HP Operations Orchestration Software

for the Windows operating system

Software Version: 10.01

HP Service Manager Integration Guide

Document Release Date: August 2013

Software Release Date: August 2013

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1 Overview of Service Manager Integration

With this integration, you can build HP Operations Orchestration (OO) flows that are integrated into HP Service Manager.

This document will explain how this integration has been implemented and how the operations included communicate between OO and SM.

Use cases and scenarios

The following are the major use cases for the SM integration, and the operations that you can use to implement them.

- Managing changes:
  - Approve Change
  - Create Change
  - Get Change
  - Get Change Category Phases
  - Get Change Subcategories
  - Move Change to Next Phase
  - Update Change
  - Update Change Category
- Managing incidents:
  - Create Incident
  - Get Incident
  - Resolve Incident
  - Update Incident
- Managing problems:
  - Create Problem
  - Get Problem
  - Update Problem
- Closing tickets:
  - Close Ticket
  - Get Ticket Closure Codes

Installation and configuration instructions

HP Service Manager (SM) comes with a default WSDL configuration. Each ticket type (such as change, incident, and problem) has a service associated with it that makes possible the communication between OO and SM. SM operations communicate with three main services: Change Management, Incident Management, and Problem Management.

Each service has a WSDL that specifies which fields are exposed from the different tables and which actions are allowed to be performed on an SM server. To make sure that SM operations work properly, the server must configure these WSDL files to expose all of the fields needed for the operations.

Each field from an SM operation maps to a field in the Service Manager corresponding WSDL. For example the Update Change operation invokes the Change Management service. The operation invokes the action “Update” providing the service with the appropriate field values from the operation’s inputs. As a result, the service calls the appropriate SM processes to update the change, performs the request, and returns a message with a result or an error.

Before running any of the SM operations, we strongly recommend that you make the following configurations on your SM server as shown in the following sections.

2 Service Manager 9.3x configurations

Change configuration

For the OO operations that work with changes to execute successfully, you must make the following configuration changes to Service Manager:

1. In the System Navigator go to **Menu Navigation**, then **Tailoring**, then **Web Services**, and then **WSDL Configuration**.

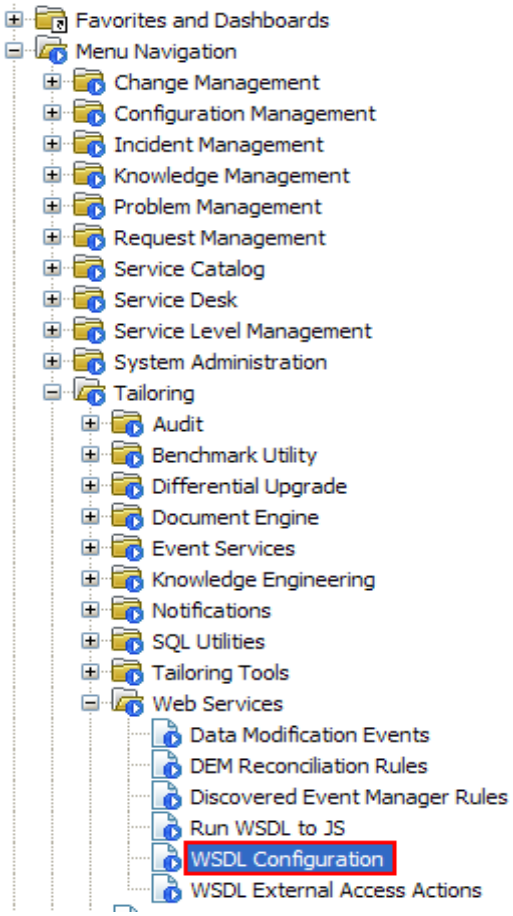


Figure 1 - Location in menu of WSDL Configuration

2. In the **Object Name** field, input the value **Change**, and then click **Search**.

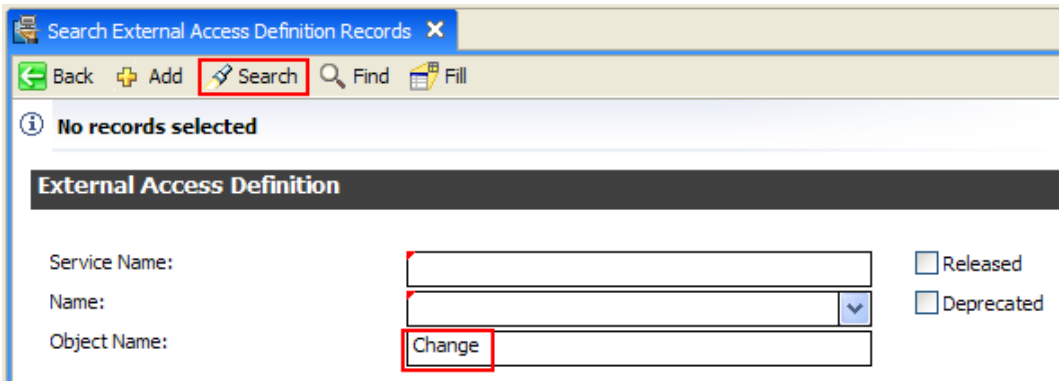


Figure 2 - Search for Change External Access Definition

3. Near the top of the window, you can see a list of SM objects. If it's not already selected, choose the **Change** object. Now, your screen should look like this:

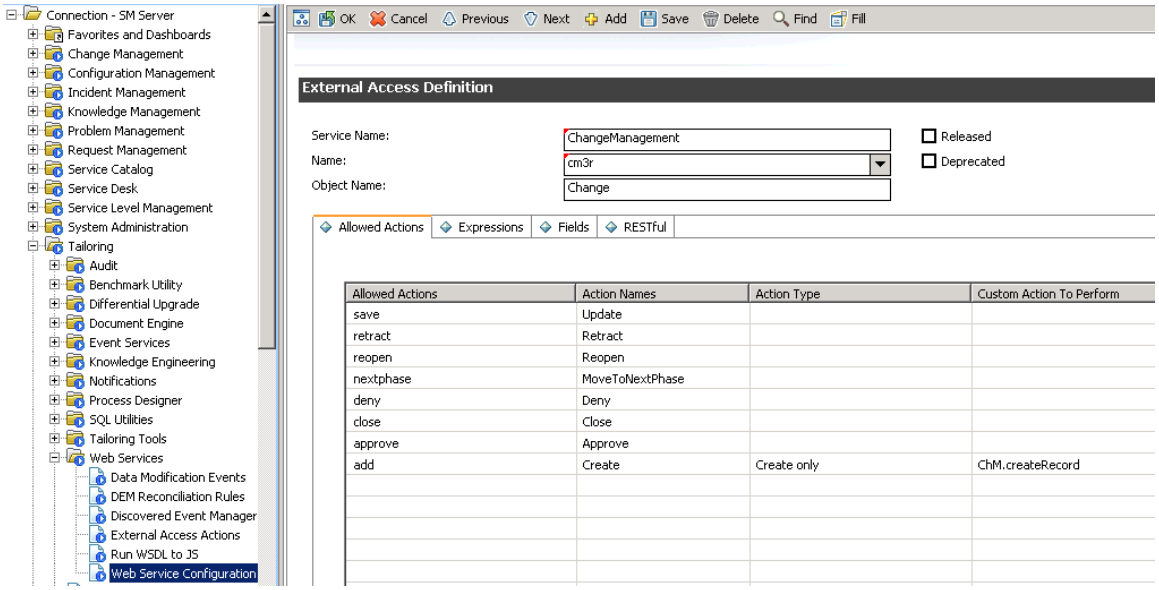


Figure 3 - Change External Access Definition

4. Look on the **Allowed Actions** tab and check that the available actions are exactly as in the following image. If not, you can add a new action by simply writing in the empty fields.

