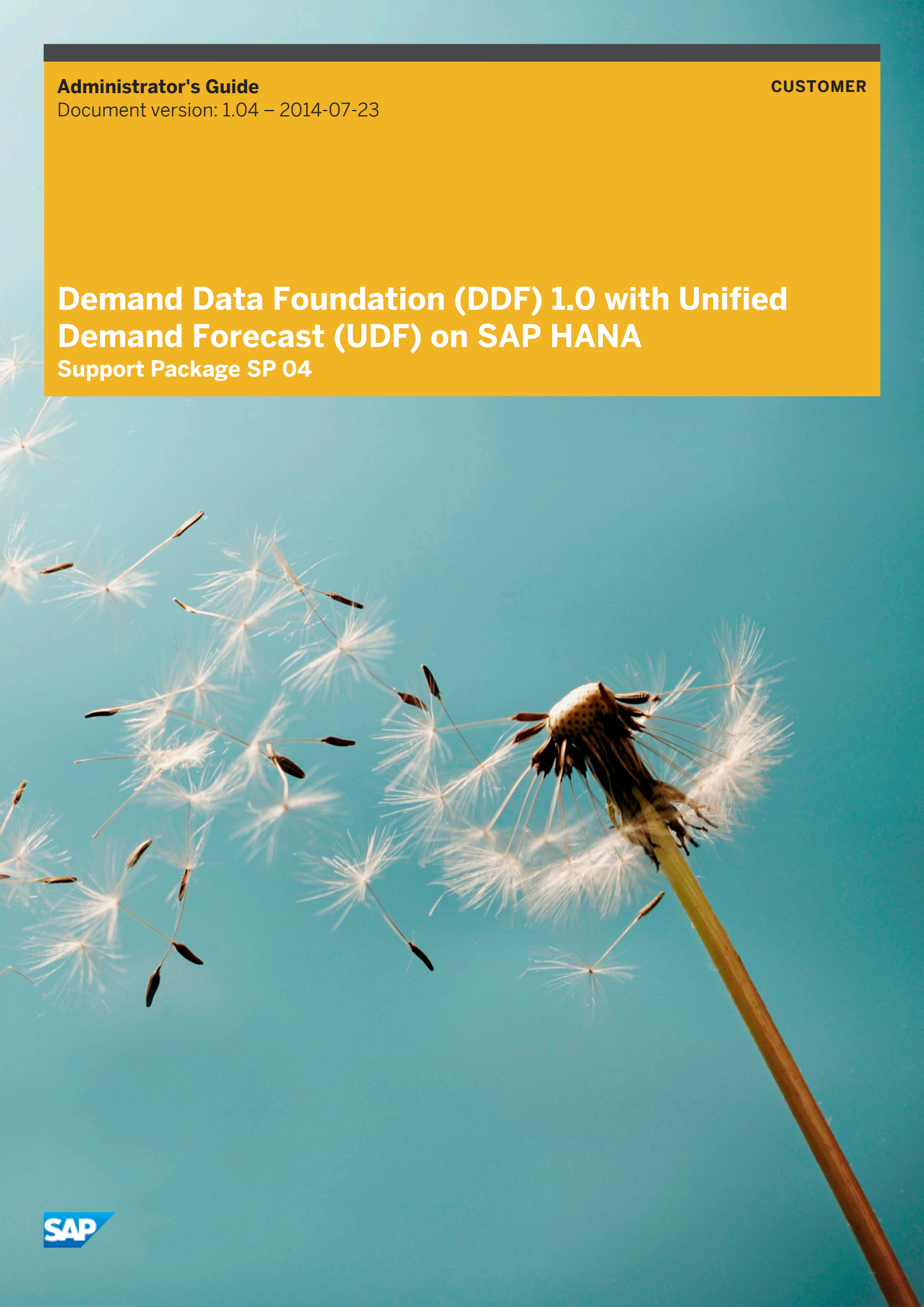
Administrator's Guide
Document version: 1.04 – 2014-07-23

CUSTOMER

Demand Data Foundation (DDF) 1.0 with Unified Demand Forecast (UDF) on SAP HANA

Support Package SP 04



Document History

Caution

Before you start the implementation, make sure that you have the latest version of this document, which you can find on SAP Service Marketplace at service.sap.com/instguides > *Installation & Upgrade Guides* > *Industry Solutions* > *Industry Solution Guides* > *SAP for Retail* > *SAP Customer Activity Repository*.

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

Table 1

Version	Date	Description
1.0	2013-06-28	Initial Version
1.01 (SP 01)	2013-09-23	Added reference to SAP Note for SP 01 (collection note) providing support package overview and implementation instructions; adapted schema names and workflow for manual SAP HANA content activation; updated referenced SAP Note for manual SAP HANA content activation; added installation prerequisites and upgrade recommendation; added reference to SAP Note regarding load balancing; added information about maximum number of records for load balancing; updated UDF installation sequence
1.02 (SP 02)	2014-03-14	Updated technical implementation information; updated upgrade and migration information; updated SAP Note numbers; updated information on activation of SAP HANA content; added information on supported installation scenarios and related pre- and post-installation tasks; updated privileges assigned to UDF roles; updated installation information for UDF AFL
1.03 (SP 03)	2014-05-23	Added reference to SAP Note 1997902 for SP 03 (collection note providing support package overview and implementation instructions); updated and added several SAP Note numbers; updated installation information for UDF AFL; specifically added reference to new installation procedure for UDF AFL as of SAP HANA SPS 08; updated technical implementation information based on DDF installation scenarios; appended Introduction to Demand Data Foundation (DDF) section, updated Component Version Dependencies section, updated SAP Solution Manager section, updated Standard Authorization Objects section
1.04 (SP 04)	2014-07-23	Added reference to SAP Note 2020581 for SP 04 (collection note providing support package overview and implementation instructions); added reference to SAP Note 1798895 with manual correction instructions for implementing collection notes; added reference to SAP Note 2016825 on the independent release of the UDF AFL as of SAP HANA SPS 08; added information on how to do the optional upgrade to SAP HANA SPS 08; updated Standard Authorization Objects section; updated Component Version Dependencies section; enhanced description of delivery units for SAP HANA content; revised Upgrade and Migration section

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Content

1 Getting Started . . . 5
1.1 About This Document . . . 5
1.2 SAP Notes for the Installation . . . 5
1.3 Information on SAP Service Marketplace . . . 8
1.4 Naming Conventions . . . 9
1.5 Introduction to Demand Data Foundation (DDF) . . . 10

2 Technical Implementation . . . 16
2.1 Technical System Landscape . . . 16
2.2 Product Availability Matrix (PAM) . . . 17
2.3 Preparation, Installation, and Post-Installation of Demand Data Foundation (DDF) . . . 17
Preparation . . . 17
Installation . . . 19
Post-Installation . . . 19

3 Upgrade and Migration . . . 23
3.1 Component Version Dependencies . . . 23
3.2 Upgrading from DMF to DDF with UDF . . . 23
3.3 Upgrading the UDF AFL . . . 25

4 Security . . . 27
4.1 Fundamental Security Guides . . . 27
4.2 User Administration and Authentication . . . 27
User Management . . . 27
Integration into Single Sign-On (SSO) Environments . . . 29
4.3 Authorizations . . . 29
Standard Roles . . . 29
Standard Authorization Objects . . . 30
Authorization Requirements for Unified Demand Forecast (UDF) . . . 33
4.4 Security Protection . . . 35

5 Operation . . . 36
5.1 Monitoring . . . 36
Alert Monitor . . . 36
Monitoring Installation and Setup . . . 36
Component-Specific Monitoring . . . 36
Detailed Monitoring . . . 37
Ensuring Data Consistency . . . 39
Managing Demand Data Foundation (DDF) . . . 39
Support Desk Management . . . 41

6 Solution-Wide Topics . . . 42
6.1 SAP Solution Manager . . . 42
6.2 Service-Oriented Architecture (SOA) . . . 42

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Service Enablement 43
Installing the Service-Oriented Architecture (SOA) 44
Related Documentation 45

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

1 Getting Started

1.1 About This Document

Purpose

This Administrator's Guide is the central starting point for the technical implementation of Demand Data Foundation (DDF) with Unified Demand Forecast (UDF) on the SAP HANA database.

The guide provides you with a technical overview of DDF, its software units, and its processes. It also helps you design your DDF landscape based on your installation scenario.

Use this guide as the single source of reference for the documentation that is available to support the installation and operation of DDF. The guide also refers you to required other documentation. It comprises the following main sections:

- Technical Implementation Information [page 16]

  Important technical information regarding DDF, including an overview of the related software units, the system landscape, and the overall installation sequence
- Upgrade and Migration Information [page 23]

  Overview of the processes for upgrading or migrating to DDF
- Security Information [page 27]

  Security-relevant information for operating DDF
- Operation Information [page 36]

  Most relevant information for operating DDF
- Solution-Wide Topics [page 42]

  Information about SAP Solution Manager and the service-oriented architecture (SOA) for DDF

Integration

DDF is a reusable component that provides its functions and data through the respective consuming application (for example, SAP Customer Activity Repository or SAP Promotion Management for Retail).

Constraints

This Administrator's Guide does not provide information about the following:

- Installation or configuration of the SAP NetWeaver technology platform
- Installation or configuration of the SAP HANA database
- Installation, configuration, or integration with any of the SAP Business Suite components

1.2 SAP Notes for the Installation

You must read the following SAP Notes before you start the installation. These SAP Notes contain the most recent information about the installation, as well as corrections to the installation documentation.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Make sure that you have the up-to-date version of each SAP Note, which you can find on SAP Service Marketplace at service.sap.com/notes.

