

Introduction to ABAP

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Agenda

- I. Introduction to SAP**
- II. Introduction into ABAP**
- III. Transport Concept**
- IV. Development Prerequisites**
- V. Using Help**
- VI. Development of a first application**
- VII. Control Questions**

I. Introduction to SAP

SAP SE

- Market leader in enterprise application software
- About 82.400 employees (about 19.000 software developers)
- 335.000 customers in 190 countries
- SAP Software Portfolio:

Source: <http://go.sap.com/corporate/de/company.html> (01.12.2016)



Source: Following SAP SE

I. Introduction to SAP

SAP Netweaver

- Netweaver = platform to support various SAP applications
- Nearly every SAP system is based on the SAP Netweaver Application Server
- Different Netweaver runtimes: ABAP, Java, ABAP+Java (Dual Stack)
- Examples of SAP applications:

SAP ERP – Enterprise Resource Planning

SAP CRM – Customer Relationship Management

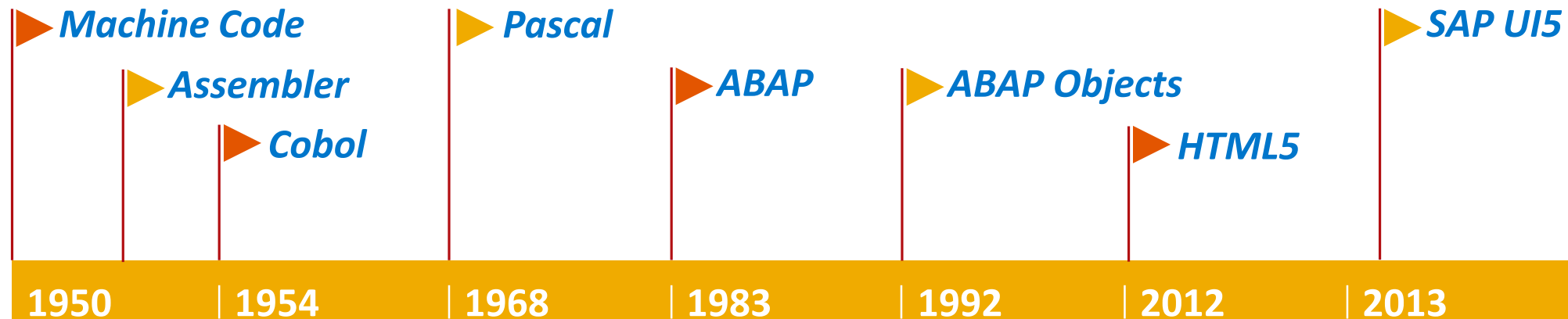
SAP SCM – Supply Chain Management

SAP PLM – Product Lifecycle Management

II. Introduction into ABAP

History of ABAP

- Introduced 1983 in SAP R/2 as “Allgemeiner Berichts- (und) Aufbereitungs-Prozessor”
- Initially only for the creation of reports
- Later: ABAP = Advanced Business Application Programming
- Since Release 4.3: support for the development of transactions



