Implementing and Using Exceptions in Guided Procedures
### Typographic Conventions

<table>
<thead>
<tr>
<th>Type Style</th>
<th>Represents</th>
<th>Icons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example Text</td>
<td>Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation.</td>
<td>Caution</td>
</tr>
<tr>
<td>Example text</td>
<td>Emphasized words or phrases in body text, graphic titles, and table titles.</td>
<td>Example</td>
</tr>
<tr>
<td>EXAMPLE TEXT</td>
<td>Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.</td>
<td>Note</td>
</tr>
<tr>
<td>Example text</td>
<td>Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.</td>
<td>Recommendation</td>
</tr>
<tr>
<td>Example text</td>
<td>Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.</td>
<td>Syntax</td>
</tr>
<tr>
<td>&lt;Example text&gt;</td>
<td>Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.</td>
<td></td>
</tr>
<tr>
<td>EXAMPLE TEXT</td>
<td>Keys on the keyboard, for example, F2 or ENTER.</td>
<td></td>
</tr>
</tbody>
</table>
Scenario

Exceptions are designed to handle unexpected situations that arise during runtime and disrupt the normal flow of the process. Exceptions deal with unexpected situations by executing an additional action, block or process, called exception handler.

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 example that is used in this document represents a process that consists of three steps:

1. Entering a User ID in a Data Input Form
2. Searching for this User ID in the UME using an existing background action.
   - If an exception is raised, the User ID is entered again in the Data Input Form.
3. Displaying the user details in a Data Display Form.

Prerequisites

In this guide you use the background callable object User Lookup, created in the tutorial How To…Develop a Background Callable Object.

You must have:

- Set up Guided Procedures
- Installed the SAP NetWeaver Developer Studio
- Completed the How To…Develop a Background Callable Object tutorial

Applicable Releases

This tutorial is compatible with the following release” SAP NetWeaver 2004s SPS6”.

Disclaimer

Any software coding and/or code lines / strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended better explain and visualize the syntax and phrasing rules of certain coding. SAP does not warrant the correctness and completeness of the Code given herein, and SAP shall not be liable for errors or damages caused by the usage of the Code, except if such damages were caused by SAP intentionally or grossly negligent.
Creating a Data Input Form

Creating the Callable Object

1. Create a folder named *Exception Handling*. It will contain all GP development objects for this project.

2. Launch GP design time and choose *Create Callable Object* from the contextual panel.

3. Enter the following data:
   - Type – extend node Data Forms and select Data Input Form
   - Name – enter *User ID Input Form*
   - Description – enter a brief description of the callable object; for example, *User ID Input Form*
   - Original Language – choose *English*
   - Location – choose the *Exception Handling* folder

4. Choose *Next*.
   Choose *Insert New* to enter an output parameter for the form. For example, add User ID of type *String*, its value is required.

5. Choose *Next* and then *Finish and Open*.
   The design time for the callable object opens


Creating the Action

7. Open the gallery and choose *Create Action* from the contextual panel.

8. Enter the following data:
   - Name – enter *User ID Input Form*
   - Description – enter a brief description of the action; for example, *User ID Input Form*
   - Original Language – select *English*
   - Folder – select the *Exception Handling* folder

9. Make sure that *Callable Object for Execution* is selected from the *Item* dropdown list, and choose *Insert*.

10. Browse to select *User ID Input Form*.
    To confirm, choose *Select*.

11. Choose (Activate).
Creating an Action to Handle the Exception

1. Open the gallery and choose Create Action from the contextual panel.
   The action’s design time opens.
2. Enter the required data as follows:
   - Name – enter Handle: User ID Input Form
   - Description – enter a brief description of the callable object; for example, Handle: User ID Input Form
   - Original Language – choose English
   - Location – choose the Exception Handling folder
3. Make sure that Callable Object for Execution is selected from the Item dropdown list, and choose \(\text{\textcircled{I}}\) (Insert).
4. Browse to select User ID Input Form.
   To confirm, choose Select.
5. Choose \(\text{\textcircled{A}}\) (Activate).

Creating an Action for the Background Step

1. Open the gallery and choose Create Action from the contextual panel.
2. Enter the following data:
   - Name – enter Retrieve User Details
   - Description – enter a brief description of the callable object; for example, Retrieve User Details
   - Original Language – choose English
   - Location – choose the Exception Handling folder
3. Make sure that Callable Object for Execution is selected from the Item dropdown list, and choose \(\text{\textcircled{I}}\) (Insert).
4. Browse to select User Details callable object.
   To confirm, choose Select.
5. Choose \(\text{\textcircled{A}}\) (Activate).
Creating a Data Display Form

Creating the Callable Object

1. Launch Guided Procedures (GP) design time and choose Create Callable Object from the contextual panel.

2. Enter the following data:
   - Type – extend node Data Forms, and select Data Display Form
   - Name – enter User Details Display Form
   - Description – enter a brief description of the callable object; for example, User Details Display Form
   - Original Language – choose English
   - Location – choose the Exception Handling folder

