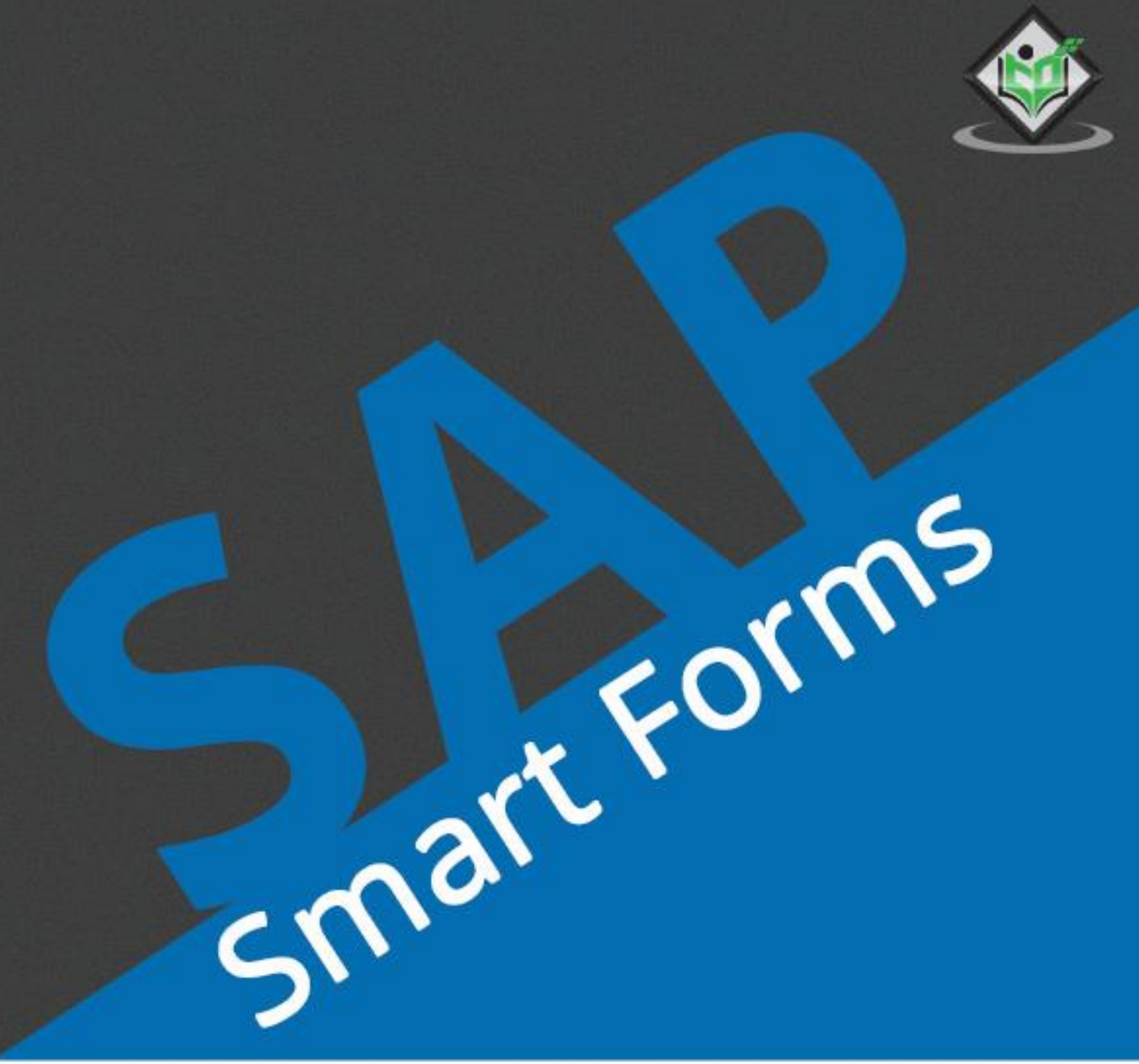

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About the Tutorial

SAP Smart Forms is a feature provided in SAP system for printing of forms and to send those forms over the Internet, Email, Printer or to a Fax machine.

This includes Forms from different SAP Modules such as – Customer Relationship Management, Sales and Distribution, Human Resource Management or any other module in SAP ERP System. Smart Forms in a SAP System is an advanced feature on top of the SAP Script Forms. It can be developed without any programming language using a GUI (graphical user interface).

Audience

This tutorial is prepared for those professionals who have a basic knowledge of the SAP System and SAP Scripting. After completing this tutorial, you will find yourself at a moderate level of expertise in creating Smart Forms and integrating them with different output formats.

Prerequisites

Before you start proceeding with this tutorial, we assume that you are well-versed with basic SAP Scripting concepts. You should have a good exposure to different Form types and SAP Scripting functions. If you are not aware of these concepts, then we recommend that you first go through our short tutorials on Scripting.

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1. SAP Smart Forms – Overview

You can design and print forms in a SAP System using the **Smart Form Technology**. Your ABAP program calls a smart form and then to print, spools are generated. You can embed texts, images and other elements like barcodes in smart forms. SAP Smart Forms is an advanced version of SAP Script Forms and replaces scripting in a SAP system for form printing and integrating the output in an HTML format.

You can use different output formats in a Smart Form, some of these include –

- Printing
- Email
- Fax or
- Sending it over the internet in a HTML/XML output format.

A Smart Form tool allows you to modify forms by using simple graphical tools instead of using any programming tool. This means that a user with no programming knowledge can configure these forms with data for a business process effortlessly.

In a Smart Form, data is retrieved from static and dynamic tables. The table heading and subtotal are specified by the triggered events and the data is then sorted before the final output. A **Smart Form allows you to incorporate graphics** that can be displayed either as a part of the form or as the background. You can also suppress a background graphic if required while taking a printout of a form.

The SAP Smart Forms have been surprised with the use of interactive forms from Adobe.

Some examples of this standard Smart Forms available in a SAP System are as follows –

- **SF_EXAMPLE_01** represents an invoice with a table output for flight booking for a customer.
- **SF_EXAMPLE_02** represents an invoice like SF_EXAMPLE_01, but with subtotals.
- **SF_EXAMPLE_03** specifies an invoice like SF_EXAMPLE_02, but one in which several customers can be selected in an application program.

