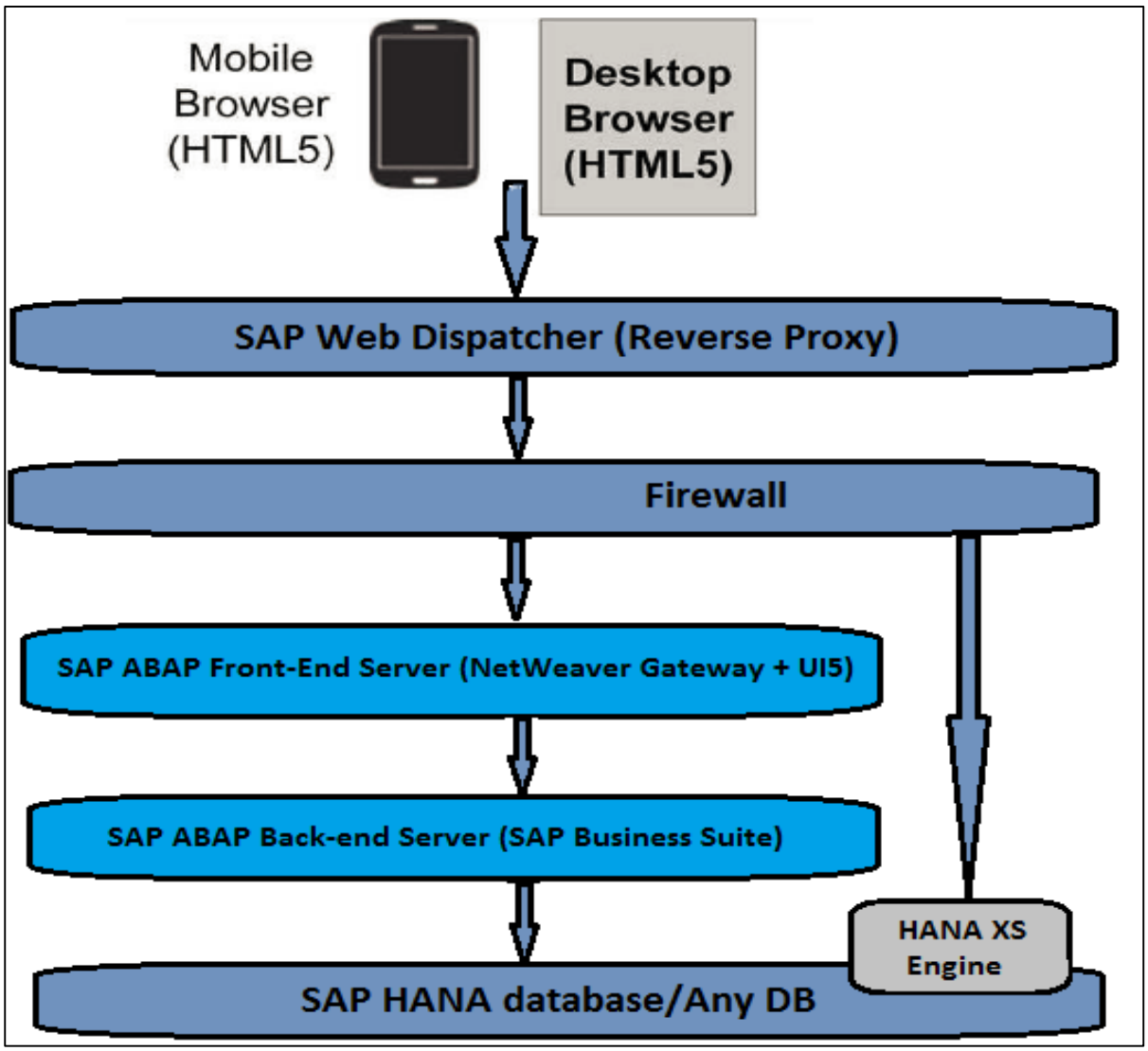
2. SAP Fiori – Architecture

The key components in high-level landscape of SAP Fiori architecture are given below.

SAP Web Dispatcher (Reverse Proxy)

SAP Web dispatcher is the first point of contact in SAP Fiori architecture for end users. This handles all web browser requests from end users via mobile devices or laptops.

It is an entry point for all HTTP/HTTPS requests and defines if a system has to accept or reject the requests and the server where request should go. It can reject or accept connection to SAP Fiori system.



Transactional apps can run on any database but Fact sheets and Analytical apps requires SAP HANA database to run.

SAP ABAP Front-End Server

SAP ABAP front-end server contains all the UI components of Fiori system and NetWeaver gateway. These UI components consist of central UI add on, SAP UI5 control library and SAP Fiori Launchpad. It also contains product specific UI. Add-ons contain UI development for respective business suite such as ERP, SCM, SD, MM, etc.

SAP NetWeaver Gateway is used to setup a connection between SAP business suite and target clients, platforms and framework. It offers development and generation tools to create **OData** services to different client development tools.

SAP ABAP Back-End Server

SAP ABAP Back-End Server is used to contain the business logic and the back-end data. Search model for fact sheets and SAP business suite is contained in ABAP back-end server.

SAP HANA database and HANA XS Engine

HANA XS engine is used to run all analytical apps in SAP Fiori. It contains Fiori app content and virtual data-model reuse content, which is provided through SAP HANA Live.

HANA XS Engine consists of two components:

- HANA Live App content for Business suite.
- Smart Business component with KPI Modeler.