Table 2: SAP Notes

SAP Note Number	Title	Description
212876	The new archiving tool SAPCAR	Information about the SAP archiving tool SAPCAR and references to relevant SAP Notes
1809841	Release strategy for the ABAP add-on RTLDDF 100	Release strategy for the software component `RTLDDF 100`
1809840	Release strategy for the ABAP add-on RTLDMF 200	Release strategy for the software component `RTLDMF 200`
1809842	Release strategy for the ABAP add-on RTLMCFND 100	Release strategy for the software component `RTLMCFND 100`
1881946 with related notes	Collection Note for RTLDDF 1.0 SP01 with UDF on SAP HANA	Overview of support package SP 01 of Demand Data Foundation (DDF) 1.0 with Unified Demand Forecast (UDF) on the SAP HANA database; referenced related notes providing details of the changes made for this support package as well as implementation instructions and prerequisites
1921071 with related notes	Collection Note: RTLDDF 1.0 SP02 with UDF on SAP HANA	Overview of support package SP 02 of Demand Data Foundation (DDF) 1.0 with Unified Demand Forecast (UDF) on the SAP HANA database; referenced related notes providing details of the changes made for this support package as well as implementation instructions and prerequisites
1961352	ERP Promo VDM consumption	Use of ERP promotions for demand modeling and forecasting
1961815	New view for retail promotions without bonus buy	Use of ERP promotions for software component `RTLPOSDM`
1981340	ABAP Report to create and activate HANA content objects	Information about an ABAP report allowing automatic activation of the SAP HANA content for DDF and UDF when installing without SAP Customer Activity Repository
1898341	Modeling or forecasting fails with Failed decomposition	Updated information about configuration changes for demand modeling and forecasting
1911141	Environment variable for UDF performance optimization	Information about setting UDF-specific performance optimization parameters in the SAP HANA database, including global environment variable `OMP_NUM_THREADS`
1977133	Performance improvement for demand modeling data persistence	Information about how to improve the performance of the demand modeling service

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

SAP Note Number	Title	Description
1972411 (optional)	UDF Launchpad	Implementation information if you decide to use the optional visualization tool *Unified Demand Forecast (UDF) Launchpad*
1997902 with related notes	Collection Note: RTLDDF 1.0 SP03 with UDF on SAP HANA	Overview of support package SP 03 of Demand Data Foundation (DDF) 1.0 with Unified Demand Forecast (UDF) on the SAP HANA database; referenced related notes providing details of the changes made for this support package as well as implementation instructions and prerequisites
2014334	Migration from SAP HANA AFL (SP07) to Product-Specific AFLs (SP08)	Information about the changed release strategy for product-specific application function libraries (AFLs) as of SAP HANA Platform SPS 08. UDF is one of the product-specific AFLs. **Note** This SAP Note is only relevant for your installation if you plan to upgrade to SAP HANA Platform SPS 08. Note that this upgrade is not required for implementing DDF 1.0 SP 04.
2004952	Migration of UDF AFL and POS AFL from SAP HANA AFL as of SAP HANA 1.0 SP08	Instructions for performing the mandatory one-time migration of the product-specific AFLs (such as UDF) when upgrading to SAP HANA Platform SPS 08 or higher. **Note** This SAP Note is only relevant for your installation if you plan to upgrade to SAP HANA Platform SPS 08. Note that this upgrade is not required for implementing DDF 1.0 SP 04.
2016825	SAP Release Note for UDF AFL and POS AFL for SAP HANA	Information about the release of the product-specific AFLs for Unified Demand Forecast (UDF) and SAP On-Shelf Availability as of SAP HANA Platform SPS 08 **Note** This SAP Note is only relevant for your installation if you plan to upgrade to SAP HANA SPS 08. Note that this upgrade is not required for implementing DDF 1.0 SP 04.
2020581	Collection Note: RTLDDF 1.0 SP04 with UDF on SAP HANA	Overview of support package SP 04 of Demand Data Foundation (DDF) 1.0 with Unified Demand Forecast (UDF) on the SAP HANA database; referenced related notes providing details of the

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

SAP Note Number	Title	Description
		changes made for this support package as well as implementation instructions and prerequisites
1798895	Additional information on manual correction process for ABAP on SAP HANA	Information about how to implement SAP Notes with manual correction instructions for individual SAP HANA objects **Note** This SAP Note is only relevant if you want to implement manual correction instructions.
2019909	Alternative Package Building implementation for sales data	Performance improvement: Information on how to configure the `/DMF/SET_STAGING_CONFIG_TABLE` report so that it also processes sales data from the staging tables to the production tables

1.3 Information on SAP Service Marketplace

The following additional information is available on SAP Service Marketplace:

Table 3: Additional Information

Description	Internet Address	Title
Information about implementing SAP HANA Live for SAP ERP	help.sap.com/hba > *Installation, Security, Configuration, and Operations Information* > *Administrator's Guide*	*Administrator's Guide, SAP HANA Live for SAP Business Suite*
Information about using SAP HANA	help.sap.com/hana_appliance > *System Administration and Maintenance Information* > *SAP HANA Administration Guides*	*SAP HANA Administration Guide*
Information about SAP NetWeaver	service.sap.com/netweaver	*SAP NetWeaver*
Information about SAP Customer Activity Repository	service.sap.com/instguides > *Installation & Upgrade Guides* > *Industry Solutions* > *Industry Solution Guides* > *SAP for Retail* > *SAP Customer Activity Repository*	Installation Guide, SAP Customer Activity Repository 1.0

Table 4: General Quick Links

Description	Internet Address
SAP Help Portal	help.sap.com
SAP Notes	service.sap.com/notes
Release notes	service.sap.com/releasenotes

© Copyright 2014 SAP AG or an SAP affiliate company. All rights reserved.

Description	Internet Address
Released platforms and operating systems	ervice.sap.com/platforms
Security	service.sap.com/security
System sizing	service.sap.com/sizing

1.4 Naming Conventions

The following naming conventions apply throughout this document.

Table 5: Terminology

Term	Description
ABAP default db user	Default user for the database configured for ABAP usage (as in transaction `db01`).
Demand Data Foundation (DDF)	Add-on to the SAP NetWeaver technology platform. DDF is a cross-industry reusable layer designed for analyzing and modeling historical demand data and forecasting future demands. DDF is the data layer that supports Unified Demand Forecast (UDF). DDF also includes the data model, the data import infrastructure, reuse frameworks (such as exception handling or process controller), as well as reuse tools for data maintenance and user interfaces for data maintenance. Besides the transactional data, DDF stores master data. It provides a relational model of those objects for modeling, analyzing, and forecasting demands. DDF allows for the implementation of transactional (OLTP) and analytical (OLAP) use cases.
Demand Management Foundation (DMF)	Technology layer supporting applications such as SAP Promotion Management for Retail. DMF is the predecessor of DDF. DMF uses sales histories to create consumer demand models and forecasts for offer proposals. It also manages the incoming and outgoing data from SAP Promotion Management for Retail.
data replication framework (DRF)	Infrastructure used to distribute data from the Master Data Governance (MDG) hub to target systems.
`RTLDDF 100`	Software component version of Demand Data Foundation (DDF)
`RTLDMF 200`	Software component version of Demand Management Foundation (DMF)
SAP HANA content	Packages with required SAP HANA views and SQLScript procedures that can be maintained in SAP HANA studio. SAP HANA content is shipped in delivery units. DDF, UDF, and SAP Customer Activity Repository all have dedicated SAP HANA content.
Unified Demand Forecast (UDF)	Application function library (AFL) that is not specific to any consuming application and can generate a single demand value plus accompanying information (baseline demand, promotional lifts, and other explanatory information) based on historical data from a specific demand data source (for example, consumption data). The thus generated “UDF forecast” always applies to a particular product, in a particular location, in a given context (date, price, offer, or any combination of demand influencing factors), for a specific period of time (a day or a week).

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Term	Description
	One of the key features of UDF is demand decomposition by demand influencing factor (DIF): UDF indicates how much of the demand is due to the baseline demand and how much is due to each DIF (for example, system DIFs such as tactic, seasonality, offer, price). Technically, UDF is an integral part of Demand Data Foundation (DDF).
consuming application	Application using the cross-industry Demand Data Foundation (DDF). DDF enables the consuming application to first model and then forecast consumer demand at the level of a specific product at a specific location.

Table 6: Variables

Variable	Description
<SAPSID>	SAP system ID in uppercase letters
<sapsid>	SAP system ID in lowercase letters
<DBSID>	Database ID in uppercase letters
<dbsid>	Database ID in lowercase letters
<INSTDIR>	Installation directory for the SAP system
<DVD_DIR>	Directory on which a DVD is mounted
<OS>	Operating system name within a path

1.5 Introduction to Demand Data Foundation (DDF)

DDF is a cross-industry reusable layer that includes a data model, data import infrastructure, reuse framework (such as exception handling and process controller), and reuse tools (such as data maintenance and scheduling interfaces).

DDF also includes and supports Unified Demand Forecast (UDF), which has been designed to model historical demand data and forecast future demands.

DDF runs on the SAP HANA database, which stores transactional data and master data. The relational data model allows the consuming applications and UDF to use the data in an easily consumable way.

> **Note**
>
> You use the functions and data provided by DDF through the respective consuming application. For more information about the consuming applications that DDF supports, see SAP Note 2001688.

Implementation

The best implementation approach depends on several factors, such as your system landscape, data integration, and blueprinting decisions. For more information, see the Technical Implementation Information [page 17] section.

Correct data integration is important to support the functions of DDF and UDF. When DDF is set up as the foundation for multiple consuming applications, the impact of this data integration becomes greater.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Integrating Master Data

DDF can receive the following master data:

- Location (mandatory)
- Product (mandatory)
- Product Hierarchy (mandatory)
- Product Location (mandatory)
- Image
- Inventory
- Location Hierarchy
- Offer
- Transportation Lane
- Vendor
- Vendor Fund

DDF receives the data from the master data system in two steps:

1. DDF receives the master data into intermediate tables called staging tables. No business validations are performed at this point.
2. DDF transfers the master data from the staging tables into the production tables. Business validations are performed.

For more information, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Integration Information* > *Inbound Processing*.

You have the following options for integrating the master data:

1. SAP ERP-based integration

   This option is best suited where the master data system of record is an SAP ERP application. SAP ERP uses the data replication framework (DRF), which is a standard framework, to send master data to DDF. The standard implementation of this framework maps the SAP ERP fields to the fields of the DDF staging tables. The DRF allows you to filter the data that you want to send to DDF, based on criteria such as project rollouts or data volumes. For more information about configuring the DRF, see the *Enabling Demand Data Foundation and Creating Demand Forecast* business process under the *Customer Activity Repository* scenario in SAP Solution Manager SP41.

   > **Note**
   >
   > The standard implementation requires SAP ERP 6.0 with Enhancement Package EHP 5 SP Stack 07 or higher or EHP 6 SP Stack 02 or higher. For more information about SAP ERP releases, see SAP Note 1484460.

2. Legacy System

   You can use this option when the system of record for your master data is not an SAP ERP application (SAP ERP 6.0 with Enhancement Package EHP 5 SP Stack 07 or higher or EHP 6 SP Stack 02 or higher). This option includes any legacy system.

   DDF provides inbound interfaces to receive the data into the DDF staging tables. For more information, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Integration Information*.

Integrating Demand Data

Historical demand data is critical to the demand modeling and forecasting processes provided by Unified Demand Forecast (UDF). To use demand data, modeling data, and forecasting data in a consuming application (for example,

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

to perform analytics in SAP Customer Activity Repository), you must provide the historical demand data through one of the ways described in this document. UDF uses this data to analyze and quantify each of the factors that affected your unit sales in the past to be able to accurately forecast future demand. UDF provides the SAP HANA view `sap.is.ddf.udf.viz/CV_POS_TS` with forecast information to its consuming applications.

> **Recommendation**
>
> You should use 2 years of historical data to ensure the proper interpretation of seasonality, trend, and other yearly factors.

