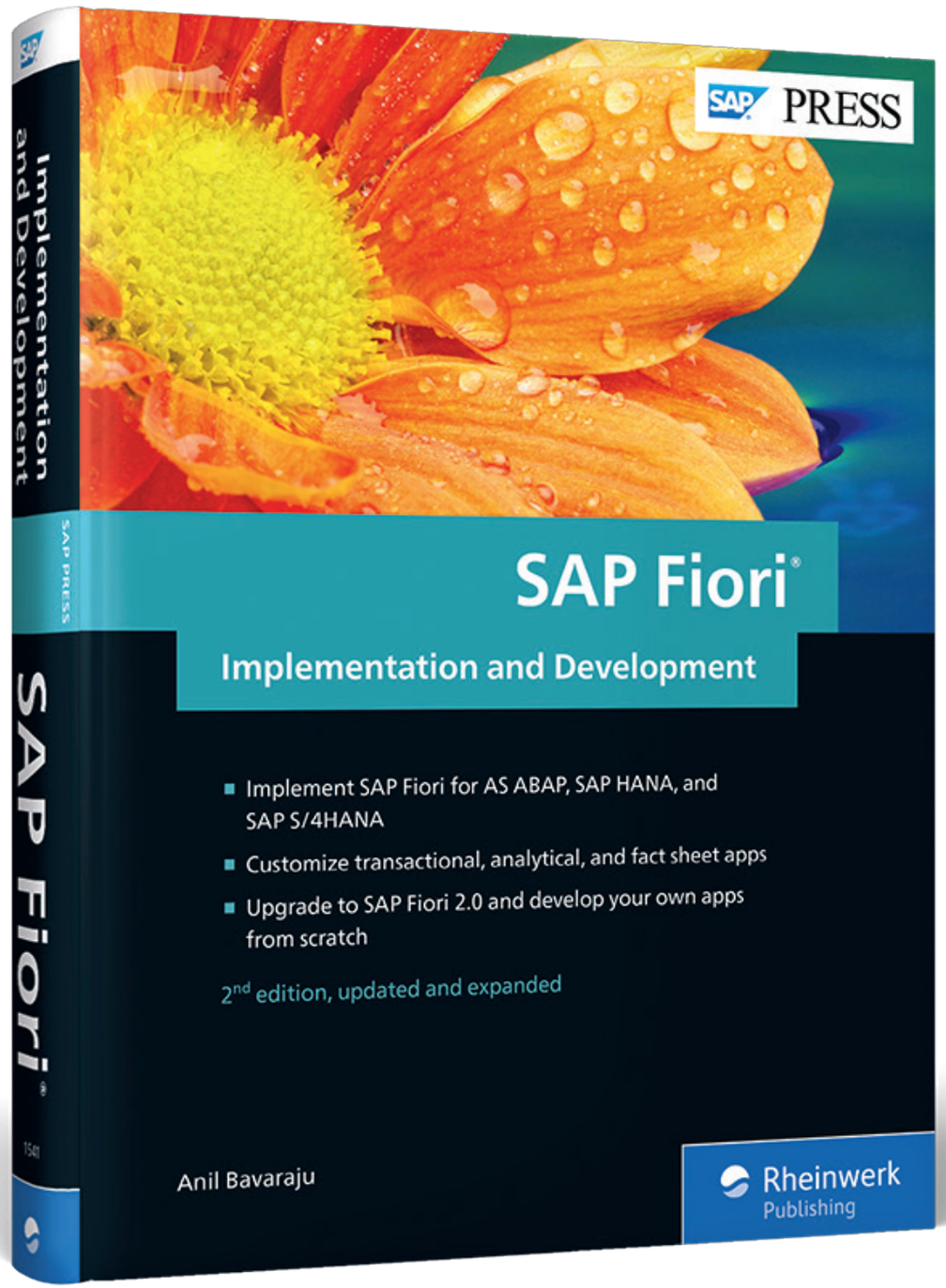
SAP PRESS
First-hand knowledge.
Rheinwerk Publishing



Reading Sample

SAP Fiori provides three types of apps: transactional, fact sheet, and analytical. Prior to developing and extending these apps, they must be implemented on a database. Discover how to implement analytical apps on an SAP HANA database both with and without the SAP Smart Business Modeler. This chapter will outline the steps necessary to complete this process.

"Implementing Analytical Apps"

Contents

Index

The Author

Anil Bavaraju
SAP Fiori Implementation and Development
615 Pages, 2017, $79.95
ISBN 978-1-4932-1541-6

www.sap-press.com/4401

Chapter 6
Implementing Analytical Apps

This chapter walks through implementing analytical apps with and without the SAP Smart Business modeler.

In Chapter 1, we discussed the architecture and communication channels among different layers for analytical apps. In this chapter, we'll provide step-by-step instructions for implementing analytical apps run on an SAP HANA database, which use VDMs. We'll use examples based on the Days Sales Outstanding app and the Profit Analysis app, but these steps apply to most analytical app implementations.

In Section 6.1, we'll begin with an overview of standard analytical apps and analytical apps created using SAP Smart Business modeler; the latter are enriched analytical apps with real-time KPI data and are designed for specific business roles. We'll include in our discussion the SAP Fiori roles for different LOBs. We'll then look at the prerequisites that need to be covered prior to implementing the Days Sales Outstanding app in Section 6.2 before we dive into the KPI modeling steps.

In Section 6.3, we'll discuss the SAP Smart Business modeler and model a KPI using an example based on the Days Sales Outstanding app. In addition, we'll cover the technical aspects of the SAP Smart Business modeler and show you how to leverage them in conjunction with an analytical app. You'll then learn how to create a generic drill-down application using the SAP Smart Business modeler. At the end of this section, we'll show you how to create your own catalogs and groups to enable the app.

In Section 6.4, we'll introduce you to analytical apps that don't require the SAP Smart Business modeler to implement them. We'll use an example based on the Profit Analysis app and provide high-level steps for how to implement them. As previously mentioned, these steps apply to most analytical apps that don't use the SAP Smart Business modeler.

6.1 Overview

SAP Fiori analytical apps are the new UX for SAP Business Suite powered by SAP HANA and are developed using SAPUI5. These apps allow real-time insights into your business by displaying KPIs, allowing you to make faster, better decisions. In this chapter, we'll show you how to configure both analytical app types with examples based on the Days Sales Outstanding app and the Profit Analysis app, respectively.

There are two types of apps under the analytical umbrella:

1. **Analytical apps (nonsmart apps)**
   These apps provide real-time information about large volumes of data.
2. **Analytical apps designed using SAP Smart Business modeler**
   These apps closely monitor the most important KPIs. SAP Smart Business apps are analytical apps that offer drilldown capabilities based on the SAP Smart Business framework.

In Chapter 1, we discussed SAP Fiori roles for different LOBs. For example, in the SAP UX for the finance LOB, you have accounts payable, accountant, cash manager, and GL accountant roles. Certain apps can be configured for each of these roles. Figure 6.1 shows an SAP Smart Business product called SAP Smart Business for SAP S/4HANA Finance (formerly SAP Smart Business for SAP Simple Finance). This product contains one or more analytical apps. Similarly, for each LOB, there are different SAP Smart Business products.

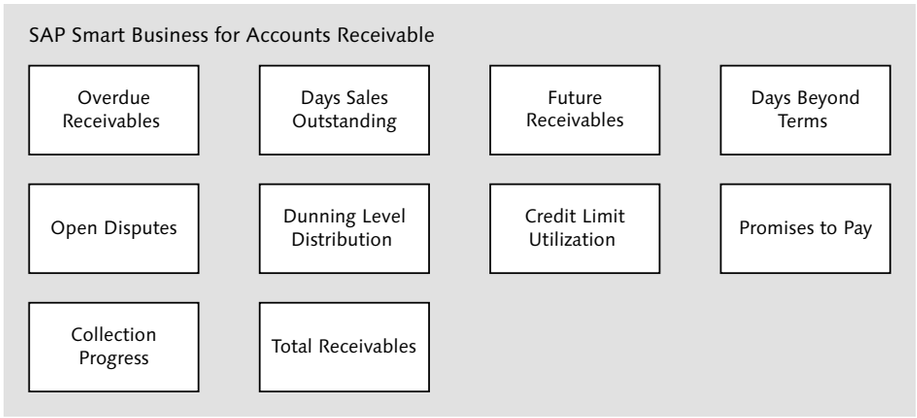


Figure 6.1 SAP Smart Business for SAP S/4HANA Finance

These apps provide real-time insight into your business. For example, Figure 6.1 shows your company's collection progress, days sales outstanding, and other KPIs. You'll be able to further drill down from this KPI or an operational performance indicator (OPI) to a detailed analysis. In the next section, we'll show you how to model a KPI or OPI and how to drill down from that KPI tile.

> **What Are KPIs and OPIs?**
>
> Both KPIs and OPIs relate to the vital metrics of an aspect of your business, approaching them from different perspectives that are crucial to the success of your business. KPIs look at broad categories, such as the sales of a particular region, and OPIs focus on a specific measure of a specific function or operation—for example, orders processed per shift.

The following are some of the key benefits of analytical apps designed using the SAP Smart Business modeler (smart apps):

- They offer role-based access to all relevant information, such as KPIs, OPIs, newsfeeds, specific tasks, trends, and alerts.
- You can easily build your own KPIs with threshold values and color-coded visualizations.
- You can create a drilldown from one application to another, to an SAP BusinessObjects Lumira storyboard, or to an SAP BusinessObjects Design Studio application.
- They provide end-to-end insight into action scenarios, including simulation and forecasting.

We've now covered some of the basic concepts of analytical apps. Before you enable and implement the two types of analytical apps, let's review some of the prerequisites.

6.2 Implementation Prerequisites

Several prerequisites need to be fulfilled prior to implementation to configure analytical apps. In Chapter 2, Section 2.5.3, we covered all the components that must be installed on SAP HANA and the ABAP front-end and back-end servers.

The following is a quick checklist of components that should be installed and configured in your system:

- Install the KPI framework on the ABAP front-end server.
- Enable the KPI framework on the SAP HANA server.
- Install SAP Gateway on the ABAP front-end server.
- Install the central UI components.
- Install the following SAP Smart Business products on the ABAP front-end server:
  - SAP Smart Business for CRM 1.0
  - SAP Smart Business for FCC 1.0
  - SAP Smart Business for ERP 1.0
  - SAP Smart Business for GRC 1.0
  - SAP Smart Business for EM 1.0
  - SAP Smart Business for TM 1.0
- Configure SAP Web Dispatcher.
- Install the SAP HANA Application Lifecycle Manager (HALM).
- Enable SAP HANA authentication and SSO.
- Assign the PFCG role `/UI2/SAP_KPIMOD_TCR_S` to your front-end user.
- Assign the `sap.hba.r.sb.core.roles::SAP_SMART_BUSINESS_MODELER` role to your SAP HANA user to access the SAP Smart Business modeler.

Important!

You must implement the SAP Notes required for each specific app. Refer to the app-specific online help at *http://help.sap.com/fiori*.

By now, you know that analytical apps run on an SAP HANA database that houses KPI data. For users to access the data from the SAP HANA database, you need to provide access to SAP HANA from the ABAP front-end server. For that, you need to enable user access to the KPI data (see Chapter 3, Section 3.2 and Section 3.3).

There are two ways to implement analytical apps, and the implementation differs according to the type of app that you want to use:

- **Analytical apps launched using the KPI tile**
  For these types of apps, you can either model your KPI or use predefined KPIs with the SAP Smart Business modeler apps. In addition, you can even configure a generic drilldown using a predefined template or a custom drilldown. We'll cover this implementation method in Section 6.3.
- **Analytical app that uses the app launcher tile**
  App-specific content is provided for these types of apps. This content defines what to display and how to display it in SAP Fiori launchpad. You can't adapt or configure the information displayed by these apps. We'll cover this implementation method in Section 6.4.

We'll begin by implementing analytical apps using the SAP Smart Business modeler.

6.3 Analytical Apps with the SAP Smart Business Modeler

The SAP Smart Business Modeler is a tool delivered as part of the SAP Smart Business suite. This tool allows you to model KPIs and report tiles that enable targeted monitoring of key business data using SAP Fiori launchpad.

You can define KPIs and reports in the SAP Smart Business modeler to which you can apply different evaluations so that you can respond to the ever-changing business landscape. You can even add additional perspectives on the relevant data with drilldown views that are accessed through the KPI tile.

Analytical apps using the SAP Smart Business modeler are launched via KPI tiles. The Days Sales Outstanding app allows users to filter and drill down by various dimensions, then check the days sales outstanding data by customer country and company code. As you did in Chapters 4 and 5 for transactional and fact sheet apps, refer to the SAP Fiori apps reference library for information about the app that you'll be implementing in the next section.

Now, we'll show you step-by-step instructions for how to create a Days Sales Outstanding analytical app using the SAP Smart Business modeler and how to add a drilldown from the KPI tile. The first step is to create a KPI.

6.3.1 Create the KPI

Create a KPI by following these steps:

1. Log in to SAP Fiori launchpad.
2. Click the **Create KPI** app under the **KPI Design** group (see Figure 6.2).

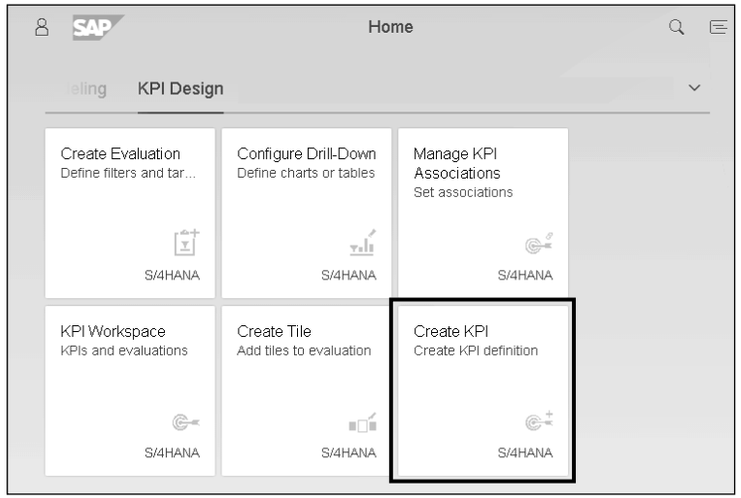


Figure 6.2 Create KPI

KPI Design Group

If you don't see the **KPI Design** group in SAP Fiori launchpad, refer to Chapter 2, Section 2.6.4, and grant user access to KPI Design.

3. In the next screen, you need to fill in the following mandatory details about the KPI (see Figure 6.3):
   - **Title**: Enter a meaningful name, which will appear in the tile header at runtime. Here, we entered "Days Sales Outstanding (KPI)".
   - **Additional Languages** (optional): To create a KPI tile in different language, select a language from the list.
   - **Description** (optional): Enter "Total Days Sales Outstanding for the last 12 months".
   - **Goal Type**: This indicates which kind of KPI value is meaningful for the application. Choose from three options:
     - **Maximizing (Higher is better)**: The higher, the better—for example, profit-related KPI values.
     - **Minimizing (Lower is better)**: The lower, the better—for example, cost-related KPI values.

     - **Target (Closer to target is better)**: The closer value is to the target, the better—for example, attrition rate.

     Here, we chose **Minimum (Lower is better)**.
   - **Tags** (optional): Enter these to search more easily for your KPI.
   - **Owner Name** (optional): Enter the name of the person responsible for executing the KPI.
   - **Owner ID And Email** (optional): Enter the details of the owner.