Source: Own illustration

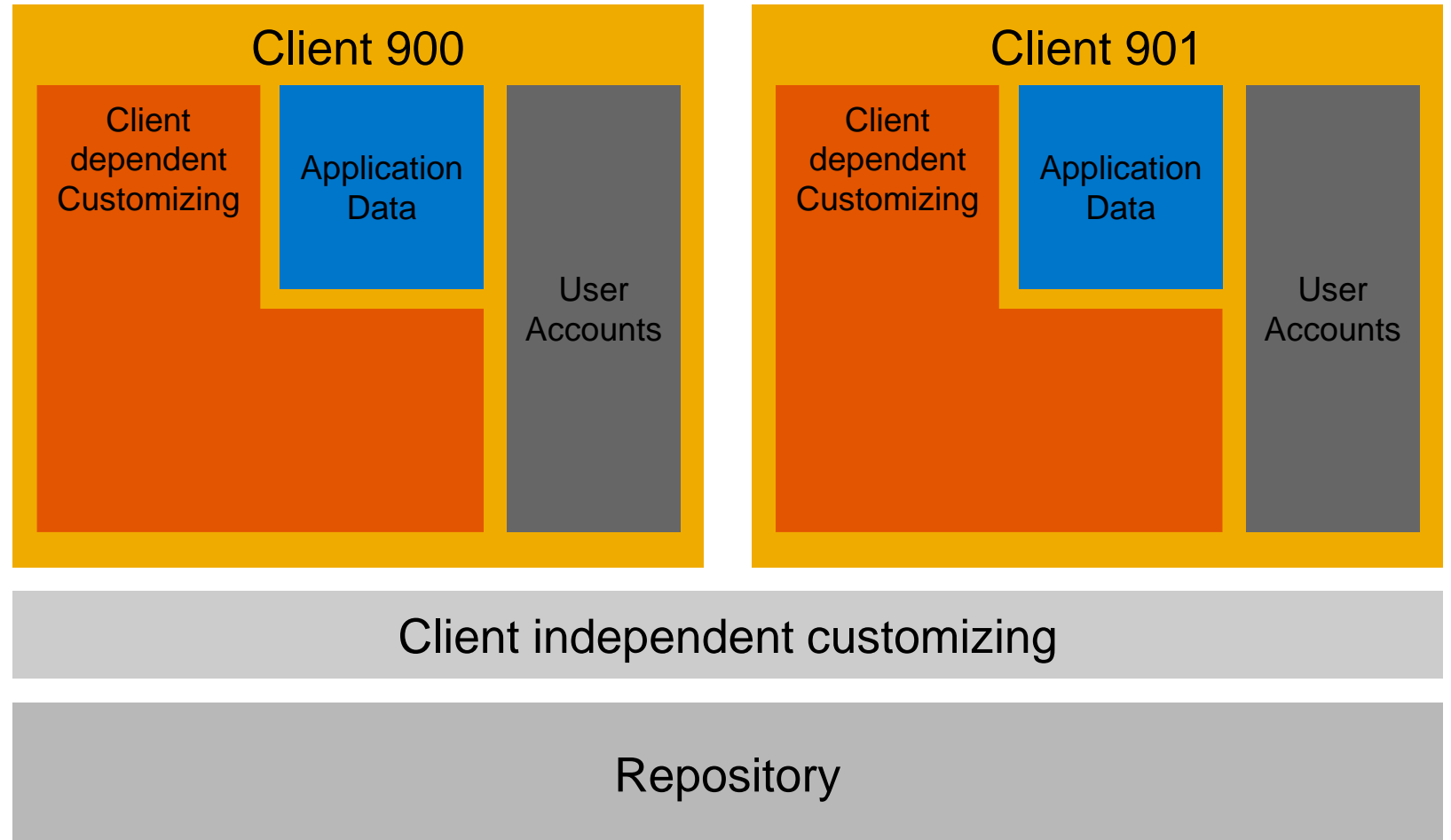
What is SGEN?

- The *SAP Netweaver Application Server* can be installed on multiple platforms
- Platform = the combination of DBMS, OS and hardware
- In newly installed SAP Systems no ABAP is precompiled
- Ways to compile ABAP code:
 - Execute the code for the first time
 - Call the transaction SGEN to generate the ABAP load
- ABAP load gets stored in table *REPOLOAD*

II. Introduction into ABAP

ABAP repository

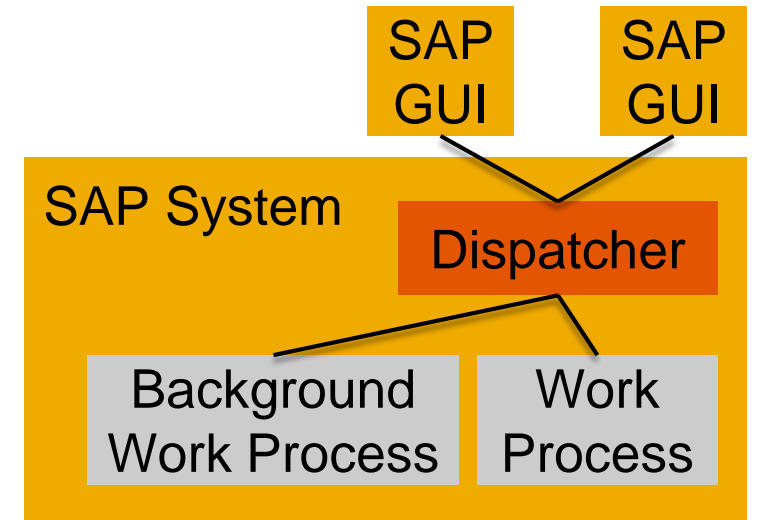
- Client = technical and organizational independent entity
- Data in a SAP system can be either:
 - Client dependent / specific
 - Client independent / Cross-Client



Source: Own illustration

Report / Dialog-Driven Program

- Difference between a Report and a Dialog-driven program:
- Report:
 - Follows a relatively simple programming model
 - Produces a report (interactive list)
 - Can be executed in the background
- Dialog-driven program:
 - Also known as transaction
 - Cannot be executed in the background
- There are different kind of work processes – e.g.:
 - Dialog work processes (for interactive tasks)
 - Background work processes (for background execution)
- The SAP GUI connects to the dispatcher



Source: Own illustration

Why transportation?

