

Oracle Workflow Customization

*An Oracle White Paper
August 2002*

Oracle Workflow Customization

Executive Overview.....	3
Introduction	3
Access Protection.....	3
Access Level	4
Protection Level.....	4
Allow access to everyone	4
Limit access to users with access levels equal to your own	5
Limit access to users with access levels equal to your own or higher	5
Limit access to users with access levels equal to your own or lower.....	5
Customization Level.....	5
Allow modifications to customized objects.....	6
Loading Definitions	6
Loading Workflow Design	6
Loading Translated Definitions	7
Standalone Customers	7
Oracle Applications Customers	7
Case Study	8
Customization Goal	8
Original Process.....	8
Customized Process.....	8
Shipped Workflow Design	8
Item Type	8
Process	9
Function Activities.....	10
Customized Workflow Design	11
Custom Function Activity.....	11
Customized Process.....	11
Preserve Customizations	11
Conclusion.....	13

EXECUTIVE OVERVIEW

Oracle Workflow lets you automate and continuously improve business processes, routing information of any type according to business rules you can easily change to people both inside and outside your enterprise. One of the key features of Oracle Workflow is the ability to adapt to the business process of any enterprise and also be able to adapt to the continuous changes in business processes with ease.

This technical white paper describes how Oracle Workflow supports customizations and provides technical details on the implementation process.

INTRODUCTION

Oracle Workflow lets you easily customize Oracle Applications workflow-enabled transactions to reflect your business practices. You can create alternative processing paths to accommodate new business processing rules or introduce new procedures. You can modify message content for improved decision-making. You can extend a process to include external system processing. Oracle Workflow supports your modifications without changing Applications code. Some workflow products force you to stop their workflow engine to make changes or to introduce new process definitions to the system. Oracle Workflow introduces your modifications without interrupting active processes while the Workflow Engine continues to execute. Oracle Workflow embedded in Oracle Applications provides ease of change and ease of implementation, enabling you to quickly respond in the rapidly changing world of e-business.

ACCESS PROTECTION

Access protection is a feature of Oracle Workflow that prevents workflow seed data created by an Applications product team from being modified by Applications customers. In Oracle Workflow, seed data refers to any of the following:

- Workflow object definitions that can and should be modified to meet a certain consumer's needs.
- Workflow object definitions protected against modification because they represent standards that may also be upgraded in the future by the Oracle Applications product team.

- Translated workflow definitions for which only translated information is uploaded; no design time information, such as process activities or process activity transitions, is uploaded.

Oracle Workflow assigns a protection and customization level to every workflow object definition stored in the database and requires every user of Oracle Workflow to operate at a certain access level. The combination of protection, customization, and access levels makes up the access protection feature and determines whether a user can modify a given workflow object. The level in all three cases is a numeric value ranging from 0 to 1000.

Access Level

Each user of Oracle Workflow operates the system at a certain access level according to the range of levels listed above. A "user of Oracle Workflow," in this case, represents someone who is operating the Oracle Workflow Builder or the Workflow Definitions Loader program which loads workflow process definitions from a file into a database. You should always operate Oracle Workflow Builder at the same consistent access level because the level you work at affects the protection level of the seed data you create.

*Oracle Applications product teams operate the Oracle Workflow Builder and the Workflow Definitions Loader at an access level of **20**.*

*Oracle Applications **customers** should always operate the Oracle Workflow Builder and the Workflow Definitions Loader at an access level of **100**.*

You can view your access level as follows:

- In Oracle Workflow Builder, select About Workflow from the Help menu.
- If you are going to run the Workflow Definitions Loader program to download workflow process definitions from the database to a file, check the value for the environment variable WF_ACCESS_LEVEL on your workflow server. If you do not define this environment variable, the Workflow Definitions Loader simply assumes a default access level of 1.

Protection Level

When a workflow object is created in the Oracle Workflow Builder, the object can be protected at a certain access level. An object's protection level controls whether other users can modify the object based on their access levels.

