Overview Guided Procedures Design Time
Scope of This Presentation

- Process Assembly with Guided Procedures
- Give an overview of main design time objects in the Gallery and editing functions
- Screenshots demo of how to assemble a demo process with callable objects (based on WebDynpro), actions, blocks and processes demonstrating hands-on the features of design time
All GP contents that you create using the design time are stored in a central repository called the gallery. You can browse the available folders and manage them or their content there.

Using the links available in the contextual panel, you can create the objects that are stored in the Gallery.

The Guided Procedures (GP) design time is a workset where you can access all tools for process modeling.

**Choose Open to view the design time of the Time-Off Process**

The Guided Procedure design provides a comprehensive view of the process structure.

For further information, refer to the following documentation:
Process Assembly in Guided Procedures

- Processes bundle a set of blocks to represent a Business Process (Example: One Block Process for Vacation Time Off Approval)
- Blocks bundle a set of block and actions required to complete a process step
- Actions are elementary business process steps to be carried out during a GP process (Example: Employee Request for Vacation). They are mapped against a callable object
- Callable Objects wrap applications for Guided Procedures (WebDynpro Applications are Callable Objects, for example)
Process Modeling Approaches

“Top-Down” Modeling
- Create a process template
- Create block(s)
- Create action(s)
- Create callable object(s)

You design the components according to the requirements of the particular business case. You can extend the process template when you identify a need to add another step, and you can define items that are executed when certain conditions occur.

“Bottom-Up” Modeling
- Create callable object(s).
- Create action(s) and insert the callable object(s).
- Create block(s) and insert the action(s).
- Create a process template and insert the block(s).

You use this approach when you have already defined certain functions and you need to combine them into a single process.

For further information, refer to the following documentation: Composite Application Framework by Key Capability → CAF Guided Procedures → CAF GP: Business Expert Guide → Process Modeling
Manipulation Actions for Main GP Objects in Design Time

The table above gives an overview of what you can do with each of the main GP building objects in design time.
Callable Object: Basic Concepts
Callable Object

- Wraps an application used for representing an action in GP

- These can be Web Dynpro applications and components, BSP applications, Remote-enabled function modules, Java classes...

- May be of arbitrary UI type (eg. WebDynpro Application, Adobe Forms, ...)

- Special support for Web Dynpro Java components (WD Java may implement a GP interface allowing the application to link into GP)

- Callable objects may also run in the background

For further information, refer to the following documentation:
- Composite Application Framework by Key Capability
- CAF Guided Procedures
- Developing Composite Applications with CAF GP
- Getting Involved
- Concepts of the Guided Procedures Framework
- Callable Object
Callable Object Structure

You can define input and output parameters to communicate with other COs.

Result states enable you to manage the process flow by configuring a target action for each defined state.

You can implement your callable object so that it defines process exceptions.

You can integrate business objects into the Guided Procedures framework by exposing them as callable object parameters.

Besides the standard data types, GP defines the following specific types for parameters:

- **Reference to BO**
  
  You can define an object view that you have previously created as a parameter of this type.

- **Structure**
  
  A parameter of this type is a complex structure that may hold other parameters.

- **Structure Template**
  
  A structure template is a complex parameter with a predefined structure. Structure template parameters are either interactive forms or files.

You must create an object view, and then define it as a parameter of type Reference to BO. You can define object views for the following object types:

- **CAF Core entity services**

- **Security principals, such as users, groups, or roles**

- **Business objects from the Business Object Repository (BOR) of SAP Business Workflow**

For further information, refer to the following documentation:

- Composite Application Framework by Key Capability → CAF Guided Procedures → Developing Composite Applications with CAF GP → Core Development Tasks → Callable Object Design
(1) In the application you will have data (called "context") that you will expose to Guided Procedures via a wrapper object, called "Callable Object".

(2) Based on the application the callable object provides input and output parameters in Guided Procedures.

For further information, refer to the following documentation:
- Composite Application Framework by Key Capability → CAF Guided Procedures
- Developing Composite Applications with CAF GP → Core Development Tasks → Callable Object Design → Callable Object Parameters
Action: Basic Concepts
Attaching Callable Objects

To make the action functional, you must attach at least one callable object to it. The callable object is invoked and executed when the action is started at process runtime.

**Attaching Callable Objects**

- **Callable Object for Execution (Mandatory)**
  
  You can attach either a callable object with a visible part, such as a Web Dynpro or BSP callable object, or one for background execution.

- **Callable Object for Display (Optionally)**
  
  A visible part is required; you cannot select a callable object for background execution. At runtime, this object is displayed if the processor wants to open the process step after it has been completed, or if a process contributor has view permissions on the action.