SAP Smart Forms vs SAP Script

SAP Scripting is in use since the 1980's. However, the Smart Form concept was started in year 2001. Smart Forms have surprised Scripting Forms in SAP.

Following are the key differences between them:

- In SAP Scripting, you must write the print program. However, in a Smart Form it is not required to write a print program.
- SAP Scripts are client dependent. However, Smart Forms are client independent.
- You can create Smart Forms without using the main window. However, it is not possible with the use of Scripts.

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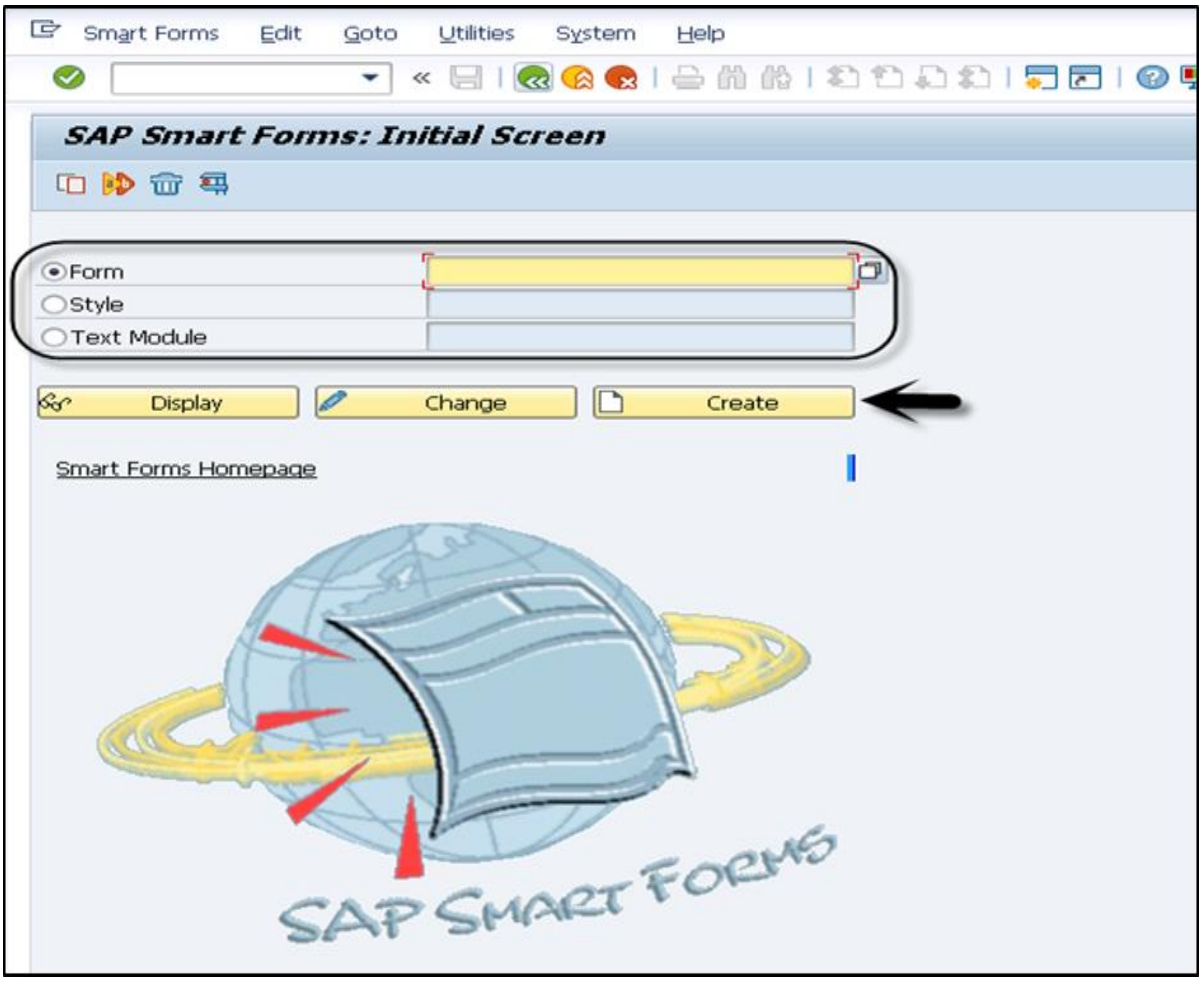
- In SAP Scripting, you can use up to 99 main windows. However, in a Smart Form it can have one main window.
- When you activate Smart Forms in a SAP system, it generates the function module. However, it is not generated in case of Script Execution.
- It is also possible to create and design web forms using Smart Forms, but you cannot design web forms using script.
- The Smart Form concept is completely based on Graphical User Interface. However, scripting includes some programming.
- You can create, change and display a smart form using Transaction **SMARTFORMS**. To style the smart forms, you can use Transaction **SMARTSTYLES**. To write a SAP Script, use **Transaction Code: SE71** to open form painter and **SE72** to add different style of texts and font in the Script Forms.
- It is possible to maintain background graphics using Smart Forms, but not possible with SAP scripting.

To design a smart form layout in a SAP system, use Transaction Code: **SMARTFORMS**