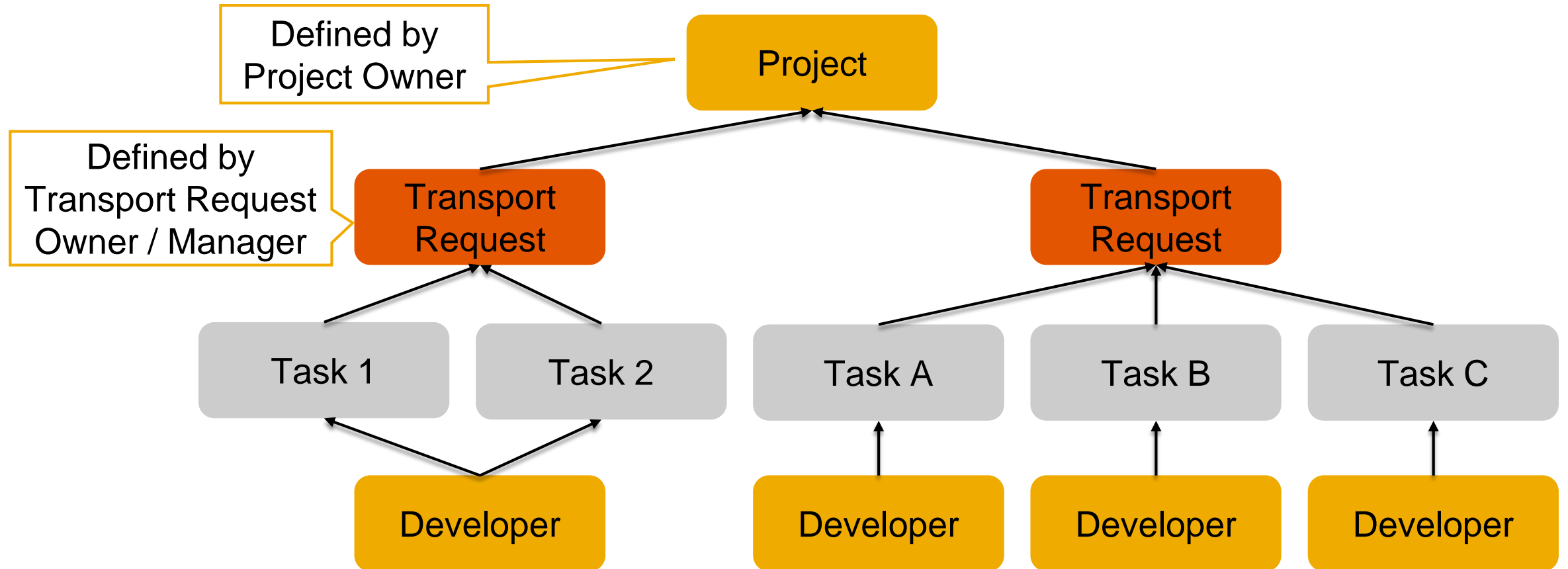
- Transfer changes made to objects in either *Customizing* or the *Repository* to other SAP systems (e.g. developments, corrections, repairs, ...)
- The SAP transport system uses transport requests
- Example (recommendation from SAP):



Source: Own illustration

III. Transport Concept

Transport Hierarchy



Source: Own illustration

Releasing transport requests

Tasks get released to the related transport request

The recorded entries of the task are copied into the object list of the transport request

Developers have to release their tasks (in urgent situations a task can be taken over)

When every task has been released, it is possible to release the transport request

When releasing a transportable transport request, table entries get written on the filesystem.

➔ A released transport request cannot be edited anymore.