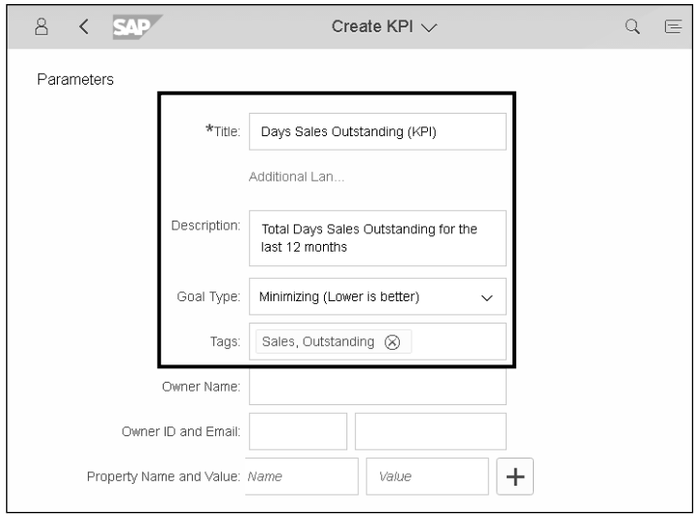


Figure 6.3 KPI Parameters

4. Scroll down to the next section, and select the values by clicking (see Figure 6.4).
5. The following fields are displayed in Figure 6.4:
   - **CDS View:** This is the source for this Days Sales Outstanding app. Select **C_DaysSalesOutstanding**.
   - **OData Service**: This is the path of the OData service responsible for aggregating the data. Enter "/sap/opu/odata/sap/C_DAYSSALESOUTSTANDING_CDS".
   - **Entity Set**: This provides the metadata of the OData service of the SAP HANA calculation view. Enter "C_DAYSSALESOUTSTANDINGResults".
   - **Value Measure**: Select only one value from this dropdown. Again, select **DaysSalesOutstanding**.

- **Additional Information** (optional): You can enter additional information about the data source in this field.
- **Semantic Object/Action** (optional): You can leave this blank, because you're using the default drilldown feature of SAP Smart Business apps.

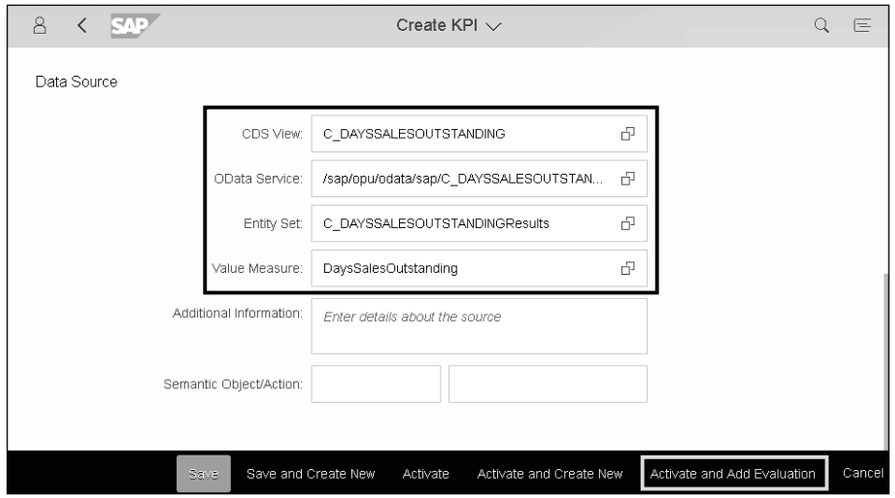


Figure 6.4 Data Source

6. After the fields have been filled, click **Activate and Add Evaluation.**
7. In the next screen you can either assign the changes to a transport, or save it as a **Local Object**.

6.3.2 Create Evaluations for the KPI

An *evaluation* defines what information about the KPI or report is visible to the user at runtime. It's a combination of variants/filters, thresholds, parameters, trends, and authorizations that are applied to a KPI or a report. You can create and activate evaluations for KPIs or OPIs, and several different evaluations can be applied to a single KPI or report.

Let's now create evaluations for the KPIs. Follow these steps:

1. Enter the values shown in Figure 6.5 in the **Parameters** section.

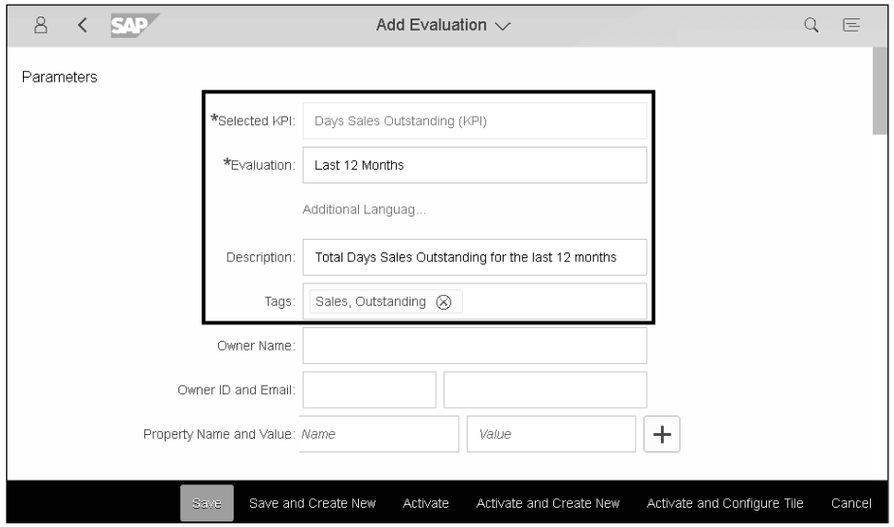


Figure 6.5 Evaluation Parameters

2. Scroll down and verify the **Data Source** fields. In this section, you have additional options (see Figure 6.6):
   - **Scaling Factor**: You can select the scaling factor based on the value that you're expecting:
     - **Auto**: Value is scaled to the available space. (We selected this option.)
     - **Kilo**: Value is displayed in multiples of one thousand.
     - **Million**: Value is displayed in multiples of one million.
     - **Billion**: Value is displayed in multiples of one billion.
     - **Percent**: Value is displayed as a percentage.
   - **Decimal Precision**: You can choose appropriate decimal formats as well. Here, we selected **Auto**.

   All the values that are configured in tiles, drilldowns, and tables for all measures of the selected evaluation are formatted by **Decimal Precision**. Only two decimal places are displayed to the right of the decimal point when the measure represents currency.

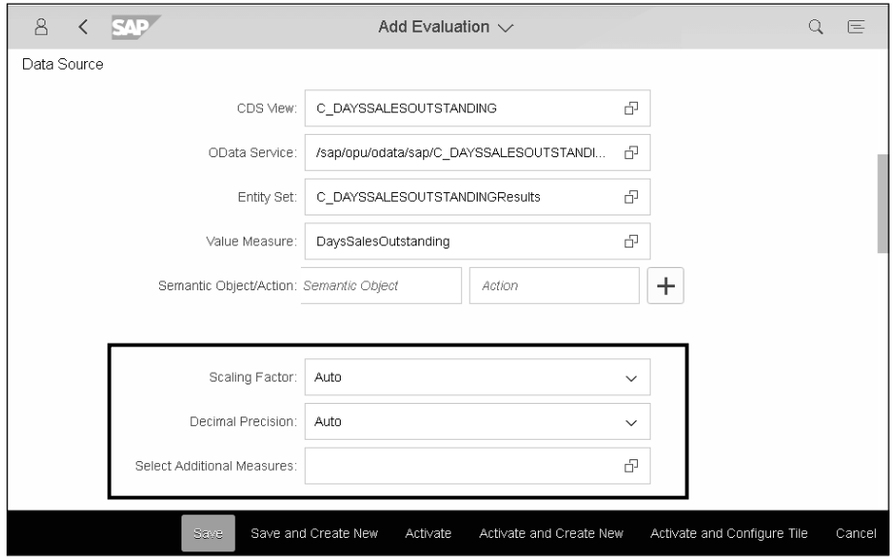


Figure 6.6 Evaluation Data Source

3. Next, you need to add variants/input parameters. A *variant* is a set of filter settings and input parameters that you define to achieve a particular perspective on a KPI or a report. Variants can be created without reference to a specific KPI or report because they're global in nature.
4. Scroll down to the **Input Parameters and Filters** section. Add the input parameters expected in the calculation view (see Figure 6.7):
   - **Display Currency Equal to (=) USD**
   - **Exchange Rate Type Equal to (=) M**
   - **Months for Calculation of Rolling Average for Receivables Equal to (=) 1**
   - **Months for Calculation of Rolling Average for Revenue Equal to (=) 1**

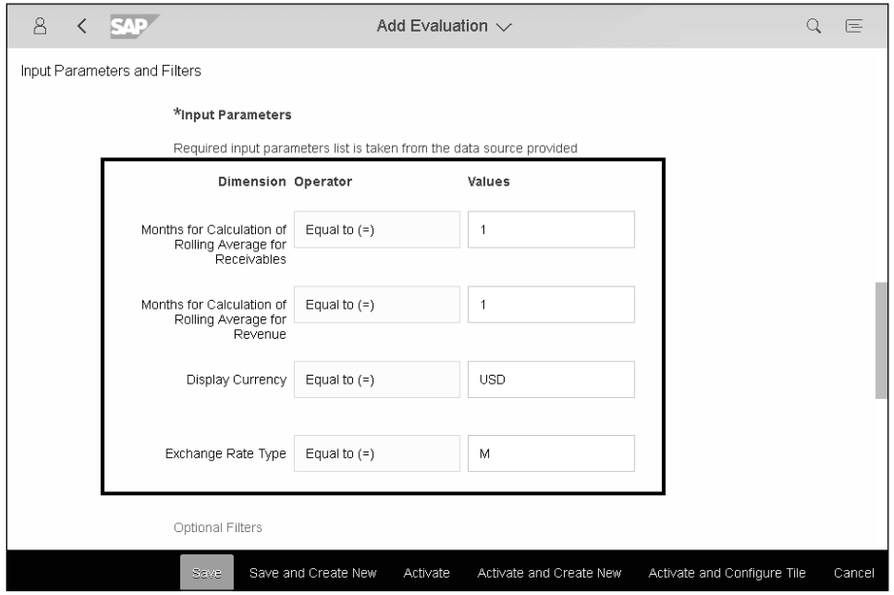


Figure 6.7 Input Parameters and Filters

5. Next, you need to add the **Target, Thresholds, and Trend** values. The thresholds defined for the KPI evaluation are determined by the **Goal Type** you selected for the KPI earlier in Figure 6.3:
   - **Critical**: Enter "100"
   - **Warning**: Enter "30"
   - **Target**: Enter "10"

   Critical, **Warning**, and **Target** values are the threshold values of a KPI. These depend on the goal type selected previously. For example, if you select **Lower is Better**, then your **Critical** and **Warning** values should be high. Therefore, when the KPI value is above 100, the KPI value color turns red, and when the KPI value is below 29, the KPI value color turns green. When the color is yellow, this indicates that the KPI has a value between 30 and 99 (see Figure 6.8).
6. Click **Activate and Configure Tile**.

You've now successfully created the KPI with the evaluation and activated the evaluation. In the next step, you'll configure the KPI tile.

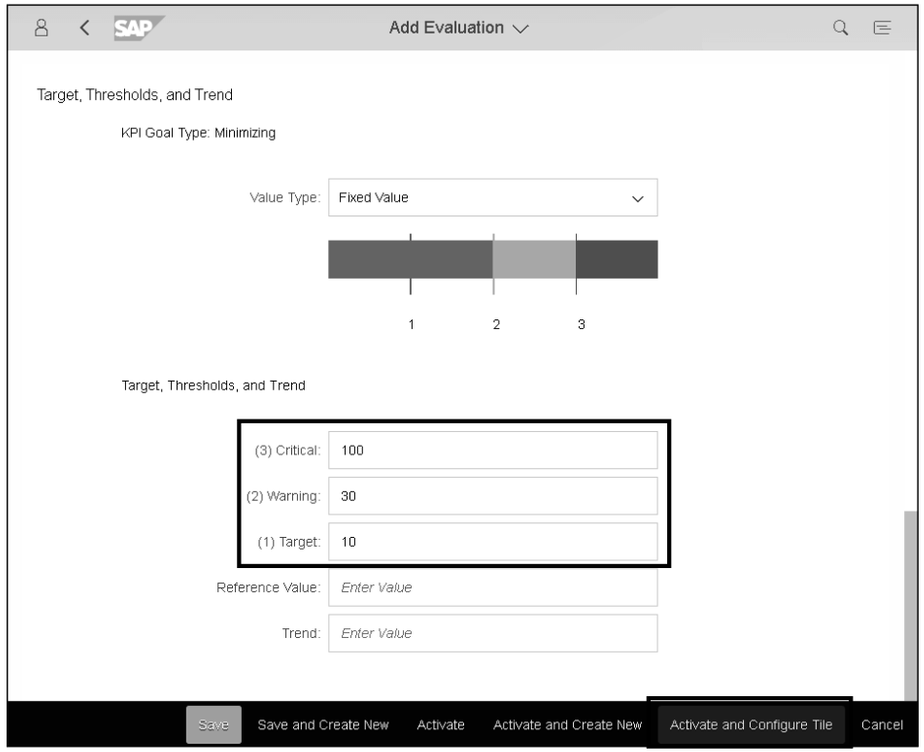


Figure 6.8 Target, Thresholds, and Trend

6.3.3 Configure the KPI Tile

A *KPI tile* is the graphical representation of the evaluation of the KPI, which is visible to the user at runtime. The KPI is displayed in a tile. When you click the tile in SAP Fiori launchpad, you'll be able to drill down into the details. There are six types of KPI tiles:

1. **Numeric tile**
   The aggregated value of the KPI measure of the evaluation that you created in Section 6.3.2 is displayed in the tile. In this tile, data is displayed in numeric format. The color of the value displayed depends on the threshold values, which you created with critical and warning values (see Figure 6.9).

Figure 6.9 Numeric Tile

2. **Deviation tile**
   In this tile, data is displayed graphically in the form of a bullet chart that shows the current value of the KPI in relation to the target value and its thresholds (see Figure 6.10).

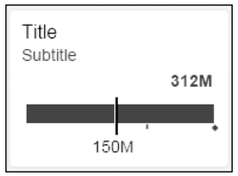


Figure 6.10 Deviation Tile

3. **Trend tile**
   For this title, data is displayed graphically in the form of a line chart showing the trend over time. You must enter a time dimension representing a duration to visualize this tile (see Figure 6.11).

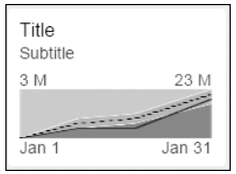


Figure 6.11 Trend Tile

4. **Comparison tile**
   With this tile, you select a dimension to show the top KPI values in comparison to each other. For example, if you select **Country** as a dimension, you'll see a comparison of the values for the countries contributing to this KPI (see Figure 6.12).

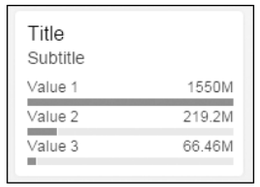


Figure 6.12 Comparison Tile

5. **Comparison tile, multiple measures**
   This tile is like the comparison tile, but instead of comparing dimensions, you compare different measures. You can select a maximum of three measures and must select at least two measures for this tile (see Figure 6.13).

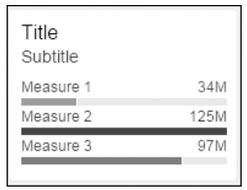


Figure 6.13 Comparison Tile, Multiple Measures

6. **Dual tile**
   This tile shows two tile types in a single tile. The left part of this tile always displays the numeric tile; on the right side, you can select any chart that's supported (see Figure 6.14).