HANA Live content contains VDM reuse content, which can be used for extensibility purpose.

Notes:

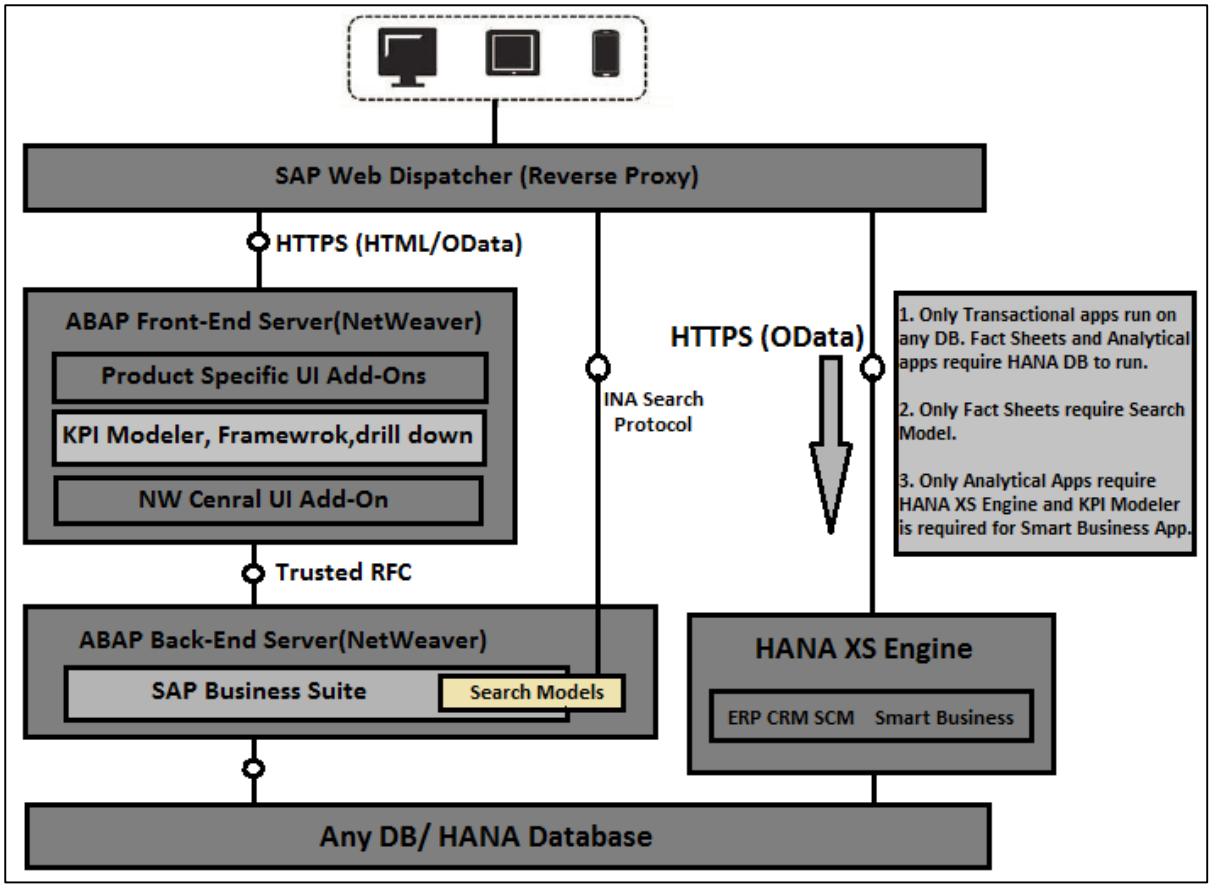
- Transactional apps in SAP Fiori does not necessarily require SAP HANA database to run and can run on any database.
- Fact **Sheets, Analytical apps and Smart Business** run only on SAP HANA database with no exceptions allowed.
- HANA is required for search model function of Fact Sheets to work.
- The data requested in Fact Sheets via search models is directly pulled from HANA database.

SAP Fiori Architecture: App Types

SAP Fiori apps are divided into three categories. They are distinguished on the basis of their function and infrastructure requirement.

As mentioned earlier, Transactional apps in SAP Fiori does not necessarily require SAP HANA database to run and can run on any database. Fact Sheets, Analytical apps and Smart Business run only on SAP HANA database with no exceptions.

The picture given below shows SAP Fiori Architecture for SAP Fiori different apps types.



Fact Sheets require Search models to perform search capability in Fiori Apps. Fact sheets are used to drill the key information and contextual information in business operations. In SAP Fiori tiles, you can drill down to further details. It also allows you to navigate from one fact sheets to all its related fact sheets.

Analytical apps and Smart Business apps data come from HANA database through HANA XS Engine.

HANA Live content contains Virtual Data Model reuse content, which can be used for extensibility purpose.

The user places request via Web browser using HTTPS. Trusted RFC is used to communicate between ABAP Front-End and Back-End server.

Hardware and Software Requirements

While installing and configuring SAP Fiori apps system, it is suggested to check the minimum hardware and software requirement to install different components as per Fiori apps requirement.

It is important to understand the concept of UI Add-Ons and NetWeaver Gateway, support packs, which are installed on ABAP Front-End server. The central UI Add-Ons are required for SAP UI5 control library and Launchpad. **NetWeaver Gateway** is used to set up the connection to back-end server by creating **OData** service.

- If you install **NW 7.4** for Front-end server, all central UI Add-Ons and Gateway components are part of that installation.