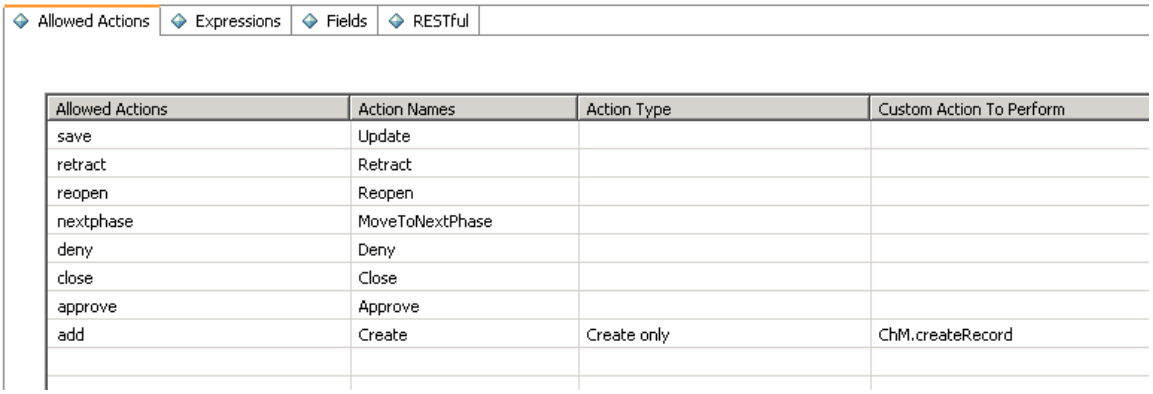
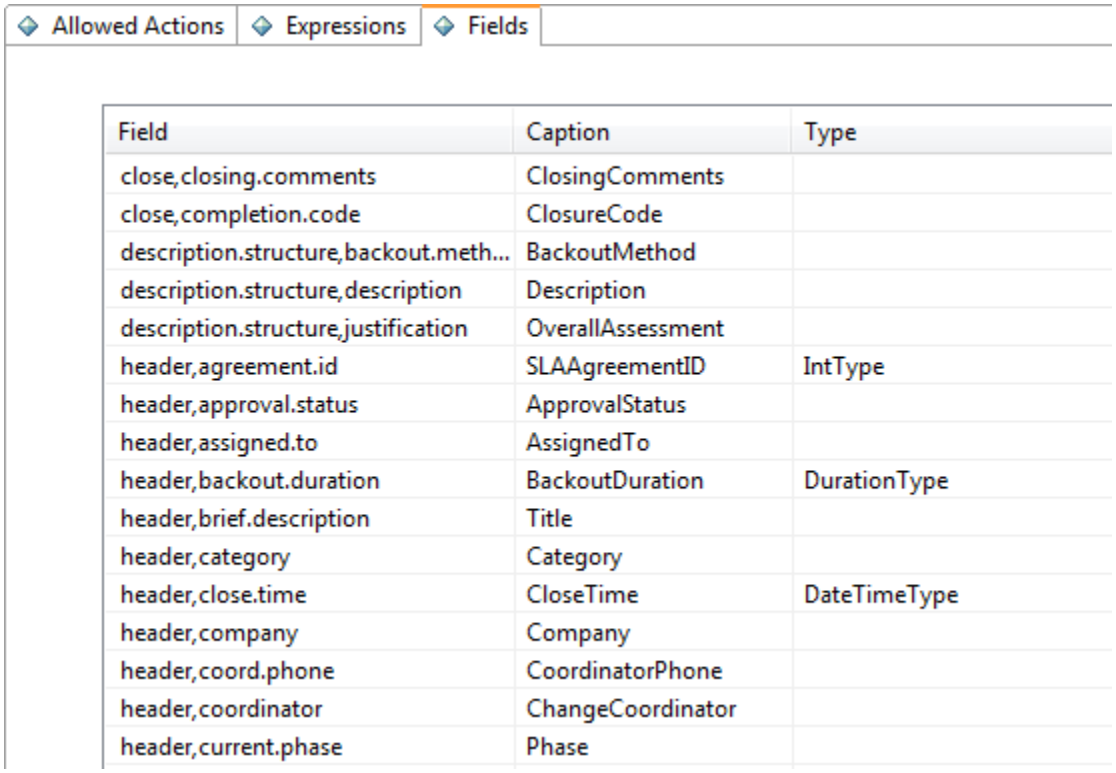
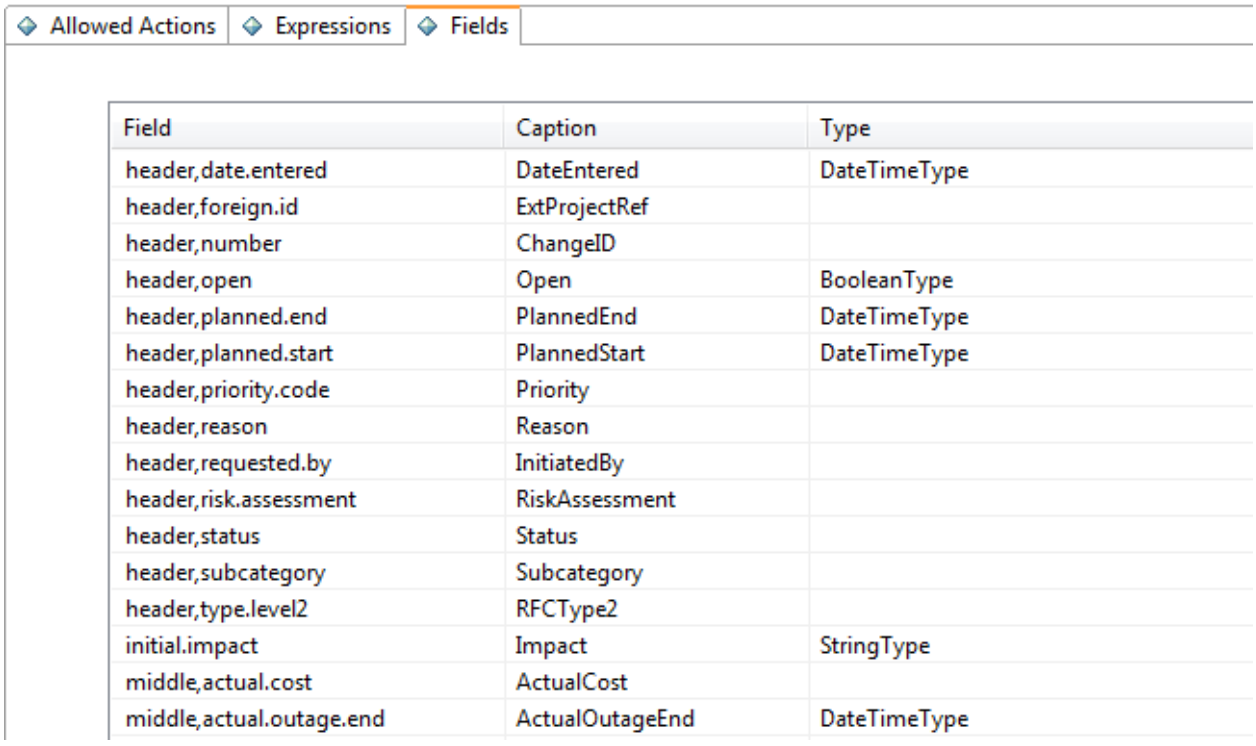


Figure 4 - Change actions

5. Look on the **Fields** tab and check that the available fields are exactly as in the following image. If not, you can add a new field by writing in the empty fields or change an existing one by retyping the field value.



Field	Caption	Type
close,closing.comments	ClosingComments	
close,completion.code	ClosureCode	
description.structure,backout.meth...	BackoutMethod	
description.structure,description	Description	
description.structure,justification	OverallAssessment	
header,agreement.id	SLAAgreementID	IntType
header,approval.status	ApprovalStatus	
header,assigned.to	AssignedTo	
header,backout.duration	BackoutDuration	DurationType
header,brief.description	Title	
header,category	Category	
header,close.time	CloseTime	DateTimeType
header,company	Company	
header,coord.phone	CoordinatorPhone	
header,coordinator	ChangeCoordinator	
header,current.phase	Phase	



Field	Caption	Type
header,date.entered	DateEntered	DateTimeType
header,foreign.id	ExtProjectRef	
header,number	ChangeID	
header,open	Open	BooleanType
header,planned.end	PlannedEnd	DateTimeType
header,planned.start	PlannedStart	DateTimeType
header,priority.code	Priority	
header,reason	Reason	
header,requested.by	InitiatedBy	
header,risk.assessment	RiskAssessment	
header,status	Status	
header,subcategory	Subcategory	
header,type.level2	RFCType2	
initial.impact	Impact	StringType
middle,actual.cost	ActualCost	
middle,actual.outage.end	ActualOutageEnd	DateTimeType