DDF can receive different types of historical demand data, based on the following time series types:

- Point-of-sale (POS) data
- Generic consumption data
- Sales orders

Each time series is completely independent. You can have separate outputs as a result of the modeling and forecasting processes. These outputs allow you to see different demand influencing factors (DIFs) by the different data sources in the same system.

Time series details:

1. POS data provided by SAP Customer Activity Repository as daily aggregated transaction log (TLOG) data (virtual data model `POS_VDM` as time series source).

   > **Note**
   >
   > To use this time series, you must implement SAP Customer Activity Repository.
   >
   > With DDF and UDF licensed as part of SAP Customer Activity Repository, you can take advantage of the features that have been delivered with SAP Customer Activity Repository 1.0 SP 02 or higher.

   > **Recommendation**
   >
   > You should use 2 years of TLOG data.

   In the modeling and forecasting processes, you can access the TLOG data through the `POS_VDM` virtual data model. The VDM allows UDF to consume the SAP HANA view `sap.is.retail.car/POSAggregatedSalesByArticleLocation` in the SAP HANA content of SAP Customer Activity Repository. The data is aggregated dynamically to the daily level on the SAP HANA database in real time. In this data, the product, location, sales organization, distribution channel, and order channel must match with the master data that is available in DDF.

   For more information about this time series, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Data Management* > *Time Series* > *SAP HANA Content for DDF with UDF*.

2. Point-of-sale (POS) data persisted in DDF from the POS Inbound Processing Engine (PIPE) (`POS_TS` as time series source)

   You can use this option if you have the SAP POS Data Management 1.0 application and are considering implementing a consuming application before implementing SAP Customer Activity Repository. If an upgrade to SAP Promotion Management for Retail 8.0 is in scope, this option is a seamless migration. For more information about this time series, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Data Management* > *Time Series* > *Sales*.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

> **Note**
>
> - The POS data persisted in DDF uses offers that were created in SAP Promotion Management for Retail.
> - You cannot use the *ERP Promotion* view with this time series. For more information about this view, see the *Integration Considerations* section.

3. Point-of-sale (POS) data persisted in DDF from a legacy system (`POS_TS` as time series source)

   You can use this option when you have a legacy system that stores transaction log (TLOG) or POS data and you do not want to persist 2 years of TLOG data in SAP Customer Activity Repository, or you do not want to implement SAP Customer Activity Repository and do not have SAP POS Data Management 1.0.

   During a data integration project, you can determine the best way to capture and push this data into DDF. We recommend that you first perform a one-time push of the historical data. Then you include the latest sales data incrementally. This data is at the product, location, day, and channel level.

   To receive the data, DDF uses the *Sales* (`/DMF/BI_SALES_DATA`) inbound interface. For more information about this time series, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Data Management* > *Time Series* > *Sales*.

   > **Note**
   >
   > - You cannot use the *ERP Promotion* view with this time series. For more information about this view, see the *Integration Considerations* section.
   > - You must use the historical promotions from the legacy system to match historical offers with the POS data that is persisted in DDF.

4. Sales order data provided by SAP Customer Activity Repository (virtual data model `SO_VDM` as time series source)

   > **Note**
   >
   > To use this time series, you must implement SAP Customer Activity Repository.

   You can use this option to model and forecast sales orders (typically from a Web channel or non-brick-and-mortar store). Sales orders are available in SAP ERP. They are also available in SAP Customer Activity Repository (with multichannel information) through the SAP Landscape Transformation (SLT) replication. In this data, the product, location, sales organization, distribution channel, and order channel must match the master data that is available in DDF.

   You can access the sales order data through the `SO_VDM` virtual data model. The VDM allows UDF to consume the SAP HANA view `sap.is.retail.car/SalesDocumentAggregatedSalesByArticleLocation` in the SAP HANA content of SAP Customer Activity Repository.

   For more information about this time series, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Data Management* > *Time Series* > *SAP HANA Content for DDF with UDF*.

5. Generic consumption data (`CONS_TS` as time series source)

   In some cases, generic consumption data may be the only data available to understand the historical demand of a particular product in a particular location. This data can either be purchased from a third party, can be available from a retailer in a legacy system, or can be given from a retailer to a manufacturer (such as with consumer packaged goods or manufacturing scenarios). DDF can receive generic consumption data and use it to model and forecast demand.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

> **Note**
>
> If your data does not include information on promotions and offers, you can skip the *Integrating Promotions and Offers* section.

You have the following options to send the consumption data into the DDF staging tables:

- Use the SAP ERP data replication framework (`PCON` outbound implementation).

  For more information about configuring the DRF, see the Enabling Demand Data Foundation and Creating Demand Forecast business process under the Customer Activity Repository scenario in SAP Solution Manager SP41.

- Use the *Generic* (`/DMF/TS_GENERIC_INBOUND`) inbound interface. For more information, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Data Management* > *Time Series* > *Generic*.

Integrating Promotions and Offers

Promotions are available in SAP ERP. Offers are more detailed views of promotions and can be available with SAP Promotion Management for Retail, for example. Offers can include information on tactics and tactic types, allowing you to quantify their impact on the promotion and, ultimately, on the demand of the product.

The following scenarios are possible:

- Historical offers were created in SAP Promotion Management for Retail.

  The closed-loop integration ensures that the same offer identifier (ID) can be used across systems. This integration aligns SAP Promotion Management for Retail, SAP ERP, and either SAP POS Data Management 1.0 or SAP Customer Activity Repository.

- Historical offers were not created in SAP Promotion Management for Retail.

  The closed-loop integration must be created manually because the register and TLOG data do not distinguish the offer identifier (ID).

> **Note**
>
> There is no specific table in SAP ERP that keeps a relationship between an offer and a promotion. This relationship is updated in the following tables:
>
> - `WAKP` (promotion line item if there is a promotion price or discount)
> - `WAKR` (discounts at the level of the multichannel hierarchy or the article hierarchy)
> - `KNOBBYH` (bonus buy)
> - `WPM_TERM_OFR_MAP` (mapping table), used for an exceptional scenario when an offer cannot be mapped to a single bonus buy. This results in doing a logical split in SAP ERP by generating a bogus offer identifier (ID) there. This bogus offer ID is then mapped to the parent offer in SAP Promotion Management for Retail.
>
> In DDF, the `/DMF/OFR_EXP_STS` table provides the corresponding *ERP Promotion* information for an offer transferred from SAP Promotion Management for Retail. For more information, see *Historical promotions from SAP ERP* in the *Integration Considerations* section.

Integration Considerations

1. *ERP Promotion* view

   Offers created in SAP Promotion Management for Retail are sent to SAP ERP (D *Type Code*). They are also stored in DDF as the system of record for later reference.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

In addition to these offers, you can have promotions that are established in SAP ERP. These promotions provide valuable information to the modeling and forecasting processes.

The SAP ERP promotions are available as an SAP HANA view in SAP Customer Activity Repository through the SAP Landscape Transformation (SLT) replication. The view is used to align the promotions with the `POS_VDM` and `SO_VDM` virtual data models as time series sources.

> **Note**
>
> The *ERP Promotion* view does not include the offers that were created in SAP Promotion Management for Retail because this is not the system of record.

2. Historical promotions from SAP ERP

   You can use this option when you have historical promotions in SAP ERP and do not plan to implement SAP Customer Activity Repository from the start. SAP ERP uses the data replication framework (`POFF` outbound implementation) to send this data into the DDF staging tables. For more information about the configuration of DRF, see the *Enabling Demand Data Foundation and Creating Demand Forecast* business process under the *Customer Activity Repository* scenario in SAP Solution Manager SP41.

   > **Note**
   >
   > To use this option, the demand data must contain the correct offer identifiers (IDs).

3. Historical promotions from a legacy system

   You can use this option when you have historical promotions in a legacy system that is not SAP ERP. DDF uses the *Offer* (`/DMF/OPIF_OFFER_INBOUND`) inbound interface to receive this data into the DDF staging tables. For more information about this interface, see SAP Library on SAP Help Portal at help.sap.com/car > *SAP Library* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *Data Management* > *Master Data* > *Offer*.

   > **Note**
   >
   - You can only use this option if the demand data contains the correct offer identifiers (IDs).
   - This option involves more effort to extract and transform the data.

4. Future promotions

   Future promotions follow the same logic as historical promotions. Future promotions should be considered on a frequent basis to ensure that the modeling and forecasting processes have the latest information available.

   > **Recommendation**
   >
   > Consider how to automate or schedule your integration option to send frequent updates

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

2 Technical Implementation

2.1 Technical System Landscape

Demand Data Foundation (DDF) uses the following system landscape with the following components:

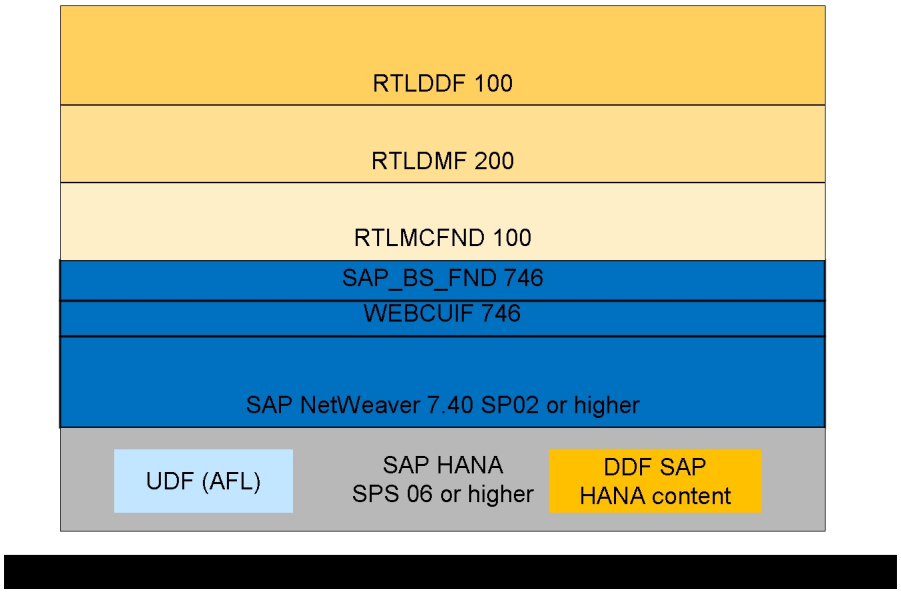


Figure 1: Technical System Landscape Overview

Recommendation

As of DDF 1.0 SP 01, we highly recommend the following upgrades:

- From SAP NetWeaver 7.4 SP 02 to SAP NetWeaver 7.4 SP 03
- From SAP Business Suite Foundation component `SAP_BS_FND 746` to `SAP_BS_FND 747`

Note

Technical dependencies exist between the different components. For more information, see the Preparation [page 23] section.