For further information, refer to the following documentation: [Composite Application Framework by Key Capability](#) CAF Guided Procedures → CAF GP: Business Expert Guide → Process Modeling → Action Design
Defining Ad-Hoc Items

Ad-hoc items in Guided Procedures (GP) are actions that might be executed if certain conditions occur, but they do not change the general process flow.

At runtime, the available ad-hoc items are displayed in the You Can menu for the process.

For further information, refer to the following documentation:

Defining Due Date Handling

For actions and processes that you create in Guided Procedures (GP) design time, you can define a date by which it must be completed.

In addition, you can set two notifications that occur before the due date. For each notification you can choose to execute a particular callable object.

For further information, refer to the following documentation:
In the Action you may define which Callable Object parameters will be exposed (i.e., are available for subsequent processing). This is an advantage if you have callable objects with large parameter lists.

For further information, refer to the following documentation:
- Composite Application Framework by Key Capability → CAF Guided Procedures
Block: Basic Concepts
The definition of the block flow strongly depends on the block type

**Block Types**

- **Sequential** - The items in the block are executed sequentially in the order that you have defined.
- **Parallel** - The items in the block flow are executed in parallel.
- **Parallel Dynamic** - Multiple processors can be assigned to execute the items in this block type. For example, as a part of such a block, a survey can be completed by multiple users and the results sent to the system for further processing. The items are executed in parallel.
- **Precondition Loop** - The items in the block are executed in a loop, and the loop criteria is checked before the execution of the first item.
- **Postcondition Loop** - The items in the block are executed in a loop, but the loop criteria is checked after the last item has been executed. This guarantees that the items in the block will be executed at least once.
- **Alternatives** - At runtime the user chooses one of the available alternatives and his or her decision defines which item(s) is(are) executed.

For further information, refer to the following documentation:
When you want to tie actions together, the corresponding outbound parameters of an action need to be mapped to inbound parameters of a subsequent action. This is done if you are consolidating corresponding action context parameters (the consolidation process in GP can be compared to context mapping in a Web Dynpro application).

For further information, refer to the following documentation:

Imagine a situation where a process requires multiple user roles (e.g., Employee and HR Admin). In the example, actions 1 and 3 are carried out by the same role, and action 2 is performed by another role. By consolidating processors for actions into consolidated roles in a block, you assign actions to the same user roles.

For further information, refer to the following documentation:
Some callable objects can define exceptions that are propagated to the block level and need to be processed. For that purpose, at block level, you can define an exception handler, as well as an exception handling strategy.

The exception handler is an action that will execute if an exception occurs. Depending on the exception handling strategy, the next step after finalizing the exception handler action will be either the step after the action that reported the exception, or the action that reported the exception.

For further information, refer to the following documentation:

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Process Template: Basic Concepts
Process Role Configuration

Process role configuration may include defining when users are assigned to the role, as well as adding default user assignments at design time.

Configuring Roles

For the built-in roles – Administrator, Overseer, and Owner, as well as for the custom roles, you can choose one of the following role types:

- **Initiation Defined** – user assignments for the role are done at process initiation.
  
  You can configure the following options for the role:
  - Default Definition Required – you must define a default user assignment for the role
  - Overwritable at Runtime – the defaults defined for the role can be overwritten when the process is being initiated

- **Initiator** – the user who initiates the process is assigned to the role.

You can assign a default user to the role. At runtime, this user will process the action or block unless the assignment is modified when the process is started.

For further information, refer to the following documentation:
Configuring Process Instantiation

At design time, you can configure process instantiation parameters that define how many process instances may be created at runtime. In addition, you can choose to start the process automatically, and generate an URL that you can use to start the process.

Configuring the Allowed Process Instance Number

You can enable one of the following options:

- Multiple instances are permitted: at runtime, you can start multiple processes from the same template simultaneously; this option is enabled by default
- A single running instance is permitted for each user – if a user has initiated a process from this template, he or she cannot start another instance before the first process is completed
- A single instance is permitted – each user can start a process only once from this process template

Generating an URL for Instantiating the Process

You can enable one of the following options:

- Include Default Parameters – if you have defined default values for any of the process input parameters, these are included in the URL
- Automatically Start the Process – if default values are provided for the input parameters, and users are assigned to all process roles, the process is automatically started

For further information, refer to the following documentation:

Defining Due Dates

A due date is the point by which an action or a process must have been completed. In addition, you can set notifications that occur before the due date is reached. For each notification you can choose to execute a particular callable object.

Configuring Process Control Items

Process control items are predefined actions that enable you to manage process instances at runtime.