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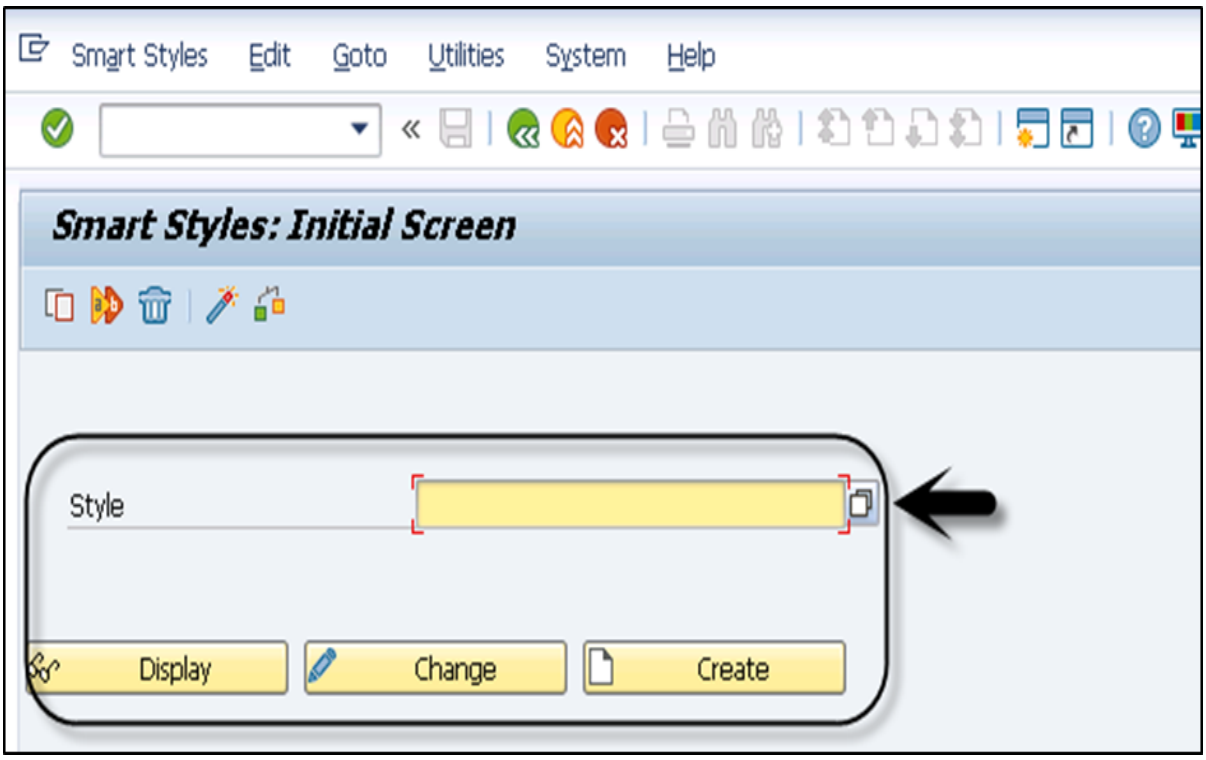
To Style the smart form, use Transaction: **SMARTSTYLES**.



SAP Smart Forms – Uses

The Smart Forms have many advantages over Scripting. These include easy to design graphical user interface, use of dynamic text frames and table structure.

Below are the benefits of using Smart Forms:

- It doesn't require any programming knowledge to design smart forms as it is based on graphical tools. This allows power users to design the smart forms in a SAP system and experts are required only in special cases.
- When you activate smart forms, it automatically generates function modules at the runtime.
- You can add background graphics to smart forms which can be displayed as a part of the form.
- You can display table structures and dynamic text framing using smart forms. You can use SMARTSTYLES to add colored texts, images, barcodes, etc.
- You can generate output in HTML format with release 6.10.
- It is easy to make changes to the existing smart forms using drag/drop or cut/paste feature. This doesn't required you to enter script coding for making changes.
- You can convert SAP Script forms to smart forms but vice versa is not possible.

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SAP Smart Forms – General Concept

In a SAP System, form printing means creating and designing layout of the form for mass printing. This involves form structure, design and layout and form logic for dynamic formatting. The form layout tells the structure of the form like – number of different structure pages and use of tables, paragraphs and character formats to format text in the form.

The dynamic formatting of the form depends on the form logic that allows you to add the conditional text in the form layout, which is displayed only when a certain condition is met. You can define variable fields as per the condition type – first dunning use this text and second dunning use other text and so on to process dynamic formatting.

Different form types can be created in a SAP System using smart forms and you can add conditional text and different layouts as per the requirement.

- Invoices
- Account Statements
- Salary Statement
- Quality Forms
- Checklist
- Order Processing
- Order Confirmation
- Delivery notes and many more

In the next chapter, we will discuss in detail about the architecture of SAP Smart Forms.

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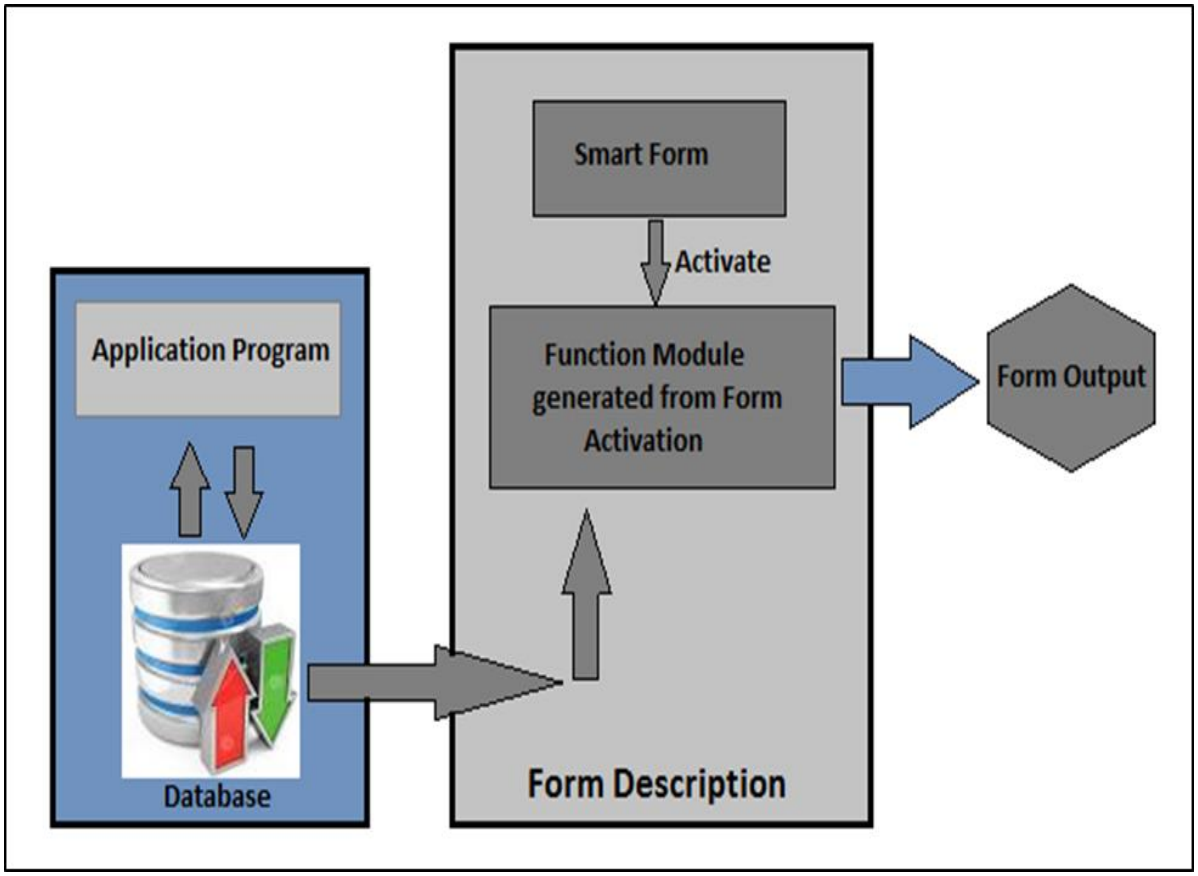
2. SAP Smart Forms – Architecture

In a SAP Smart Form, you have multiple components where application data is different from form definition. When a smart form is activated, a function module is generated and data is retrieved from the database.