- If you install **NW 7.31 SPS04** for Front-End server, central UI Add-Ons and Gateway components have to be installed separately.

Product Version	Required SAP NW Gateway Installation	Components automatically installed with SAP NW Gateway
EHP3 FOR SAP NETWEAVER 7.0 (AS ABAP)	SAP NETWEAVER GATEWAY 2.0 SPS07 (Gateway Server Core NW 703/731) If you wish to install "Approval Requests" apps, you additionally have to install: SAP NETWEAVER GATEWAY 2.0 SPS07 > SAP IW PGW 100	GW_CORE 200 SAP IW FND 250 SAP WEB UIF 731 IW_BEP 200
SAP NETWEAVER 7.4 (AS ABAP), SAP NETWEAVER 7.4 FOR SUITE (AS ABAP)	All required components are included in the SAP NetWeaver installation (SAP_GWFND) If you wish to install "Approval Requests" apps, you additionally have to install: SAP NETWEAVER GATEWAY 2.0 SPS07 > SAP IW PGW 100	

SAP NW Installation Prerequisites

The minimum hardware requirements for SAP NetWeaver Gateway front-end server are as follows:

Requirements	Specification
Processor	Dual Core(2 logical CPUs) or higher, 2 GHz or higher
Random Access Memory (RAM)	8 GB or higher
Hard Disk Capacity	80 GB primary, or higher

HANA 1.0 database requirement is only for Fact Sheets and Analytical Apps.

HANA Live is included with suite on HANA but it is made available as separate package to be installed. SAP HANA Live uses the integrated scenario means **SAP HANA Live** shares a **SAP HANA Appliance** with the **Business suite**.

SAP HANA Live for SAP ERP

Product	SAP HANA Live for SAP ERP
Release	1.0, SPS10
Software Component	HCO_HBA_ECC
Based On	SAP HANA appliance software SPS 08 or higher
Documentation Published	April 2015

You install this software component as an add-on for SAP HANA. The SAP HANA appliance software comes pre-installed on a specific appliance hardware system delivered in conjunction with leading SAP hardware partners.

System Landscape requirement for SAP Fiori

System Landscape requirement for SAP Fiori are summarized in the table given below.

Server & Database	Platform & Add-On	Component
Front-End App Server		

NetWeaver Gateway (NW GW) Server	SAP NetWeaver 7.31 (AS ABAP) SPS04 or higher	• SAP NW GW 2.0 including the following components & SPs:
		  • Gateway Server Core NW 703/731 > Components: GW_CORE 200, SAP IW FND 250, SAP WEB UIF 731 (SP06)
		  • Gateway PGW > Components: SAP IW BEP 200 (SP06). For "Approve Requests" app, also need SAP IW PGW 100 (SP03)

	SAP NetWeaver 7.4 (AS ABAP) SPS04 or higher	• All required core NW GW components are included in the SAP NetWeaver installation (SAP_GWFND) • For "Approve Requests" app, also need SAP IW PGW 100 (SP03)
NW Central UI Add-On	SAP NetWeaver 7.31 (AS ABAP) SPS04 or higher	• UI ADD-ON 1.0 FOR NW 7.03 (Minimum SPS 06)
	SAP NetWeaver 7.4 (AS ABAP) SPS04 or higher	• Included in NW 7.4 installation. No separate installation needed.
Respective Business Suite – UI Add-On:	SAP ERP	• UI FOR EhP7 FOR SAP ERP 6.0 **(For principal apps for SAP ERP 1.0, install separate product-specific add-ons.)**
	SAP SCM	• SAP SNC USABILITY 1.0
	SAP CRM	• UI FOR EhP3 FOR SAP CRM 7.0
	SAP SRM	• UI FOR EhP3 FOR SAP SRM 7.0 **(For principal apps for SAP SRM 1.0, install separate product-specific add-ons.)**
	SAP GRC	• UI FOR SAP ACCESS CONTROL 10.1
	SAP PPM (Portfolio & Project Mgmt.)	• UI FOR SAP PPM 6.0
Back-End Business Suite Server	SAP NetWeaver 7.4 (AS ABAP) SPS04 or higher	• All required core NW GW components are included in the SAP NetWeaver installation. (SAP_GWFND)
Respective Business Suite – Add-On:	SAP ERP	• EhP7 FOR SAP ERP 6.0 SP02 **(For principal apps for SAP ERP 1.0, not required. Install app-specific add-ons delivered for these apps.)**
	SAP SCM	• EhP3 FOR SAP SCM 7.0 SP02
	SAP CRM	• EhP3 FOR SAP CRM 7.0 SP02
	SAP SRM	• EhP3 FOR SAP SRM 7.0 SP02 **(For principal apps for SAP SRM 1.0, not required. Install app-specific add-ons delivered for these apps.)**
	SAP PPM (Portfolio & Project Mgmt.)	• SAP PPM 6.0 SP01
	SAP GRC AC	• Access Control 10.1 SP03 (Integrated), AC 10.0 SP10 (Side by Side)
Database	HANA 1.0	SPS 6 Revision 69 or higher Smart Business, VDM for ERP,SRM.CRM,SCM,PPM,GRC

3. SAP Fiori – SAP NetWeaver Gateway

SAP **NetWeaver Gateway** is used to setup a connection between SAP business suite and target clients, platforms and framework. It offers development and generation tools to create **OData** services to different client development tools.