Note

Adaptive Computing is a capability provided by SAP NetWeaver. Any component released on SAP NetWeaver 4.6C or higher can run within the SAP NetWeaver adaptive framework.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

2.2 Product Availability Matrix (PAM)

The software components and operating systems for this release are defined in the Product Availability Matrix (PAM).

For more information, see *Product Availability Matrix* on SAP Service Marketplace at service.sap.com/pam. Once you have accessed PAM, navigate to the desired product.

2.3 Preparation, Installation, and Post-Installation of Demand Data Foundation (DDF)

Constraints

- This section discusses the overall technical implementation of Demand Data Foundation (DDF). It does not provide detailed information on the subordinate or superior components. Additional technical dependencies may exist without being mentioned explicitly here.
- The scenarios described in the following are intended as examples of how you can use SAP software in your organization. Each scenario will most likely need adapting before you can run it in your specific system landscape. To determine whether you can use a scenario productively, first check your specific requirements and system landscape.

2.3.1 Preparation

Choose the Demand Data Foundation (DDF) scenario that is relevant for you and proceed as described.

Table 7: DDF Scenarios

Scenarios	Steps
SAP Customer Activity Repository, **with** Demand Data Foundation, **with** Unified Demand Forecast	Follow the instructions in the *Install Prerequisites to SAP Customer Activity Repository* section of the *SAP Customer Activity Repository Installation Guide 1.0 SP 04* for the mandatory prerequisites. You find this guide on SAP Service Marketplace at service.sap.com/instguides > *Installation & Upgrade Guides* > *Industry Solutions* > *Industry Solution Guides* > *SAP for Retail* > *SAP Customer Activity Repository*. **Note** Demand Data Foundation (DDF) provides Unified Demand Forecast (UDF) as an application function library (AFL) in the SAP HANA database. UDF requires SAP HANA Platform SPS 06 or higher. Note that the correct installation procedure for the UDF AFL depends on your edition of the SAP HANA Platform: • SAP HANA Platform SPS 06 or SPS 07: Implement the current support package (Demand Data Foundation 1.0 SP 04) as described in this document and the collective SAP Note 2020581. • SAP HANA Platform SPS 08 or higher:

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Scenarios	Steps
	Follow the instructions in section Upgrading the UDF AFL [page 25]. Note that upgrading to SAP HANA Platform SPS 08 or higher is optional; it is not a prerequisite for DDF 1.0 SP 04.
SAP Customer Activity Repository, **with** Demand Data Foundation, **without** Unified Demand Forecast	Follow the instructions in the *Install Prerequisites to SAP Customer Activity Repository* section of the *SAP Customer Activity Repository Installation Guide 1.0 SP 04* for mandatory prerequisites. You find this guide on SAP Service Marketplace at service.sap.com/instguides > *Installation & Upgrade Guides* > *Industry Solutions* > *Industry Solution Guides* > *SAP for Retail* > *SAP Customer Activity Repository*.
Other consuming applications, **with** Demand Data Foundation, **with** Unified Demand Forecast	**Note** This scenario does not include SAP Customer Activity Repository as a consuming application of Demand Data Foundation (DDF). This scenario includes the following prerequisites: 1. SAP NetWeaver 7.4 SP 02 application server (or higher) **Recommendation** As of DDF 1.0 SP 01, we highly recommend the following upgrades: ○ From SAP NetWeaver 7.4 SP 02 to SAP NetWeaver 7.4 SP 03 ○ From SAP Business Suite Foundation component `SAP_BS_FND 746` to `SAP_BS_FND 747` 2. SAP HANA Platform SPS 06 or higher **Note** Demand Data Foundation (DDF) provides Unified Demand Forecast (UDF) as an application function library (AFL) in the SAP HANA database. UDF requires SAP HANA Platform SPS 06 or higher. Note that the correct installation procedure for the UDF AFL depends on your edition of the SAP HANA Platform: ○ SAP HANA Platform SPS 06 or SPS 07: Implement the current support package (Demand Data Foundation 1.0 SP 04) as described in this document and the collective SAP Note 2020581. ○ SAP HANA Platform SPS 08 or higher: Follow the instructions in section Upgrading the UDF AFL [page 25]. Note that upgrading to SAP HANA Platform SPS 08 or higher is optional; it is not a prerequisite for DDF 1.0 SP 04. ○ Make sure to download the correct revision of the SAP HANA database. For more information, see Component Version Dependencies [page 23]. ○ SAP HANA AFL 1.0 For more information about this application function library (AFL), see the *SAP HANA Server Installation and Update Guide* for the corresponding SAP HANA support package stack (SPS) on SAP Service Marketplace at service.sap.com/hana.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Scenarios	Steps
	○ SAP HANA studio Make sure that your version of SAP HANA studio is in sync with the one on the server (DB). 3. The script server for the SAP HANA database must be activated. For more information, see SAP Note 1650957. 4. The users and their privileges must be set up. For more information, see Authorization Requirements for Unified Demand Forecast (UDF) [page 33].

2.3.2 Installation

> **Note**
> Use the same Demand Data Foundation (DDF) scenario that you have chosen in the Preparation [page 17] section.

To install the DDF components, follow the instructions in the *Install SAP Customer Activity Repository Software Components* section of the *SAP Customer Activity Repository Installation Guide 1.0 SP 04*. You find this guide on SAP Service Marketplace at service.sap.com/instguides › *Installation & Upgrade Guides* › *Industry Solutions* › *Industry Solution Guides* › *SAP for Retail* › *SAP Customer Activity Repository*.

Note that you use SAP Solution Manager to install the components. For information about the installation of SAP Solution Manager, see help.sap.com/solutionmanager71 › *Installation and Upgrade Information* › *Installation Guide*.

2.3.3 Post-Installation

You use the same Demand Data Foundation (DDF) scenario that you have chosen in the Preparation [page 17] section.

Table 8: DDF Post-Installation Scenarios

Scenarios	Steps
SAP Customer Activity Repository, **with** Demand Data Foundation, **with** Unified Demand Forecast	1. Follow the instructions in the *Post-Installation* section of the *SAP Customer Activity Repository Installation Guide 1.0 SP 04*. You find this guide on SAP Service Marketplace at service.sap.com/instguides › *Installation & Upgrade Guides* › *Industry Solutions* › *Industry Solution Guides* › *SAP for Retail* › *SAP Customer Activity Repository*. **Note** Be aware of the following regarding the SAP HANA content: ○ Structure: The SAP HANA content for Demand Data Foundation (DDF) and Unified Demand Forecast (UDF) is spread over two delivery units: ○ Delivery unit `HCO_DDF_RTLDDF` ○ Delivery unit `HCO_DDF_UDF`

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Scenarios	Steps
	Each delivery unit is shipped via an SAP HANA Transport Container (HTC, sometimes also referred to as TLOGO object) in the `RTLDDF 100` software component. ○ The SAP HANA content for DDF, UDF, and SAP Customer Activity Repository is activated together as described in the *SAP Customer Activity Repository Installation Guide 1.0 SP 04*. This activation also creates the ABAP schema mapping. 2. Analyze and implement the following SAP Notes for UDF: ○ 1898341: Updated information on configuration changes for demand modeling and forecasting. ○ 1911141: Setting UDF-specific performance optimization parameters in the SAP HANA database, including global environment variable `OMP_NUM_THREADS`. 3. Optional: Install and configure the Unified Demand Forecast (UDF) Launchpad. The UDF Launchpad is an optional visualization tool that supports the statistical analyst and data analyst in validating the forecasts that are generated with UDF. The tool allows the user to compare historical key performance indicators (KPIs), modeled KPIs, and forecasted KPIs. **Note** The use of the UDF Launchpad is optional. You can download it from SAP Community Network at scn.sap.com. There is no product support for the tool and the user interface is only available in English. For more information about installing and configuring the UDF Launchpad, see SAP Notes 1836357 and 1972411 as well as the SAP Ramp-Up Knowledge Transfer (RKT) content for UDF.
SAP Customer Activity Repository, **with** Demand Data Foundation, **without** Unified Demand Forecast	1. Follow the instructions in the *Post-Installation* section of the *SAP Customer Activity Repository Installation Guide 1.0 SP 04*. You find this document on SAP Service Marketplace at service.sap.com/instguides ▸ *Installation & Upgrade Guides* ▸ *Industry Solutions* ▸ *Industry Solution Guides* ▸ *SAP for Retail* ▸ *SAP Customer Activity Repository*. 2. Import the SAP NetWeaver Portal roles for Demand Data Foundation (DDF). 3. Optional: Activate additional optional business functions. ○ Decompression of Product Location Price Data (`/DMF/DDF_IMDB_PL_TD`) ○ Decompression of Time Series Data (`/DMF/DDF_IMDB_TS`) **Caution** Activating the following business functions can increase memory consumption. ○ Decompression of Lane Price and Time Dependent Data (`/DMF/DDF_IMDB_LANE_TD`) ○ Decompression of Offer Financials Data (`/DMF/DDF_IMDB_OFR_FIN`) ○ Optimizations for Offer Financials (`/DMF/OFR_FIN_CALC_OPT`) **Recommendation** • The business functions should be activated by a system administrator.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Scenarios	Steps
	• Once a business function is active, we recommend that you do not deactivate it. • For more information about each business function, see the corresponding business function documentation (transaction **SFW5**).
Other consuming applications, **with** Demand Data Foundation, **with** Unified Demand Forecast	**Note** This scenario does not include SAP Customer Activity Repository as a consuming application of Demand Data Foundation (DDF). 1. Check which business functions you have to activate. **Recommendation** ○ The business functions should be activated by a system administrator. ○ Once a business function is active, we recommend that you do not deactivate it. ○ For more information about each business function, see the corresponding business function documentation (transaction **SFW5**). 2. To use Unified Demand Forecast (UDF), you must activate the following business functions: ○ Decompression of Product Location Price Data (`/DMF/DDF_IMDB_PL_TD`) ○ Decompression of Time Series Data (`/DMF/DDF_IMDB_TS`) ○ Activation of Forecast Engine (`/DMF/FORECAST`) 3. Then activate the business function for UDF: ○ Activation of Unified Demand Forecast (`/DMF/DDF_UDF`) 4. Optional: Activate additional optional business functions. **Caution** Activating these business functions can increase memory consumption. ○ *Decompression of Lane Price and Time Dependent Data* (`/DMF/DDF_IMDB_LANE_TD`) ○ *Decompression of Offer Financials Data* (`/DMF/DDF_IMDB_OFR_FIN`) ○ *Optimizations for Offer Financials* (`/DMF/OFR_FIN_CALC_OPT`) 5. Activate the SAP HANA content for DDF and UDF as described in SAP Note 1981340. 6. Import the SAP NetWeaver Portal roles: You can use the roles from the SAP NetWeaver Business Client software and the SAP NetWeaver Portal component for user authorization. Both sets of roles operate in the same manner. Using the SAP NetWeaver Portal is optional. The `PFCG` roles have been created for use in SAP NetWeaver Business Client. To use the functions of these roles in SAP NetWeaver Portal, you must upload the roles from the SAP system to SAP NetWeaver Portal. You can upload the `SAP_ISR_DDF_MASTER` role and the `SAP_ISR_DDF_READONLY_MASTER` role. The *Role Upload* tool allows you to generate the SAP NetWeaver Portal roles automatically. You can also enhance the roles; for example, you can create your own iViews. For more information about the tool, see SAP Note 1685257.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Scenarios	Steps
	7. Analyze and implement the following SAP Notes for UDF: ○ 1898341: Updated information on configuration changes for demand modeling and forecasting. ○ 1911141: Setting UDF-specific performance optimization parameters in the SAP HANA database, including global environment variable `OMP_NUM_THREADS` 8. Optional: Install and configure the Unified Demand Forecast (UDF) Launchpad. For more information about the UDF Launchpad, see the first scenario in this table, step 3.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

3 Upgrade and Migration

This section discusses different upgrade and migration scenarios. Choose the scenarios that is relevant for you and follow the instructions.