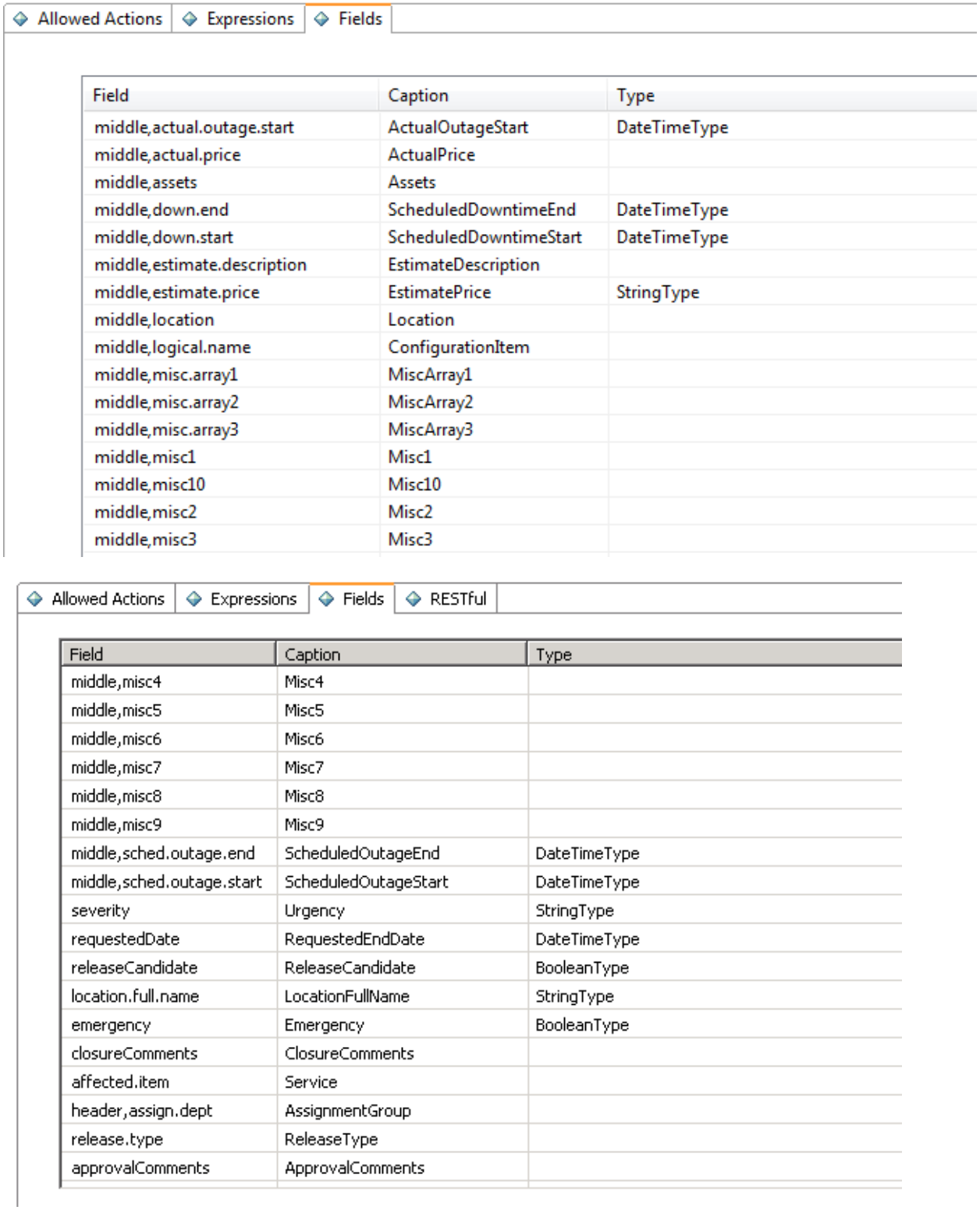


Figure 5 - Change fields

6. Click the **Save** button, and then **OK**.

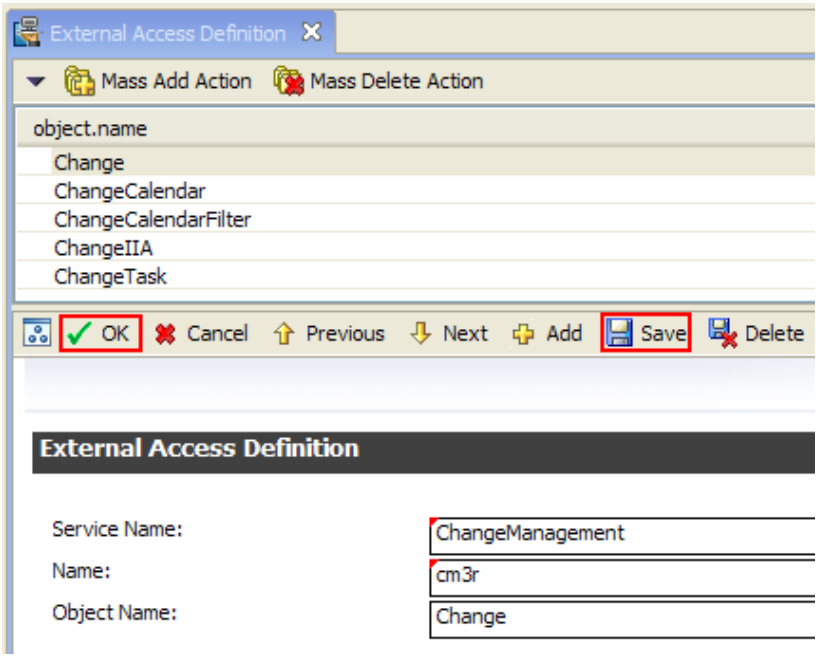


Figure 6 - Save changes

Incident configuration

For the OO operations that work with incidents to execute successfully, you must make the following configuration changes to Service Manager:

1. In the System Navigator go to **Menu Navigation**, then **Tailoring**, then **Web Services**, and then **WSDL Configuration**.

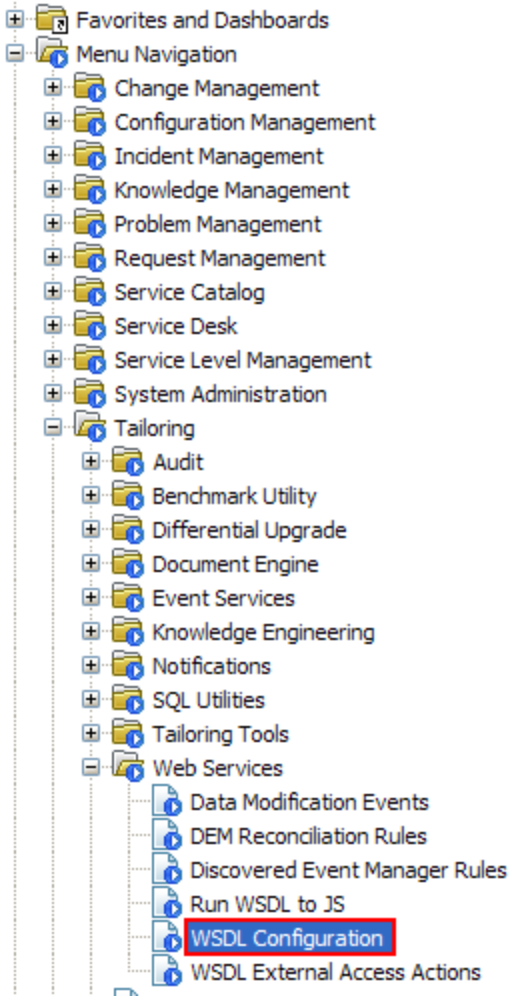


Figure 7 - Location in menu of WSDL Configuration

2. In the **Object Name** field, input the value **Incident**, and then click **Search**.

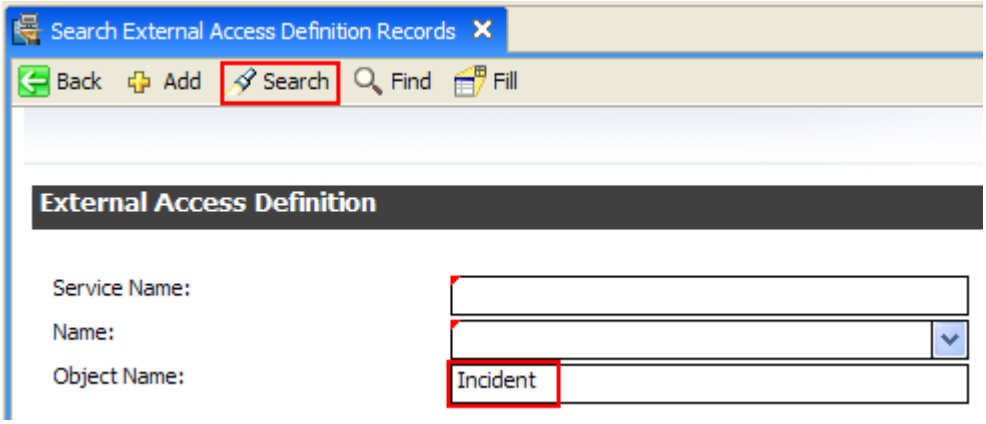


Figure 8 - Search for Incident External Access Definition

Now, your screen should look like this:

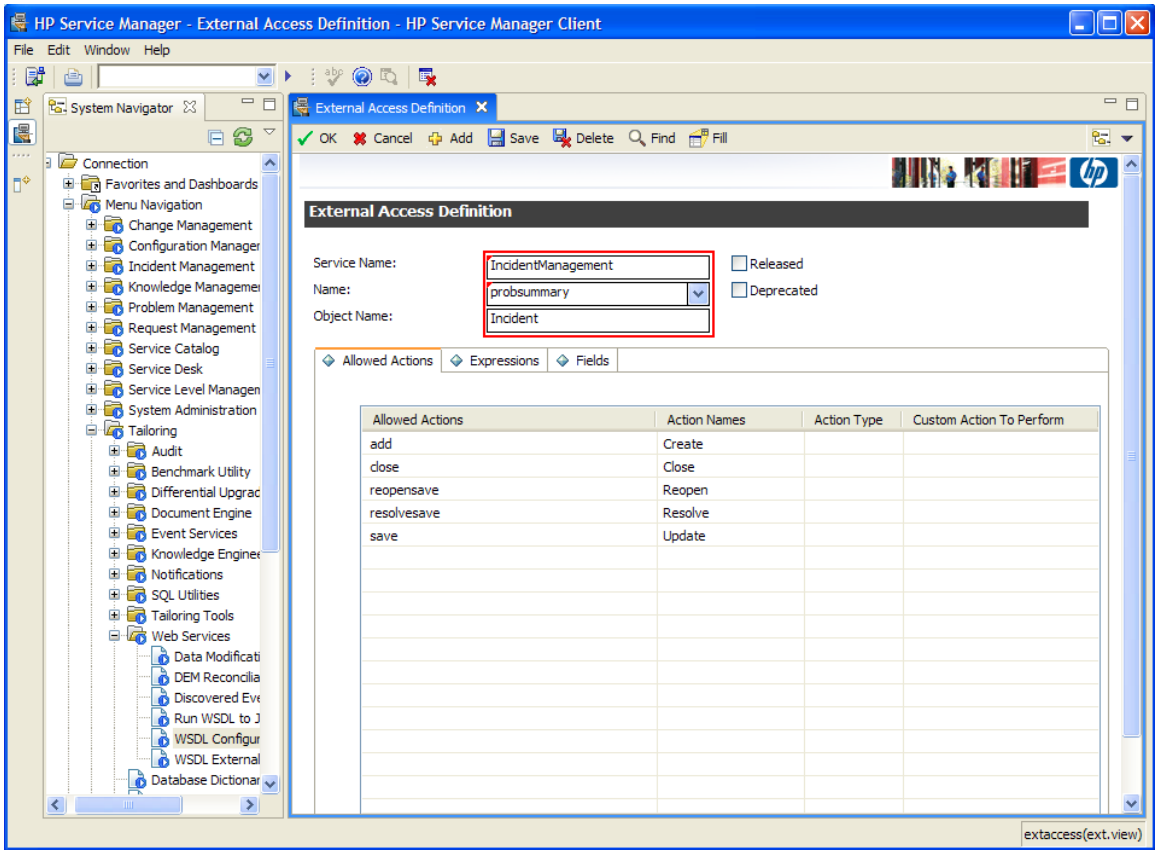


Figure 9 - Incident External Access Definition

3. Look on the **Allowed Actions** tab and check that the available actions are exactly as in the following image. If not, you can add a new action by simply writing in the empty fields.