SAP NetWeaver gateway provides an easier way for the consumption on business logic and content for SAP Back-end system on web applications. It also reduces the complexity to access SAP data and provides easy interfaces to decrease the development time.

SAP NetWeaver Gateway: Capabilities and Key Benefits

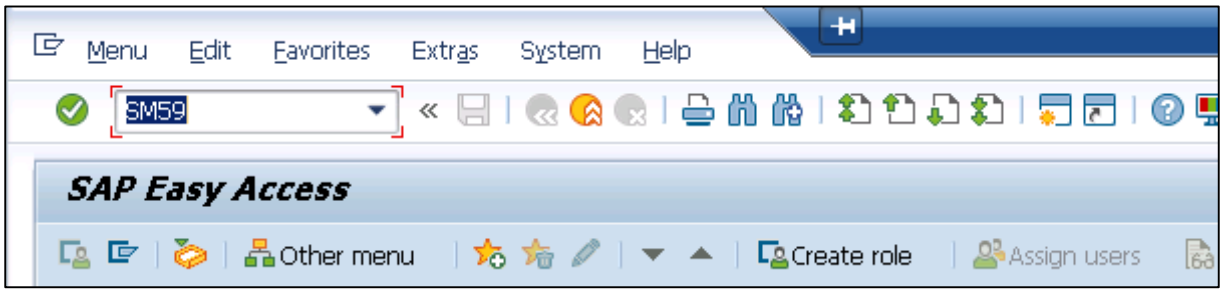
SAP NetWeaver Gateway is a technology that provides a simple way to connect devices, environments and platforms to SAP software based on market standards.

- Non-disruptive, any SAP business suite.
- Ease to develop simple APIs and does not require any tool knowledge.
- Based on REST, ATOM/OData. It allows connectivity to SAP applications using any programming language or model, without the need for SAP knowledge, by leveraging **REST** services and **OData/ATOM** protocols.
- It provides plug-ins for well-known IDEs such as Eclipse, Visual Studio 2010 and XCode.

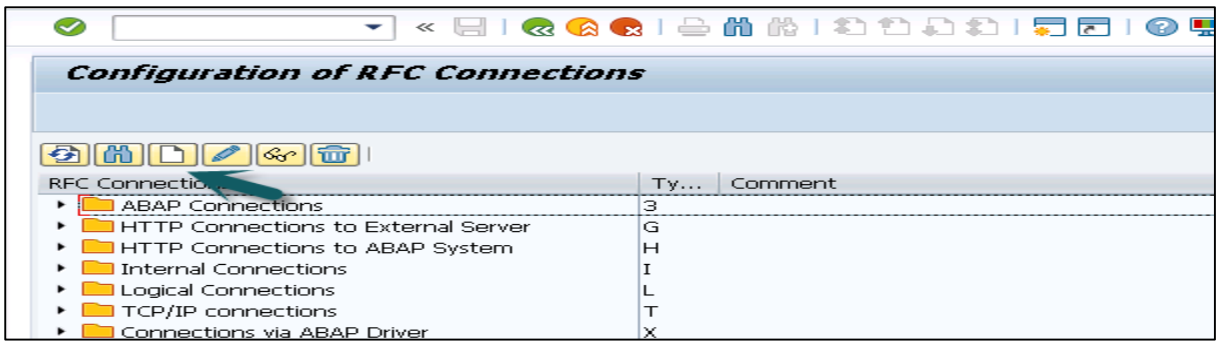
Connect SAP NetWeaver Gateway to SAP Business Suite

This involves configuring Back-end server as trusting system.

Step 1: Use T-code: **SM59**



Step 2: Click on create icon as shown below.