3.1 Component Version Dependencies

When you install or upgrade Demand Data Foundation (DDF) with Unified Demand Forecast (UDF), be aware of the following dependencies between the different components:

- DDF provides UDF as an application function library (AFL) in the SAP HANA database. UDF requires SAP HANA Platform SPS 06 or higher. Note that several SAP HANA database revisions can be available for the same SAP HANA support package stack (SPS), so make sure to select the right one.
- For each revision (support package, SP) of the UDF AFL, there is only one compatible revision of the SAP HANA database. Example: Revision 73 of the UDF AFL (`Revision 73 for SAP HANA AFL 1.00`) may only be used with revision 73 of the SAP HANA database (`Revision 73 for SAP HANA DATABASE 1.00`). This means that when you upgrade the AFL, you must also upgrade the database, and vice versa.
- The ABAP stack for DDF (`RTLDDF 100`) depends on a minimum version of the UDF AFL in the SAP HANA database. Backward compatibility is ensured, however, so that you can always install a newer version of the UDF AFL and the SAP HANA database.

3.2 Upgrading from DMF to DDF with UDF

This section discusses the overall technical upgrade of the *Demand Management Foundation (DMF) to Demand Data Foundation (DDF) with Unified Demand Forecast (UDF)* scenario.

Constraints

- The section does not provide detailed information about the subordinate or superior components. This means that additional software dependencies may exist without being mentioned explicitly here.
- The scenario described in the following is only intended as an example of how you can use SAP software in your organization. The scenario will most likely need adapting before you can run it in your specific system landscape. To determine whether you can use the scenario productively, first check your specific requirements and system landscape.

Overview

The following figure illustrates the upgrade of the *DMF to DDF with UDF* scenario.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

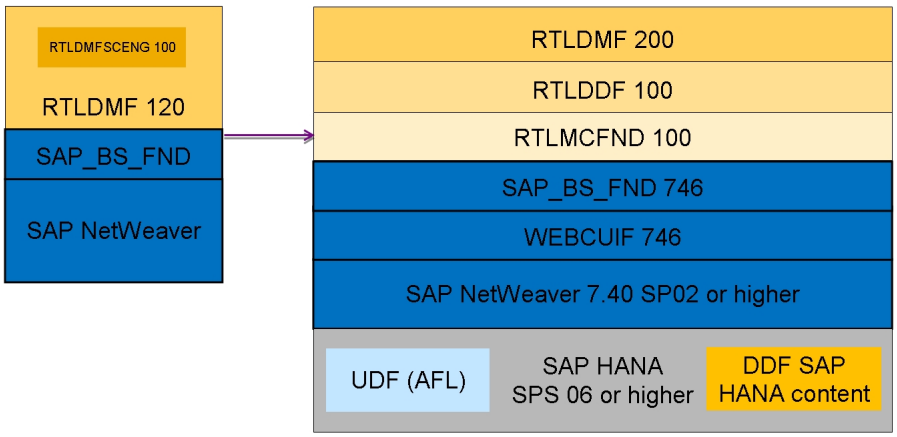


Figure 2: Migration Overview

Preparation

To prepare the upgrade, follow these steps:

1. Consider upgrading additional components.

   Recommendation

   As of DDF 1.0 SP 01, we highly recommend the following component upgrades:

   - From SAP NetWeaver 7.4 SP 02 to SAP NetWeaver 7.4 SP 03
   - From SAP Business Suite Foundation component `SAP_BS_FND 746` to `SAP_BS_FND 747`

2. Read the Component Version Dependencies [page 23] section to be aware of interdependencies in DDF with UDF.
3. Define how you want to migrate your compressed data. For more information, see the documentation of the following business functions (transaction **SFW5**):
   - *Decompression of Product Location Price Data* (`/DMF/DDF_IMDB_PL_TD`)
   - *Decompression of Time Series Data* (`/DMF/DDF_IMDB_TS`)
   - Optional business functions:

     Caution

     Activating these business functions can increase memory consumption.

     - *Decompression of Lane Price and Time Dependent Data* (`/DMF/DDF_IMDB_LANE_TD`)
     - *Decompression of Offer Financials Data* (`/DMF/DDF_IMDB_OFR_FIN`)
4. Migrate your compressed data.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Upgrading

> **Note**
>
> Migrating your database to SAP HANA requires some preparatory steps related to the database tables in your system. For example, you verify the usage of cluster tables and pool tables because database migration automatically resolves those to transparent tables.
>
> SAP HANA runs natively on Unicode only. If your system does not yet run on Unicode, consider doing the conversion separately before migrating to SAP HANA. Technically, the Unicode conversion could be done during database migration (that is, during the heterogeneous system copy), but preparatory steps are required as described in SAP Note 1051576.

To upgrade to Demand Data Foundation (DDF), follow the instructions for the *SAP Customer Activity Repository, with Demand Data Foundation, with Unified Demand Forecast* scenario:

1. Preparation: For more information, see Preparation [page 17].
2. Installation: For more information, see Installation [page 19].
3. Post-installation: For more information, see Post-Installation [page 19].

3.3 Upgrading the UDF AFL

In this procedure, you upgrade the application function library (AFL) for Unified Demand Forecast (UDF). You must perform this upgrade whenever you implement a new support package of Demand Data Foundation (DDF) 1.0 with UDF on SAP HANA. Note that the steps to follow depend on your edition of the SAP HANA Platform.

Prerequisites

- You have read the Component Version Dependencies [page 23] section.

Procedure

1. Check your edition of the SAP HANA Platform:
   - SAP HANA Platform SPS 06 or SPS 07

     The UDF AFL is installed as part of the SAP HANA AFL 1.0 when you implement the current support package of DDF 1.0. This is the same process as with previous support packages. Implement the current support package (DDF 1.0 SP 04) as described in this document and the collective SAP Note 2020581.
   - SAP HANA Platform SPS 08 or higher

     Note that upgrading to this edition is optional and not required for implementing the current DDF support package.

     UDF is now delivered as a separate, product-specific AFL. SAP HANA AFL 1.0 is no longer required. As a result, the installation procedure has changed and a one-time migration is required. Proceed with the next step.
2. Read and implement the following SAP Notes:

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Table 9

SAP Note	Description
2014334	Explains how the release of product-specific AFLs (such as UDF) changes as of SAP HANA Platform SPS 08
2004952	Provides instructions on how to perform the mandatory one-time migration of the UDF AFL when upgrading to SAP HANA Platform SPS 08
2016825	Explains how to install and upgrade the UDF AFL as of SAP HANA Platform SPS 08

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

4 Security

4.1 Fundamental Security Guides

Demand Data Foundation (DDF) is based on SAP NetWeaver technology. Therefore, the SAP NetWeaver security guides apply to DDF as well.

Fundamental Security Guides

Table 10

Scenario, Application, or Component Security Guide	Most Relevant Sections or Specific Restrictions
Security Guide for SAP NetWeaver Application Server ABAP	help.sap.com/nw_platform > *Security Information* > *SAP NetWeaver Security Guide* > *Security Guides for SAP NetWeaver Functional Units* > *Security Guides for the Application Server* > *Security Guides for the AS ABAP* > *SAP NetWeaver* > *Application Server ABAP Security Guide*
Security Guide for SAP HANA	help.sap.com/hana_appliance > *Security Information* > *SAP HANA Appliance and Database Security Guide*

For a complete list of the available security guides, see SAP Service Marketplace at service.sap.com/securityguide.

4.2 User Administration and Authentication

Demand Data Foundation (DDF) uses the user management and authentication mechanisms provided with the SAP NetWeaver platform, in particular the SAP NetWeaver Application Server (AS) ABAP. Therefore, the security recommendations and guidelines for user administration and authentication as described in the *Security Guide for SAP NetWeaver AS ABAP* also apply to DDF.

4.2.1 User Management

This section provides information on user administration tools, required user types, and standard users delivered with Demand Data Foundation (DDF).

4.2.1.1 User Administration Tools

For more information about user administration tools, see the following table:

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Table 11

Tool	Most Relevant Sections	Prerequisites
User and role maintenance with SAP NetWeaver AS ABAP (transactions `SU01`, `PFCG`)	help.sap.com/nw_platform > *Security Information* > *SAP NetWeaver Security Guide* > *Security Guides for SAP NetWeaver Functional Units* > *Security Guides for the Application Server* > *Security Guides for AS ABAP* > *SAP NetWeaver Application Server ABAP Security Guide* > *AS ABAP Authorization Concept*	The SAP NetWeaver Application Server ABAP is running.

4.2.1.2 User Types

Different user types require different security policies. For example, your security policy may specify that individual users that perform tasks interactively must regularly change their passwords, while this does not apply to users under which background processing jobs are run.

The user types for DDF include the following:

- Individual users:
  - Dialog users (for SAP GUI for Windows or Remote Function Call (RFC) connections)
  - Internet users (for internet connections; the same policies apply as for dialog users)
- Technical users:
  - Communication users (for dialog-free communication through external RFCs)
  - System and background users (for background processing and communication in the system, such as running scheduled inbound and outbound dispatcher jobs)

For more information about user types, see the *SAP NetWeaver Application Server ABAP Security Guide*.

4.2.1.3 Standard Users

Demand Data Foundation (DDF) indirectly uses SAP NetWeaver standard users. DDF therefore does not require specialized standard users.