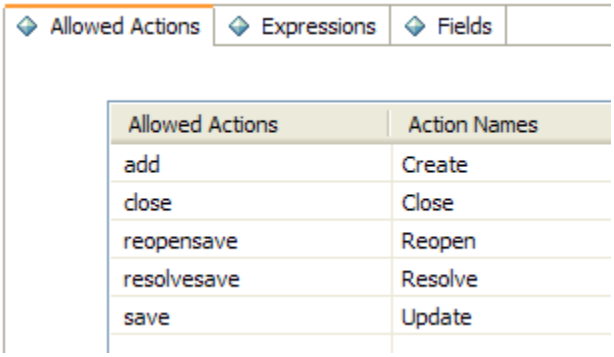
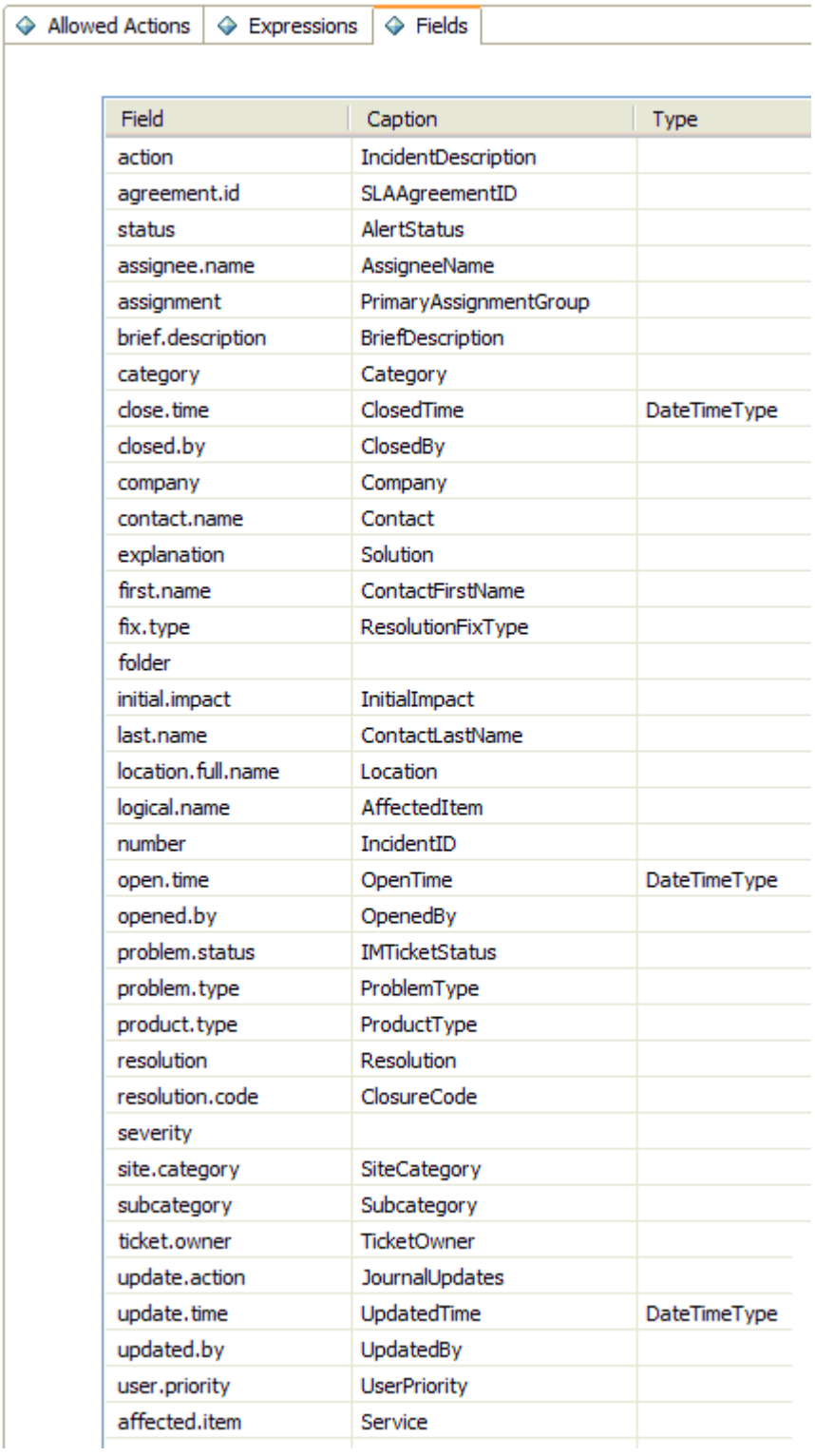


Figure 10 - Incident actions

4. Look on the **Fields** tab and check that the available fields are exactly as in the following image. If not, you can add a new field by writing in the empty fields or change an existing one by retyping the field value.



Field	Caption	Type
action	IncidentDescription	
agreement.id	SLAAgreementID	
status	AlertStatus	
assignee.name	AssigneeName	
assignment	PrimaryAssignmentGroup	
brief.description	BriefDescription	
category	Category	
close.time	ClosedTime	DateTimeType
closed.by	ClosedBy	
company	Company	
contact.name	Contact	
explanation	Solution	
first.name	ContactFirstName	
fix.type	ResolutionFixType	
folder		
initial.impact	InitialImpact	
last.name	ContactLastName	
location.full.name	Location	
logical.name	AffectedItem	
number	IncidentID	
open.time	OpenTime	DateTimeType
opened.by	OpenedBy	
problem.status	IMTicketStatus	
problem.type	ProblemType	
product.type	ProductType	
resolution	Resolution	
resolution.code	ClosureCode	
severity		
site.category	SiteCategory	
subcategory	Subcategory	
ticket.owner	TicketOwner	
update.action	JournalUpdates	
update.time	UpdatedTime	DateTimeType
updated.by	UpdatedBy	
user.priority	UserPriority	
affected.item	Service	

Figure 11 - Incident fields

5. Click the **Save** button, and then **OK**.

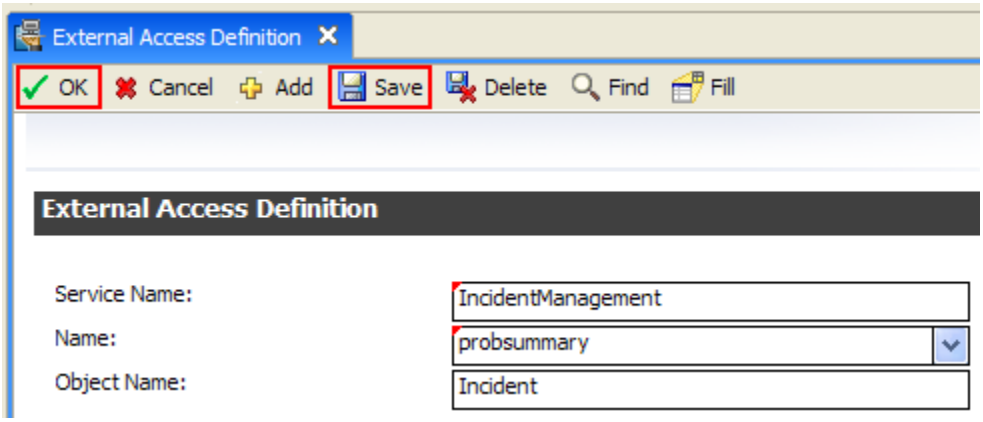


Figure 12 - Save changes

Problem configuration

For the OO operations that work with problems to execute successfully, you must make the following configuration changes to Service Manager:

1. In the System Navigator go to **Menu Navigation**, then **Tailoring**, then **Web Services**, and then **WSDL Configuration**.