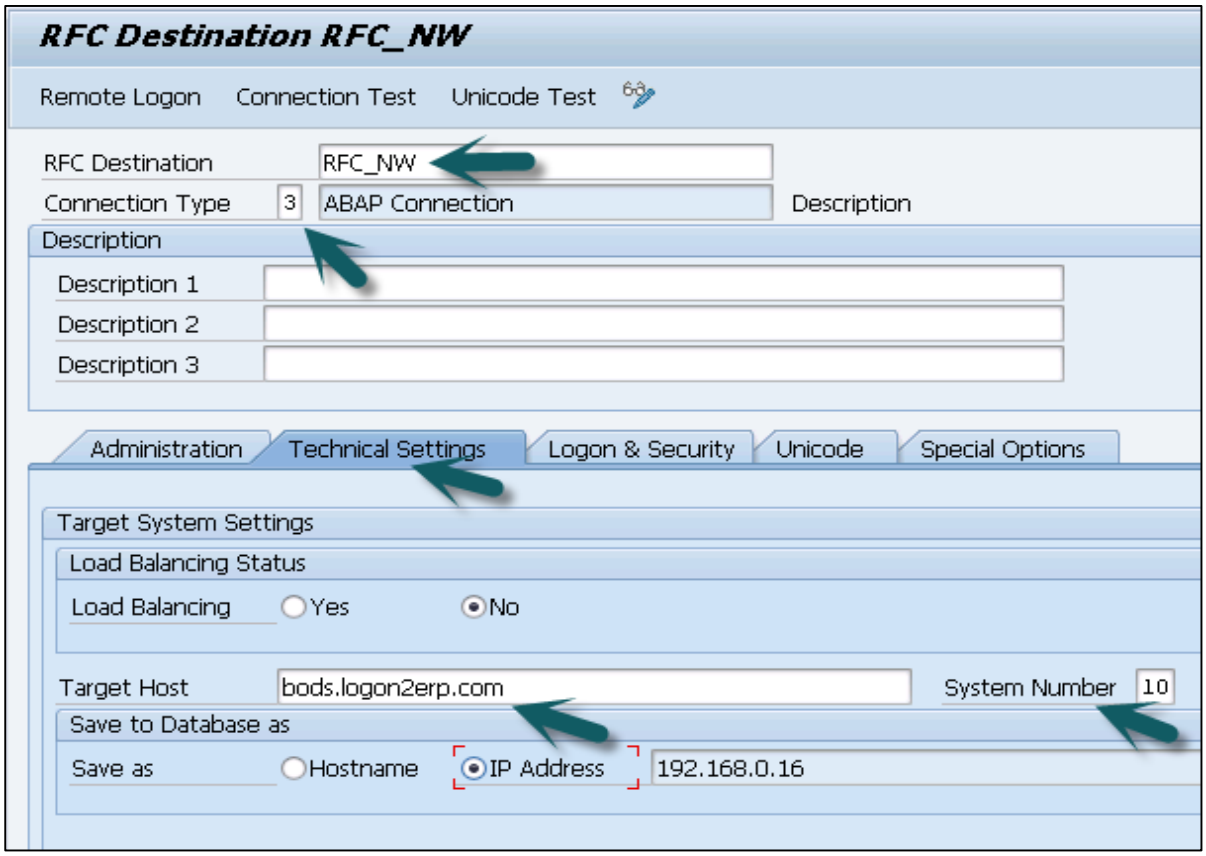


Step 3: Enter the details as shown below:

- RFC Destination Name
- Connection Type: 3

Step 4: Go to the **Technical Settings** tab and enter the details as explained below.

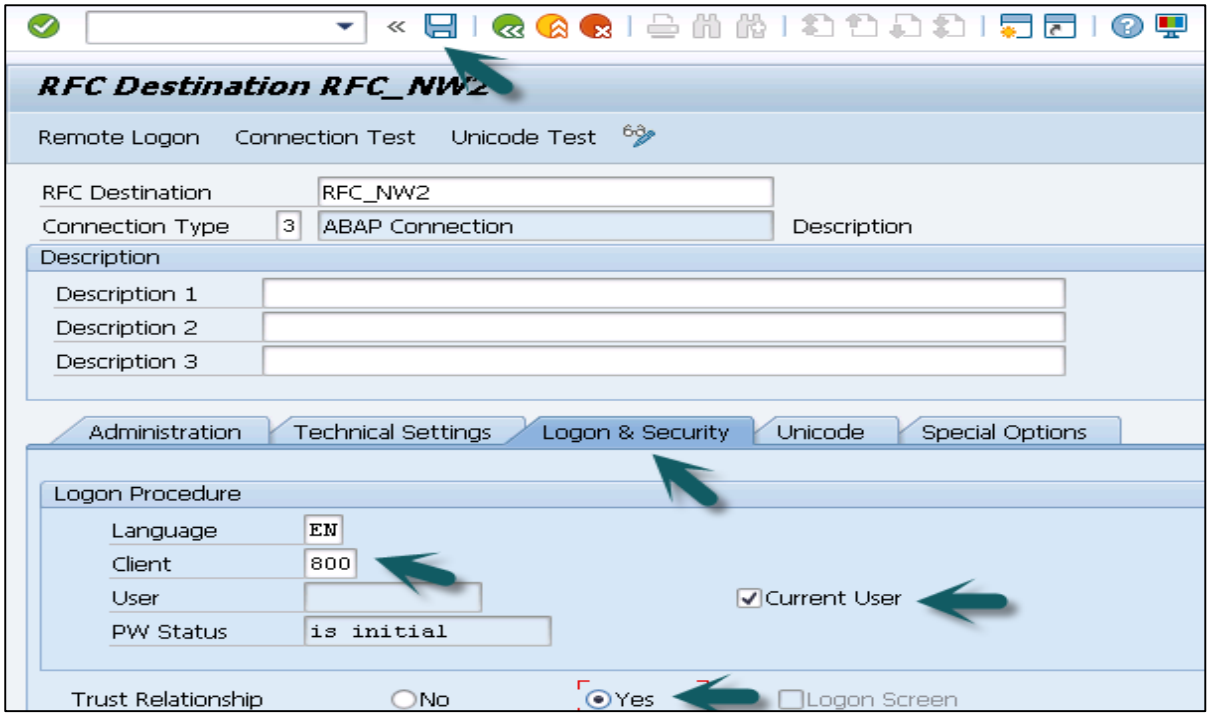
Step 5: Enter the gateway host in the **Target Host** field and Instance number in the **System Number** field.