Releasing a transport request can be done in the Transport Manager (Transaction: **SE09** or **SE10**)

IV. Development Prerequisites

SAP Client configuration

- A properly configured client is necessary for development
- Access to the repository is needed
- Configuration in transaction SCC4

Client Role C
(Customizing)

Changes should
be allowed

The screenshot displays the SAP SCC4 transaction interface for configuring a client. The 'Client' field is set to '100' (highlighted with a red box) and 'SAP AG Konzern'. Other fields include 'City' (Waldorf), 'Logical system' (DEVCLNT100), 'Std currency' (EUR), and 'Client role' (Customizing). Below these fields, there are two sections for configuration options. The first section, 'Changes and Transports for Client-Specific Objects', has four radio button options: 'Changes without automatic recording', 'Automatic recording of changes' (which is selected), 'No changes allowed', and 'Changes w/o automatic recording, no transports allowed'. The second section, 'Cross-Client Object Changes', has a dropdown menu set to 'Changes to Repository and cross-client Customizing allowed'.

Client	100	SAP AG Konzern
City	Waldorf	Last Changed By
Logical system	DEVCLNT100	Date
Std currency	EUR	
Client role	Customizing	

Changes and Transports for Client-Specific Objects

- ☐ Changes without automatic recording
- ☒ Automatic recording of changes
- ☐ No changes allowed
- ☐ Changes w/o automatic recording, no transports allowed

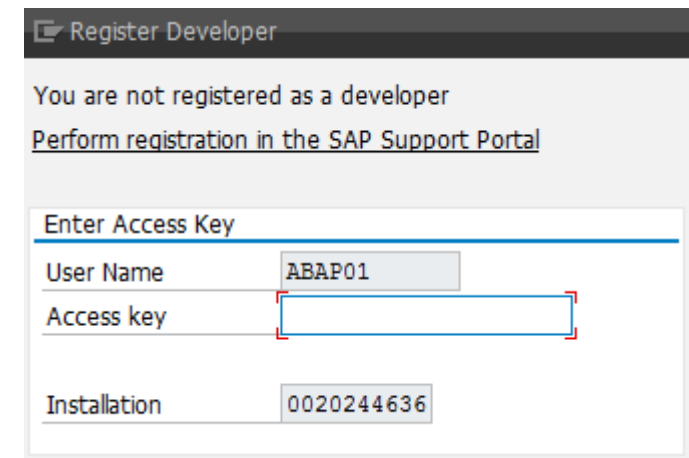
Cross-Client Object Changes

Changes to Repository and cross-client Customizing allowed

IV. Development Prerequisites

SAP User configuration

- A user with a development profile and an access key is needed
 - The access key allows development of new programs or changes to existing ones
 - The access key is always username dependent
 - Access keys must be requested from SAP
 - License costs increase by the number of development users
 - Access keys can be obtained from your local UCC



The screenshot shows a dialog box titled "Register Developer". It contains the text "You are not registered as a developer" and a link "Perform registration in the SAP Support Portal". Below this is a section titled "Enter Access Key" with three input fields: "User Name" (containing "ABAP01"), "Access key" (empty), and "Installation" (containing "0020244636").

Enter Access Key	
User Name	ABAP01
Access key	
Installation	0020244636

Creation of a package and a transport request

- For development an own package and an own transport request are needed
 - Packages allow you to group your developments
 - Transport requests enable you to transport new developments to other SAP systems
 - It is not possible to transport developments when using the local package \$TMP

IV. Development Prerequisites

Namespaces

- **Important:** pay attention to namespaces!
- SAP uses namespaces from A to X for their own programs and implementations
- Companies can register their own namespace
- A namespace is unique and can only be assigned to one company
- Developer namespaces begin with **Y or Z** (e.g. ZZ_*)
- When modifying a program outside the development namespace a modification key has to be entered

Notice the difference: *register object* instead of *register developer*

Register Object

Perform registration in the SAP Support Portal

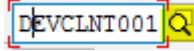
Enter Access Key

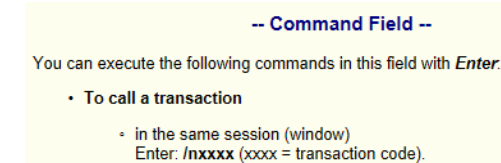
Object	R3TR	PROG	/SAPAPO/SCMB_FCSTOURL
SAP Release	740		
Access key			
Installation	0020244636		