Allow access to everyone

By default, all users are allowed access to an object if both "Preserve Customizations" and "Lock at this Access Level" are unchecked in the Access tab. Oracle Applications product teams should not ship workflow process with this configuration if:

- The workflow process can be customized
- There may be upgraded versions of the workflow process in the future

Customers customizing objects with this configuration can check the “Preserve Customizations” and “Lock at this Access Level” check boxes to protect their customizations from future upgrades from the Oracle Applications product teams.

Limit access to users with access levels equal to your own

If you check both “Lock at this Access Level” and “Preserve Customizations” you ensure that the object cannot be modified by anyone other than users operating at your current access level.

Oracle Applications product teams should ship workflow processes with the Lock at this Access Level checked to protect any objects that they want to define as “Standard” components.

Customers customizing workflow processes must protect their customizations from being overwritten by checking both the options.

Limit access to users with access levels equal to your own or higher

If you check “Preserve Customizations” in the Options region of the Access tab, you designate the object as being customizable by anyone with an access level equal to or higher than your current access level. You should only mark objects as customizable if you are sure that you will not be providing upgraded versions of this object in the future that would overwrite other users’ customizations to it. Oracle Applications product teams do not ship workflow processes with only Preserve Customizations checked if there may be upgraded versions of the workflow process in the future.

Limit access to users with access levels equal to your own or lower

If you check “Lock at this Access Level”, you protect the object and ensure that only users with an access level equal to or lower than your current access level may modify the object. Users operating at a higher access level will see a small lock on the workflow object’s icon, indicating that the object can be used but not modified.

Oracle Applications product teams should not ship workflow processes with the Lock at this Access Level checked unless they are protecting objects that they want to define as “Standard” components that will not change unless they provide a global upgrade.

It is important that you always operate at the same consistent access level.

Customization Level

Every workflow object, in addition to having a protection level, also records a customization level equal to your access level when you modify the object and save it to a database or file.

The customization level indicates that only someone operating at an access level equal to or higher than the customization level can further modify the object. If you are operating at an access level lower than an object’s customization level, you

will see a small lock on that workflow object's icon, indicating that the object can be used but not modified.

This ensures that a customizable object that has been customized never gets overwritten during a seed data upgrade because the upgrade always occurs with the Workflow Definitions Loader operating at an access level below the customized object's customization level. The following range of access levels are presumed by Oracle Workflow:

- 0-9 Oracle Workflow
- 10-19 Oracle Application Object Library
- 20-99 Oracle Applications development
- 100-999 Customer organization. You can determine how you want this range to be interpreted. For example, 100 can represent headquarters, while 101 can represent a regional office, and so on.
- 1000 Public

All Oracle Applications customer customizations must operate with an access level of 100.

Allow modifications to customized objects

This is an option in the Help > About window of the Workflow Builder. Checking or unchecking this check box dictates the mode in which the Workflow Loader operates when called by the Workflow Builder.

Checking this check box makes the Workflow Builder operate in UPLOAD mode. Thus the Workflow Builder can save your edits, overwriting any protected objects that you have access to modify as well as any previously customized objects.

Unchecking this check box makes the Workflow Builder operate in UPGRADE mode. Thus the Workflow Builder can save edits only to protected objects that you have access to change, leaving objects that have been previously customized untouched.

Oracle Applications users must operate with this check box unchecked (UPGRADE mode).

LOADING DEFINITIONS

Workflow definitions are loaded using two utilities: WFLOAD and FNDLOAD.

Loading Workflow Design

WFLOAD is used to load the workflow design information. Oracle Applications customers must always load the definitions in UPGRADE mode. The WFLOAD program will load only the US language version of workflow definitions.

Loading Translated Definitions

FNDLOAD is used to load translated workflow definitions. This program only uploads the translated portions of the workflow definition file, not the design itself. This is achieved by running the FNDLOAD utility in NLS mode. As a result, changes made to US definitions of workflows that are uploaded using the Workflow Definitions Loader (WFLOAD) do not need to be applied to translated versions of the same workflow that are uploaded using FNDLOAD.