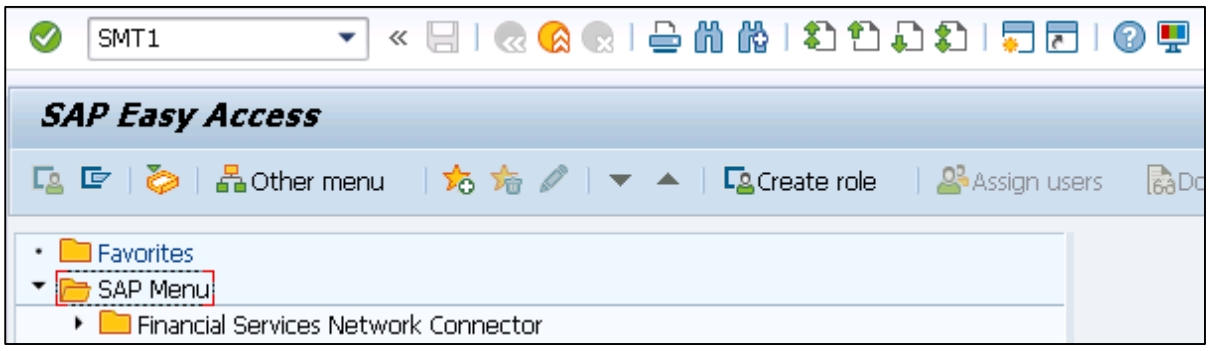
Step 6: Go to the **Logon & Security** tab and enter the details.

Step 7: Enter the client number and click on **Current user** for authentication.

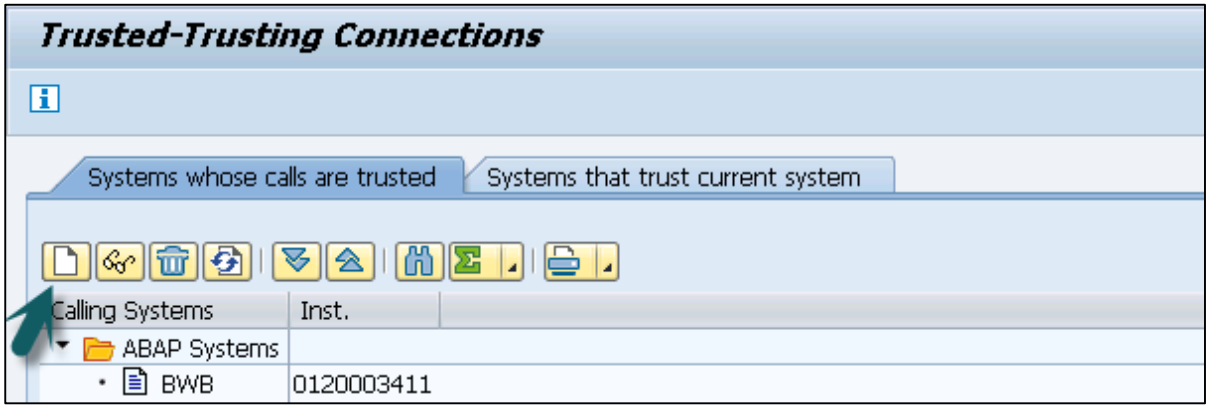
Step 8: Select **Trust Relationship** as **Yes** and click the **save** icon at the top.



Step 9: Go back to the home screen and use T-code: **SMT1**

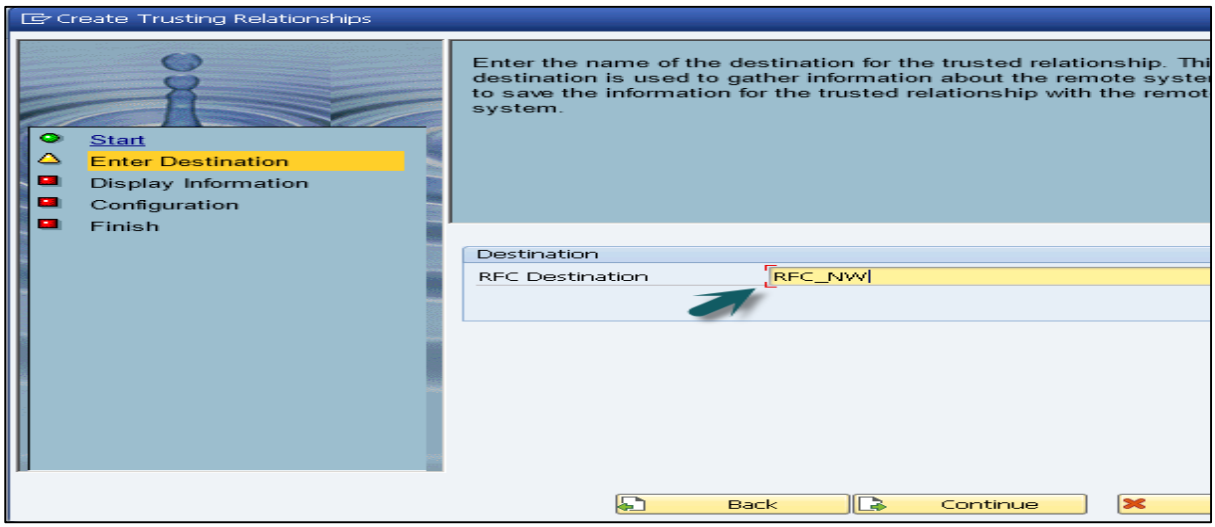


Step 10: Click the **create icon** as shown below.



The **Trusting Wizard** will open.

Step 11: Enter the details of RFC destination that you have just created and click **Continue**.



Step 12: The information of trusted system is displayed. Click the **Save** button.

Here, you have defined trust relationship between your SAP system and NetWeaver Gateway host by configuring SAP system to be trusting system and NW host to be trusted system. This enables the remote logon for users to use the user data in SAP NetWeaver gateway and SAP system.