Continue Display Information

V. Using Help

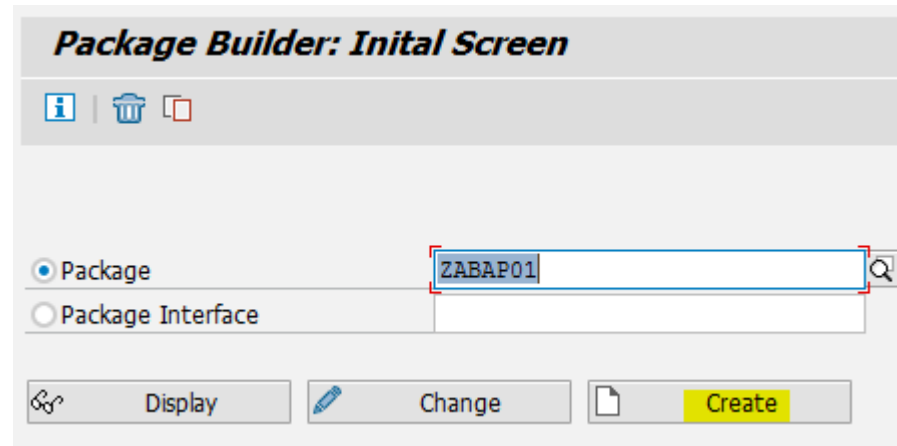
Using different Help options (separate with screenshots)

- F1 Help: press F1 to get help to the currently selected item
- F4 Help: press F4 in an input field when the symbol  is shown for a list of all valid values
- Links:
 - SAP Community Network: <http://scn.sap.com>
 - SAP Marketplace: <http://service.sap.com/>
 - ABAP Help:
http://help.sap.com/saphelp_nw74/helpdata/de/4a/24dbfa64550455e100000000a421937/frameset.htm
- Books
 - The Official ABAP Reference, SAP PRESS, **ISBN-13:** 978-1592290390
 - ABAP-Objects, SAP PRESS, **ISBN-13:** 978-1592290796



A Hello World application – Step 1

- First an own package has to be created (Transaction **SE21** – *Package builder*)

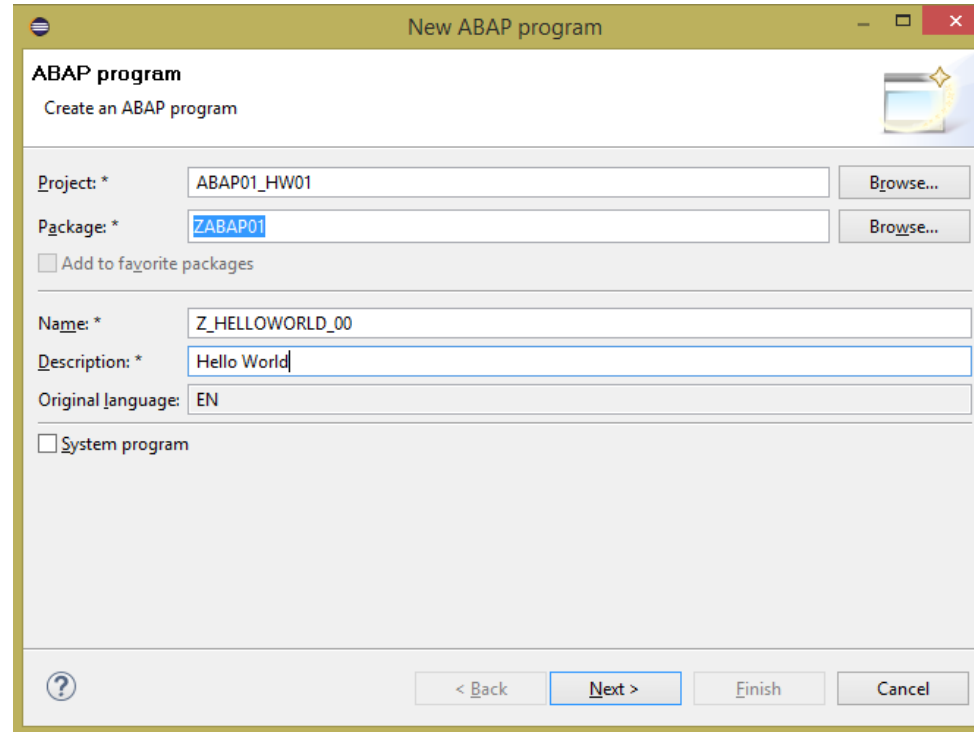


The screenshot shows the 'Package Builder: Initial Screen' in SAP. At the top, there is a title bar with the text 'Package Builder: Initial Screen'. Below the title bar, there are three icons: a blue square with a white 'i', a blue trash can, and a red square. The main area contains two radio buttons: 'Package' (selected) and 'Package Interface'. To the right of the 'Package' radio button is a text input field containing 'ZABAP01'. Below the 'Package Interface' radio button is an empty text input field. At the bottom, there are three buttons: 'Display' (with a magnifying glass icon), 'Change' (with a pencil icon), and 'Create' (with a document icon and a yellow background).