Standalone Customers

Standalone customers can open a translated workflow definition in the Workflow Builder and save the definition in that language. Standalone customers can also use the wfload program to load translated workflow definitions.

Oracle Applications Customers

Oracle Applications customers cannot load translated definitions in the Workflow Builder and save them to the database. Instead, the definitions are loaded using the FNDLOAD utility. If customers would like to view upgraded definitions and compare them with their existing definitions, they must:

- Save the current definitions to a file.
- Load the new (upgraded) definitions for the language using FNDLOAD.
- Open the new definitions from the database using the Workflow Builder.
- Open the previous older definitions from the saved file in another Workflow Builder client.

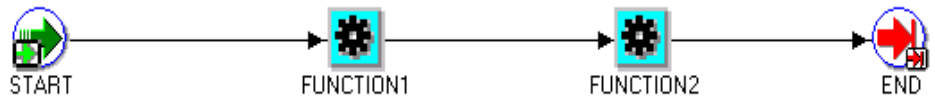
CASE STUDY

To illustrate how the Oracle Workflow access protection feature works, consider the following simple workflow provided by an imaginary Oracle Applications product team. As we already know, the product team would have created this workflow definition with the Oracle Workflow Builder access level set to 20. The screenshots taken below are from the perspective of an Oracle Applications customer, with the Oracle Workflow Builder access level set to 100.

Customization Goal

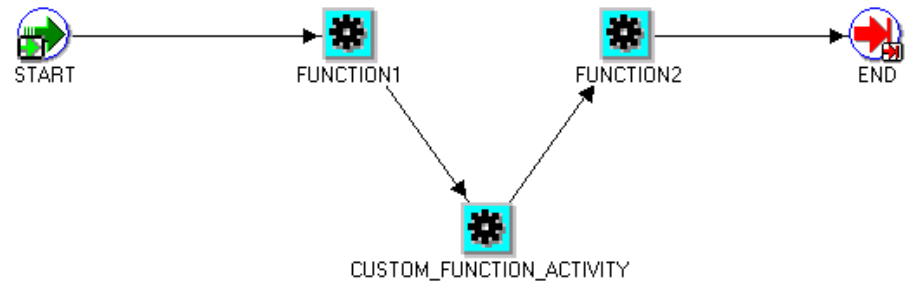
Original Process

The following is the process that was released by the Oracle Applications product team and must now be customized.



Customized Process

The goal is to customize the above process to include a new custom function activity as part of the process as follows:



The following sections describe how this goal can be achieved.

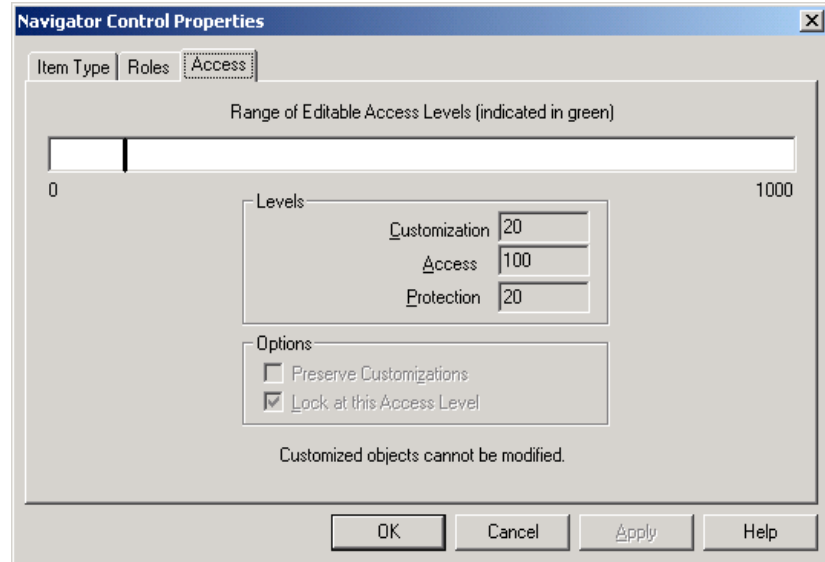
Shipped Workflow Design

Item Type

The internal name of the shipped item type is “ACCSSTST”. The display name is “Access Level Test Workflow”.