3. Choose Next
   Choose Insert New to enter an input parameter for the form.
   Add the following parameters of type String:
   - First Name
   - Last Name
   - Telephone
   - Fax

4. Choose Next and then Finish and Open.
   The design time for the callable object opens

5. Choose ✰ (Activate).

Creating the Action

6. Open the gallery and choose Create Action from the contextual panel.

7. Enter the following data:
   - Name – enter User Details Display Form
   - Description – enter a brief description of the callable object; for example, User Details Display Form
   - Original Language – choose English
   - Location – choose the Exception Handling folder

8. Make sure that Callable Object for Execution is selected from the Item dropdown list, and choose ✳️ (Insert).

9. Browse to select User Details Display Form.
   To confirm, choose Select.
Creating an Exception Block

1. Open the gallery, and choose Create Block from the contextual panel.
2. Select Sequential for the block type.
3. Enter the required data in the BasicData tab page as follows:
   - Name – enter Exception Block
   - Description – enter a brief description of the callable object; for example, Exception Block
   - Original Language – choose English
   - Location – choose the Exception Handling folder
4. Make sure that Action is selected from the Item dropdown list, and choose (Insert).
   Browse the gallery for the action, and confirm your selection using Select. Repeat the procedure for all the actions that you want to add.
   Insert the actions in the following order:
   - User ID Input Form
   - Retrieve User Details
   - User Details Display Form
5. Open the Parameters tab page.
   To display data as required, create the following groups:
   - Consolidate the entries User ID defined for User ID Input Form with the one defined for User Details.
   - In User structure, select the entry First Name and consolidate it with the entry First Name defined for User Details Display Form.
   Repeat the same step for Last Name, Telephone and Fax.
   This consolidation ensures that the output from the background action is used to fill the input fields in the display form.
6. Open the Exceptions tab page.
   a. Select the line “EXCEPTION_NO_USER_FOUND” in the table and choose Add
   b. Browse to select Handle: User ID Input Form.
      To confirm your selection, use Choose.
   c. To define what happens after the exception handler is called, select Strategy.
To make the user to re-enter the User ID, choose **Repeat** from the drop-down menu list.

d. To make sure that the output parameter - User ID, which comes from the exception handler, is mapped to the appropriate input parameter of the existing block, choose **Map Output Parameters**.
   
i. In the Exception block table select User ID cons
   
ii. In the Handle: User ID Input Form table select User ID
   
iii. Select Done

7. Open the **Roles** tab page.

   Select all roles and consolidate them to “The one and only role”.

<table>
<thead>
<tr>
<th>Role</th>
<th>Type</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The one and only role</strong></td>
<td>D</td>
<td>4</td>
</tr>
<tr>
<td>Processor of User ID Input Form</td>
<td>U</td>
<td>User ID Input Form</td>
</tr>
<tr>
<td>Processor of Handle User ID Input Form</td>
<td>U</td>
<td>Retrieve User Details / EXCEPTION_NO_USER_FOUND</td>
</tr>
<tr>
<td>Processor of Retrieve User Details</td>
<td>U</td>
<td>Retrieve User Details</td>
</tr>
<tr>
<td>Processor of User Details Display Form</td>
<td>U</td>
<td>User Details Display Form</td>
</tr>
</tbody>
</table>

Choose **Save**.

8. To activate the object, choose **(Activate)**.
Creating an Exceptional Process

1. Launch Guided Procedures (GP) design time, and choose Create Process from the contextual panel.

2. Enter the following basic data for the process:
   - Name – enter User Lookup
   - Description – enter a brief description of the callable object; for example, User Lookup
   - Original Language – choose English
   - Location – choose Exception Handling

3. Choose (Insert) to add the Exception block to the process flow.

4. Select the process and open the Built-In Roles tab page.
   Set all roles to “Initiator” to ease the process instantiation at runtime.

5. Choose (Activate).

Initiating the User Lookup Process

1. Launch GP runtime and choose Start a new Process from the contextual menu.

2. Browse the gallery to select User Lookup.

3. Choose Next.
   You must associate an existing user to The one and only role.
   To associate a user, select a role, and choose Add User. The user picker is displayed in the right-hand part of the screen. Use the Find function to search for the required user. To associate the user to the role, select it and choose Add.

4. Choose Next.

5. Choose Initiate.
   The User Lookup runtime opens.

6. Enter a User ID that definitely does not exist such as “XXXXX” and choose Submit.
The UME checks whether the User ID is available.

If the background callable object that is called takes longer than 3 seconds to answer the following window appears.

Choose Refresh.

The “EXCEPTION_NO_USER_FOUND” occurs and the action **Handler: User Input** is executed so that the user can enter the User ID again.

7. Enter an existing User ID this time and choose Submit.

8. The user details are displayed:

<table>
<thead>
<tr>
<th>First Name</th>
<th>Michael</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Name</td>
<td>Nielsen</td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
</tr>
<tr>
<td>Fox</td>
<td></td>
</tr>
</tbody>
</table>

[Click to close]
www.sap.com/netweaver