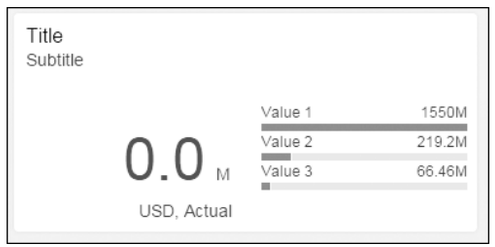


Figure 6.14 Dual Tile

Let's now look at how to configure a KPI tile, using the numeric tile as an example:

1. After clicking **Activate and Configure Tile** in the previous steps, you should see the screen shown in Figure 6.15.

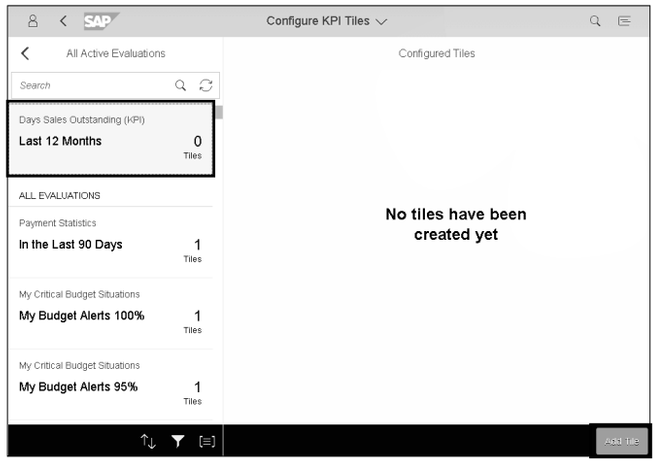


Figure 6.15 Configuring Tile

2. Enter the following details, as shown in Figure 6.16:
   - **Tile Format:** Select **Numeric Tile** from the dropdown list.
   - **Title:** Enter "Days Sales Outstanding (KPI)".
   - **Catalog:** Enter "/UI2/SAP_KPIFRW5_TC_S".
   - **Select Drill-Down:** Choose **Generic**.

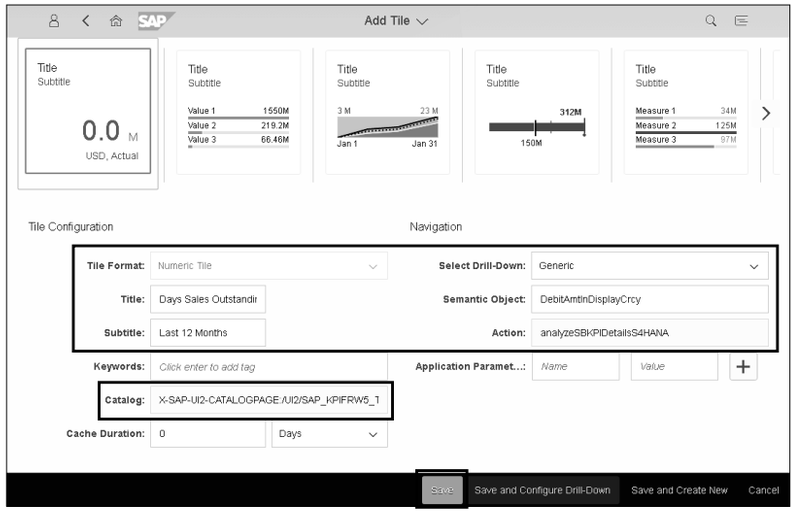


Figure 6.16 Tile Parameters

3. Click **Save**.
4. Return to the home screen by clicking .

That's it! You've successfully created a KPI tile. Now users will see this KPI tile in SAP Fiori launchpad. The next step is to create a generic drilldown so that when users click on the tile they will see the detail level. A drilldown can be a generic drilldown application, which we'll be covering in the next section, or it can even be a drilldown to another application, such as SAP Lumira or a custom application.

6.3.4 Configure the KPI Drilldown

When you click on a KPI tile, it will take you to a drilldown application. This functionality is configured using the **Configure Drill-Down** app. You can create your own drilldown applications with different kinds of charts, tables, and filters, and you can customize them with different colors as well. A drilldown application contains views with tables and charts. In this section, we'll look at configuring the KPI drilldown by creating views, configuring the KPI header, and creating filters.

Create Views

In this section, we'll show you how to create views using the dimensions and measures from the KPI evaluation. Follow these steps:

1. From SAP Fiori launchpad, click the **Configure Drill-Down** app (see Figure 6.17).

Figure 6.17 Configure Drill-Down App

2. Select the evaluation, and click **Configure** (see Figure 6.18).
3. Follow the below steps to add the first view, **Last 12 Months by Customer Country**.
4. Select **Country Key** from the **Dimension** list (see Figure 6.19).
5. Click the **Measures** tab, select **Days Sales Outstanding**, and click **OK** (see Figure 6.19).

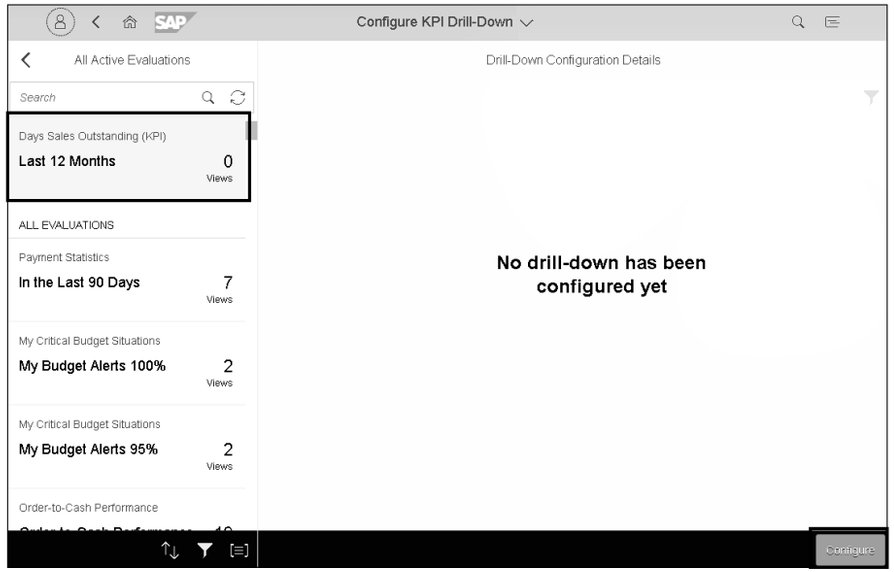


Figure 6.18 Configuring Drilldown

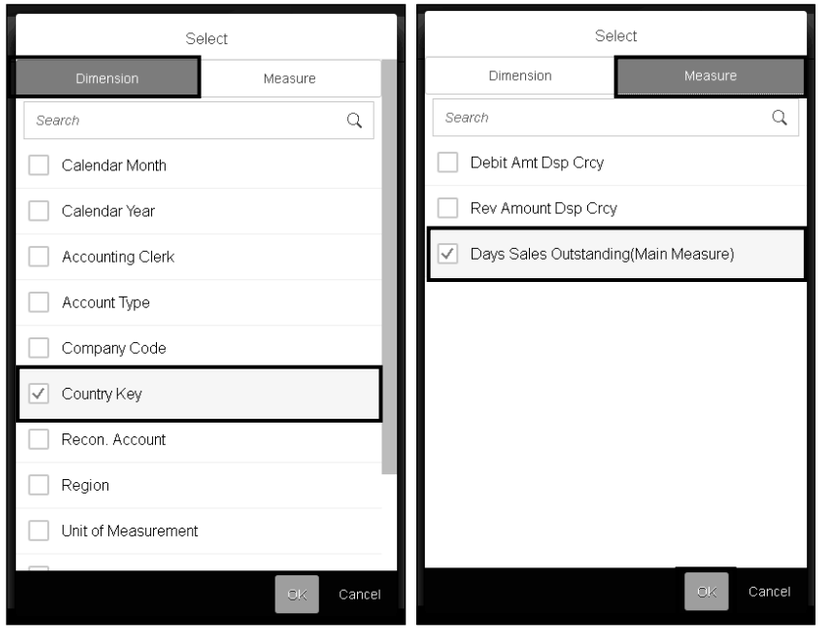


Figure 6.19 Selecting Dimensions and Measures

You should now see the dimension and the measure that you selected, as shown in Figure 6.20.

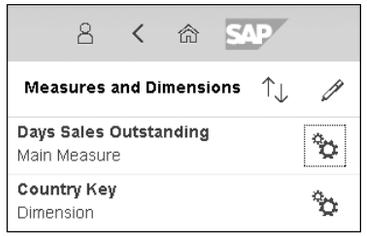


Figure 6.20 Selected Measures and Dimensions

6. You can sort the dimensions by clicking the **Sort Order** dropdown list (see Figure 6.21).

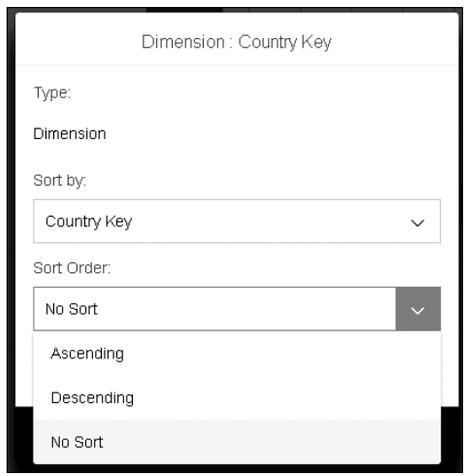


Figure 6.21 Dimension Settings

7. In addition, you can configure views to provide additional insights into the KPI data. You can add a chart, add a table, or add both. The available visualization types are **Bar** chart, **Column** chart, **Line** chart, **Columns and Lines** combination chart, **Bubble** chart, **Table**, and **Donut** chart, as shown in Figure 6.22.
8. You can further configure the charts by choosing different color schemes, selecting single or dual axis, and formatting the value displayed in the chart (see Figure 6.23).

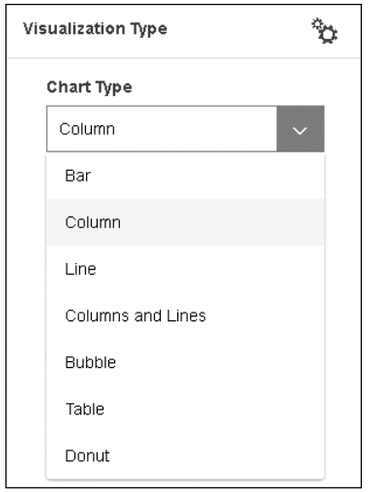


Figure 6.22 Selecting Visualization Type

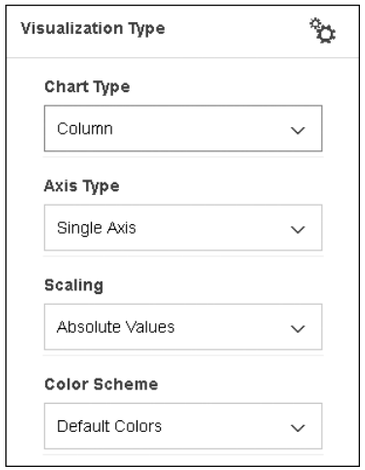


Figure 6.23 Additional Visualization Properties

9. As shown in Figure 6.24, enter or select the following fields:
   - **Visualization Type**: Select the type of visualization that you want to add to the view. Here, we selected **Column**.
   - **View Title**: Enter "Last 12 Months by Customer Country".

- **View Title**: This view name will be visible to the user during runtime. Select **Last 12 Months by Customer Country**.
- **Set Data Limit** (optional): You can set the maximum number of records that can be retrieved during runtime.
- **Data**: You can develop a view with the dummy data as well. Select **Actual Backend Data**.

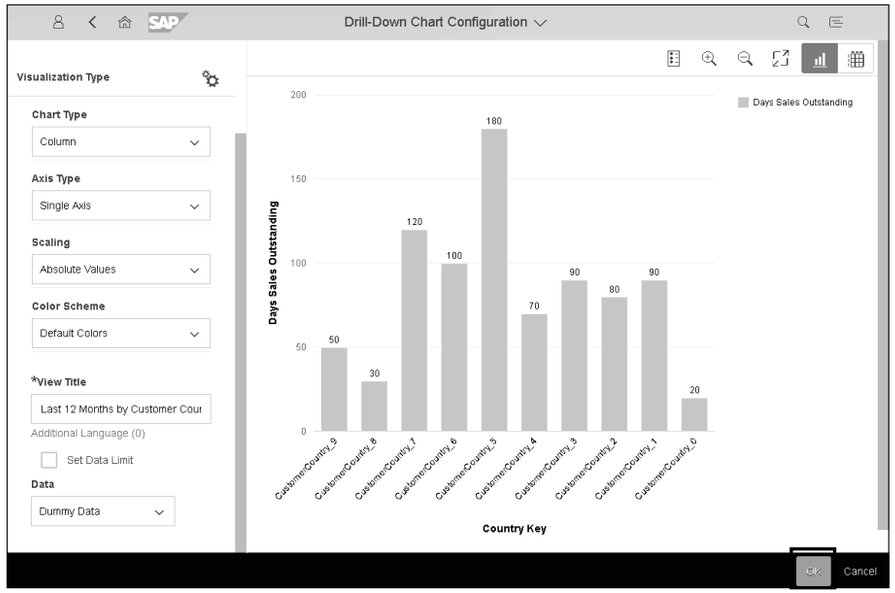


Figure 6.24 First View

10. Click **OK**.

Drilldown Application

You don't need to activate the drilldown application; changes are available immediately, as soon as you save the application.

We've successfully created the Last 12 Months by Customer Company view. You can create several views and switch between different views during runtime.

Let's add one more view: Days Sales Outstanding by Company Code. Follow these steps:

1. Click **+**, as shown in Figure 6.25.

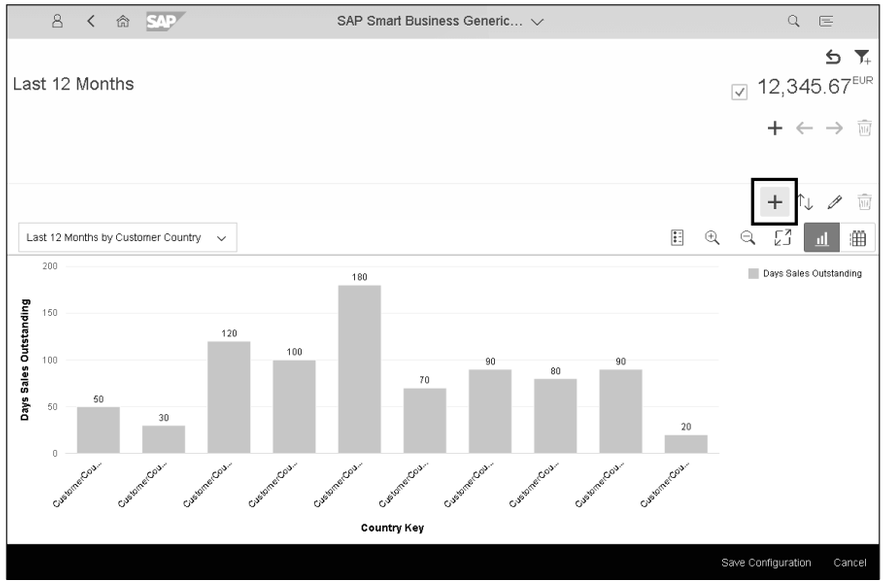


Figure 6.25 Adding View

2. Select the **Company Code** from the **Dimension** list, and click **OK** (see Figure 6.26).

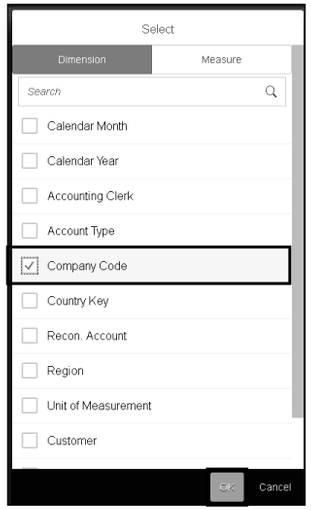


Figure 6.26 Dimensions

3. Select or enter the following details, as shown in Figure 6.27:
   - **Visualization Type**: Choose **Column**.
   - **View Title:** Enter "Last 12 Months by Company Code".