In a SAP smart form, the following components are used:

- **Form Layout:** The form layout defines the position of elements on the pages and where the objects will be displayed in the form output.
- **Form Logic:** Form logic defines the data to be read from the database, to define the condition and to control the flow of the form output.
- **Individual Elements:** It includes the elements to be displayed in the form output. Common element types are: Text, Table, Graphics, etc.
- **Form Interface:** A form interface in SAP smart form is used to transfer the application data to form definition.



In the above image, you can see the **Smart Form Architecture**. When a smart form is activated, a function module is generated. When application program calls the functional module, the module interface is used to transfer the table data as per the form description and to print the form.

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You can also embed statements in the form description to select the data for form processing. But, this is not recommended when you have to print the mass forms results performance degradation.

It is also possible to print the data as tables on the form and to be merged with the application data with the smart form. A single call to a smart form always generates one form for printing. A different output type can always be selected such as – Fax, Print, email or in HTML/XML format to a web browser.

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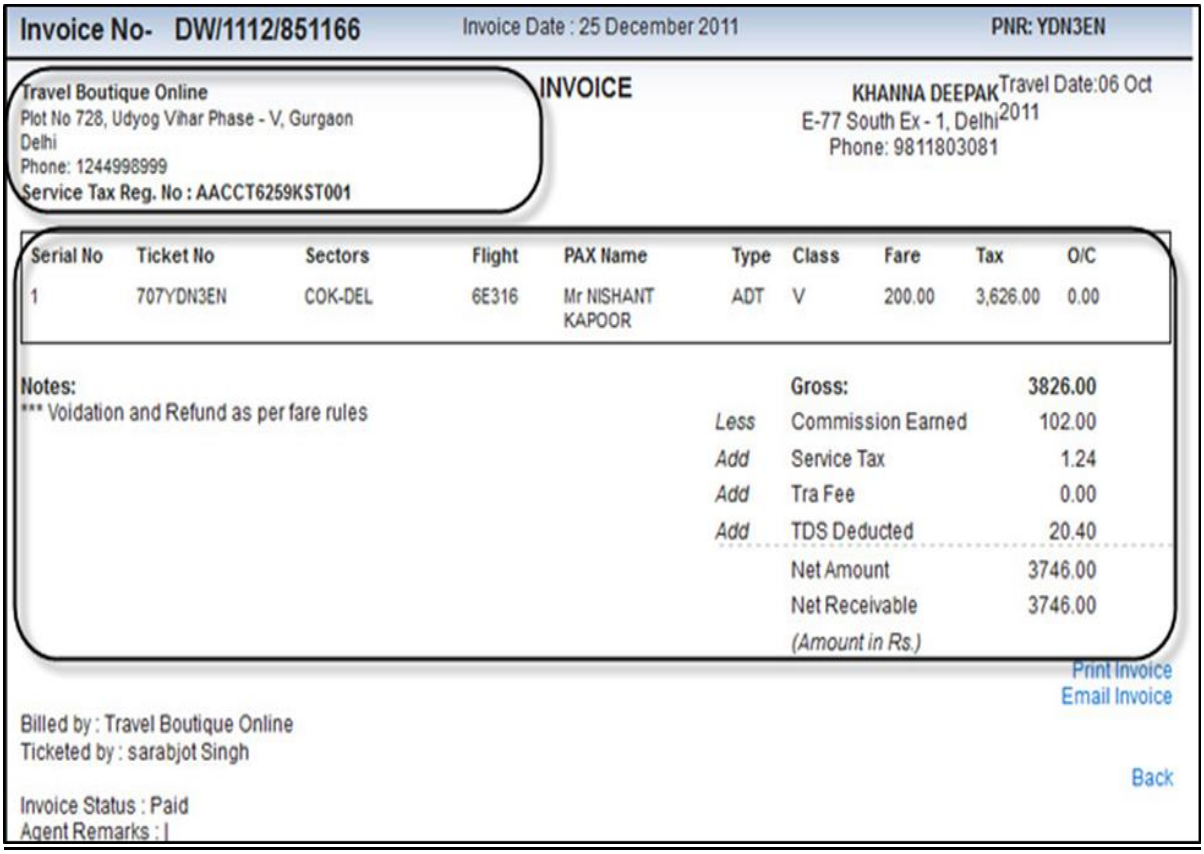
3. SAP Smart Forms – Structure

A smart form consists of multiple pages. There are different graphics such as the header and company logo, while output areas and text to be displayed is in the output. You can use the dynamic table structure to show the data or texts in the column, cell format, etc.

A common smart form example is a customer invoice for flight booking. The price details with the flight booking is shown in the table in the main window and other windows contain different elements like the company name logo, address of the customer and other company or customer specific details.



The first page of the flight booking invoice contains booking company details, customer letter if any and a table containing number of booking items. The table type is dynamic and its length depends on the number of booking items in the table. The table header includes column headings –

- Serial number
- Ticket number
- Sectors
- Flight name or number
- PAX (passenger/s) name, etc.

While the table footer contains – the amount in Rupees, Net amount, etc.