The Guided Procedures framework provides the following process control items:
- Change Deadlines
- Delegate Role
- Rename Process
- Terminate Process

For further information, refer to the following documentation:
- Composite Application Framework by Key
  - CAF Guided Procedures
    - CAF GP: Business Expert Guide
      - Process Modeling
        - Defining Due Date Handling

For further information, refer to the following documentation:
- Composite Application Framework by Key
  - CAF Guided Procedures
    - CAF GP: Business Expert Guide
      - Process Modeling
        - Process Design
          - Configuring Process Control Items
Demo: Create Process
Create the Design Time Demo folder to contain all GP development objects for this project.

For further information, refer to the following documentation:
- Composite Application Framework by Key Capability
You need to maintain process flow, roles, and parameter consolidation. To maintain the process flow you have to insert existing or create new blocks. The process is at a „higher business level“ than the block, and visually the blocks assigned to a process will be displayed as phases in the GP Runtime.

Enter the basic data

Demo: Create Block
Start creating a block and you will have to choose a block type (as described in Block: Basic Concepts), this affects the process sequence, in which actions are carried out.
Enter the block basic data. As with processes, you need to maintain the block flow and define the role and parameter consolidation.

You add blocks and actions to a block in order to define the block flow.

To be able to edit the Approval Block, select it.
Demo: Create Action
Make sure that Action is chosen and click Create New.
Enter the action basic data. Actions embed the callable objects into the process flow of GP and you may add features to the callable object such as attachments. Here you will see how data is to be configured ...

To be able to edit the action, select it
Demo: Create Callable Object
Make sure that **Callable Object for Execution** is chosen and click **Create New**.
Definition of a Callable Object in Design Time. The list of available COs is listed here. In our example we use the Demo Web Dynpro application which is also delivered with the J2EE.

For further information, refer to the following documentation: Composite Application Framework by Key Capability → CAF Guided Procedures → Developing Composite Applications with CAF GP → Core Development Tasks → Callable Object Design → Creating Callable Objects → Exposing Web Dynpros as Callable Objects.
Select the corresponding WD Component deployed on the J2EE
Review input parameters
Choose Next and then Finish to create the CO

Review output parameters
To be able to modify the Test Callable Object, select it.

Choose Edit to change the callable object properties.
Enter the callable object basic data
### Process: Time Off Approval Process

**Flow**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Target</th>
<th>Status</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Off Approval Process</td>
<td>Process</td>
<td>Time Off Approval Process</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Approval Block</td>
<td>Sequential Block</td>
<td>Approval Block</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Request Time Off</td>
<td>Action</td>
<td>Request Time Off</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Test Callable Object</td>
<td>Callable Object for Execution</td>
<td>Test Callable Object</td>
<td>0.2</td>
<td></td>
</tr>
</tbody>
</table>

### Callable object: Test Callable Object (edit mode)

<table>
<thead>
<tr>
<th>Basic Data</th>
<th>Object Definition</th>
<th>Input</th>
<th>Output</th>
<th>Permissions</th>
<th>Usage</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text:</td>
<td>Create a time-off request</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description:</td>
<td>This application allows you to create a time-off request (incl. absence type, begin and end date, and a comment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web Dynpro Component File:</td>
<td><a href="mailto:test@example.com">test@example.com</a></td>
<td>Request will create CCtcode</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web Dynpro Application:</td>
<td><a href="mailto:test@example.com">test@example.com</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Review the object definition
Process: Time Off Approval Process

Callble object: Test Callable Object (edit mode)

Edit input parameters
Process: Time Off Approval Process

Edit output parameters
Define permissions

For further information, refer to the following documentation:
You can test the CO within the gallery.

In COs you may determine whether the CO should be executed in execution or display mode (this can be evaluated from a WD Java application in order to dynamically display or hide buttons, for example).
Enter the input parameters for the CO.
Create Time-off Request

Employee:
- First Name: Nielsen
- Last Name: Mike
- Position Title
- Organizational Unit

Absence Type: * Leave Vacation
- Start Date: 8/1/2005
- End Date: 8/31/2005
- Comments:

Processors:
- 1. Approver: Michael Nielsen Mike
- 2. Approver: Michael Nielsen Mike
- HR Consultant: Michael Nielsen Mike

Test the application
Review the application output here...
For an action you may add additional services available in GP such as:

- Due date handling (reminds the user to complete the action before the due date)
- Ad Hoc Items (helps the user to remember to carry out additional actions in order to complete the process)
- Adding info attachments (provided via link)
- Info Callable Objects (additional information to help the user to accomplish the process)
You may consolidate parameters at action level (as described in Action: Basic Concepts)
You may expose only a subset of the given callable objects' parameters (either for input or output)
If you want to expose the parameters you have to check the flag.