To look at the access protection properties of the item type, right-click on the item type and click the Access tab.

As you can see, the entire Access tab is grayed out, as the access level currently being used is 100. This object can only be modified by the Applications product team, who will be operating the Oracle Workflow Builder with the access level set to 20. Note that the “Lock at this Access Level” option alone is checked. If you change the access level to 20, you will see that “Preserve Customizations” and “Lock at this Access Level” are both checked.

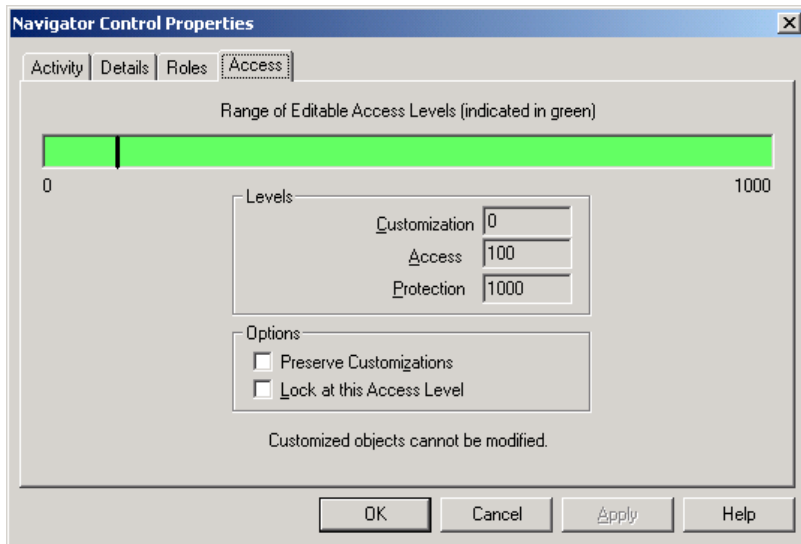


Process

The internal name of the shipped workflow process is “NEW_PROCESS”, and the display name is “New Workflow Process”.

To look at the access protection properties of the process, right-click on the process and click the Access tab.

“Preserve Customizations” and “Lock at this Access Level” are unchecked. All users are allowed access to this object to make changes. Note that it is possible for an Applications customer to check the Preserve Customizations and Lock at this Access Level check boxes for the process, whereas for the item type above, these fields were display only (protected).

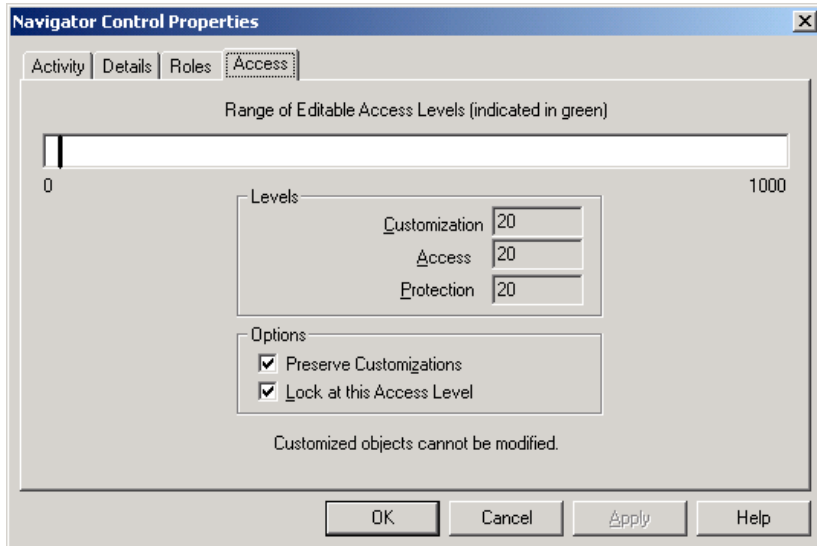


Function Activities

The internal name of the first shipped function is “FUNCTION1”, and the display name is “Function 1”.