For more information about SAP NetWeaver user types, see the *SAP NetWeaver Application Server ABAP Security Guide*, which you can find on SAP Service Marketplace at help.sap.com/nw74 > *Security Information* > *Security Guide* > *Security Guides for SAP NetWeaver Functional Units* > *Security Guides for the Application Server* > *Security Guides for AS ABAP* > *SAP NetWeaver Application Server ABAP Security Guide*.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

4.2.2 Integration into Single Sign-On (SSO) Environments

DDF supports the single sign-on mechanisms provided by SAP NetWeaver. Therefore, the security recommendations and guidelines for user administration and authentication as described in the *Security Guide for SAP NetWeaver Application Server (SAP NetWeaver AS) ABAP* also apply to DDF.

See the same guide for more information about the available authentication mechanisms.

4.3 Authorizations

Demand Data Foundation (DDF) uses the user management and authentication mechanisms provided with the SAP NetWeaver platform, in particular the SAP NetWeaver Application Server (AS) ABAP.

4.3.1 Standard Roles

The following table shows standard roles used by Demand Data Foundation (DDF):

Table 12

Role	Description
SAP_ISR_DDF_MASTER	Grants access to the following: • Check Mass Maintenance • Configure Load Balancing • Define Area of Responsibility • Location Groups • Maintain Product Locations • Monitor Compressed Data • Monitor Exceptions • Monitor Imports • Placeholder Products • Product • Product Groups • Schedule Model and Forecasts • Remove Time Series • Search for Schedule Jobs • Search Placeholder Products • Transportation Lanes
SAP_ISR_DMF_READONLY	Grants access to the following: • Check Mass Maintenance • Configure Load Balancing • Define Area of Responsibility

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Role	Description
	• Location Groups • Maintain Product Locations • Monitor Compressed Data • Monitor Exceptions • Monitor Imports • Placeholder Products • Product • Product Groups • Remove Time Series • Schedule Model and Forecasts • Search for Schedule Jobs • Search Placeholder Products • Transportation Lanes

4.3.2 Standard Authorization Objects

The following table shows the security-relevant authorization objects used by Demand Data Foundation (DDF).

> **Note**
> The following naming conventions apply: `ACTVT` (activity), `TS` (time series)

Table 13

Authorization Object	Fields	Values / Activities	Description

`CA_POWL`	`POWL_APPID`
	`POWL_CAT`
	`POWL_LSEL`
	`POWL_QUERY`
	`POWL_RA_AL`
	`POWL_TABLE`
			Authorization for the functionality of the *Personal Object Worklist (POWL)* menu for the DDF POWL applications

`S_START`	*Object Name*
	Object Type
	Program ID
		`/DMF/*` and `/PRM/* POWL`
		`WDYA`
		`R3TR`
			Used when checking the start authorization for particular `TADIR` objects (such as Web Dynpro applications). Note that you must not use this authorization object directly in your own coding. It can only be used through the `CL_START_AUTH_CHECK` class.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Authorization Object	Fields	Values / Activities	Description
			For more information about the start authorization check for program objects with object catalog entries, see SAP Note 1413011.
/DMF/AOR	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete*	Authorization for the *Area of Responsibility (AOR)* screen
S_TCODE		/DMF/TS_DELETE RSM37 SM37	Transaction check at transaction start
/DMF/CM_AT	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete*	Authorization to assign attributes
/DMF/CM_IM	ACTVT	*02 Change* *03 Display* *06 Delete*	Authorization to define images
/DMF/DISCH	ACTVT	*01 Create/Generate* *02 Change* *03 Display* *06 Delete*	Authorization for the distribution chain
/DMF/DMDTS	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete*	Authorization to access demand time series data, including any business intelligence (BI) interfaces that would be sending point-of-sale (POS) data or generic consumption data
/DMF/EWB	ACTVT	*03 Display*	Authorization object for the exception handling framework
/DMF/FCANA	ACTVT	*16 Execute* *71 Analyze*	Authorization to access forecasting and analytics
/DMF/IMAGE	ACTVT		Authorization object for the *Image* business object
/DMF/INV	ACTVT	*01 Create or generate* *02 Change* *03 Display*	Authorization for the *Inventory* business object

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Authorization Object	Fields	Values / Activities	Description
		06 Delete	
/DMF/LANE	ACTVT	*01 Create or generate* *02 Change* *03 Display* *06 Delete*	Authorization for the *Transportation Lane* business object
/DMF/LBUI	ACTVT	*01 Create or generate* *02 Change* *03 Display* *06 Delete* *32 Save*	Authorization for the load balancing configuration and user interface for the DDF server configuration
/DMF/LOC	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete*	Authorization for the *Location* business object
/DMF/LOCHR	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete*	Authorization for the *Location Hierarchy* business object
/DMF/ME	ACTVT	*01 Create or generate* *02 Change* *03 Display* *06 Delete*	Authorization for the *Monitor Exceptions* function
/DMF/MI	ACTVT	*01 Create or generate* *02 Change* *03 Display* *06 Delete*	Authorization check for the *Monitor Imports* function
/DMF/OFRSO	/DMF/CHCHK (first input value for this authorization object)	All activities	Internal organizational unit identifier for the distribution channel
/DMF/OFRSO	/DMF/SOCHK (second input value for this authorization object)	All activities	Internal organizational unit identifier for the sales organization
/DMF/OPUI	ACTVT	*03 Display* *16 Execute*	Authorization to access the user interface for the *Schedule Model and Forecast*s function
/DMF/PHP	ACTVT	*01 Create* *02 Change* *03 Display*	Authorization for the *Placeholder Product* object

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Authorization Object	Fields	Values / Activities	Description
		06 Delete	
/DMF/PROD	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete* *61 Export*	Authorization for the *Product* object
/DMF/PRDHR	ACTVT	*01 Create or generate* *02 Change* *03 Display* *06 Delete*	Authorization for the *Product Hierarchy* object
/DMF/PRDLC	ACTVT	*01 Create* *02 Change* *03 Display* *06 Delete*	Authorization for the *Product Location* object in the consumer access layer
/DMF/TS	ACTVT	*01 Create or generate* *02 Change* *03 Display* *06 Delete*	Authorization for the *Time Series Data* in the access layer
/DMF/SLSH	ACTVT	*01 Create* *03 Display* *06 Delete*	Authorization for the *Sales History* object

4.3.3 Authorization Requirements for Unified Demand Forecast (UDF)

The Application Function Library (AFL) for UDF relies on the access control mechanisms of the SAP HANA database. SAP HANA has implemented the regular SQL authorization concept based on privileges. Privileges can be granted to database users either directly or indirectly, by granting roles with assigned privileges to the respective users.

For more information about user management, authentication, and authorization, see the *Security Guide for SAP HANA* and the *Security Guides for Database Replication* at help.sap.com/hana_appliance › *Security Information* ›.

Prerequisites

- You need an SAP NetWeaver user with access to the SAP HANA database.
- You also need to create this user in the SAP HANA database. Note that the authoring database schema has the same name as this user.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Integration

1. Create the required roles.

   We recommend that you assign the privileges required for UDF by creating the following roles in SAP HANA studio:

   Table 14: UDF Roles

Role	Description
`UDF_EXECUTE`	• Defines all privileges required to execute UDF. • Used by the ABAP db default user.
`UDF_DEPLOY`	• Defines all privileges required to deploy the SAP HANA content for UDF. • Required to import and activate the SAP HANA content.

2. Assign the required privileges.

   The roles must include the following privileges assigned to the following users:

   > **Note**
   > The ABAP user and ABAP schema listed in the following tables are required in SAP NetWeaver to access the SAP HANA database. Depending on your system landscape and settings, the user and schema might have different names.

   Table 15: UDF_EXECUTE Role

User	SQL Privileges	On Schema	Analytic Privileges	Role to Be Granted to the User
ABAP	SELECT INSERT UPDATE DELETE	ABAP	_SYS_BI_CP_ALL	AFL__SYS_AFL_UDFCORE_AREA_EXECUTE The role is created automatically when installing the UDF AFL.
	SELECT EXECUTE	_SYS_BIC		
_SYS_REPO	SELECT with grant option	ABAP		

   Table 16: UDF_DEPLOY Role

User	SQL Privileges	On Schema	System Privileges	Role to Be Granted to the User
ABAP	SELECT	ABAP	CATALOG_READ	CONTENT_ADMIN
_SYS_REPO	SELECT INSERT DELETE	ABAP		AFL__SYS_AFL_UDFCORE_AREA_EXECUTE The role is created automatically when installing the UDF AFL.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

4.4 Security Protection

Recommendation

To increase security and prevent access to the SAP Logon tickets and security session cookies, you should activate secure session management.

We also highly recommend using Secure Sockets Layer (SSL) to protect the network communications where these security-relevant cookies are transferred.

Session Security Protection on the SAP NetWeaver Application Server ABAP

To activate session security on the SAP NetWeaver AS ABAP, set the corresponding profile parameters and activate the session security for the client (transaction `SICF_SESSIONS`).

For more information, see *Activating HTTP Security Session Management on AS ABAP* in the *SAP NetWeaver Application Server ABAP Security Guide*. You find this guide on SAP Service Marketplace at help.sap.com/nw74 › *Security Information* › *Security Guide* › *Security Guides for SAP NetWeaver Functional Units* › *Security Guides for the Application Server* › *Security Guides for AS ABAP* › *SAP NetWeaver Application Server ABAP Security Guide* .

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

5 Operation

5.1 Monitoring

Monitoring is an essential task in managing SAP technology. Monitoring allows you to detect any irregularities or deviations from the ideal business process flow. It also allows you to detect error situations concerning core business processes at an early stage.

Demand Data Foundation (DDF) uses the SAP NetWeaver standard functionality for monitoring. For more information about this functionality, see the *Operation Guides* for SAP NetWeaver on SAP Service Marketplace at help.sap.com/nw74 › *System Administration and Maintenance Information* ›.

5.1.1 Alert Monitor

SAP provides you with the infrastructure and recommendations to set up your alert monitor in such a way that critical situations are identified as quickly as possible.

5.1.2 Monitoring Installation and Setup

For more information about how to enable automatic alerts from the Computing Center Management System (CCMS, transaction `RZ20`), see SAP Note 617547.

5.1.3 Component-Specific Monitoring

Demand Data Foundation (DDF) with Unified Demand Forecast (UDF) provides CCMS (Computing Center Management System) monitoring for the services listed below. The monitoring tree elements (MTEs) must therefore be verified and configured for the corresponding processes:

Table 17: Services and Processes for CCMS Monitoring

Services	Processes
Model by hierarchy	`DMF_MODEL_PROCESSES_BY_HIER`
Model by product location	`DMF_MODEL_PROCESSES_BY_PROD_LOC`
Forecast by hierarchy	`DMF_FORECAST_PROCESSES_BY_HIER`
Forecast by product location	`DMF_FORECAST_PROCESSES_BY_HIER`

© Copyright 2014 SAP AG or an SAP affiliate company. All rights reserved.