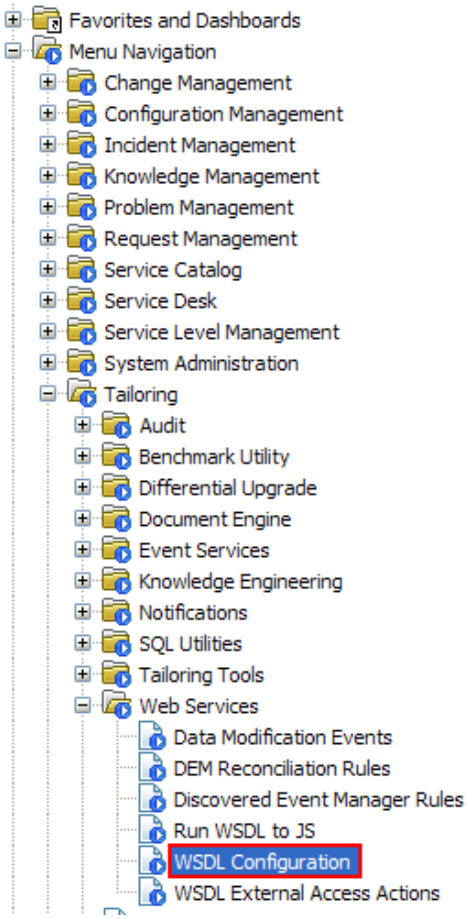


Figure 13 - Location in menu of WSDL Configuration

2. In the **Object Name** field, input the value **Problem**, and then click **Search**.

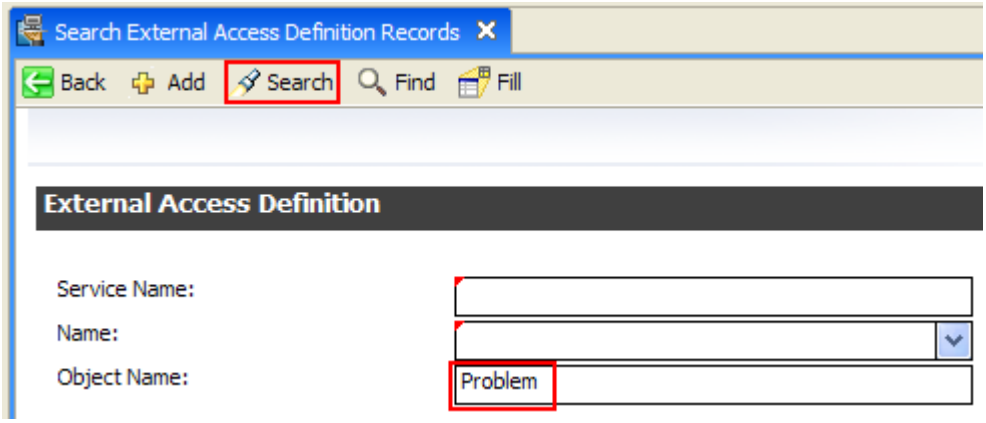


Figure 14 - Search for Problem External Access Definition

Now, your screen should look like this:

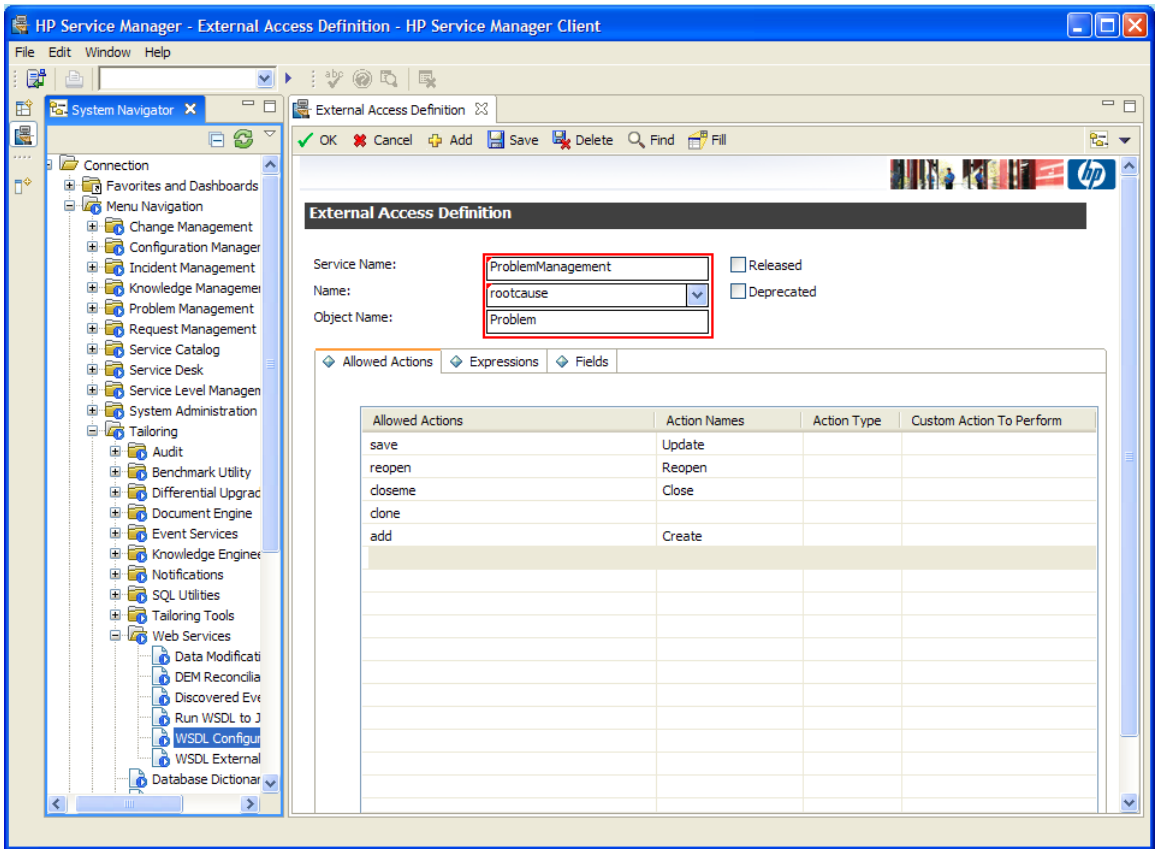


Figure 15 - Problem External Access Definition

3. Look on the **Allowed Actions** tab and check that the available actions are exactly as in the following image. If not, you can add a new action by simply writing in the empty fields.

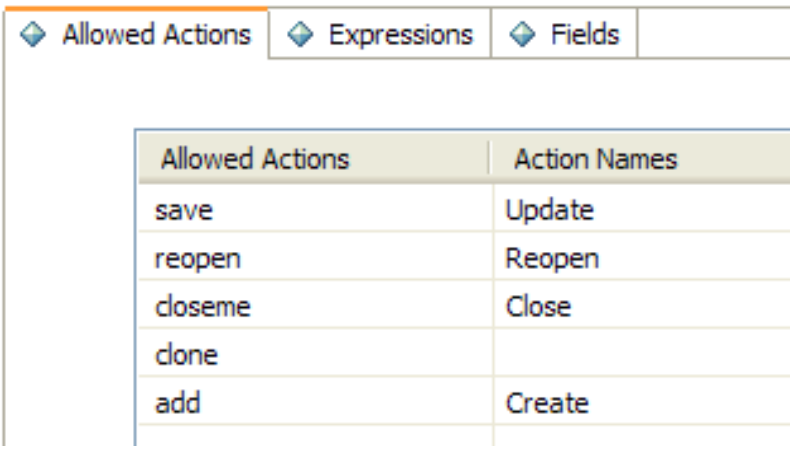
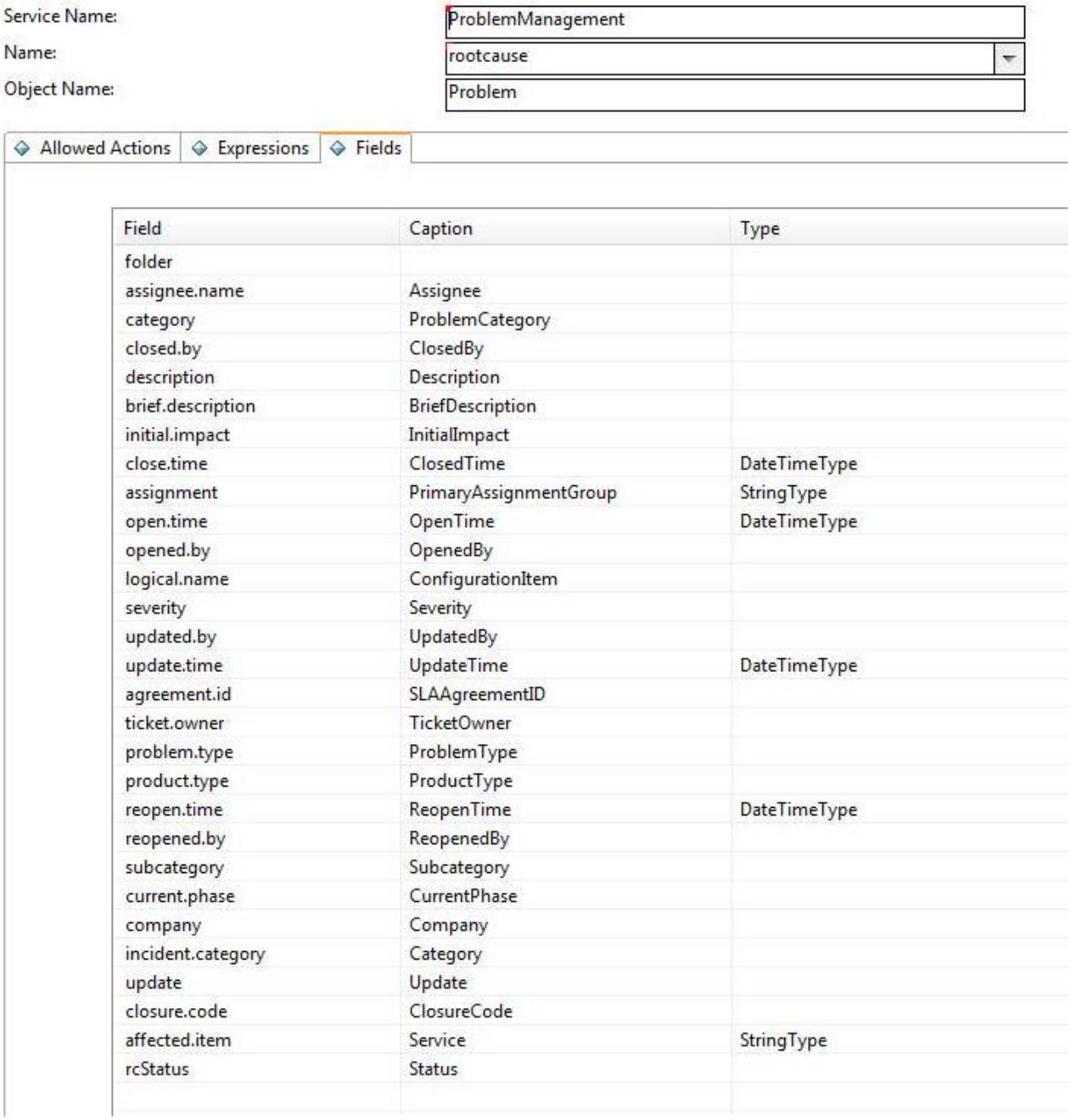