To look at the access protection properties of the function activity, right-click on the function activity and click the Access tab.

“Preserve Customizations” and “Lock at this Access Level” are both checked. This ensures that only the Applications product team, who will be operating the Oracle Workflow Builder with the access level set to 20, can modify this object.



Another function activity, FUNCTION2, is also created. Apart from the name and display name, this function activity is identical to FUNCTION1.

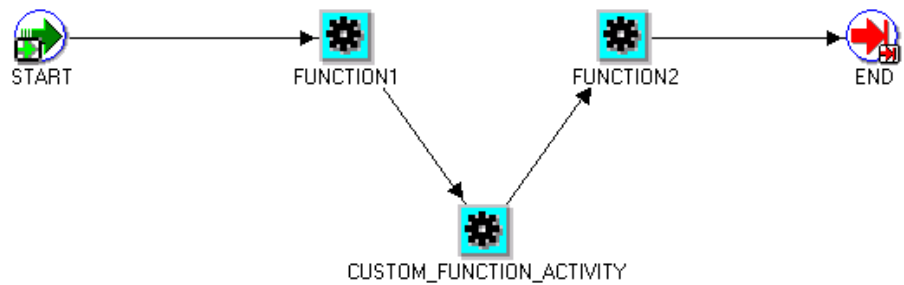
Customized Workflow Design

Custom Function Activity

The goal is to execute a custom function activity after Function 1. This custom function activity would then transition to Function 2. The Oracle Applications customer, operating the Oracle Workflow Builder at an access level of 100, would create a new function activity called “Custom Function Activity”.

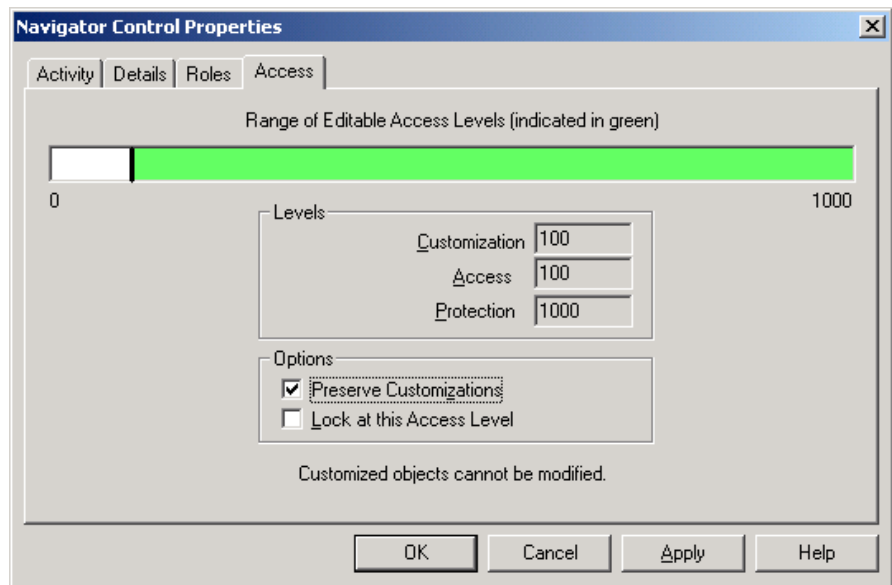
Customized Process

Include the new function “Custom Function Activity” in the “New Workflow Process” workflow process as follows:

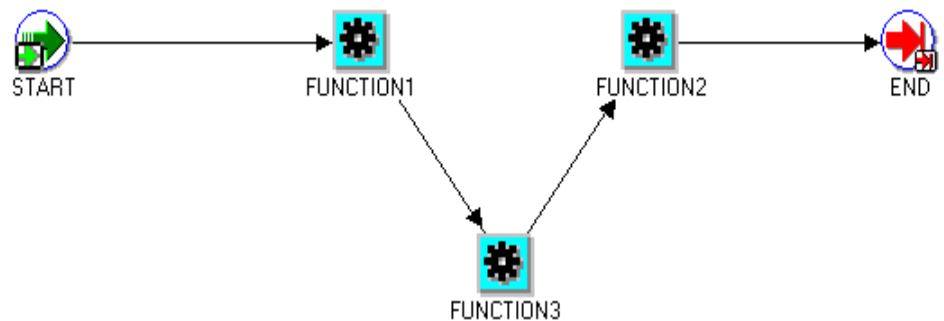


Preserve Customizations

Since the Oracle Applications customer wants this customization to be preserved even after new versions of this workflow are provided by the Oracle Applications product team, the customer would then check only the “Preserve Customizations” check box for the “New Workflow Process” workflow process, as follows:



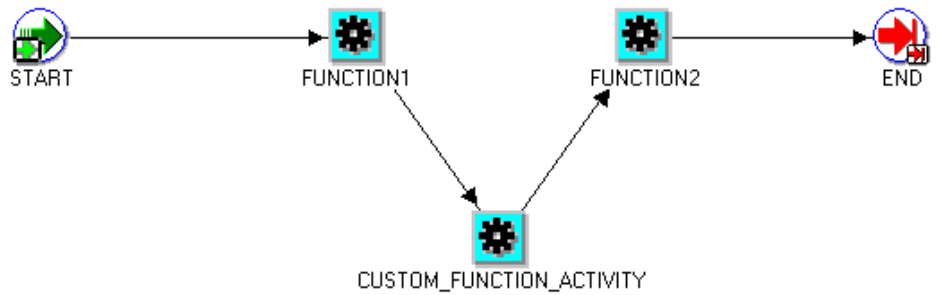
Let's say that the Oracle Applications product team then provided a patch for this workflow definition in which the "New Workflow Process" workflow process had been modified as follows:



After this patch is applied, what would we expect the workflow definition to look like? Close examination of the output log file from the Workflow Definitions Loader when this workflow definition was applied would show the following statement:

ACTIVITY 'ACCSSTST/NEW_PROCESS' is customized, no changes were saved.

This means that the existing customized workflow process was protected from this upgrade, and the workflow process will still look as follows:



This ensures that a customizable object that has been customized never gets overwritten during a seed data upgrade, because the upgrade always occurs with the Workflow Definitions Loader operating at an access level below the customized object's customization level.

CONCLUSION

Access protection lets seed data providers protect certain data as 'read-only', while allowing other data to be customized. Also during a seed data upgrade, access protection lets the seed data provider overwrite any existing protected seed data with new versions of that seed data, while preserving any customizations made to customizable seed data.

A customizable object that has been customized never gets overwritten during a seed data upgrade because the upgrade always occurs with the Workflow Definitions Loader operating at an access level below the customized object's customization level.

*Oracle Applications product teams operate the Oracle Workflow Builder and the Workflow Definitions Loader at an access level of **20**.*

*Oracle Applications **customers** should always operate the Oracle Workflow Builder and the Workflow Definitions Loader at an access level of **100**.*

Oracle Application product teams must ship all their “Standard” components with the “Preserve Customizations” and “Lock at this Access Level” check boxes checked. This will ensure the workflow object definitions are protected from customizations.

Oracle Application product teams should ship workflow definitions with “Preserve Customization” and “Lock at this Access Level” unchecked for those objects which must be customized.

Oracle Application customers must always operate at an access level of 100 and preserve the customized workflows by checking both the “Preserve Customization” and “Lock at this Access Level” check boxes.



Oracle Workflow Customization
August 2002
Author: Varadarajan Rajaram
Contributing Authors: Mark Craig

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:
Phone: +1.650.506.7000
Fax: +1.650.506.7200
www.oracle.com

Oracle is a registered trademark of Oracle Corporation. Various product and service names referenced herein may be trademarks of Oracle Corporation. All other product and service names mentioned may be trademarks of their respective owners.

Copyright © 2002 Oracle Corporation
All rights reserved.