5.1.4 Detailed Monitoring

5.1.4.1 Preparing Exception Handling

Demand Data Foundation (DDF) uses the exception handling framework to log errors that occur while running background processes.

You must define the exception messages in the system before actual exception instances can be created. The exception definition is based on the general ABAP message concept. Each exception is identified by a combination of a message class and a message number. Each instance of an exception has a unique internal ID (message handle).

> **Note**
>
> The following subobjects do not use the exception handling framework:
>
> - `/DMF/ENGINE`
> - `/DMF/OFFER_PURGE`
> - `/DMF/PHP`

5.1.4.2 Configuring Exceptions

You can manage exceptions in Customizing under *Cross-Application Components* > *Demand Data Foundation* > *Basic Settings* > *Exception Management*.

Configuration Data for High Level Exceptions

You can define high level exceptions in Customizing under *Cross-Application Components* > *Demand Data Foundation* > *Basic Settings* > *Exception Management* > *Maintain Configuration Data for High Level Exceptions*.

You can do the following:

- Assign business areas to exceptions
- Assign priorities to exceptions
- Define message types
- Define validity periods for exceptions

Configuration Data for Low Level Exceptions

You can assign a priority to each low level exception in Customizing under *Cross-Application Components* > *Demand Data Foundation* > *Basic Settings* > *Exception Management* > *Maintain Configuration Data for Low Level Exceptions*.

Customer-Specific Replacement Messages

You can define your own message texts in Customizing under *Cross-Application Components* > *Demand Data Foundation* > *Basic Settings* > *Exception Management* > *Define Customer-Specific Replacement Messages*.

Customizable Message Status

You can define the available exception statuses in Customizing under *Cross-Application Components* > *Demand Data Foundation* > *Basic Settings* > *Exception Management* > *Define Customizable Message Status*.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

5.1.4.3 Monitoring Exceptions

Exceptions are system-based messages that inform users about situations requiring special attention or action. You use the *Monitor Exceptions* function to review and process the exceptions.

You have the following options:

- Get an overview of the number of exceptions
- Filter the exceptions based on a number of different criteria
- Perform additional filtering based on the business area, context type, or context instance (value)
- Display the selected exceptions in a table
- Display the detailed information on the exception
- Display all low level exceptions assigned to a selected high level exception

5.1.4.4 Purging Obsolete Exceptions

You might have a high number of exceptions occurring during system operation. We recommend that you perform a regular purging (deletion) of obsolete exceptions.

You can configure and perform the purging of exceptions using the *Purging Exceptions from the Database* report. You can access this report on the *SAP Easy Access* screen under ▶ *Services* > *Mass Maintenance Services* > *Purging Exceptions from the Database* ▶.

5.1.4.5 Application Log

The *Application Log* function collects messages, exceptions, and errors and displays them in a log. You can call up the log using transaction `SLG1`.

The log provides you with the following:

- Basic header information on the events that have occurred
- Event details
- Technical information
- Message short and long texts

5.1.4.6 Workload Monitoring

When an external system sends object instances to Demand Data Foundation (DDF) using an inbound Remote Function Call (RFC) or enterprise services, the data is stored in the DDF staging tables.

You can trigger object transfers via an initial load and via a delta load that transfers only the changed object instances.

You can schedule the `/DMF/PROCESS_STAGING_TABLES` report (transaction **SE38**) as a batch job to move data from the staging tables to the corresponding business object.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Recommendation

If the processing of transportation lane, product location, or sales data from the staging tables to the production tables takes more time than expected, you can use the `/DMF/SET_STAGING_CONFIG_TABLE` report to activate an alternative packaging. For more information about this report, see the report documentation (transaction SE38) and SAP Note 1854313 and 2019909.

You can also move the data from the staging tables manually using the *Monitor Imports* function. For more information, see SAP Library on SAP Help Portal at help.sap.com/car > *Application Help* > *SAP Customer Activity Repository* > *Demand Data Foundation* > *General Services* > *Monitor Imports*.

5.1.5 Ensuring Data Consistency

External data providers write data into the staging tables of Demand Data Foundation (DDF). The data providers can additionally provide a high resolution time stamp when a Remote Function Call (RFC) is performed.

Every data record in a staging table has a high resolution time stamp (`EXT_KEY_TST` field). The time stamp is part of the data record key. As a result, different records for the same object can exist in the table at any given point in time. When further processing the data from the staging table, the newest data record of each object is used.

Authorizations

The system performs authorization checks on the following function groups:

- `/DMF/BI_SALES_INBOUND`
- `/DMF/MDIF_IMAGE_DATA`
- `/DMF/MDIF_LANE`
- `/DMF/MDIF_LOCATION`
- `/DMF/MDIF_LOC_HIER`
- `/DMF/MDIF_PRODUCT`
- `/DMF/MDIF_PROD_HIER`
- `/DMF/MDIF_PROD_LOC`
- `/DMF/OPIF_INVENTORY`
- `/DMF/TS_GENERIC_INBOUND`

5.1.6 Managing Demand Data Foundation (DDF)

SAP provides an infrastructure to help your technical support consultants and system administrators manage the SAP components and perform the technical administration and operation tasks required.

Starting and Stopping

When you start SAP NetWeaver, you start the system database, the application servers, and the respective processes which the system provides.

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Backup and Restore

We recommend that you perform the following activities:

- Back up the system landscape regularly to ensure that you can restore and recover it in the event of a failure.
- Create a backup and restore strategy for the system landscape.
- Cover disaster recovery processes in the backup and restore strategy.
- Specify in your backup and restore strategy that the normal data and the backup data are stored in separate physical locations, so that both types of data are not lost in the event of a disaster.
- Include the backup and restore strategy in the company's overall business requirements.

Scheduling Periodic Tasks

Scheduled tasks can be automated using a task scheduler program. You can schedule automated import tasks using the `/DMF/PROCESS_STAGING_TABLES` report in the `/DMF/EXT_IF_COMMON` package.

Required Manual Periodic Tasks

A manual task needs a person to execute it. Such tasks may be required for individual components and are therefore relevant in each scenario that uses the component. Other tasks may be relevant for certain business scenarios only. It is important that you monitor the successful execution of these tasks on a regular basis.

The following table provides an overview of manual tasks for managing DDF.

Table 18: Manual Tasks for Managing DDF

Task	Tool Supporting the Task	Recommended Frequency	Description
Purge data	Report `/DMF/PURGE_AGENT`	As required	See the documentation for this report (transaction `SE38`).
Delete obsolete time series data	Report `/DMF/TS_DELETE`	As required	You can select the data to be deleted by location and by product using the key figure parameter (`KPRM`). The available time series types include: • Universal (`UN`) • Location Universal (`UL`) • Point-of-Sale (`POS`)
Delete obsolete exception message data	Report `/DMF/PURGE_EWB_MESSAGES`	As required	No parameter is required by this report. You can execute it directly or schedule it for execution. The purging is driven by how the exceptions have been configured in Customizing and by the deletions performed on the user interface.

Load Balancing

During workload processing, the system breaks a single operation or service into many smaller tasks (request decomposition). It then runs each of these tasks as separate dialog work processes (task requests or screen

© Copyright 2014 SAP AG or an SAP affiliate company. All rights reserved.

changes), up to the configured maximum number of work processes. As the system attempts to run this maximum number of processes in parallel, you use load balancing to help more evenly distribute the workload.

DDF uses the standard functionality of SAP NetWeaver for logon and load balancing.

> **Note**
>
> For the demand modeling and forecasting services, the maximum number of records is essential. You must enter a value greater than zero in the *Number of Records* field (for more information, see SAP Note 1898341).

5.1.7 Support Desk Management

Support Desk Management allows you to set up an efficient internal support desk for your support organization that integrates your end users, internal support employees, partners, and SAP Active Global Support specialists with an efficient problem resolution procedure.

Support Desk Management provides the methodology, management procedures, and tool infrastructure to run your internal support organization efficiently.

The following topics are covered:

- Remote support setup
- Problem message handover

To create SAP support messages for your installation, you specify the software component for Demand Data Foundation (DDF).

SAP Custom Development

SAP Custom Development is an SAP team that works with customers to extend the standard ABAP functionalities associated with the different software components (such as `RTLDDF 100`).

Remote Support

You can set up a read-only user for remote support purposes that provides access to the consuming applications and SAP NetWeaver transactions.

The following roles should be assigned to this user:

- `SAP_QAP_BC_SHOW` (for SAP NetWeaver)
- Role of the consuming application

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

6 Solution-Wide Topics

6.1 SAP Solution Manager

We highly recommend using SAP Solution Manager as a platform and tool to support the implementation and configuration of your solution. SAP Solution Manager significantly accelerates the implementation process and helps you configure your solution to achieve your business goals.

> **Note**
>
> The configuration information in SAP Solution Manager is structured as follows:
>
> - At the highest level you find business scenarios.
> - Each business scenario can contain one or more business processes.
> - Each business process can contain one or more business process steps.

SAP also delivers support services based on the business scenarios designed and documented in SAP Solution Manager.

The implementation process can be further accelerated using implementation content specifically tailored to your solution. For more information about the availability of such content for your solution, see SAP Service Marketplace at service.sap.com/solutionmanager.

Accessing DDF/UDF Configuration Information in SAP Solution Manager

To access the configuration information for Demand Data Foundation (DDF) with Unified Demand Forecast (UDF), follow these steps:

1. Log onto your SAP Solution Manager system.
2. Execute transaction `SOLAR_LIBRARY` to open the *Business Process Repository (BPR)*.
3. Check that you are in the correct product context and system group:
   1. Choose ▶ *Settings* ▶ *Products & Systems* ▶.
   2. Under *Product Contexts*, select *SAP Customer Activity Repository*.
   3. Under *System Group*, select *SAP Customer Activity Repository*.
   4. Save your settings.
4. Navigate to the configuration information for DDF with UDF: Choose ▶ *Solutions/Applications* ▶ *SAP for Retail* ▶ *Scenarios* ▶ *Customer Activity Repository* ▶ *Business Processes* ▶ *Enabling Demand Data Foundation and Creating Demand Forecast* ▶.

6.2 Service-Oriented Architecture (SOA)

This section deals with the service enablement of SAP Business Suite 7.

> **Note**
>
> SAP's delivery on service-oriented architecture differs from the purely architectural concept of SOA in the delivery of ready-to use enterprise services. Enterprise services are SAP-defined Web services that provide end-to-end

© Copyright 2014 SAP AG or an SAP affiliate company. All rights reserved.

business processes or individual business process steps and can be used to compose entire business scenarios while ensuring business integrity and ease of reuse.

SAP designs and implements enterprise service interfaces to ensure semantic harmonization and business relevance.

6.2.1 Service Enablement

The service enablement of SAP Business Suite consists of one or more of the following SAP components:

- **SAP Business Suite 7**

  Enterprise services are an integral part of the software components of the SAP Business Suite applications. Enterprise services are the technical interfaces to the functionalities available in the business application.