Figure 16 - Problem actions

4. Look on the **Fields** tab and check that the available fields are exactly as in the following image. If not, you can add a new field by writing in the empty fields or change an existing one by retyping the field value.



Field	Caption	Type
folder		
assignee.name	Assignee	
category	ProblemCategory	
closed.by	ClosedBy	
description	Description	
brief.description	BriefDescription	
initial.impact	InitialImpact	
close.time	ClosedTime	DateTimeType
assignment	PrimaryAssignmentGroup	StringType
open.time	OpenTime	DateTimeType
opened.by	OpenedBy	
logical.name	ConfigurationItem	
severity	Severity	
updated.by	UpdatedBy	
update.time	UpdateTime	DateTimeType
agreement.id	SLAAgreementID	
ticket.owner	TicketOwner	
problem.type	ProblemType	
product.type	ProductType	
reopen.time	ReopenTime	DateTimeType
reopened.by	ReopenedBy	
subcategory	Subcategory	
current.phase	CurrentPhase	
company	Company	
incident.category	Category	
update	Update	
closure.code	ClosureCode	
affected.item	Service	StringType
rcStatus	Status	

Figure 17 - Problem fields

5. Look on the Expression tab and search for the expression:

```
if (not same(update in $L.file, update in $L.file.save)) then
($G.bg.activity.type="External Update";$G.bg.activity.text=update
in $L.file;update in $L.file=update in $L.file.save)
```

Add it if you cannot find it there.

6. Click the **Save** button, and then **OK**.

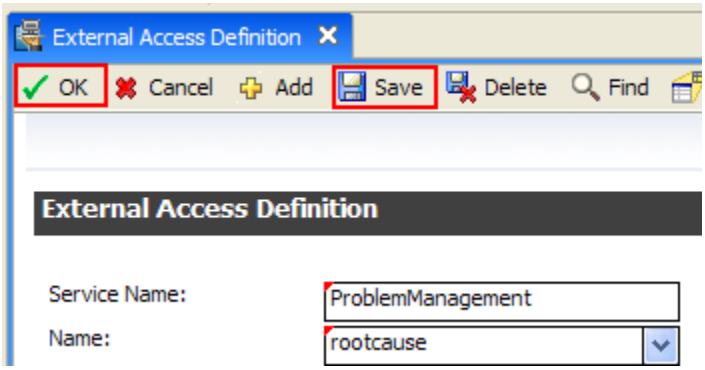


Figure 18 - Save changes

Adding "Change Category Phases" global list

To run the **Get Change Category Phases** operation form OO, you must create a global list on the server. This global list exposes data from Service Manager needed in the OO operation. The global list can be created in the following way:

1. Go to **Menu Navigation**, then **Tailoring**, and then **Tailoring Tools**.
2. Open **Global Lists**.
3. Fill in the window as in the following screenshot.

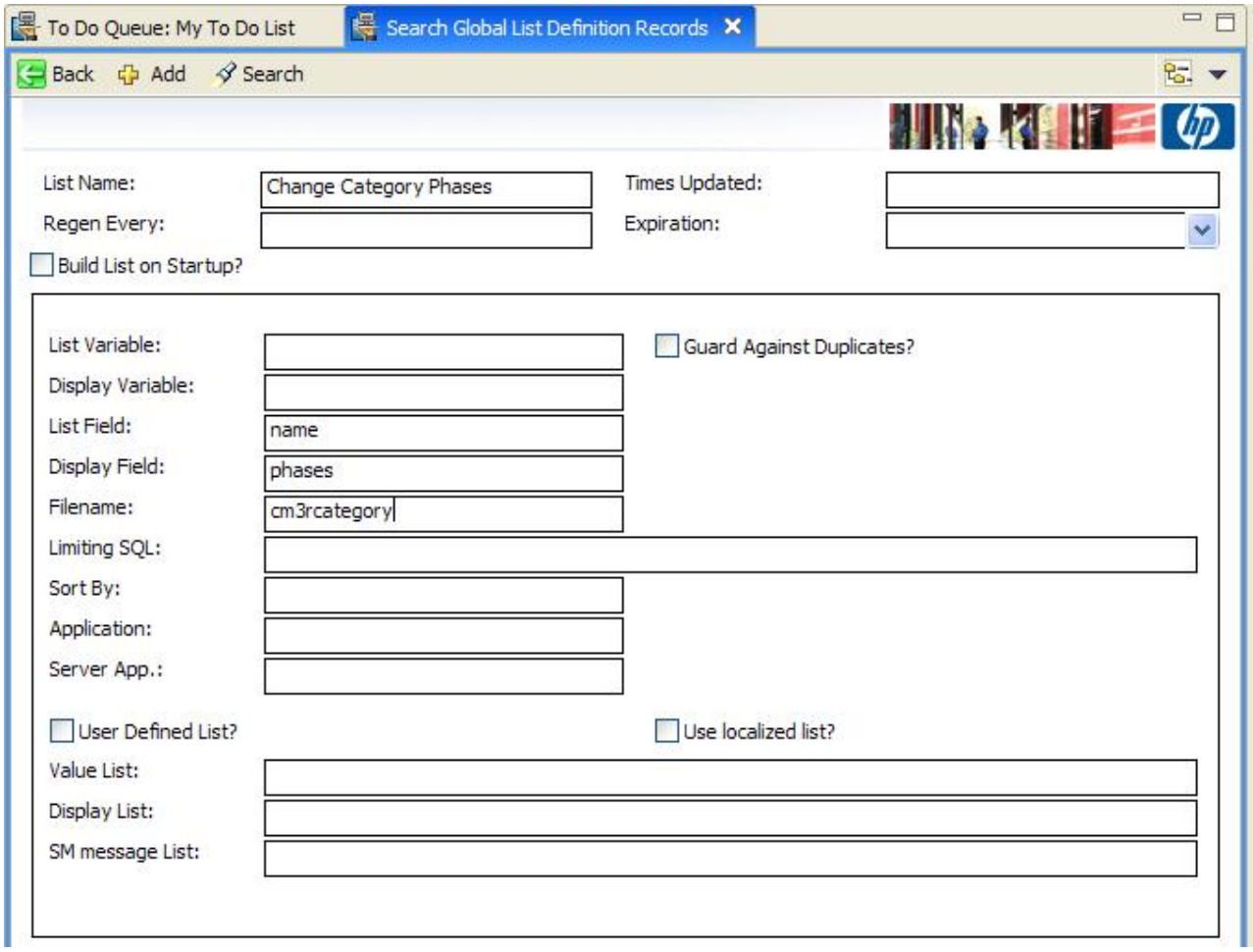


Figure 19 - New Global List values

4. Click the **Add** button.

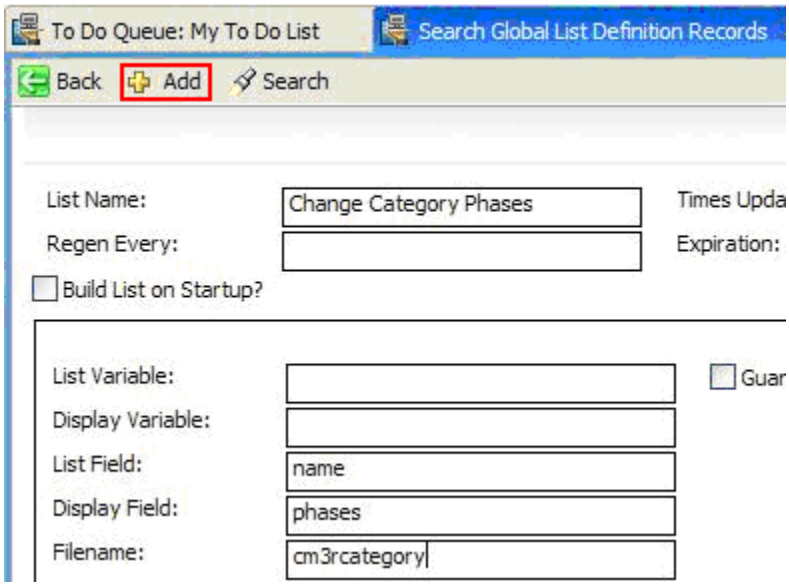


Figure 20 - Add new Global List

Make sure that it generates the global list:

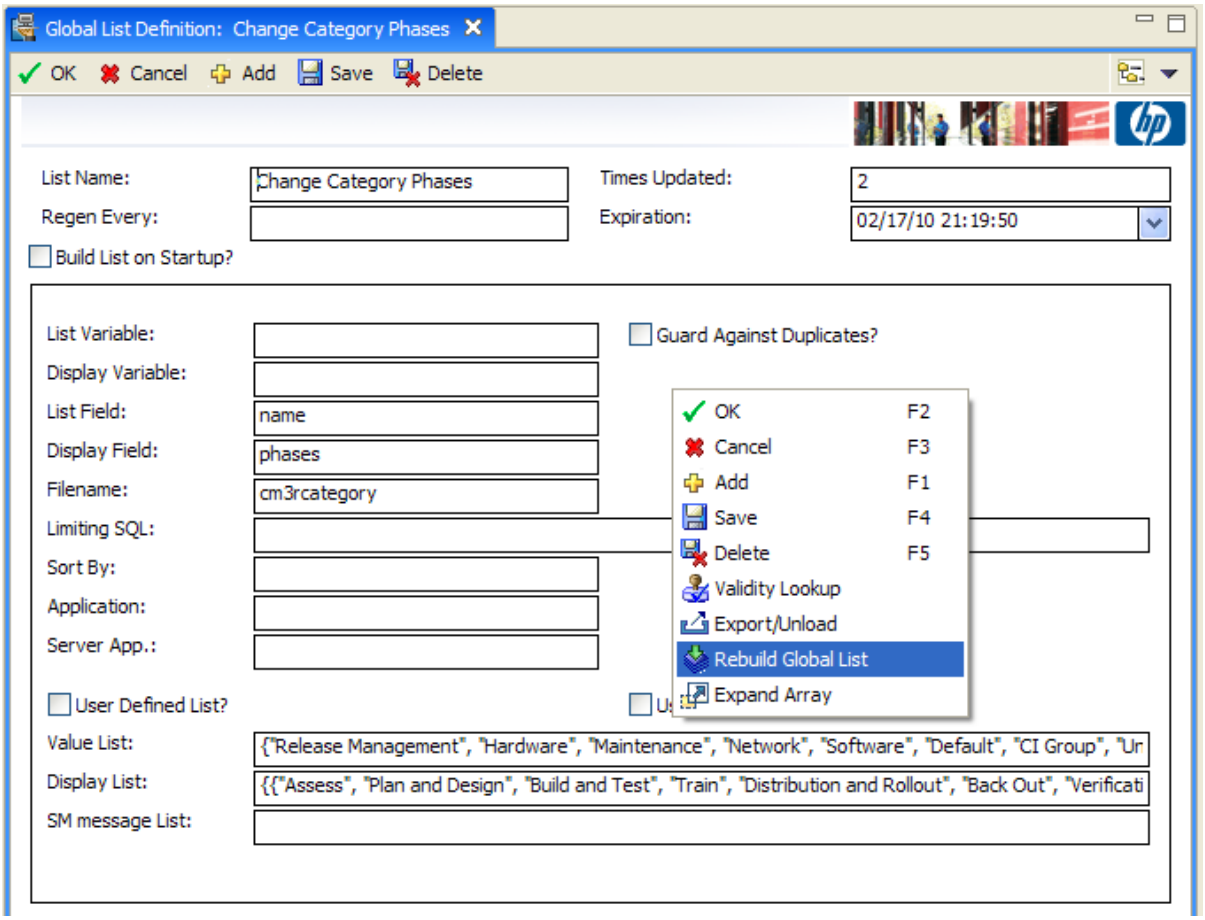


Figure 21 - Build Global List

Adding "Change Subcat" global list

To run the **Get Change Subcategories** operation form OO, you must create a global list on the server. This global list exposes data from Service Manager needed in the OO operation. The global list can be created using the following steps:

1. Go to **Menu Navigation**, then **Tailoring**, and then **Tailoring Tools**.
2. Open Global Lists.
3. Fill in the window as in the following screenshot.

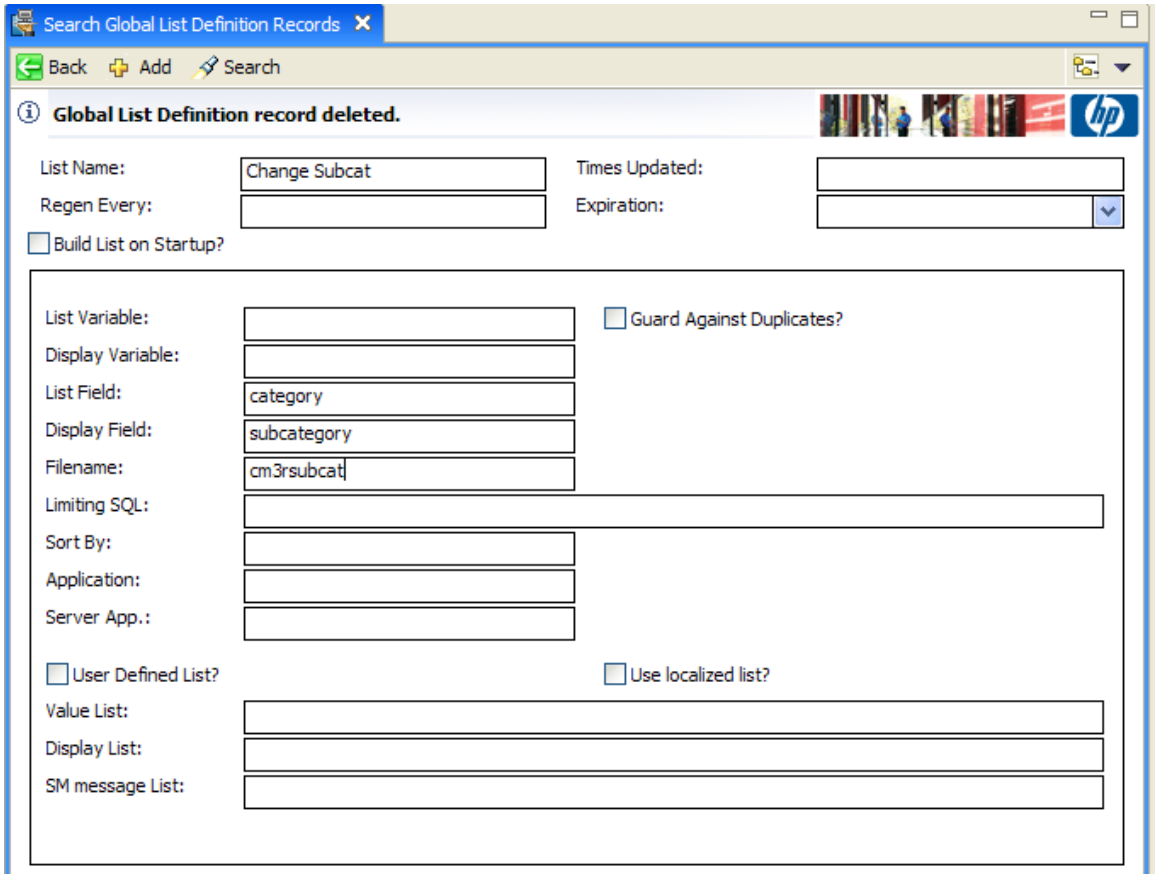


Figure 22 - New Global List values

4. Click the **Add** button.

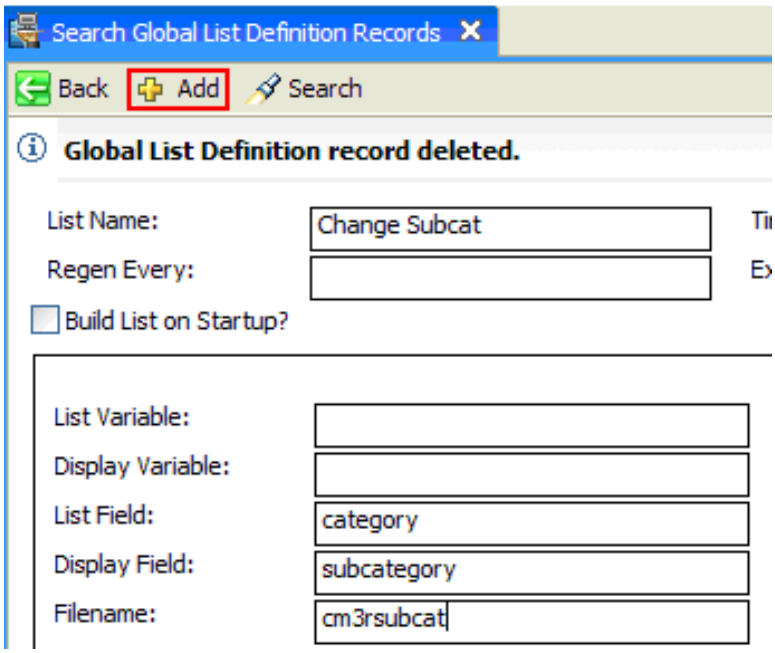


Figure 23 - Add new Global List

Make sure you rebuild the global list so it updates its content.