Figure 6.27 View Details

4. Click **Ok.**

With these views, you can analyze data in several formats and with different selection criteria to allow for better insight into the business processes from different perspectives.

Configure the KPI Header

In the previous section, you created two views in the drilldown app. The next step in this process is to configure the *KPI header*, the header area of the KPI drilldown app. You can add mini charts in the header section, and these mini charts can be created on multiple measures. To configure the header, follow these steps:

1. Click + from the **Header** section, as shown in Figure 6.28.

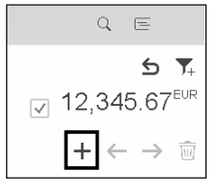


Figure 6.28 Adding KPI Header

2. Select a **Mini Chart**; in this example, we selected **Actual Vs. Target** (see Figure 6.29).

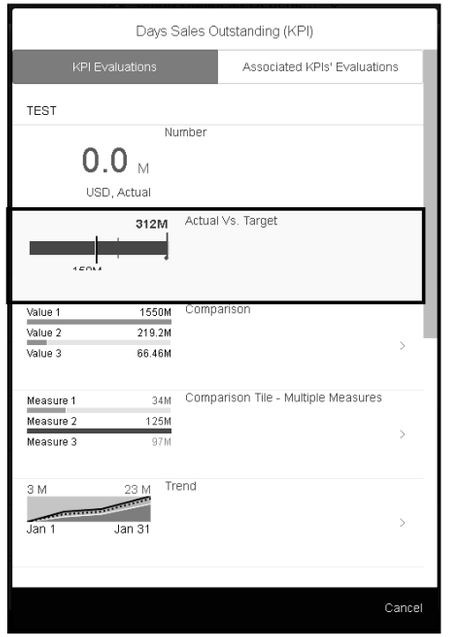


Figure 6.29 Selecting Mini Chart

Create Filters

The next available option is to create filters. You can specify up to five filters that allow you to look at the drilldown data from different perspectives. Follow these steps:

1. Click to add filters.
2. Select the **Display Currency, Customer,** and **Region** filters, and click **OK** (see Figure 6.30).

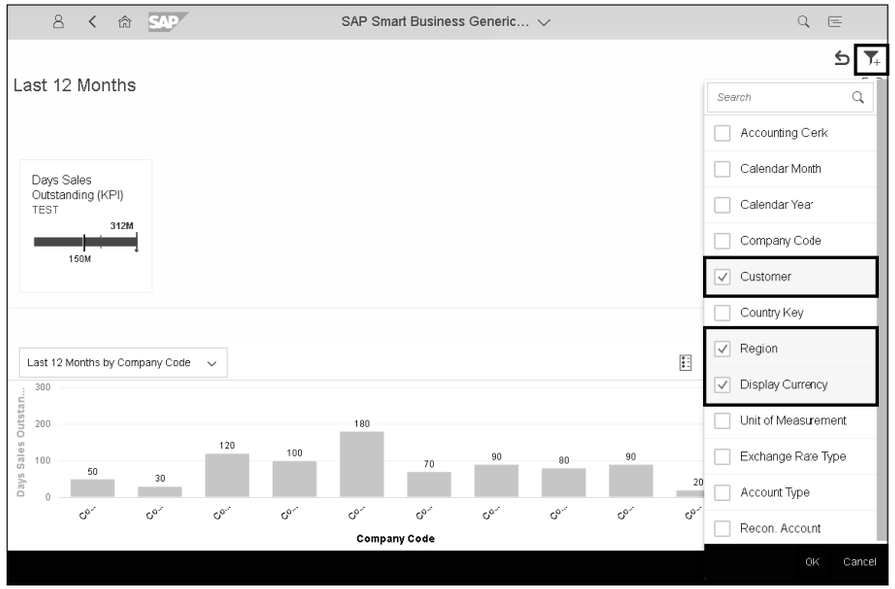


Figure 6.30 Selecting Filters

3. Click **Save Configuration**.

You've now successfully created a numeric KPI tile with an evaluation and created a drilldown with two views. The KPI tile is now ready to be made available to users on SAP Fiori launchpad.

6.3.5 Assign Roles to Users to Access SAP HANA Data

Users launch analytical apps from SAP Fiori launchpad, then SAP Web Dispatcher directs the OData request from the client to SAP HANA XS. Both the data and the KPI definitions are stored in the SAP HANA system. Therefore, for users to access the data and the KPI definitions from the SAP HANA system, you need to ensure that they're given the correct access rights.

In Chapter 2, we gave you an overview of the SAP Fiori architecture with the SAP HANA XS landscape. SAP HANA XS contains the SAP Fiori app content, KPI modeling framework, generic drilldown, and VDM reuse content. SAP HANA XS reads data from the SAP HANA database. Using the OData services that require authorizations (i.e.,

SAP HANA privileges), these privileges are grouped together in roles, and these roles are assigned to SAP HANA database users.

There are certain generic roles that must be assigned to all users. In Chapter 2, we discussed these roles in greater detail. In addition to generic roles, SAP delivers a role for each analytical app, which includes all app-specific privileges as well. For users who need access to a specific app, you need to assign the correct app-specific role to the user.

> **SAP HANA Role**
>
> For more information on the SAP HANA role for a specific app, refer to the app-specific documentation.

Figure 6.31 shows the Days Sales Outstanding app-specific role that has to be assigned to a user for the user to read the KPI data from the SAP HANA system.

Technical Configuration

Technical Catalog	/UI2/SAP_KPIFRW5_TC_S
TECHNICAL_PFCG_ROLE	/UI2/SAP_KPIFRW5_TCR_S
Semantic Object	*
Action	AnalyzeKPIDetails

OData Services

oData Service	Package
/sap/hba/r/sfin700/odata/ar/kpi.xsodata	sap.hba.r.sfin700.db

SAP HANA Roles

Role	Package
sap.hba.r.sfin700.roles::SapSmartBusinessReceivablesManager	sap.hba.r.sfin700.roles

Figure 6.31 App-Specific Configuration Details

To assign this role to a specific user in the SAP HANA system, follow these steps:

1. Log in to SAP HANA Studio.
2. Under the SAP HANA system (**HDB SYSTEM**), choose **Security • Users**.

3. Double-click the user name (see Figure 6.32).

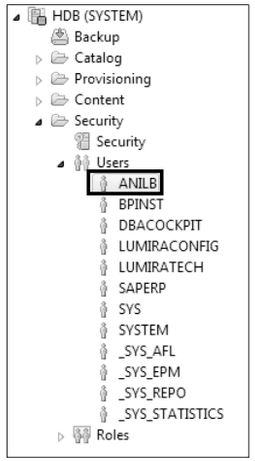


Figure 6.32 SAP HANA Users

4. Click the **+** button on the **Granted Roles** tab (see Figure 6.33).

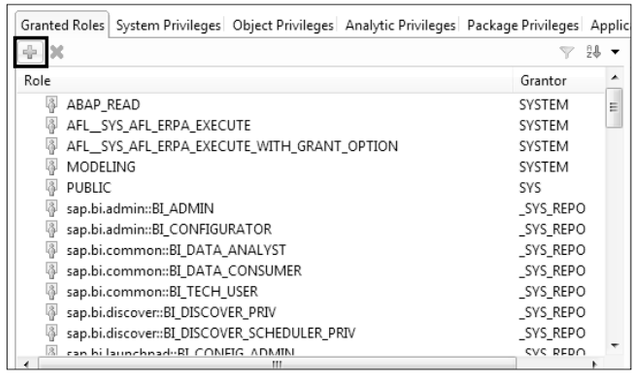


Figure 6.33 Granted Roles

5. Search for and then select the **sap.hba.r.sfin700.roles::SapSmartBusinessReceivablesManager** role, then click **OK** (see Figure 6.34).

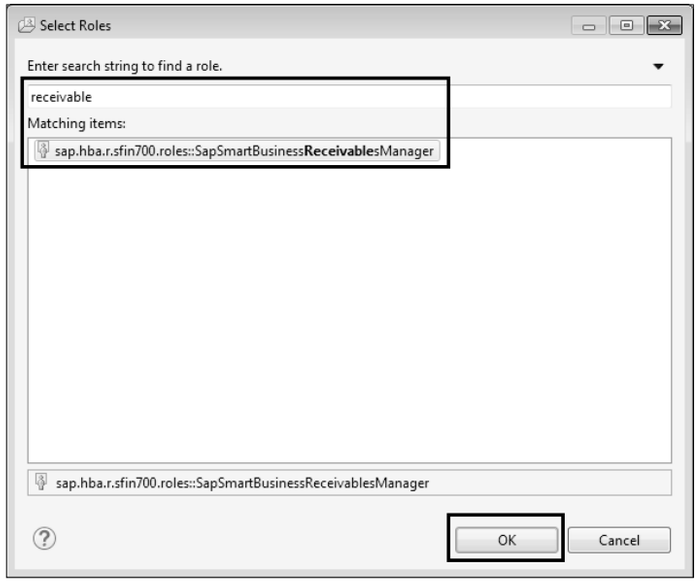


Figure 6.34 Selecting Role

6. Click the **Deploy** icon to save the changes.

You've successfully enabled the user to access data from the SAP HANA database.

6.3.6 Enable the App for Access in SAP Fiori Launchpad

After the ICF service is activated, the next step is to assign authorizations to the user to access the SAP KPI catalog in SAP Fiori launchpad. By now, you know that SAP Fiori launchpad is the entry point for SAP Fiori apps. For users, SAP Fiori launchpad displays the apps that have been assigned to the catalog designated for a user's role. Therefore, users who have the role `SAP_KPIFRW5_TCR_S` assigned to their user IDs will have access to the KPI's catalog.

Via Transaction PFCG (Role Maintenance), you can grant access to a user to the role `SAP_KPIFRW5_TCR_S`. This role allows the user to view all the analytical apps that are activated using the SAP Smart Business modeler. Refer back to Chapter 4, Section 4.3.3 for a refresher on how to assign roles to a user. Figure 6.35 shows the role assigned to an end user using Transaction PFCG.

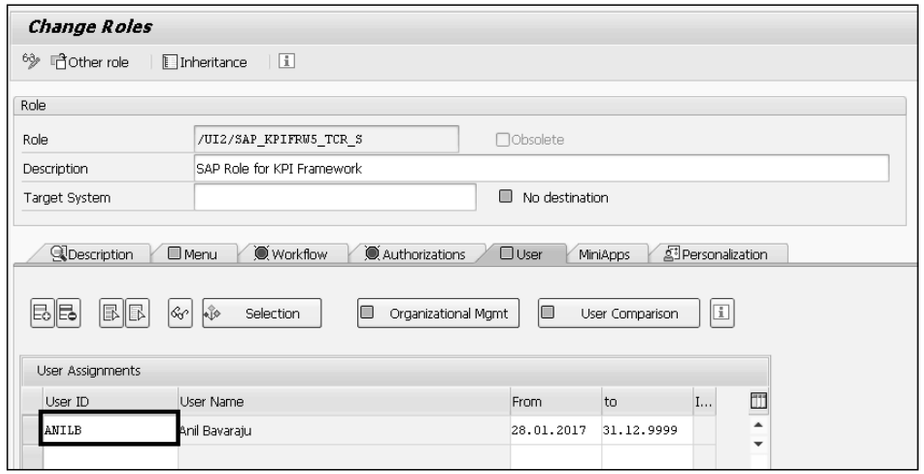


Figure 6.35 Adding User to Role

You've successfully assigned the SAP standard role to a user, who now has access to all the analytical apps. You created the Days Sales Outstanding app with the SAP Smart Business modeler, and all the analytical apps that are created using the SAP Smart Business modeler are automatically added to the predefined KPI catalog in SAP Fiori launchpad. After you activate the app in the SAP Smart Business modeler, it's automatically added to the **KPI Catalog** category.

Follow these steps to add the app to SAP Fiori launchpad:

1. Log in to SAP Fiori launchpad with the **User ID** you accessed in the previous steps (see Figure 6.35).
2. Navigate to the ME area by clicking , and click **App Finder**
3. Select **SAP: KPIs** from the catalog dropdown list, as shown in Figure 6.36.

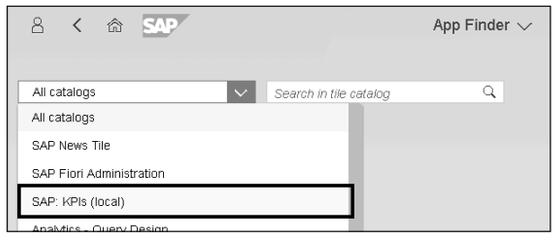


Figure 6.36 SAP KPIs

You should now see the app that you created and activated in earlier steps (see Figure 6.37).

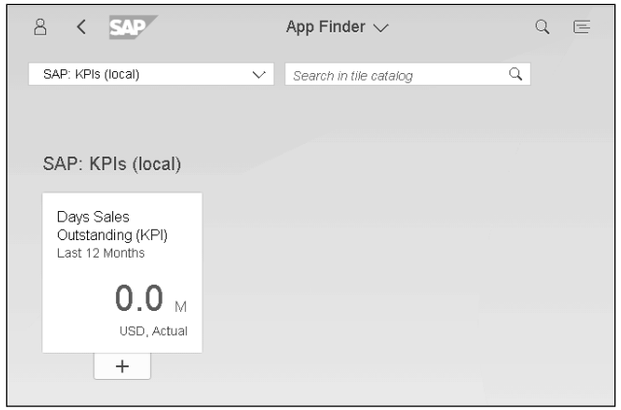


Figure 6.37 Days Sales Outstanding Custom App

4. Click the **+** button, add the app to your **My Home** group by checking the corresponding box, and then click **OK** (see Figure 6.38).