VI. Development of a first application

A Hello World application – Step 2

- Create your program



The screenshot shows the 'New ABAP program' dialog box. The title bar reads 'New ABAP program'. The main heading is 'ABAP program' with the subtitle 'Create an ABAP program'. The dialog contains the following fields and options:

- Project: ***: ABAP01_HW01 (with a 'Browse...' button)
- Package: ***: ZABAP01 (with a 'Browse...' button)
- ☐ Add to favorite packages
- Name: ***: Z_HELLOWORLD_00
- Description: ***: Hello World
- Original language:** EN
- ☐ System program

At the bottom, there is a help icon (?), a '< Back' button, a 'Next >' button (highlighted in blue), a 'Finish' button, and a 'Cancel' button.

A Hello World application – Step 3

- Now add your code

Code for report
Z_HELLOWORLD_00

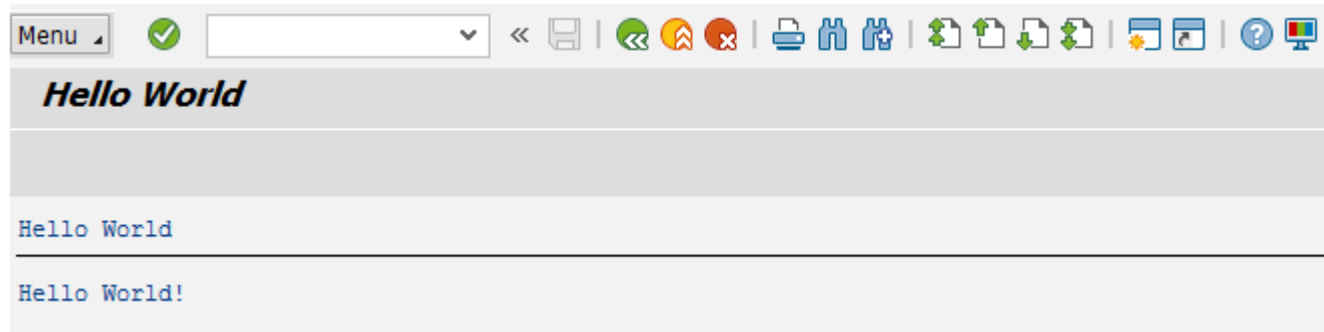
```
1 REPORT Z_HELLOWORLD_00.  
2 write 'Hello World!'.
```

Writes “Hello World” on the screen.
Note the closing dot (similar to
semicolon in Java or C#)

The diagram illustrates the code for a report. A box on the left contains the text 'Code for report Z_HELLOWORLD_00'. Two lines of code are shown in a light blue box: '1 REPORT Z_HELLOWORLD_00.' and '2 write 'Hello World!'.'. A yellow box on the right contains the text 'Writes “Hello World” on the screen. Note the closing dot (similar to semicolon in Java or C#)'. Yellow lines connect the text boxes to the corresponding parts of the code.

A Hello World application – Step 4

- Finally activate your code and run the application
- The SAP system always executes the last activated version of a program
- If your program has not been activated after changing the code, the version before the changes were made will be executed



Now you know the very basics of ABAP development.

To consolidate your knowledge, you can do the Introduction exercise.

Check your knowledge

Check your knowledge

- An ABAP report can only be executed in the background.
 - ☐ True ☐ False
- Which requirements have to be fulfilled in order to release a transport request.
 - ☐ Code has been successfully written to the filesystem ☐ Its Tasks have to be released
 - ☐ You have to be owner of the request
- Which ABAP reports can be created with only having an access key for developers.
 - ☐ SAPLWB_INITIAL_TOOL ☐ A_CALCULATOR ☐ Z_CALCULATOR ☐ BMW_I8

Solution

Solution

- An ABAP report can only be executed in the background.
☐ True ☒ False
- Which requirements have to be fulfilled in order to release a transport request.
☐ Code has been successfully written to the filesystem ☒ Its Tasks have to be released
☐ You have to be owner of the request
- Which ABAP reports can be created with only having an access key for developers.
☐ SAPLWB_INITIAL_TOOL ☐ A_CALCULATOR ☒ Z_CALCULATOR ☐ BMW_I8

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