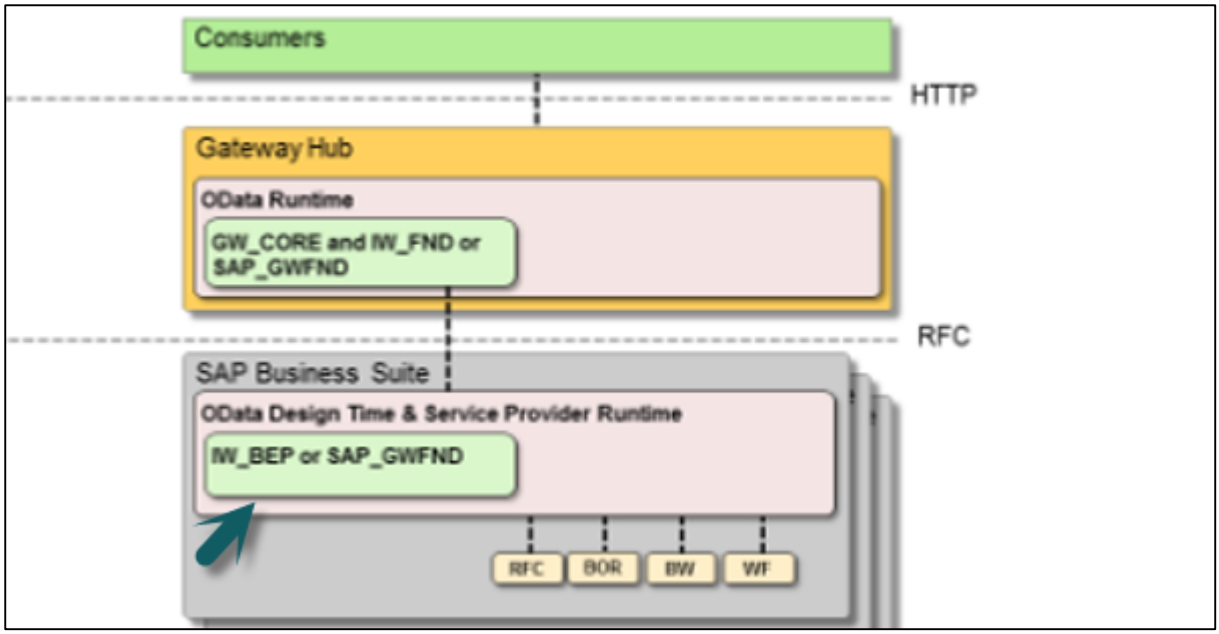
SAP NetWeaver Gateway: Deployment Options

There are two different deployment options available to deploy SAP NetWeaver gateway for SAP Fiori configuration.

Central Hub Deployment of SAP NetWeaver Gateway: Development in Back-End System

In this type of deployment option, central UI Add-On, Product specific UI Add-Ons and SAP NetWeaver gateway is contained in ABAP front-end server. The back-end server contains business logic and back-end data. Development takes place in ABAP back-end system.

The services are deployed on a back-end system and registered on the server. The Gateway service is deployed in Gateway back-end system. Either **IW_BEP** is deployed or system running on the 7.4 or higher version leverage the core component **SAP_GWFND**.



Advantages

- It allows changes to the UI without development authorization in back-end.
- It provides single point of maintenance for all UI issues.
- It provides central place for theming and branding of Fiori Apps.
- It provides single point of access to back-end system.
- As there is no direct access to back-end system, it has enhanced security.
- Direct local access to metadata (DDIC) and business data and ease of reuse of data.

Disadvantages

- It requires separate SAP NetWeaver Gateway system.

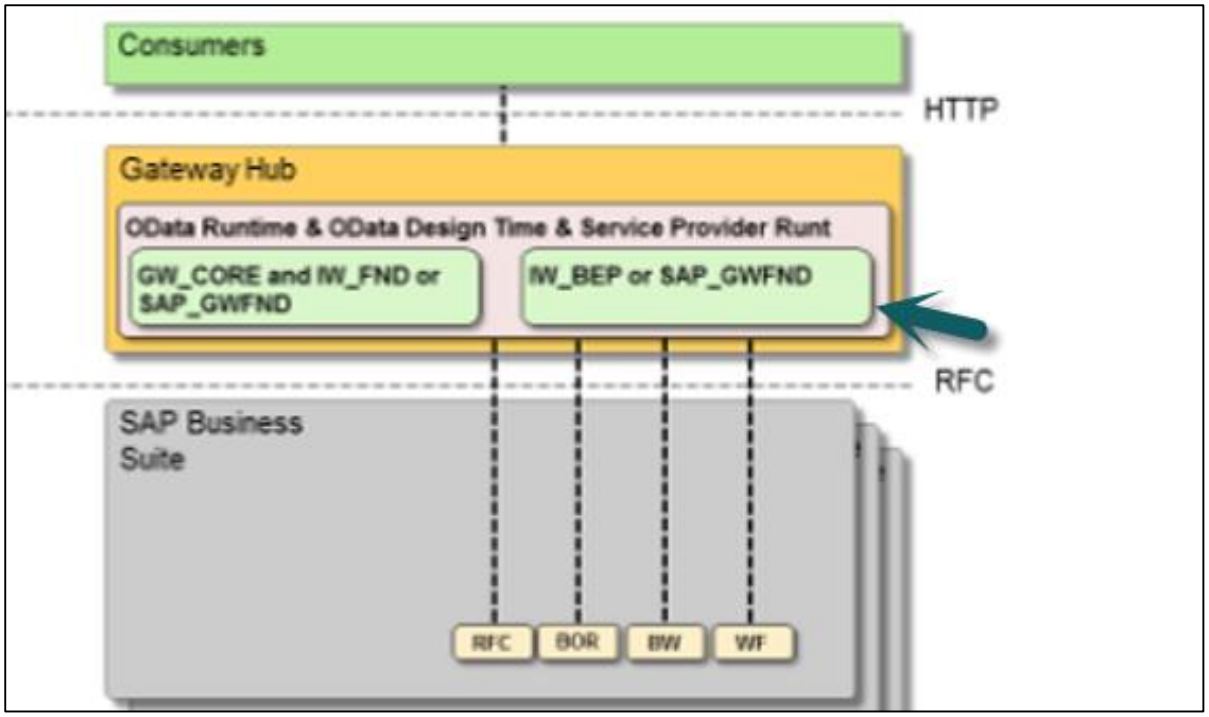
Note: SAP recommends Central Hub deployment option for production environment.