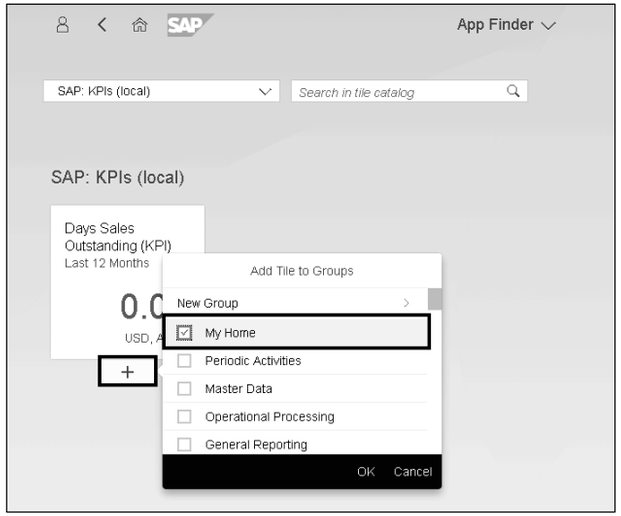


Figure 6.38 Adding App to My Home Group

5. Return to the home screen by clicking the button.

6. You should now see the **Days Sales Outstanding** app under the **My Home** group, as shown in Figure 6.39.

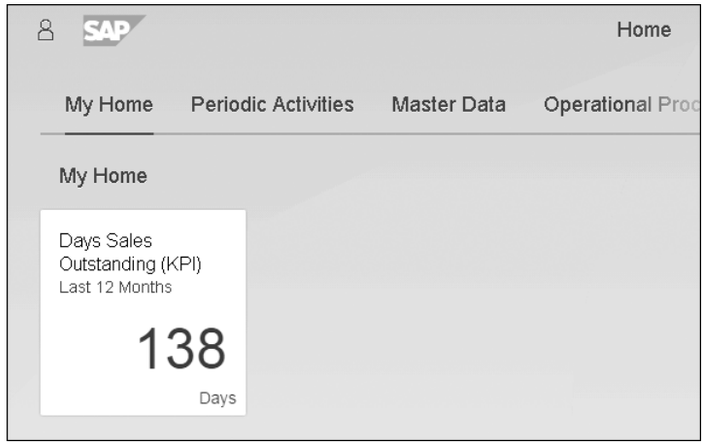


Figure 6.39 My Home Group

7. Click the app to see the two views you created previously (see Figure 6.40).

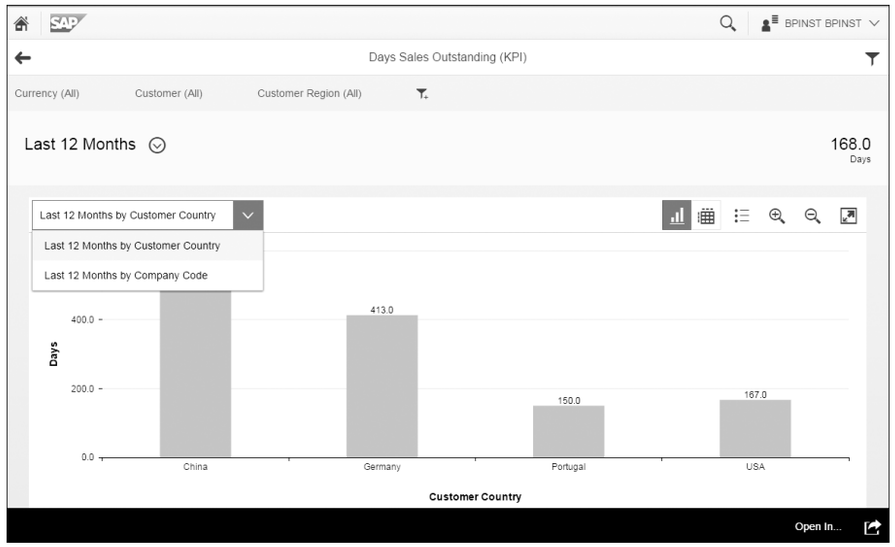


Figure 6.40 Days Sales Outstanding App with Custom Views

8. Toggle between the table view and the chart view by clicking the buttons above the chart. In addition, you can zoom in, zoom out, or view the app full screen by using the buttons shown in Figure 6.41.

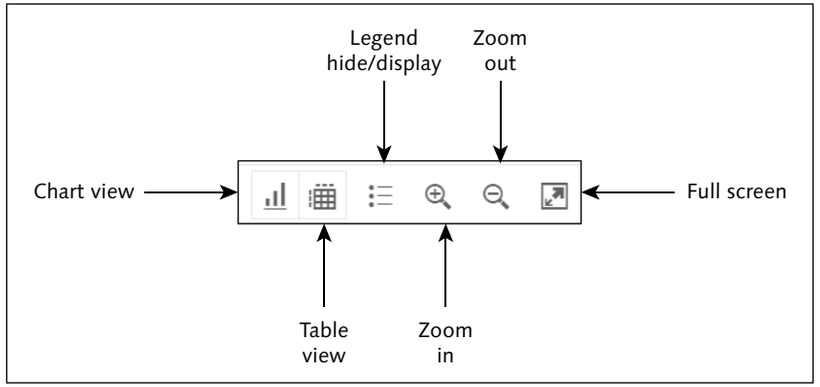


Figure 6.41 View Features

You should now understand the basics of creating an analytical app with the SAP Smart Business modeler and how to grant access to users. In the next section, we'll discuss a more advanced topic: assigning an app using a custom role.

6.3.7 Assign the App Using a Custom Role

In a real-world scenario, you wouldn't want to give access to all analytical apps to your users (i.e., any user assigned to the `SAP_KPIFRW5_TCR_S` role will have access to all the apps). In this section, we'll show you how to create a custom catalog and role to give access to specific analytical apps in SAP Fiori launchpad.

In Chapter 4, Section 4.6, we discussed how to create a custom catalog and custom role for a transactional app. You'll be following a similar process for nonsmart analytical apps.

To enable your app with custom roles and catalogs, you must complete the following steps:

1. Log in to your ABAP front-end server, and run Transaction LPD_CUST.
2. Create a new launchpad by clicking the **New Launchpad** button.
3. Enter the fields as shown in Figure 6.42, and click **Confirm.**

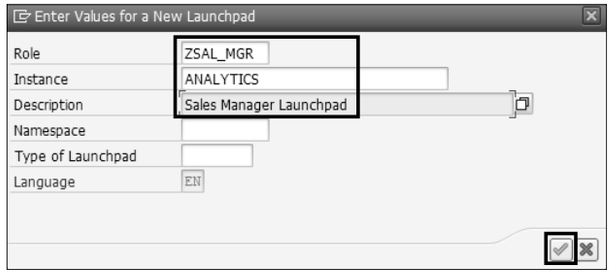


Figure 6.42 New Launchpad

4. Click **Yes** to ignore the namespace.
5. Create a new application by clicking **New Application.**
6. Enter "Days Sales Outstanding (KPI)" in the **Link Text** field. From the **Application Type** dropdown list, select **URL**. Click the **Edit** button next to the **URL** input box. Enter "/sap/bc/ui5_ui5/sap/ca_kpi/drilldown/" in the **URL** box (see Figure 6.43).

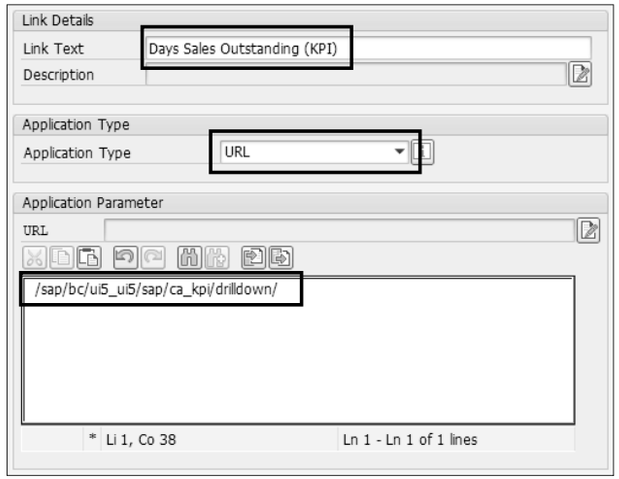


Figure 6.43 App Parameters

7. Click **Show Advanced (Optional) Parameters**.
8. Click the **Edit** button next to the **Application Alias** input box. Enter "analyzeKPIDetails" in the box. Enter "SAPUI5.Component=drilldown" in the **Additional Information** box (see Figure 6.44).

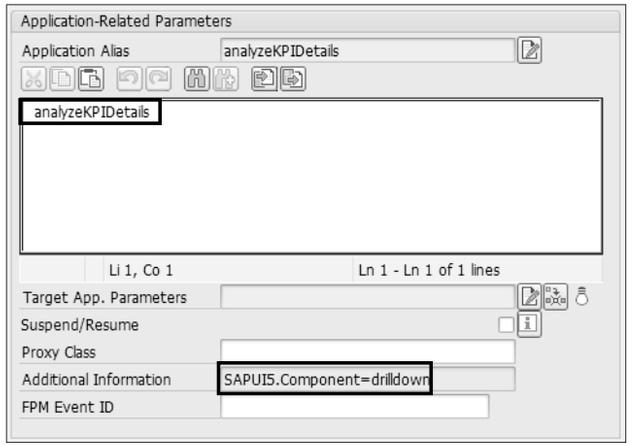


Figure 6.44 Application-Related Parameters

9. Click **Save**.
10. Log in to the SAP Fiori launchpad designer at *http://hostname:port/sap/bc/ui5_ui5/sap/arsrvc_upb_admn/main.html20?sap-client=120&scope=CUST*.
11. Click **Catalogs.**
12. Create a new catalog by clicking **+** at the bottom of the screen.
13. Enter the **Title** and the catalog **ID** shown in Figure 6.45.

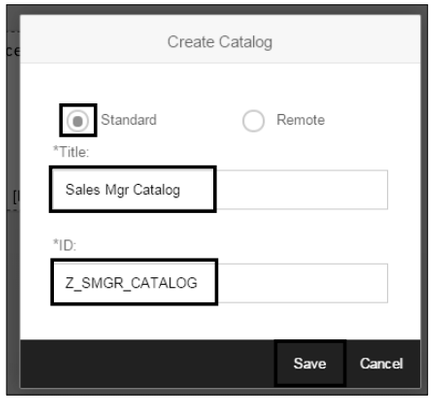


Figure 6.45 Create Catalog

14. Click **Save.**

15. Select the catalog you created in the previous step.
16. Click the **Target Mapping** icon.
17. Click **Create Target Mapping.**

In the next steps, you'll define the target mapping, but before that, let's explore some of the components of target mapping.

An *intent* allows users to perform actions on semantic objects. In this example, we choose *, which means we want to navigate to all the analytical apps and analyze all the details. The **Intent** area of the screen lets you perform actions without worrying about the technical part of the navigational target.

Intent has the following components (see Figure 6.46):

- **Semantic Object**
  Represents business entities, such as a product or sales order. You can bundle apps that reflect a specific scenario. In this exercise, we're specifying a generic semantic object, which allows you to analyze all the semantic objects in a standardized way.
- **Action**
  Defines which operations are performed on the semantic object—for example, displaying a purchase order. Here, display is the action, and the purchase order is the semantic object.

Follow these steps:

1. Enter the details in the **Intent** section as shown in Figure 6.46.

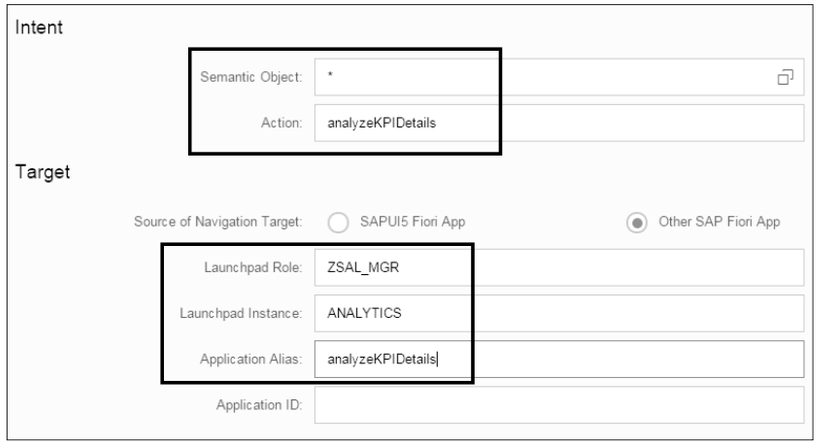


Figure 6.46 Intent and Target

2. In the **Target** section, enter the details of the custom launchpad you created previously.
3. Click **Save.**
4. Select the **Group** tab in the SAP Fiori launchpad designer, and then create a new group by clicking at the bottom of the screen.
5. Enter the group **Title** and the group **ID** shown in Figure 6.47, and click **Save.**

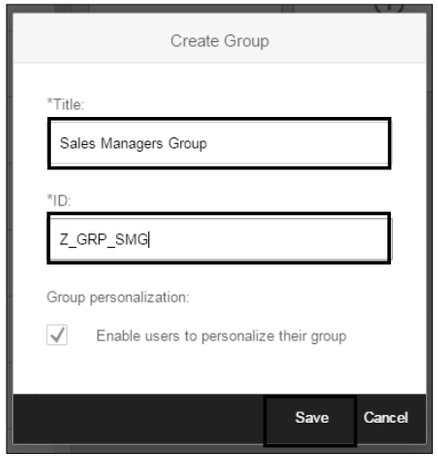


Figure 6.47 Create Group

You should now see the new group created in the SAP Fiori launchpad designer.

6. Add a tile by clicking on the tile with the **+** sign (see Figure 6.48).

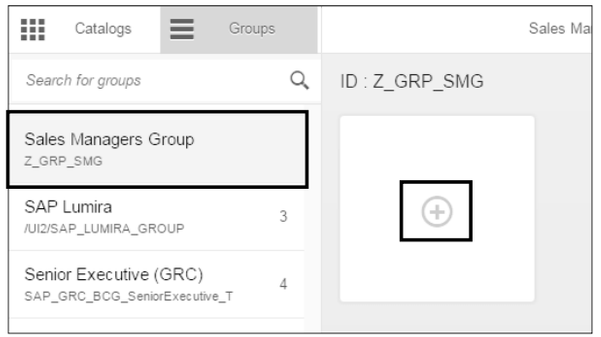


Figure 6.48 Adding Tile to Group

7. Click the **Search** icon to search the catalog.
8. Select the **SAP: KPIs** catalog from the list, as shown in Figure 6.49.

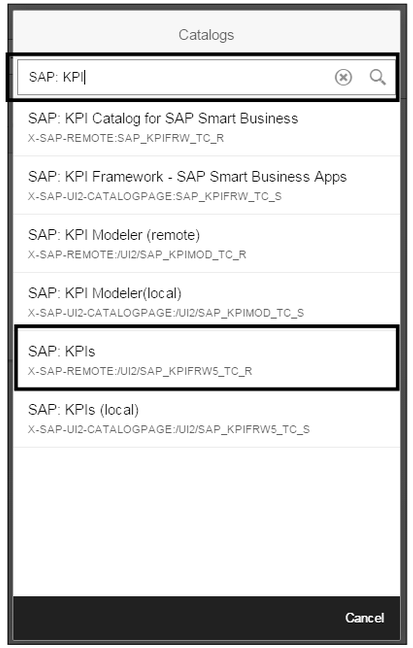


Figure 6.49 SAP KPIs Catalog

9. You'll now see all the KPI tiles that have been modeled using the SAP Smart Business modeler. Select the **Days Sales Outstanding (KPI)** app by clicking **+** at the bottom of the tile, as shown in Figure 6.50.

Figure 6.50 Adding App to Group

You should now see the Days Sales Outstanding app added to your group in the SAP Fiori launchpad designer.

You've successfully created a custom catalog, created a custom group, and assigned the Days Sales Outstanding app to the group. The next step is to create a custom role and add the category and group to the role. Follow these steps:

1. Log in to your ABAP front-end server, and run Transaction PFCG.
2. Enter the **Role** name "Z_ROLE_SM", and click **Single Role** (see Figure 6.51).

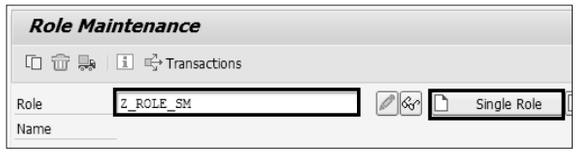


Figure 6.51 Create Custom Role

3. Enter the **Description**, and click **Save**.
4. Click the **Menu** tab, then select **Catalog** from the **Transaction** button dropdown menu (see Figure 6.52).

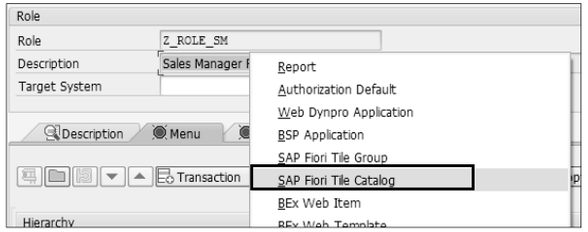


Figure 6.52 Assigning Tile Catalog to Role

5. Enter "Z_SMGR_CATALOG" in the **Catalog ID** field, and click **Confirm** (see Figure 6.53). This is the ID of the catalog you created previously.