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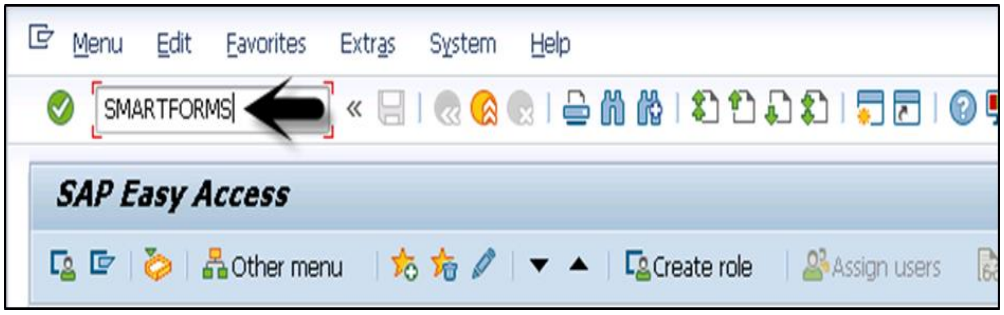
When the table continues to the second page due to more number of items, the table header and footer repeats on the next page as well. The page layout of this smart form defines the page structure as A4, while A5 is the position of windows with data to be displayed on each page.

SAP Smart Forms – Screen Navigation

To design a new smart form or to change or display an existing smart form, you should use the Transaction: **SMARTFORMS**.

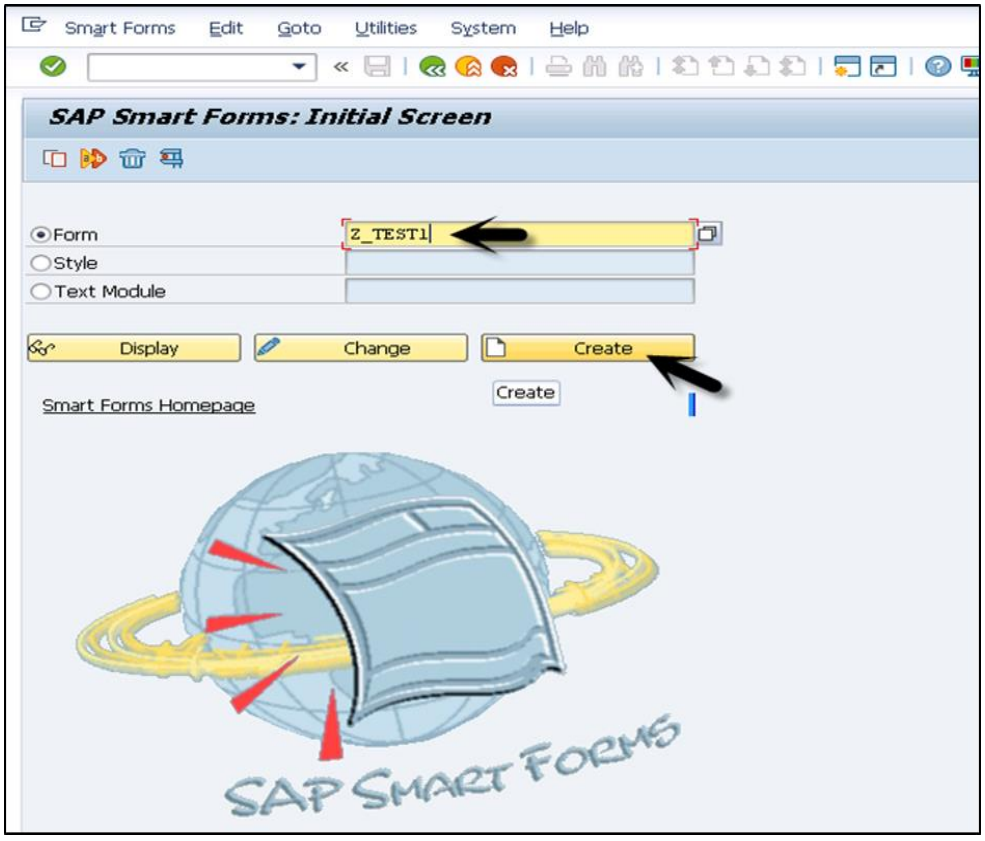
Enter the Transaction as shown in the screenshot below:



On the home screen, you can see three different tabs:

- Change
- Display
- Create

Enter the Form name and click on the Create button as shown in the following screenshot:



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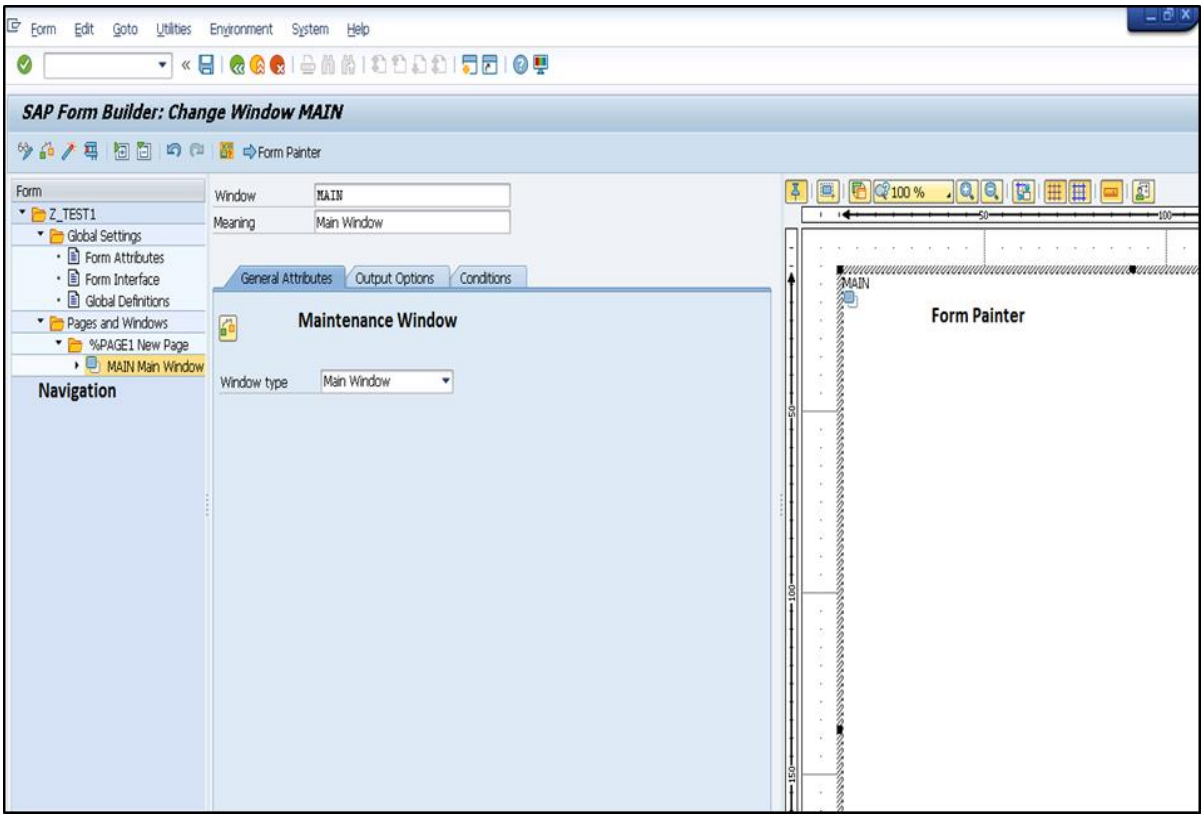
When you click on the Create button, this will open the **SAP Form Builder** screen which is divided into three parts:



On the left side, you have a **Navigation Window**. This window contains all the elements such as – text and graphics, which are part of a SAP Smart Form. You can see the hierarchy of nodes and sub-nodes under the Navigation pane.

In the middle, you have a **Maintenance Window**. This window is used to set the attribute value of each element in a smart form. You can define Output Options such as:

- Position and Size (Left Margin, Upper Margin, Width, and Height)
- Box and Shading
- Frames
- Shading, etc.

The Preview and Conditions tab includes – Field Name and Comparison Value.

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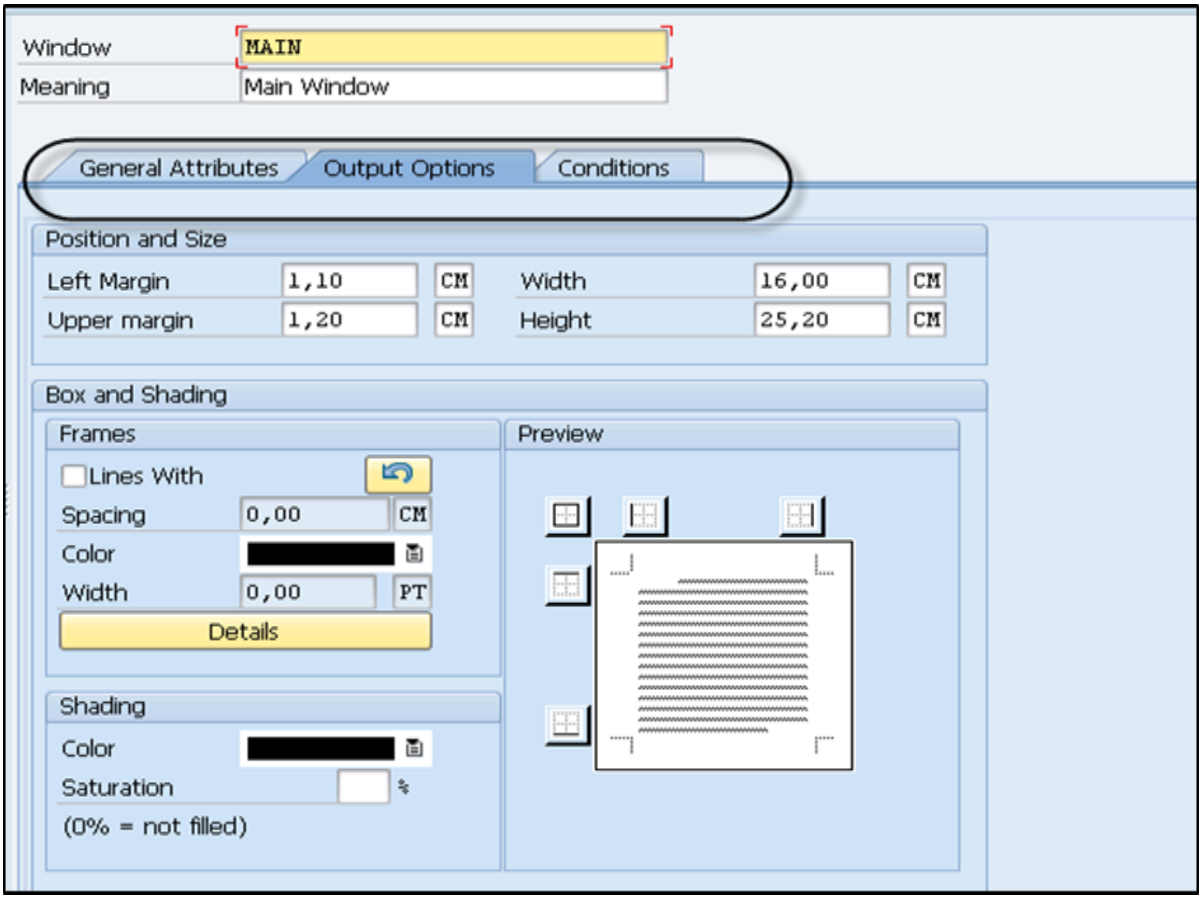

On the right side, you have the **Form Painter**. A Form Painter defines the layout of the page in a SAP smart form. When you create a smart form in a SAP system, a functional module is generated. Under the Navigation pane, you have to two folders by default in each form, these are:

- Global Settings
- Pages and Window

Let us now discuss both these folders in detail.

Global Setting

It contains the global settings of the smart form, such as:

- Form Attributes
- Form Interface and
- Global Definitions

In the Form Interface, you can see all the data passed to the smart form from the print program. While, the Global Definition contains the data that can be used throughout the smart form.