- **SAP NetWeaver PI 7.0 or higher**

  SAP NetWeaver Process Integration (SAP NetWeaver PI) is an open integration and application platform that provides tools enabling you to set up a service-oriented architecture (SOA) for business applications. You can use the platform to provide, discover, and consume services, integrate applications using the integration server, and manage business processes.

  Process integration is required in a runtime environment to consume enterprise services in a mediated scenario.

  > **Note**
  >
  > Asynchronous services that are enabled for *Web Services Reliable Messaging (WSRM)* can be called in a point-to-point communication scenario. Otherwise, asynchronous services can only be consumed in a mediated scenario.

  We recommend that you use the highest version of SAP NetWeaver PI. For more information, see SAP Notes 1515223 and 1388258.

  > **Recommendation**
  >
  > Starting with SAP NetWeaver PI 7.3, SAP provides the new installation option *Advanced Adapter Engine Extended (AEX)*. AEX is a cost-saving option compared to a classical dual-stack implementation. As AEX is based on the Application Server Java (AS Java) alone, it is easier to install and maintain and requires less memory and data storage. Therefore, you should investigate if a Java-only implementation of an SAP NetWeaver PI system is suitable for your use case.
  >
  > For more information, see SAP Library for SAP NetWeaver Process Integration on SAP Help Portal at help.sap.com/nw_platform › *Application Help* › *SAP NetWeaver Process Integration* as well as SAP Note 1573180.

- **Enterprise Services Repository**

  The Enterprise Services Repository (ES Repository) is the central repository that contains the definition of all enterprise services and models. It is a design time environment that enables you to create and enhance enterprise service definitions. The ES Repository is shipped with SAP NetWeaver Process Integration (as of SAP NetWeaver PI 7.1) and with SAP NetWeaver Composition Environment (as of SAP NetWeaver CE 7.1).

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

> **Note**
>
> In a SAP NetWeaver 7.0x landscape, you use the Integration Repository to create and enhance enterprise service definitions.

- **Services Registry**

  The Services Registry (SR) is shipped is shipped with SAP NetWeaver Process Integration (as of SAP NetWeaver PI 7.1) and with SAP NetWeaver Composition Environment (as of SAP NetWeaver CE 7.1). The Service Registry is only required for the publication of enterprise service end points (Web services) that have been configured and activated in SAP Business Suite.

- **SAP NetWeaver CE 7.1 or higher**

  SAP NetWeaver Composition Environment (SAP NetWeaver CE) provides a robust environment for designing and implementing composite applications.

  The design time environment of SAP NetWeaver CE can be used for the model-driven design and development of composite applications based on enterprise services. SAP NetWeaver CE also offers the tools and the environment necessary for running composite applications fast and efficiently in a runtime environment.

6.2.2 Installing the Service-Oriented Architecture (SOA)

The installation of service interfaces and the service enablement of SAP Business Suite consist of one or more of the following phases:

- **Identify software components and required business functions**

  You use the technical data section of the enterprise services documentation to identify the following data for each enterprise service:

  - the software component version with which the service was shipped
  - the business functions that need to be activated

- **Identify technical usages** (relevant for SAP ERP only)

  SAP Note 1818596 provides a mapping of business functions and software component versions to technical usages. You use this documentation to identify the required technical usages for your list of software component versions and business functions.

- **Install the ECC-SE software component** (relevant for SAP ERP only)

  The ECC-SE software component contains service implementations for the SAP ERP Central Component (SAP ECC). This component must be explicitly installed if you intend to use enterprise services for SAP ECC functionality. In this case, you must also select the *ESA ECC-SE* technical usage when installing the enhancement package.

- **Select and install together with the other parts of the enhancement package**

  When installing the enhancement package, you must select all technical usages that you have identified for service enablement and for enhanced features in SAP Business Suite. The technical usages that you select will install the corresponding software components that contain the enterprise services interfaces and implementations.

- **Import Enterprise Services Repository (ESR) Content** (optional)

  To install the content required for the enterprise service definitions, you must select the *XI Content* technical usage when installing the enhancement package. This usage type downloads the content files for SAP NetWeaver Process Integration (PI) 7.0 or higher. Unpack the ZIP file and copy the tpz files corresponding to

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

your SAP NetWeaver PI version into the import directory of your Integration Repository (for SAP NetWeaver PI 7.0x) or Enterprise Services Repository (SAP NetWeaver ES Repository 7.1 or higher). Use the import function to import the content files into the corresponding repository. For this, choose *Tools* > *Import Design Objects*.

- **Configure Services Registry** (optional)

  The Services Registry is shipped starting with SAP NetWeaver Process Integration (PI) 7.1 and SAP NetWeaver Composition Environment (CE) 7.1. You must configure the Services Registry and then publish the enterprise services from the SAP Business Suite application to the registry using the `SOAMANAGER` transaction in the backend.

  For more information about SAP NetWeaver PI, SAP NetWeaver CE, and the Enterprise Services Repository, see the corresponding SAP NetWeaver Installation Guides and Master Guides.

6.2.3 Related Documentation

For more information about service-oriented architecture (SOA), see the following sources:

- SAP Community Network at scn.sap.com/community/soa (registration required)
- SAP Note 1359215: Technical prerequisites for using enterprise services (relevant for SAP ERP only)
- SAP Note 838402: Problems with non-Unicode system landscapes

Typographic Conventions

Table 19

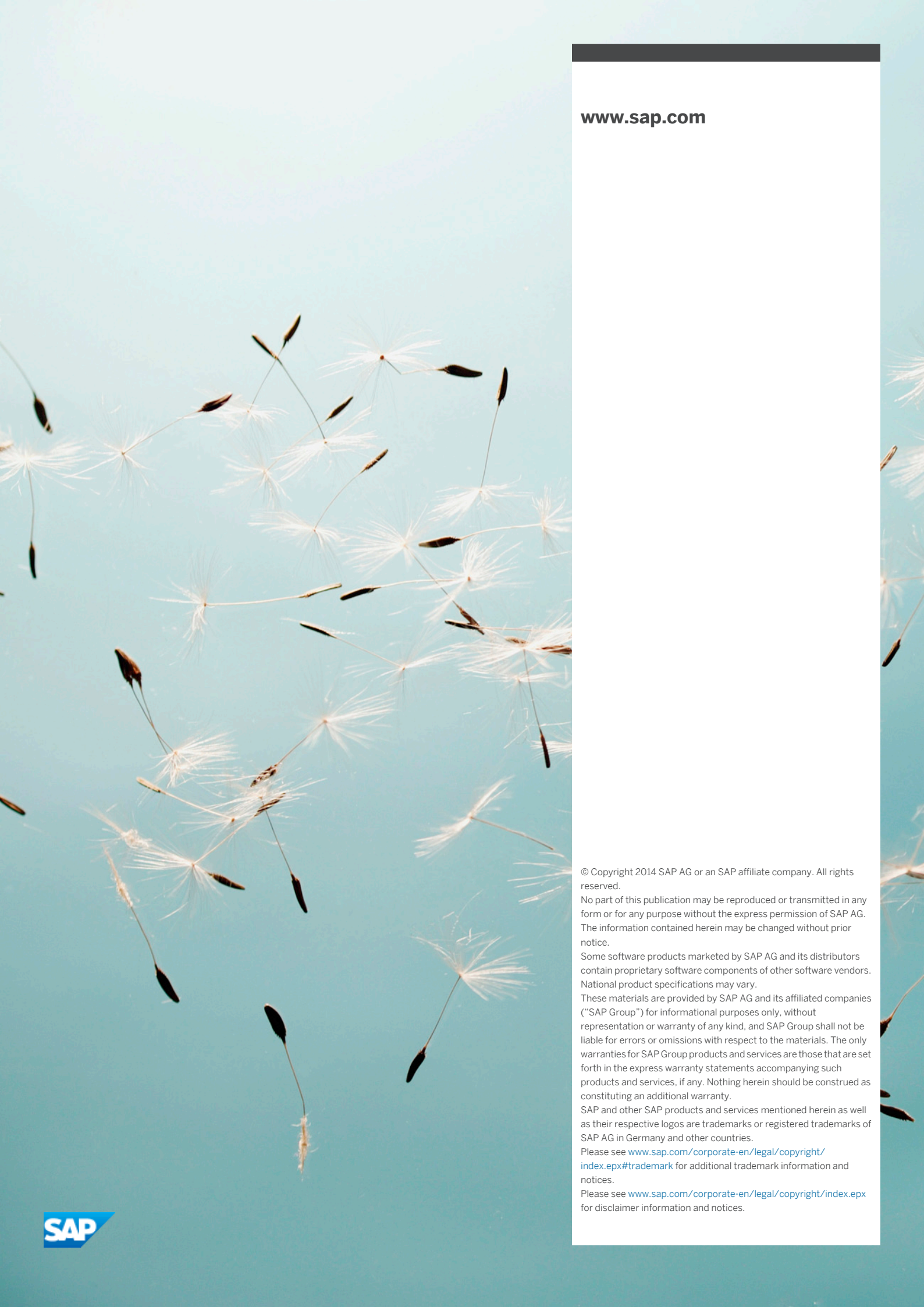
Example	Description
<Example>	Angle brackets indicate that you replace these words or characters with appropriate entries to make entries in the system, for example, “Enter your **<User Name>**”.
Example > *Example*	Arrows separating the parts of a navigation path, for example, menu options
Example	Emphasized words or expressions
Example	Words or characters that you enter in the system exactly as they appear in the documentation
www.sap.com	Textual cross-references to an internet address
/example	Quicklinks added to the internet address of a homepage to enable quick access to specific content on the Web
123456	Hyperlink to an SAP Note, for example, SAP Note 123456
Example	• Words or characters quoted from the screen. These include field labels, screen titles, pushbutton labels, menu names, and menu options. • Cross-references to other documentation or published works
`Example`	• Output on the screen following a user action, for example, messages • Source code or syntax quoted directly from a program

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

Example	Description
	• File and directory names and their paths, names of variables and parameters, and names of installation, upgrade, and database tools
`EXAMPLE`	Technical names of system objects. These include report names, program names, transaction codes, database table names, and key concepts of a programming language when they are surrounded by body text, for example, `SELECT` and `INCLUDE`
`EXAMPLE`	Keys on the keyboard

© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.

CUSTOMER
© Copyright 2014 SAP AG or an SAP affiliate company.
All rights reserved.



www.sap.com

© Copyright 2014 SAP AG or an SAP affiliate company. All rights reserved.
No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.
Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors. National product specifications may vary.
These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.
SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and other countries.
Please see www.sap.com/corporate-en/legal/copyright/index.epx#trademark for additional trademark information and notices.
Please see www.sap.com/corporate-en/legal/copyright/index.epx for disclaimer information and notices.