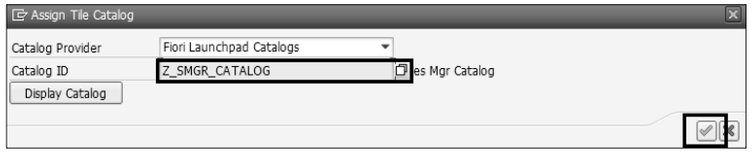


Figure 6.53 Catalog ID

6. Add a group you created by selecting **SAP Fiori Tile Group** from the dropdown menu (see Figure 6.54).

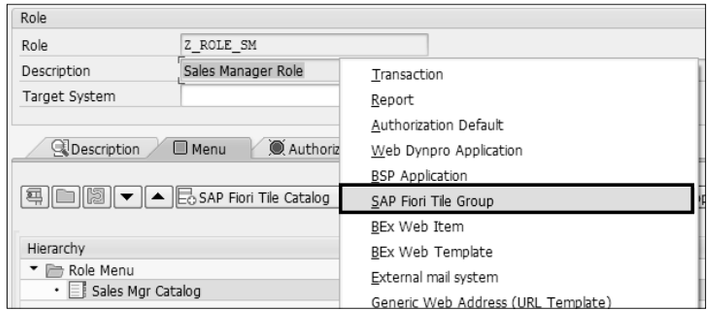


Figure 6.54 Assigning Group Catalog to Role

7. To search for your group, click the **Search** button next to the **Group ID.**
8. Select the **Z_GRP_CM1** group from the pop-up window (see Figure 6.55). Click **Execute.**

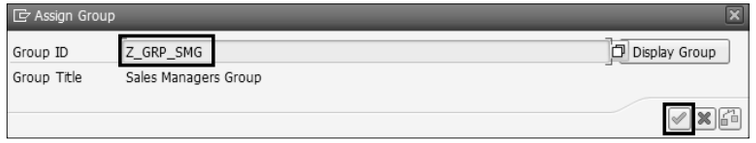


Figure 6.55 Group ID

You've successfully created the custom role. Your role should now show both the category and group (see Figure 6.56).

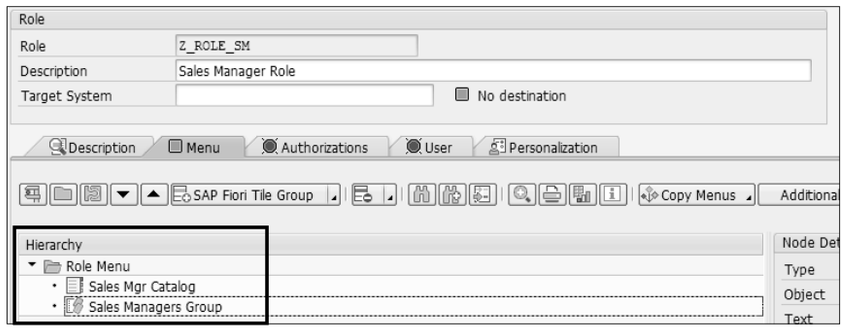


Figure 6.56 Role Menu with Catalog and Group

The last step in this process is to assign the custom role to the user. Follow these steps:

1. Select the **User** tab.
2. Enter the **User ID**, and click **Save** (see Figure 6.57).

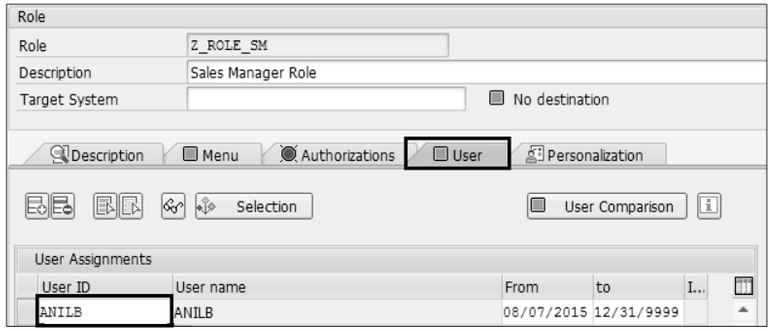


Figure 6.57 Assigning User

Important!

All users must be assigned to the generic KPI framework role `/UI2/SAP_KPIFRW5_TCR_S`. For more information, refer to Chapter 2, Section 2.6.4.

3. Log in to SAP Fiori launchpad with the user ID that you assigned to the role, and you should see the **Days Sales Outstanding (KPI)** app under the **Sales Managers Group** (see Figure 6.58)

Figure 6.58 Days Sales Outstanding (KPI) App

In this section, we explored how to provide user access to analytical apps using both an SAP standard role and a custom role. You've successfully created a KPI tile, completed the front-end tasks, and created user authorizations.

6.4 Analytical Apps without the SAP Smart Business Modeler

In the previous section, you created an analytical app using the SAP Smart Business modeler. In this section, we'll show you how to enable an analytical app without using the SAP Smart Business modeler; we'll use an example based on the Profit Analysis analytical app.

First, let's get the app-specific configuration details from the SAP Fiori apps reference library. Figure 6.59 shows the configuration details of the Profit Analysis app.

SAPUI5 Application

The ICF nodes for the following SAPUI5 application must be activated on the front-end server:

Component	Technical Name
SAPUI5 Application	FIN_PRFTANLYS

SAP Fiori Launchpad

You require the following data to give users access to the app in the SAP Fiori launchpad.

Technical Configuration

Technical Catalog	SAP_SFIN_TC_A
TECHNICAL_PFCG_ROLE	SAP_SFIN_TCR_A
Semantic Object	ControllingDocument
Action	analyzeProfit
LPD_CUST Role	UIHSFIN1
LPD_CUST Instance	ANALYTICS
SAPUI5 Application	FIN_PRFTANLYS
Business Catalog (Launchpad)	SAP_SFIN_BC_SALESMANAGER
Business Group (Launchpad)	SAP_SFIN_BCG_SALESMANAGER
PFCG role for Business Catalog	SAP_SFIN_BCR_SALESMANAGER

Figure 6.59 App-Specific Configuration

In the sections that follow, we'll walk through the necessary tasks to complete this implementation.

6.4.1 Activate the SAPUI5 Application

The first step in implementing an analytical app without the SAP Smart Business modeler is to activate the SAPUI5 application. We discussed these steps in detail in Chapter 4, Section 4.1. You can follow along with the same steps to activate the `FIN_PRFTANLYS` service (see Figure 6.60).

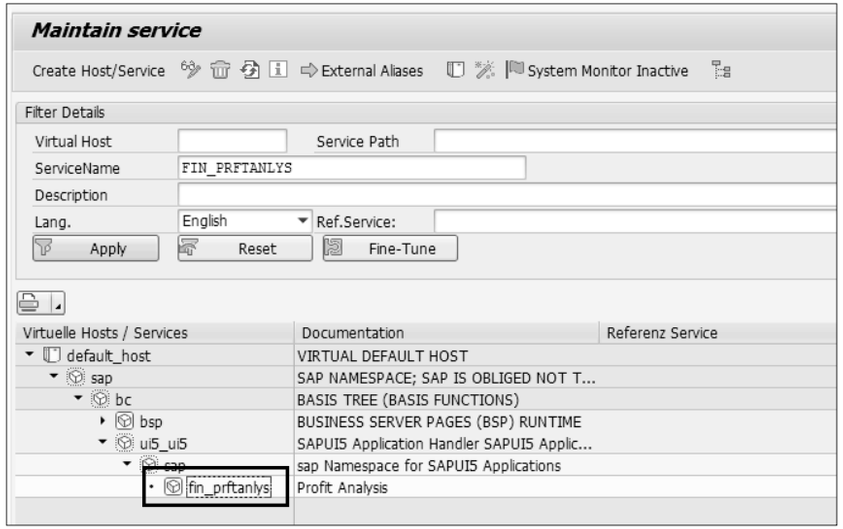


Figure 6.60 SAPUI5 Application

6.4.2 Assign the SAP HANA Role

In this section, we'll assign a product-specific SAP HANA role to the user. This role enables users to access KPI data (i.e., the SAP HANA Live views and the OData service of the specific app). Follow the steps we covered in Section 6.3.5, and grant access to the user for the `sap.hba.apps.sfin.s.roles::fiori_sfin` role (see Figure 6.61).

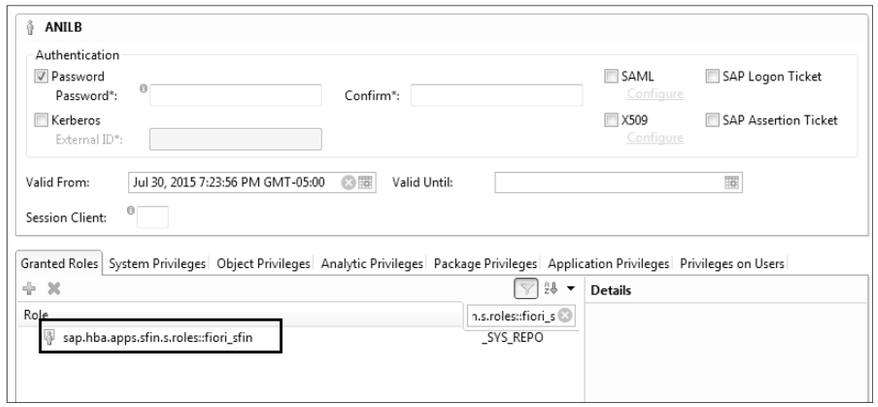


Figure 6.61 SAP HANA Role

6.4.3 Assign the App-Specific Catalog Role

The next step is to assign the app-specific PFCG role for the business catalog to the user. After this is enabled, the user will have access to the catalog in SAP Fiori launchpad. Assign the `SAP_SFIN_BCR_SALESMANAGER` business catalog role to an end user (see Figure 6.62). Refer to Chapter 4, Section 4.3.3 if you need to review how to assign roles to users.

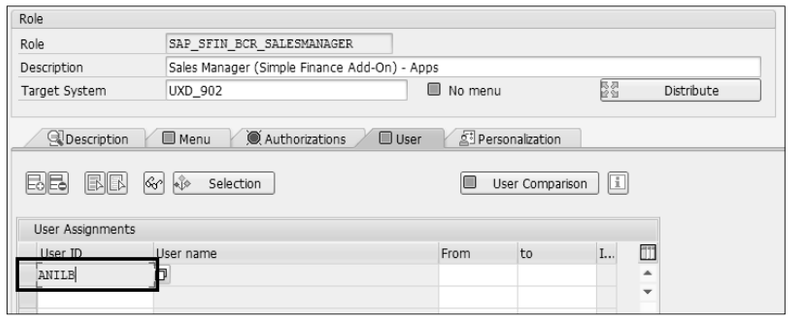


Figure 6.62 Assigning User

6.4.4 Add the App to SAP Fiori Launchpad

After you've completed all the preceding steps, the last step is to add the app to a group. Follow the same steps you performed in Chapter 4, Section 4.6.6 to add the **Profit Analysis** app to the **Sales Manager** group (see Figure 6.63).

Figure 6.63 Profit Analysis App in Sales Manager Group

Sales Order Fulfillment App

Typically, all SAP Smart Business apps drill down from one analytical app to another analytical app. However, there is one hybrid app, the Sales Order Fulfillment app, that drills down from an analytical app to a transactional app.

The Sales Order Fulfillment app is the only hybrid app that uses SAP Gateway (ABAP front-end server) and SAP HANA XS as well. It needs SAP Gateway because it sends requests to the back-end server. After you configure the Sales Order Fulfilment app, it will be added as an analytical app tile in SAP Fiori launchpad. When a user opens the app, a transactional app is opened. Hence, this is the only hybrid app that has a tile for an analytical app and launches with the features of a transactional app.

6.5 Summary

In this chapter, we provided step-by-step instructions for how to create an analytical app using the SAP Smart Business modeler for the Days Sales Outstanding app. We discussed everything from how to create a KPI to providing authorization to the user to access an app and its drilldown views. In addition, we showed you how to enable an app with custom groups and catalogs. We then provided an overview of how to enable analytical apps that don't use a KPI tile to launch (non-smart analytical apps).

In the next chapter, we'll explore OData services in depth. Understanding OData services is very important, as you'll be using this concept a lot during the extension or creation of transactional, fact sheet, and analytical apps, which we cover in the third part of this book.

Contents

Foreword 15
Preface 17
Acknowledgments 23

PART I Getting Started

1 Introduction to SAP Fiori 27

1.1 SAP Fiori and the Evolution of User Experience 27
1.1.1 SAP UX Strategy 28
1.1.2 SAP Fiori UX Design Principles 29
1.2 Architecture and Integration 30
1.2.1 SAP Fiori Launchpad 32
1.2.2 SAP Web Dispatcher 42
1.2.3 Communication Channels 44
1.2.4 SAP Fiori App-Supported Browsers and OS 45
1.2.5 SAP Fiori, Cloud Edition 47
1.3 Types of SAP Fiori Apps 50
1.3.1 Transactional Apps 53
1.3.2 Fact Sheet Apps 54
1.3.3 Analytical Apps 55
1.4 Related SAP Technologies 57
1.4.1 SAPUI5 57
1.4.2 OData and SAP Gateway 68
1.4.3 SAP HANA XS 74
1.5 Summary 75

2 Installation and Configuration 77

2.1 Prerequisites 77

2.2 Implementation Options ... 78
2.2.1 ABAP Environment ... 78
2.2.2 SAP HANA Database ... 80
2.2.3 SAP HANA XS ... 81
2.2.4 SAP S/4HANA ... 84
2.3 Deployment Options ... 85
2.3.1 Central Hub Deployment ... 85
2.3.2 Embedded Deployment ... 87
2.4 Apps Reference Library ... 88
2.5 Installation ... 89
2.5.1 ABAP Environment ... 89
2.5.2 SAP Web Dispatcher ... 105
2.5.3 SAP HANA Server ... 106
2.6 Configuration ... 108
2.6.1 SAP Fiori Launchpad ... 108
2.6.2 SAP Gateway ... 122
2.6.3 Embedded Search ... 128
2.6.4 SAP HANA ... 134
2.6.5 Configuration Using the Task List ... 137
2.7 Upgrading to SAP Fiori 2.0 ... 146
2.7.1 SAP Fiori 2.0 for SAP S/4HANA ... 146
2.7.2 SAP Fiori 2.0 for SAP Business Suite Powered by SAP HANA or AnyDB ... 147
2.8 Summary ... 147

PART II Implementation

3 SAP Fiori Security 151

3.1 Communication Channel Security and Encryption ... 152
3.1.1 Client to SAP Web Dispatcher ... 155
3.1.2 SAP Web Dispatcher to ABAP Servers ... 155

3.1.3 ABAP Front-End Server to ABAP Back-End Server ... 158
3.1.4 SAP Web Dispatcher to SAP HANA XS ... 161
3.2 Single Sign-On and User Authentication ... 163
3.2.1 Kerberos/SPNEGO ... 164
3.2.2 Security Assertion Markup Language 2.0 ... 165
3.2.3 SAP Logon Tickets ... 167
3.2.4 X.509 Certificate ... 168
3.3 User Authorizations and Management ... 169
3.3.1 User Management ... 169
3.3.2 User Authorization ... 170
3.4 Summary ... 173