The same as with CO.
Complete Block Setup
In the demonstration scenario we have created a couple of actions and callable objects for further use.
The result states of each action can be used to define the subsequent object to be launched. No Target means follow the predefined block flow.
As described in the Basic Concepts block, the individual processors will be consolidated into block roles.

You need to consolidate roles within a block.
Consolidation for the role „Requestor“ (may request TimeOff and may display results of the TimeOff approval)
**Process: Time Off Approval Process**

**Consolidation for all Process Roles:**
- Requestor
- Approver
- HR Admin
You need to consolidate parameters within a block (as described in the Basic Concepts block)

Consolidation for all Time Off data parameters (map to one consolidated Time Off data structure)
Defining view permissions for the actions in a block

For defining permissions, see: Create CO demo

For further information, refer to the following documentation: Composite Application Framework by Key Capability → CAF Guided Procedures → CAF GP: Business Expert Guide → Process Modeling → Granting View Permissions
Our Web Dynpro Application CO does not define exceptions.

Consolidated parameters for all data used within the Approval Block.

For defining Attachments and Info Callable Objects, see Create Action demo.
Complete Process Setup
For demonstration purposes we have the same Approval Block twice in our process.
In this example, we consolidate the Process Roles from the two subsequent blocks.
You may, for example, also define when a user is to be assigned a certain role.

The same for the built-in roles.
You can define a default user to a role, if the role type is set to *Initiation Defined*. At runtime, this user will process the action or block unless the assignment is modified when the process is started.
By assigning a role to a process control item at runtime, the user authorized for this role can see and execute this item from the Overview Process screen.
Consolidation of all parameters that are defined in the two blocks of the process.
The other properties are configured as described previously.
All process parts were created, and now the process can be activated ...
Demo: Test Process
Process: Time Off Approval Process

**Flow**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Target</th>
<th>Status</th>
<th>Version</th>
<th>Optional</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Off Approval Process</td>
<td>Process</td>
<td>Time Off Approval Process</td>
<td>✔️</td>
<td>0.3</td>
<td></td>
<td>Time Off Approval Process</td>
</tr>
<tr>
<td>Approval Block</td>
<td>Sequential Block</td>
<td>Approval Block</td>
<td>✔️</td>
<td>0.4</td>
<td></td>
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<td>Sequential Block</td>
<td>Approval Block</td>
<td>✔️</td>
<td>0.4</td>
<td></td>
<td>Approval Block</td>
</tr>
</tbody>
</table>

**Process: Time Off Approval Process**

- **Process ID:** A6B430C06/0011/0/0/393001/123F32D46
- **Number of Instances per Initiator:**
  - Multiple instances are permitted
  - A single running instance is permitted for each user
- **URL for Initiating the Process:**

Press the Generate Instantiate URL button in the Instantiation tab page.
You will get an URL to start the process for testing, clicking this button will launch it...
**Initiate Process**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AbsenceTypeText</td>
<td></td>
</tr>
<tr>
<td>BeginDate</td>
<td>12/23/2005</td>
</tr>
<tr>
<td>EndDate</td>
<td>12/30/2005</td>
</tr>
<tr>
<td>PaidFlag</td>
<td></td>
</tr>
<tr>
<td>ShortTermCode</td>
<td></td>
</tr>
<tr>
<td>LongTermCode</td>
<td></td>
</tr>
<tr>
<td>SimulationCode</td>
<td>0</td>
</tr>
<tr>
<td>SimulationMessage</td>
<td></td>
</tr>
<tr>
<td>CompletionCode</td>
<td>0</td>
</tr>
<tr>
<td>CompletionMessage</td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td>need Vacation</td>
</tr>
</tbody>
</table>

Enter input data
Initiate Process

Fill Parameters  Edit Roles  Edit Basic Data

Initiator: *  Nielsen, Michael
Process Name: *  Time Off Approval Process

Initiate process
Process runs through the application steps. You will have an overview of the steps here.

Also note the phase display of the process blocks.
All completed steps are checked

Time Off Approval Process

Approve Time-off Request

Employee:
- First Name: Mike
- Last Name: Nielsen
- User ID: Mike
- Position Title: Vacation
- Organizational Unit:

Absence Type: Vacation
- Paid
- Unpaid

Start Date: 12/23/2005
End Date: 12/31/2005

Comments: I need Vacation

Approve
Return To Initiator
Reject
...and the last action is shown for the first block (the same applies to the second block)
The process is completed.