Central Hub Deployment of SAP NetWeaver Gateway

In this option, Gateway server functionalities are used on one dedicated server, the hub system. As against the first option, service deployment takes place on the hub system.

This option is used if either no development must be performed on the back-end system or in case of releases prior to 7.40. if it is not allowed to deploy the Add-On **IW_BEP** in the back-end. In this case, the developer is limited to the interfaces that are accessible via RFC in the back-end.

Development takes place in Gateway hub system and Business suite back-end systems are not touched.



IW_BEP or **SAP_GWFND** is running in Gateway hub system and nothing is touched in SAP Business suite.

Advantages

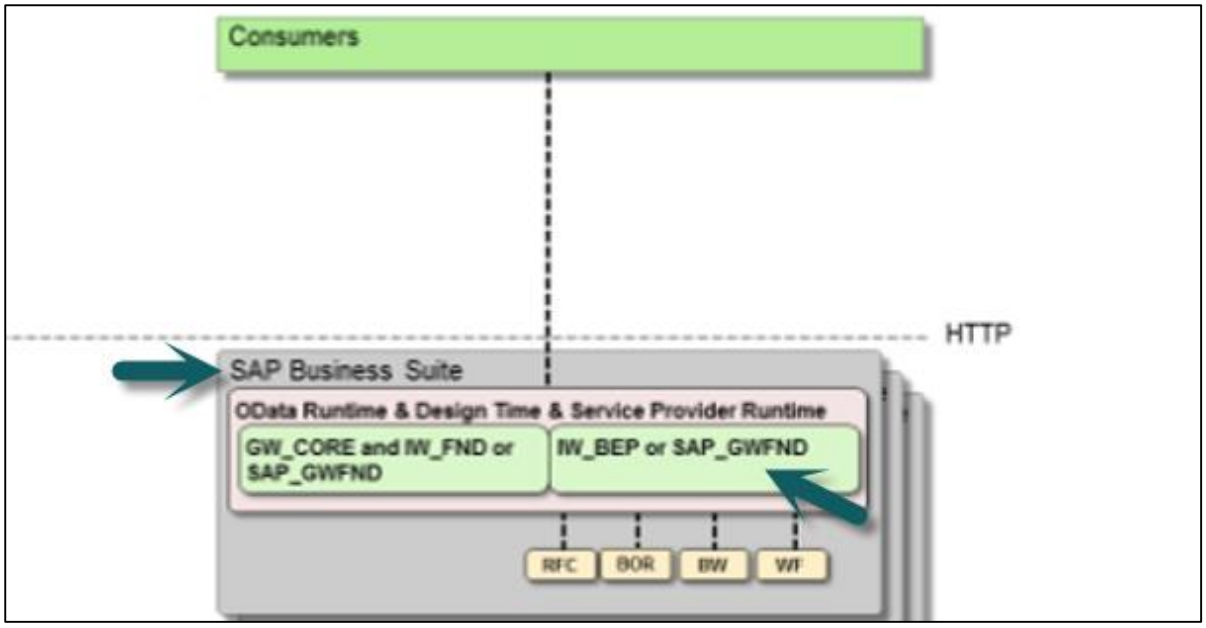
- In addition to the benefits given for the first option, this option has the advantage that it does not require the installation of Gateway Add-Ons in back-end system.

Disadvantages

- There is no direct access to **metadata** (**DDIC**) and business data. Therefore, reuse of data is limited.
- GENIL objects cannot be used remotely.
- In this configuration, access is limited to remote enabled interfaces like RFC modules, BAPI's etc.

Embedded Deployment

In Embedded deployment architecture, development takes place in SAP Business suite back-end system and Gateway system is also installed in the same system. Services are registered as well as published in the SAP Business Suite back-end system.



IW_BEP or SAP_GWFND is running in the same system in which SAP Business suite is installed.

Advantages

- It requires less run time as one remote call is reduced.

Disadvantages

- System should not be used as hub for additional Back-End systems.
- In case of multiple SAP Business Suite systems, Gateway has to be configured multiple times.
- This configuration is recommended only for sand box purposes.

Note: You should not use a SAP Business Suite System with embedded deployment as a hub system for additional back-end system. The reason is that it might lead to a situation where the SAP NetWeaver Gateway release of the hub system is lower than the version of the SAP NetWeaver Gateway back-end components of the remote back-end system.

To avoid such situation, you can use embedded deployment option for your SAP Business Suite systems.

If you go for a hub-based architecture, you should use a dedicated SAP NetWeaver Gateway Hub system that should run on the latest release of SAP NetWeaver Gateway.

End of ebook preview

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