4 Implementing Transactional Apps 175

4.1 Activating the SAPUI5 Component ... 176
4.2 Activating the OData Services ... 179
4.3 ABAP Front-End Roles ... 184
4.3.1 Copy Business Catalog Role ... 185
4.3.2 Start Authorization ... 186
4.3.3 Assign Roles to Users ... 191
4.4 ABAP Back-End Roles ... 192
4.4.1 Copy the Back-End Role ... 193
4.4.2 Assigning Roles to Users ... 193
4.5 Running the App ... 194
4.6 Custom Business Catalogs and Roles ... 195
4.6.1 Create a New Launchpad and Application ... 196
4.6.2 Create and Assign a Transport Request ... 199
4.6.3 Create a New Catalog ... 201
4.6.4 Create New Target Mapping ... 202
4.6.5 Add a Static Tile ... 204
4.6.6 Create the Custom Role and Add the Catalog ... 206
4.7 Summary ... 211

5 Implementing Fact Sheet Apps 213

5.1 App Activation Tool 214
5.2 Activating the SAPUI5 Component 218
5.3 Activating OData Services 219
5.4 Assign ABAP Back-End Roles 220
5.5 Creating Search Connectors 221
5.5.1 Create Connectors Manually 223
5.5.2 Create Connectors Automatically 225
5.6 Indexing Search Connectors 225
5.7 Running the App 228
5.8 Summary 230

6 Implementing Analytical Apps 231

6.1 Overview 232
6.2 Implementation Prerequisites 233
6.3 Analytical Apps with the SAP Smart Business Modeler 235
6.3.1 Create the KPI 235
6.3.2 Create Evaluations for the KPI 238
6.3.3 Configure the KPI Tile 242
6.3.4 Configure the KPI Drilldown 246
6.3.5 Assign Roles to Users to Access SAP HANA Data 254
6.3.6 Enable the App for Access in SAP Fiori Launchpad 257
6.3.7 Assign the App Using a Custom Role 261
6.4 Analytical Apps without the SAP Smart Business Modeler 270
6.4.1 Activate the SAPUI5 Application 271
6.4.2 Assign the SAP HANA Role 271
6.4.3 Assign the App-Specific Catalog Role 272
6.4.4 Add the App to SAP Fiori Launchpad 272
6.5 Summary 273

7 Creating OData Services with SAP Gateway 275

7.1 Introduction to OData 276
7.1.1 OData Service Basics 276
7.1.2 OData Service Queries 280
7.2 SAP Gateway Service Builder 283
7.3 Modeling an OData Service 288
7.3.1 Importing OData Services 290
7.3.2 Redefining OData Services 309
7.3.3 Include SAP Gateway OData Service 321
7.4 Summary 321

PART III Custom Development and Extension

8 Introduction to SAP Web IDE 325

8.1 SAP Web IDE Overview 325
8.1.1 Architecture 326
8.1.2 Advantages 327
8.2 Setting Up SAP Web IDE with SAP Cloud Platform 328
8.3 Development Process Overview 333
8.3.1 Create 334
8.3.2 Develop 340
8.3.3 Preview 348
8.3.4 Deployment 351
8.4 SAP Fiori Elements 356
8.4.1 Overview Page 357
8.4.2 List Report Floorplan 358
8.4.3 Object Page Floorplan 359
8.4.4 Exercise 360
8.5 Summary 367

9 Creating and Extending Transactional Apps 369

9.1 Creating Transactional Apps 369
9.1.1 Create a New Project Using a Template 370
9.1.2 Test the App with Mock Data 373
9.1.3 Deploy the App to the ABAP Back-End Server 375
9.1.4 Publish the App to SAP Fiori Launchpad 376

9.2 Extending Transactional Apps 380
9.2.1 Extend the SAP Business Suite Layer 383
9.2.2 Extend the SAP Gateway Layer 387
9.2.3 Extend the UI Layer 397

9.3 Summary 407

10 Creating and Extending Fact Sheet Apps 409

10.1 Enabling the SAP Web IDE Fact Sheet Editor App 411

10.2 Creating Fact Sheet Apps 412
10.2.1 Create the Search Model 412
10.2.2 Create the UI Layer 418
10.2.3 Deploy the Fact Sheet App 422

10.3 Extending Fact Sheet Apps 427
10.3.1 Extend the Search Model 428
10.3.2 Extend the UI Layer 439
10.3.3 Deploy the Fact Sheet App 454

10.4 Summary 455

11 Creating and Extending Analytical Apps 457

11.1 Introduction to SAP HANA Live 457
11.1.1 SAP HANA Live Views 458
11.1.2 SAP HANA Live Browser 459
11.1.3 Exposing SAP HANA Live Views to Analytical Apps 461

11.2 Creating Analytical Apps 462
11.2.1 Create the SAP HANA Live View 462
11.2.2 Create the OData Service 468
11.2.3 Configure the KPI 477

11.3 Extending Analytical Apps 483
11.3.1 Extend the SAP HANA Live View 483
11.3.2 Create the OData Service 490
11.3.3 Configure the KPI 490

11.4 Summary 490

12 Workflow and SAP Fiori 491

12.1 Workflow Basics 491

12.2 Creating Standard and Custom Workflows with the My Inbox App 492
12.2.1 Prerequisites 494
12.2.2 All Items Tile for My Inbox 496
12.2.3 Scenario-Specific Inbox 506

12.3 Summary 523

13 Integration with Other SAP Products 525

13.1 SAP Jam 526
13.1.1 Prerequisites 526
13.1.2 Configuration 527
13.1.3 SAP Jam Tiles 534
13.1.4 Collaboration Components 534

13.2 SAP BusinessObjects Lumira 536
13.2.1 Configuration 536
13.2.2 SAP BusinessObjects Lumira Tiles 539
13.2.3 Configure a KPI Tile with a Drilldown to SAP BusinessObjects Lumira 543

13.3 Integrating SAP BusinessObjects BI and SAP Fiori Launchpad 544
13.3.1 Configuration 545
13.3.2 Create an SAP Fiori App 548
13.4 Summary 554

14 Introduction to SAP Screen Personas 555

14.1 SAP Screen Personas 3.0 Architecture and Navigation 556
14.2 Creating Your First SAP Screen Personas Project 560
14.2.1 Create a Theme 560
14.2.2 Assign the Theme to a Role and Transaction 562
14.2.3 Create a Flavor 564
14.3 Advanced SAP Screen Personas Flavor Concepts 568
14.4 SAP Screen Personas Administrative Tasks 577
14.5 Deploying SAP Screen Personas Flavors in SAP Fiori Launchpad 579
14.6 Summary 580

Appendices 583

A SAP Fiori Client 585
B Customizing SAP Fiori Launchpad 593
C The Author 603

Index 605

Index

A

ABAP
- *class* ... 118
- *environment* ... 78
- *servers* ... 31, 155

ABAP back-end
- *component* ... 94
- *copy business role* ... 193
- *server* ... 45, 80, 123, 158, 175, 375, 382

ABAP Data Dictionary ... 292, 391

ABAP front-end
- *components* ... 494
- *server* ... 36, 44, 78, 89, 117, 120, 152, 153, 158, 175, 382

ABAP Repository ... 398, 406, 422

Action ... 264

Activate services ... 178

Add node ... 187

Add-on ... 94

Administrator role ... 127

Adopting reference ... 127

Aggregation ... 488

AJAX ... 57

All Stories ... 540

All Views tab ... 459

Analytical app ... 55, 173, 231, 232, 457
- *architecture* ... 56
- *creating* ... 462
- *extending* ... 483
- *nonsmart* ... 232, 270
- *prerequisites* ... 233, 461
- *SAP HANA layer* ... 483
- *SAP HANA Live* ... 461
- *SAP Smart Business modeler* ... 232, 235
- *UI layer* ... 483

Analytical view ... 461

Android ... 30, 47

ANNO ... 446

Annotation file ... 440, 447
- *edit* ... 455

Anonymity ... 43

Apache reverse proxy ... 153

API ... 57, 69, 340

App
- *information* ... 353
- *parameters* ... 262
- *registration* ... 355

Apple ... 46

Application ... 27, 125
- *access file* ... 472
- *alias* ... 198, 377
- *descriptor file* ... 472
- *details* ... 423
- *link* ... 595
- *parameter* ... 198
- *type* ... 197

Approve Purchase Orders app ... 337

Apps reference library ... 28, 88, 218, 270

Architecture ... 30

AS ABAP ... 58

AS Java ... 58

Association ... 280, 284

Atom Publishing protocol (AtomPub) ... 68, 276

Attachments ... 505, 591

Attribute
- *add* ... 432
- *view* ... 461

Authentication
- *process* ... 169

Authorization
- *change* ... 190
- *default* ... 114, 187
- *process* ... 169
- *roles* ... 114
- *start* ... 186

Available fields ... 447

B

Backend
- *database* ... 80
- *server* ... 31

BAdI 513
implementation 514
standard 513
user decisions 520
BAPI 73
Barcode scanner 585
Base class 393
Blue Crystal 595
Bootstrapped 66
BOPF 310
BOR 297, 298
Browser 30, 44
BSP application 409, 440, 455
Business 29
engine 312
function 130
Business Object Processing Framework (BOPF) 309
Business role
assign 191
copy 185, 193
custom 195
edit 187

C

Cache 585
Calculation view 462
activate 466
copy 464
create 464
sales order 462
Call browser 109
Catalog 185, 206, 263, 355, 378, 482, 531
create 201
group 588
ID 267
new 201
role 272
CB_SALES_ORDER_SRV 419
Central hub deployment 85, 496
Central User Administration (CUA) 170
Certificate request 162
Change Sales Order app 185, 195
Check Price and Availability app 185
Class load 58
Client 30, 44, 78, 155
Coherent 30
Collaboration 505
components 526, 534
Collections 70
Color palette 596
Comments 504
Communication channels 44, 152, 154
security 152
Comparison tile 243, 244
Component
download 99
version 92, 98
Conceptual Schema Definition Language (CSDL) 277
Configuration 108
scope 199
tile 538
Configure Drill-Down app 246
Conflicts 417
Connector 221, 434
automatic 225
manual 223
Connector Administration Cockpit 223, 410, 435
Consume 72
Consumer
layer 73
type 511
Contents 450
Controller 60
Create Sales Order app 176, 185, 194
Create, read, update, delete (CRUD) 70
CRUD 72, 179, 280
CSS 57
files 593
Custom
business catalog 195
role 206, 261
scope 199
view 260
Custom theme 594
overwrite 601
save and build 599
test 599
Customer Invoices app 185

D

Data
binding 60
model 71, 289, 318
replication 82
visualization tool 536
Data Model from File 290
Data Provider Base Class (_DPC) 393
Data Provider Class (DPC) 393
Data Provider Extension Class (_DPC_EXT) 287, 393
Data source 478
attribute 301
map 301
data-sap-ui-libs 67
data-sap-ui-resourceroots 67
data-sap-ui-theme 67
Days Sales Outstanding app 231, 232, 235, 266, 543
DDIC structure 292
import 294
Decimal precision 239
Decision
keys 513
text 513
Default language 128
Delightful 30
Delta indexing 225
Deployment 85, 122, 351
Design innovation 29
Destination 331
Development 333
Deviation tile 243
Dictionary objects 385
Dimensions 247
Discuss 535
Drilldown 239, 246
Dual tile 244
Dynamic
data 521
tile 204

E

Eclipse IDE 327
EDMX file 339, 341
Email 505
Embedded deployment 85
advantages 87
disadvantages 87
Embedded search 128, 223, 437
UI services 129
Embedded service
authorization 129
Enable 28
Entity 280
requests 281
sets 70, 277, 279, 285
types 279, 284, 297
Entity Data Model (EDM) 277
EntityContainer 279
Evaluation 238, 479
Event type 509
Existing Fact Sheet Application ... 410, 418, 440
Expert Theming 596, 598
Explore systems 95
Extension 338
class 393
points 398, 403
project 399
views 403, 487, 488
External service name 109

F

Facets 420, 444, 451
Fact sheet app 54, 133, 172, 409
ABAP back-end role 220
ABAP back-end server tasks 213
annotation file 446
architecture 55, 409
authorization 172
creating 412, 434, 435
deploy 422, 454
editor plugin 411
extending 427
implementation 213
run 228, 453

Fact sheet app (Cont.)
Sales Order app ... 427
SAPUI5 component ... 218
search ... 33
template ... 336
UI layer ... 439, 453
Filter ... 253, 503, 515
flavor ... 556
flavor editor ... 560
Flower ... 28
Full indexing ... 225

G

Gateway client ... 277
General section ... 520
Generic Interaction Layer ... 312
Generic role ... 116
GenIL ... 312
GetList ... 298
Git ... 327
Granted roles ... 256
Graphical user interface (GUI) ... 28
Group ... 265, 590
add ... 39
by ... 504
drag and drop ... 40
tile ... 534
GUI ... 111, 165

H

Hash ... 111, 112
key ... 182
Hierarchy ... 113, 178
HTML requests ... 44
HTML5 ... 57
HTTP ... 155, 160
connection ... 154
response ... 307
Human values ... 29
Hypermedia as the engine of application state (HATEOAS) ... 70

I

ICF nodes ... 109, 112
Identity Provider (IDP) ... 165
Images ... 597
Implementation ... 78, 122, 125
Implementing class ... 516
INA search request ... 44
Indexing ... 225, 436
clear ... 227
keep ... 227
real-time ... 227
Input parameters ... 241, 479
Installation ... 89
Instance profile ... 158
Integration ... 30, 525
Intent ... 202, 264
Internet Communication Framework (ICF) ... 161
Internet Communication Manager (ICM) ... 176
Internet-facing scenario ... 152
iOS ... 30

J

JavaScript ... 57, 60
jQuery library ... 57
JSON ... 60
Juno ... 328

K

Kepler ... 328
Kerberos/SPNego ... 163, 164
Key facts ... 420, 449
KPI ... 231, 232, 235
configure ... 477, 490
create ... 478
framework ... 135, 234
header ... 252
modeler ... 92, 135, 462, 477
modeling framework ... 56
parameters ... 237
tile ... 242, 482, 490
KPIs ... 51

L

Landscape ... 154
Landscape Planner ... 95
Launchpad ... 261, 426
new ... 196
role ... 196
LESS files ... 593
Lines of business (LOB) ... 27, 232
Lines of business (LOBs) ... 50
listSize ... 498
Load balancing ... 43
Local object ... 109, 392
Logon language ... 128

M

Mac ... 30
Maintain services ... 181
Maintenance Optimizer ... 95
Manage Products app ... 337
massAction ... 499, 502
Master-detail app ... 339
Microsoft Active Directory ... 164
Mini chart ... 253
Mobile app ... 585
Mock data ... 349, 373
Model ... 59, 224
composition ... 289
edit ... 429
enhance ... 429
node ... 430
properties ... 430
Model Provider Base Class (_MPC) ... 287, 393
Model Provider Extension Class (_MPC_EXT) ... 287, 393
Model-view-controller (MVC) ... 59
Modification Free Fact Sheet Application ... 440, 444
Multiselect ... 502
MVC
concept ... 59, 60
My Inbox app ... 96, 97, 491, 492
All Items ... 496, 501
architecture ... 493
common issues ... 500
My Inbox app (Cont.)
prerequisites ... 494
release information ... 495
My Marketing Budget app ... 52
My Quotations app ... 170, 382, 397

N

Namespace ... 197
Navigation
properties ... 284
section ... 521
target ... 448
neo-app.json ... 446
Network layer ... 152
New ... 28
field ... 433, 452, 489
project ... 388, 468
view ... 489
New Extension Project
method ... 334
option ... 338
New Fact Sheet Application ... 418, 441
New Project from Sample Application ... 336
method ... 334
New Project from Template ... 64, 335, 339, 370, 440
method ... 334
News tile ... 204
Notification tile ... 534
Numeric tile ... 242