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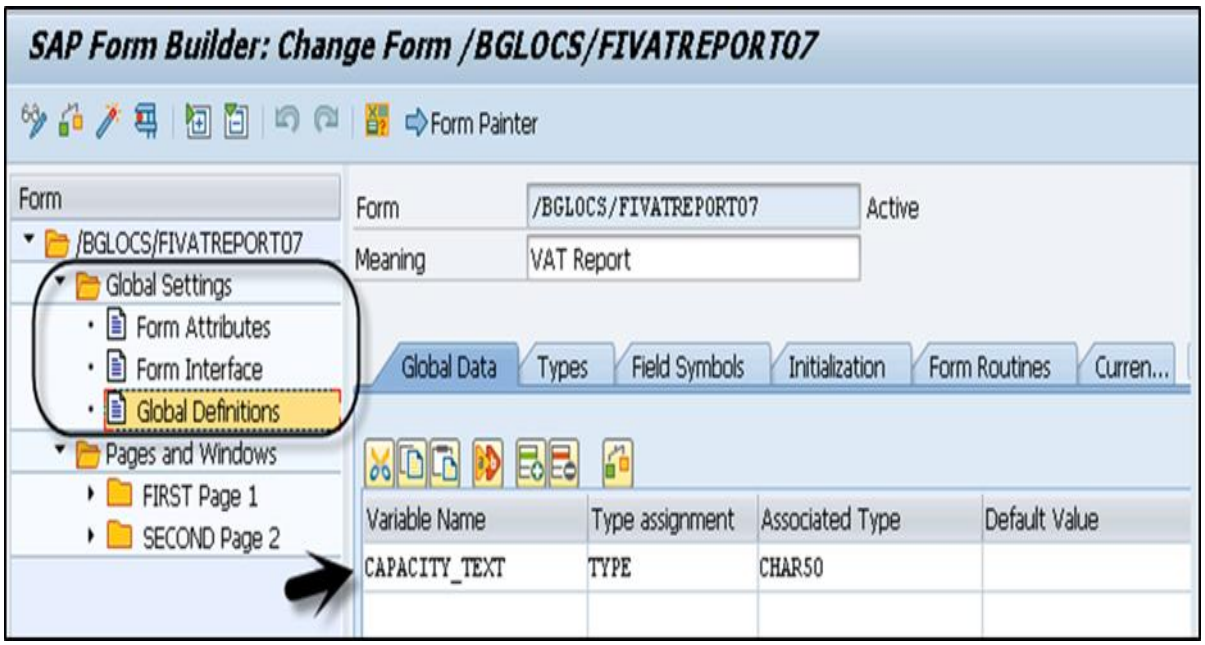
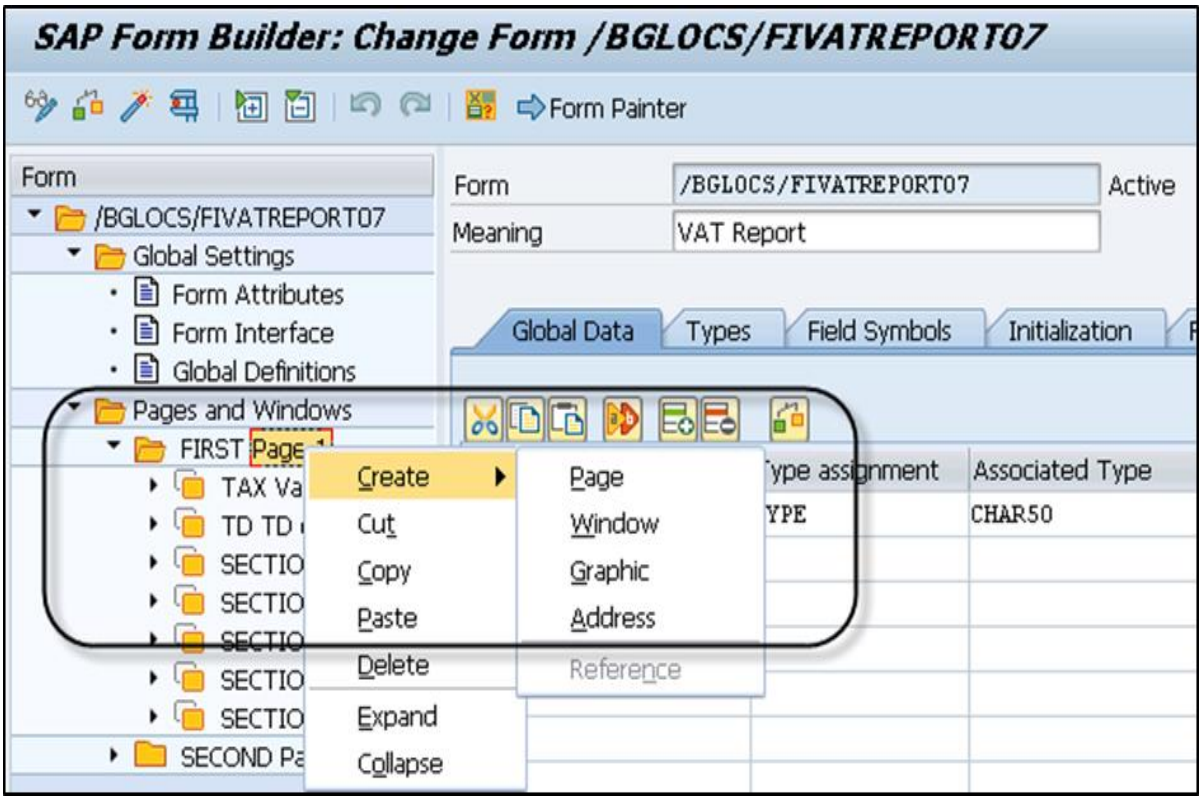


Pages and Window

Using Pages and Window, you can create new objects, such as:

- Page
- Window
- Graphic
- Address



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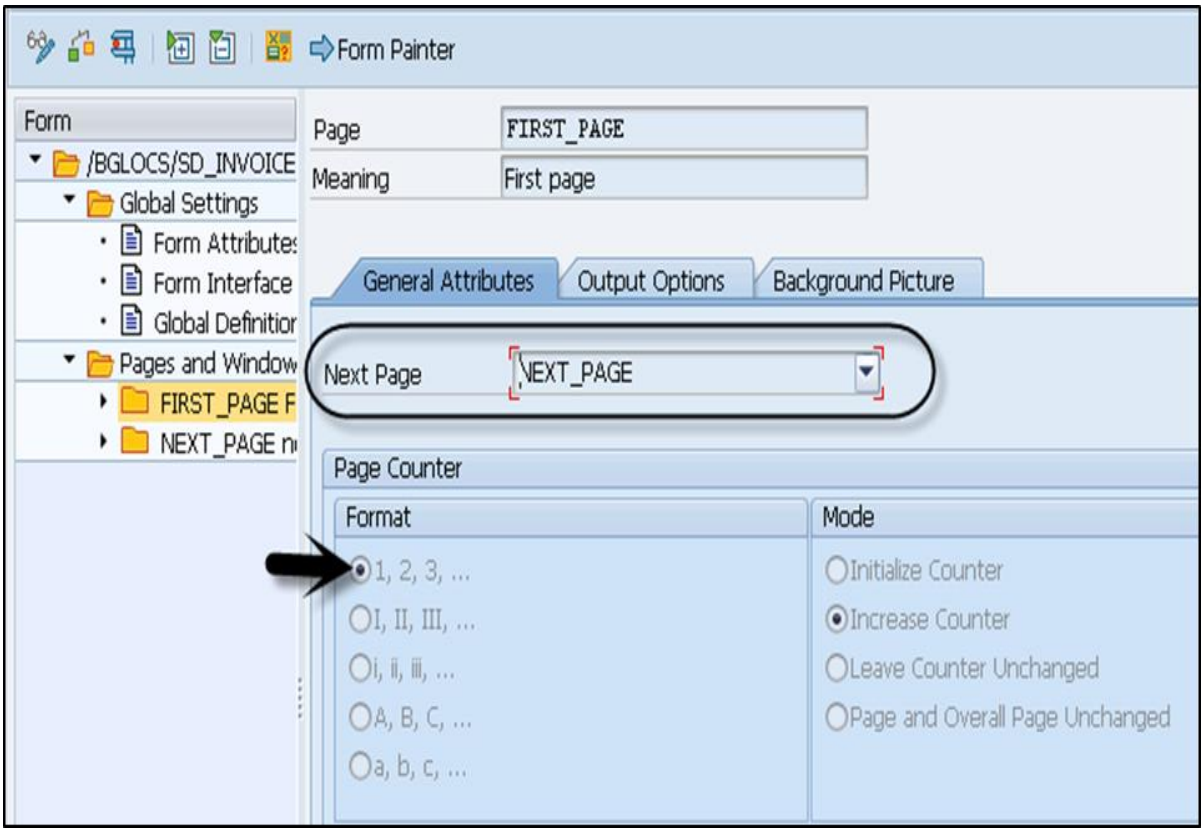
The printing of a smart form takes place as per the next page field. While, the processing of a smart form depends on the sequence defined under the Navigation pane.



SAP Smart Forms – Pages of Form

In any SAP Smart Form, you can define different page layouts for each page. A Page Layout defines the page format, some of its options are –

- Landscape
- Portrait
- A4 Size
- A5 Size, etc.

You can have a different structure for each page in a smart form. As an example, the first page can contain address, about company, logo, terms of business or any other information that should come on the first page.

In a smart form, you need to define the next page for each page and a clear page sequence. You can also call the same page multiple times to make the output recursive. The page break is defined in the form logic using manual coding or you can also define it via the main window and the sub window.

Each page contains two types of output areas, which are – Main window and Sub window. These windows can be placed anywhere on the page and you can even overlap them. A single window can be used on multiple pages.

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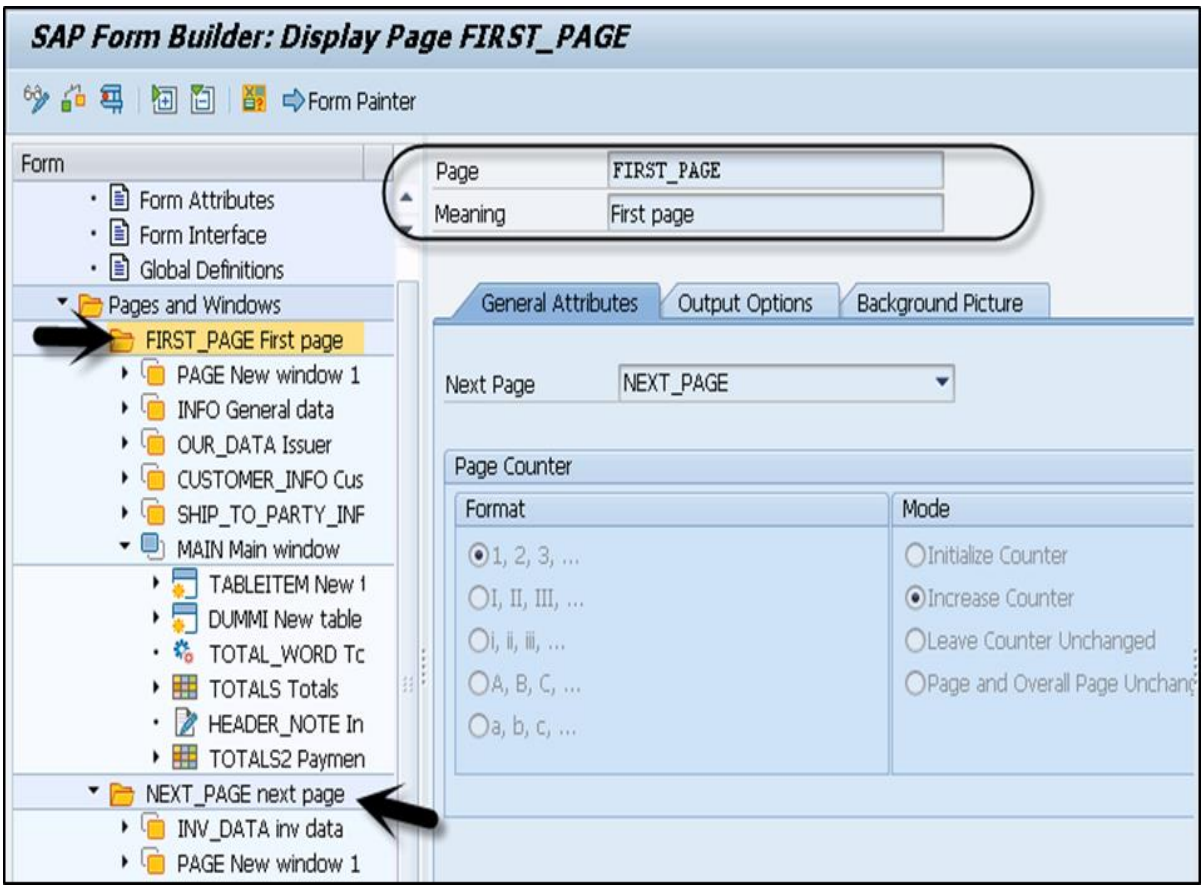

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