O

Object
method ... 508
navigator ... 384
OData ... 68, 160, 175, 179, 276, 483
activate service ... 179, 304
add service ... 305
advantages ... 69
artifact ... 390
consume service ... 70
custom service ... 401
generate service ... 315
import service ... 290

OData (Cont.)
model ... 60
model service ... 288
redefine service ... 309, 389
register service ... 303, 394
requests ... 44, 80
SAP HANA Live view ... 461
service ... 45, 82, 186, 213, 219, 275, 311, 313, 321, 369, 438, 468, 473
service basics ... 276
test service ... 306, 394, 476
Online Text Repository (OTR) ... 445
Open Data Protocol (OData) ... 68
OpenAJAX ... 57
Operational performance indicators (OPIs) ... 233
Orion ... 327

P

Package ... 384, 389, 462
definition ... 463
select ... 471
Partner structure ... 385
Password ... 164
Personal Security Environment (PSE) ... 157
PFCG role for business catalog ... 185
Ping Federate ... 165
Predefined task list ... 137
Prerequisites ... 77
Preview ... 348, 596
Private view ... 459, 461
Product System Editor ... 95
Products ... 72
Product-specific UI ... 83
Profile ... 126
Profit Analysis app ... 231, 270, 273
Project
activate ... 475
create ... 297
properties ... 446
using a template ... 370
project.json ... 446
Properties ... 448
add ... 499
Propose mapping ... 301
Protocol ... 153
Prototyping ... 73

Q

Quality of Protection (QOP) ... 160
Query view ... 459, 461
extension ... 488
Quick Theming ... 596
quickAction ... 499

R

Raw data ... 467
Redefinition ... 288
Refresh ... 502
Registered Model (_MDL) ... 287, 393
Registered Service (_SRV) ... 287, 393
Release Campaigns app ... 52
Renew ... 28
Representational State Transfer (REST) ... 69
Resource identification ... 70
Responsive ... 29
REST ... 68, 72, 275
Reuse view ... 459, 461, 488
Reverse proxy ... 31, 42, 152, 155
server ... 80
RFC
connection ... 45, 123, 154, 159
generation ... 288
RFC/BOR interface ... 295
Risk category ... 438, 452
Role-based ... 29
Roles ... 426
administrators ... 537
assign ... 486
change ... 207
copy ... 186
end user ... 537
maintenance ... 126
technical ... 536
template ... 126
Runtime
artifacts ... 286, 318
objects ... 302, 392

S

Sales Order app ... 222, 228, 589
Sales Order Fulfillment app ... 273
Sales Order Tracker app ... 379
SalesDistrict ... 488
SalesOrderQuery ... 487
SAML ... 163
authentication ... 166
Sample application ... 337
SAP Advanced Planning and Optimization (SAP APO) ... 107
SAP Analytics Foundation ... 107
SAP Basis ... 139
SAP BEx query ... 314
SAP Business Process Management (BPM) ... 493
SAP Business Suite ... 55, 56, 77, 79, 170, 483
integration ... 123
layer ... 73, 380
powered by SAP HANA ... 232
SAP Business Warehouse
query ... 312
SAP Business Workflow ... 491–493
SAP BusinessObjects Design Studio ... 233, 545
SAP BusinessObjects Lumira ... 536, 540
configuration ... 536
configuration tile ... 538
KPI tile drilldown ... 543
stories ... 536
tiles ... 539
SAP BusinessObjects Lumira Cloud ... 536
SAP BusinessObjects Lumira Server ... 536
SAP Cloud Platform ... 36, 58, 326, 329, 351
SAP Cloud Platform cloud connector ... 327, 331
SAP Cryptographic Library ... 157
SAP Customer Relationship Management (SAP CRM) ... 106
SAP Enterprise Portal ... 36
SAP Enterprise Search ... 428
SAP Enterprise Warehouse Management (SAP EWM) ... 107
SAP ERP ... 106, 396
SAP Event Management (SAP EM) ... 106
SAP Financial Closing Cockpit (SAP FCC) ... 106
SAP Fiori ... 77
app ... 586
apps reference library ... 88
architecture ... 30, 457
basics ... 27
communication channels ... 44
configuration ... 77
history ... 27
installation ... 77
integration ... 30
landscape ... 154
name meaning ... 28
related technologies ... 57
SAP ERP apps ... 93
security ... 151
supported browsers and OS ... 45, 47
template ... 370
timeline ... 50
user roles ... 51
UX design principles ... 29
workflow ... 491
SAP Fiori Client ... 585
download and login ... 586
functions ... 588
security ... 591
tips ... 588
SAP Fiori launchpad ... 30, 32, 108, 111, 139, 151, 170, 176, 235, 246, 272, 407, 477, 481, 526
add tiles ... 520
architecture ... 593
change theme ... 41
custom theme ... 33, 594
customization ... 593
deployment ... 36
designer ... 426, 498
embedded search ... 128
features ... 37
homepage ... 32, 37
implementation ... 37
keyboard shortcuts ... 42
login screen ... 117, 120
My Inbox app ... 499
publish app ... 376
responsiveness ... 35
search ... 33
user options ... 590

SAP Foundation (SAP FND) 107
SAP Gateway 36, 68, 79, 85, 122, 139, 170, 171, 175, 177, 234, 275, 319, 327, 494
architecture 73
capabilities 72
component version 90
integration 123
layer 73, 380
SAP Business Suite 73
SAP Gateway client 395
SAP Gateway Service Builder 275, 283, 388
SAP Governance, Risk and Compliance (SAP GRC) 106
SAP HANA 55, 78, 80, 165, 167, 173, 254
application development platform 74
Application Lifecycle Manager (HALM) 234
data modeling 462
database 31
role 271
server 106, 234
view 237
SAP HANA Client 462
SAP HANA cockpit 326, 339
SAP HANA Live 74, 78, 84, 106, 457
advantages 461
extend view 483
extensibility tool 483
package 457
views 108, 458, 462
SAP HANA Live Browser 107, 459
SAP HANA Studio 134, 255, 462
extensibility tool 483
SAP HANA XS 31, 43, 45, 74, 77, 105, 153, 161, 175, 457, 461
analytical apps 74
architecture 81, 84
build apps 74
engine 58
project 469
SAP Jam 340, 493, 526
collaboration components 534
tiles 534
SAP logon ticket 163, 167
SAP Maintenance Planner 95–97
SAP Marketplace 98
SAP Mobile 587
SAP NetWeaver 494
component 90
version 91
SAP Product Lifecycle Management (SAP PLM) 107
SAP S/4HANA Finance 107, 232
SAP Screen Personas 28, 555, 557
SAP Screen Personas Administration 577
SAP Smart Business 234
app 232
component 84
framework 136
SAP S/4HANA Finance 232
SAP Smart Business Modeler 134, 136, 231, 257, 457
SAP Software Download Center 99
SAP Transportation Management (SAP TM) 107
SAP UX strategy 28
SAP Web Dispatcher 31, 42, 54, 80, 105, 152, 153, 155, 161, 234, 478
capabilities 43
uses 43
SAP Web IDE 61, 325, 326, 369, 399, 439, 443
advantages 327
create 334, 335
deployment 351
development 333, 340
environment 325
import an application 338
local version 61
preview 348
SAP Cloud Platform 328
SAP_ESH_LOCAL_ADMIN 222
SAP_ESH_SEARCH 222
sap.ui.ControllerExtensions 405
sap.ui.viewExtensions 405
sap.ui.viewModifications 405
sap.ui.viewReplacements 405
SAPUI5 ..... 28, 57, 161, 271, 327, 335, 593
ABAP Repository 338
application 177
architecture 58
build app 67
component 218

SAPUI5 (Cont.)
control library 175
create app 64
data binding 60
features 57
layer 381
preview 68
script 66
sapUshellTileColor 598
Scaling factor 239
Scenario definition 511
Scenario-specific inbox 506
Schedule indexing 435
Scope 151
Scripting 568
Search 33, 40, 502, 589
Search and analytics modeler 410, 412, 413, 416, 428
Search connector 173, 221, 413, 428
indexing 225
Search for Software 99
Search help 295, 296
Search model 221, 409
create 412
extend 428
software components 412
Secure
network layer 158
protocol 160
Secure Network Communications 154
Secure Sockets Layer (SSL) 154
Security 43, 124, 151
session protection 161
Security Assertion Markup Language 165
Self-service scenarios 50
Semantic 264
layer 488
object 238, 378, 550
Service
catalog 306
development 288
document 277, 278
generation 288
implementation 286, 289
maintenance 287, 289, 304
metadata document 277
Share 505
dialog 535
Shop app 337
Simple 30
Simulator 349, 350
Single sign-on 158
SNC 159
connection 160
snc/enable 159
snc/gssapi_lib 159
snc/identity/as 159
snc/r3int_rfc_secure 159
Social media
catalog 525, 530, 533
tile 526
Social Media Integration (SMI) 526
Social timeline 534
Software components 412, 415
customer-specific 415
Software-as-a-service (SaaS) 36
sortBy 499
Sorting 503
Source code editor 450
SSL encryption 43
SSO 163, 169
authentication 167
Standard view 465
Static tile 204
Story 542
Subscription 329
Support package 98
download 101
upload 101
Support Package Manager 98
System
alias 125, 126, 495
status 91
tracks 95

T

Table
TADIR 188
USOBHASH 111
Target 203, 479
mapping 202, 264, 378, 426, 427

Task 139
consumption model 493
decision 512
definition 512
list 168
processing 497
quotation 513
Technical service name 180
Technology 29
Template 336, 420, 440, 441
create project 370
theme editor 560
Theming 57
Threshold 480
Tiles 525
activate and configure 479
All Items 522
All Stories 539
catalog 38, 39, 267, 532, 539
configuration 354
format 245
KPI Drilldown 539
new 379
parameters 245
remove 38
static 539
Track Sales Order app 185
Transaction
/IWFND/MAINT_SERVICE 108, 179, 276, 304, 319, 394, 497
ESH_COCKPIT 221, 435
ESH_MODELER 412
ESH_SEARCH 227, 437
LPD_CUST 196, 376
PFCG (Role Maintenance) 114, 126, 135, 172, 185, 191, 193, 206, 257, 267, 531, 538, 552
RZ10 158
SAINT (SAP Add-On Installation Tool) 98
SBWP 501
SE01 199
SE11 (ABAP Dictionary) 382
SE16 ..... 111, 182
SE18 513
SE80 (ABAP Object Navigator) 382, 384, 413, 424, 454
Transaction (Cont.)
SEGW (Gateway Service Builder) 283, 297, 382
SICF (Maintain Services) 112, 117, 120, 128, 376, 496
SM59 ..... 123, 159
SMT1 124
SPAM 101
SPRO 122, 512
STC01 (ABAP Task Manager) 137, 225
STC02 138
SU01 ..... 116, 130, 193
UI5/THEME_DESIGNER 594
UI5/THEME_TOOL 594, 599
VA23 396
Transactional app 53, 105, 172, 369
ABAP back-end roles 192
ABAP front-end roles 184
architecture 381
components 54
create 369
deploy 375
details 375
extend 380–382
OData services 179
prerequisites 175
publish 376
run 194
SAPUI5 component 176
template 336
test 373
Transport Layer Security (TLS) 154
Transport request 199, 414
Trend tile 243

U

UI
add-on 79
control library 57
development toolkit 57
UI Theme Designer 33, 593, 595
options 596
transaction code 594
UI Theme Repository 594
Uniform Resource Identifier (URI) 69

Union 488
Universal Work List (UWL) 492
URI 276, 277, 308
URL rewriting 161
User 269
authentication 163
authorization 169, 170
experience 27
maintenance 116, 134
management 169
mapping 167
role 193
USOBHASH 182
UX 27
benefits 29
design principles 29
design services 29
strategy 28

V

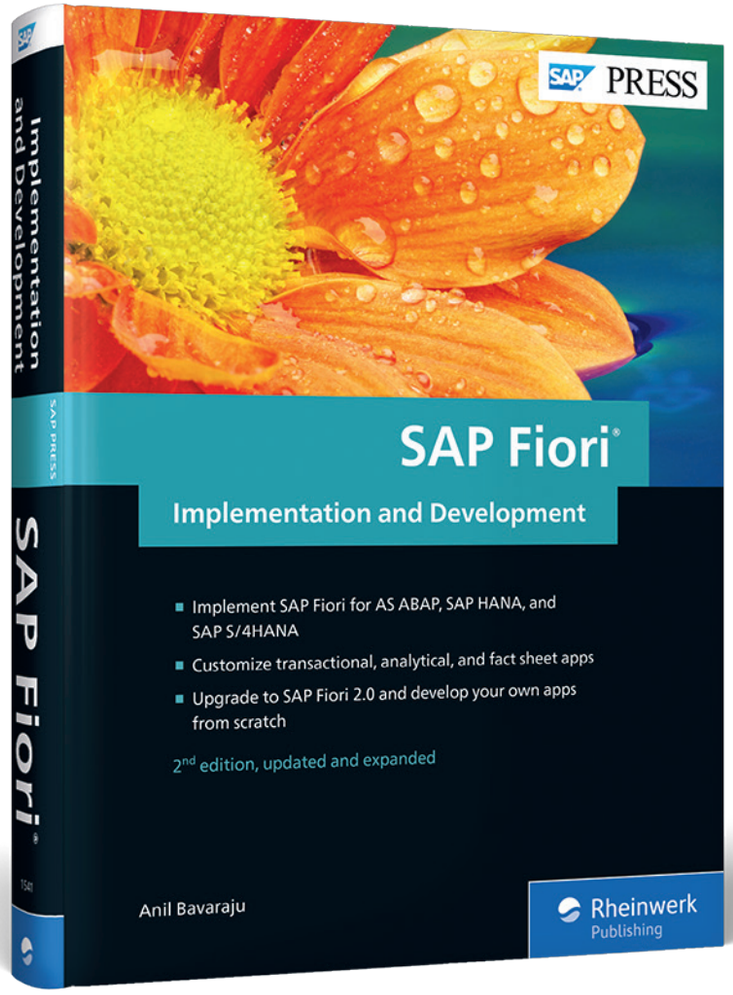
Value measure 478
Values help view 459
Variant 240
Views 60
create 482
extend 404
replace 488
Virtual data model (VDM) 31, 74, 106, 231, 457, 458, 461
reuse content 57
Visualization 249

W

Web
acceleration 43
browser 153
Web application
firewalls 43
security 43
Web Dynpro 73, 133
What you see is what you get (WYSIWYG) 340, 593
Windows 30, 45
Workflow 491
basics 491
builder 507, 508
custom 492
ID 512
scenarios 510
standard 496
template 492, 506
Workspace 470

X

X.509 certificate 168
XML 60
code 454
view 404
XSL Transformation (XSLT) 454



Anil Bavaraju has been working with SAP enterprise software since 2004, specializing in SAP Fiori, SAPUI5, SAP HANA, and SAP BusinessObjects BI products. His current focus is on SAPS/4HANA and SAP Fiori at his consulting company. Over the past three years, he has had the opportunity to help several clients implement SAP Fiori on SAP S/4HANA, and on SAP Business Suite as well. He has experience in managing development teams, as well as architecting, developing, and deploying highly scalable and available systems, acquired while working on global enterprise implementations for large, multinational companies. He is an SAP Certified Solution Consultant for SAP Business Intelligence, and an SAP Certified Application Associate for SAP HANA. You can follow Anil on Twitter at @anilbavaraju or connect via LinkedIn at https://www.linkedin.com/in/anilbavaraju.

Anil Bavaraju

SAP Fiori Implementation and Development

615 Pages, 2017, $79.95
ISBN 978-1-4932-1541-6

www.sap-press.com/4401