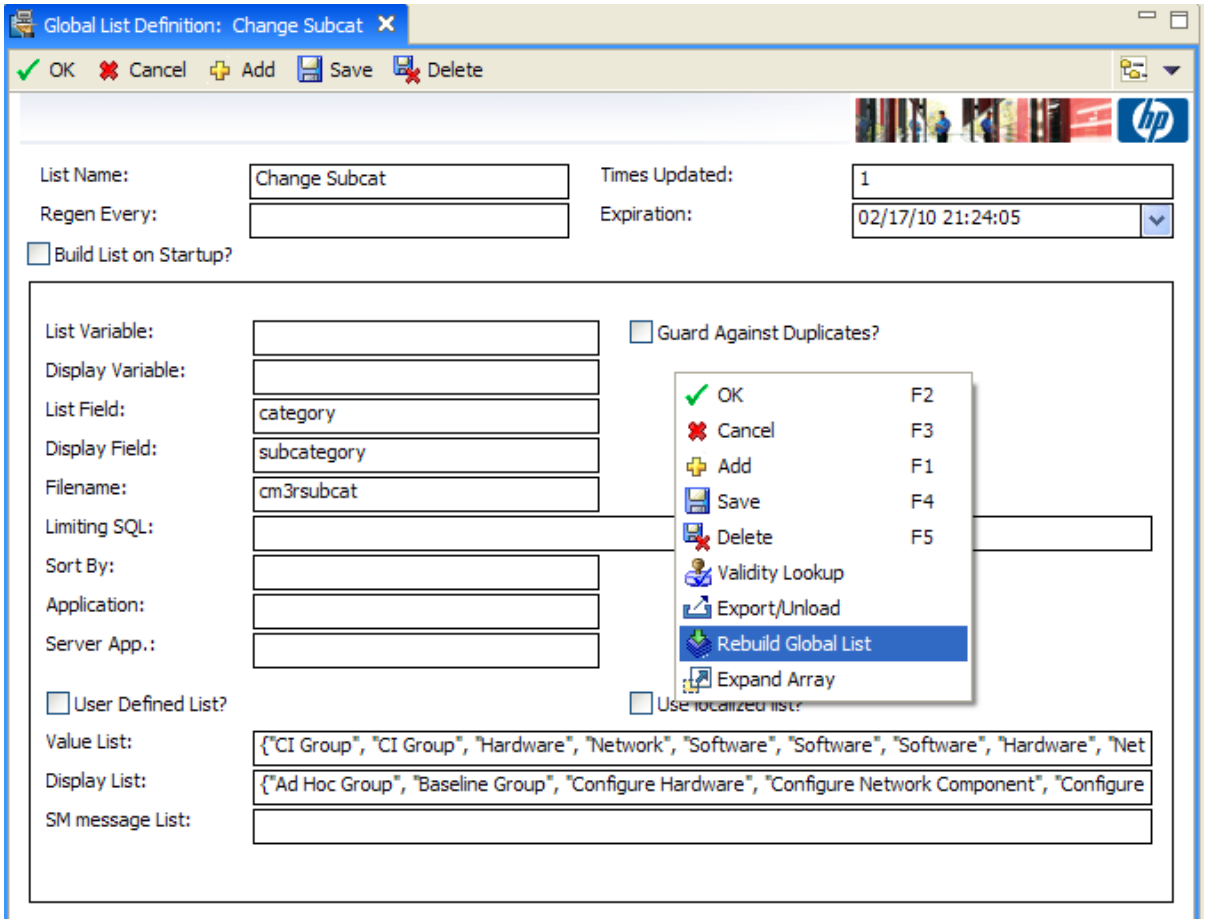


Figure 24 - Build Global List

Adding "Problem and Incident Closure Codes" global list

To run the **GetTicketClosureCodes** operation from OO, you must create a global list on the server. This list makes available to OO the closure codes that can be used in order to close a problem/incident ticket. The global list can be created using the following steps:

1. Go to **Menu Navigation**, then **Tailoring**, then **Tailoring Tools**, and then **Global Lists**.
2. Fill in the form and use the same capitalization as in the screenshot:

   ```
   List Name: Problem and Incident Closure Codes
   List Field: cause.code
   Display Field: resolution.code
   Filename: probcause
   ```

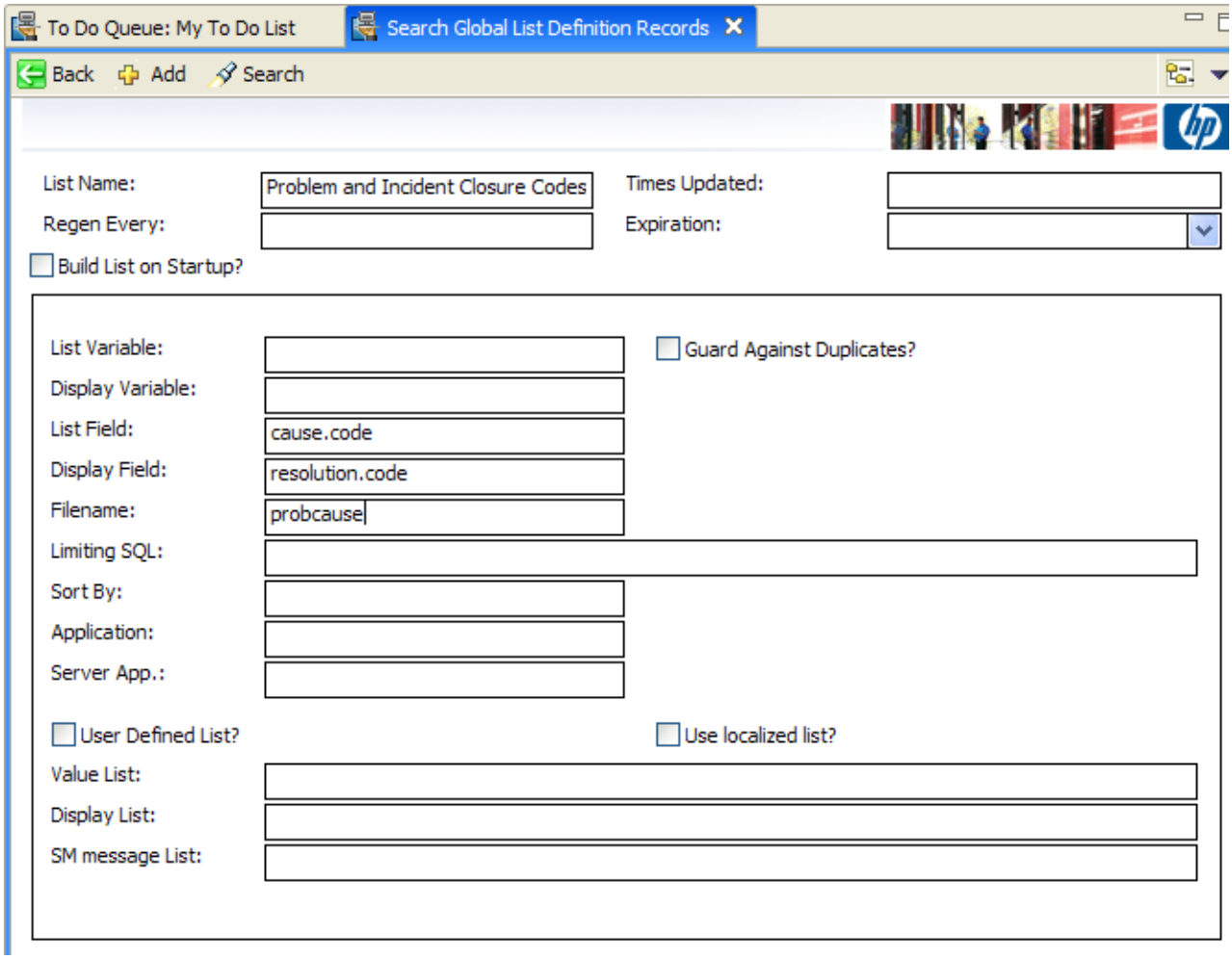


Figure 25 - New Global List values

3. Click the **Add** button.

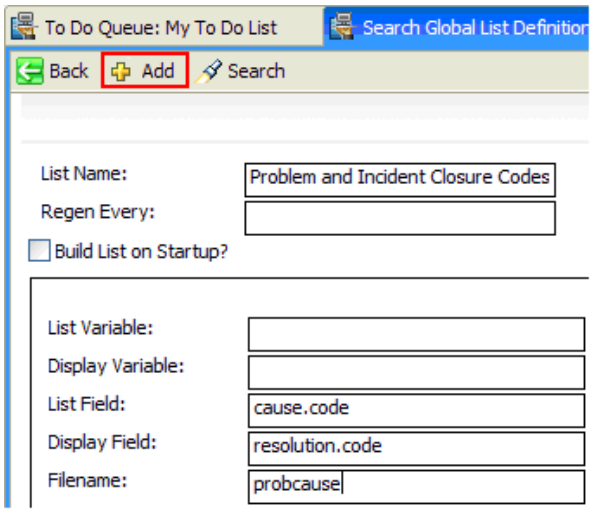


Figure 26 - Add new Global List

4. Right-click the form, and then click **Rebuild Global List** to make sure that the Value list is automatically filled with the closure code values.

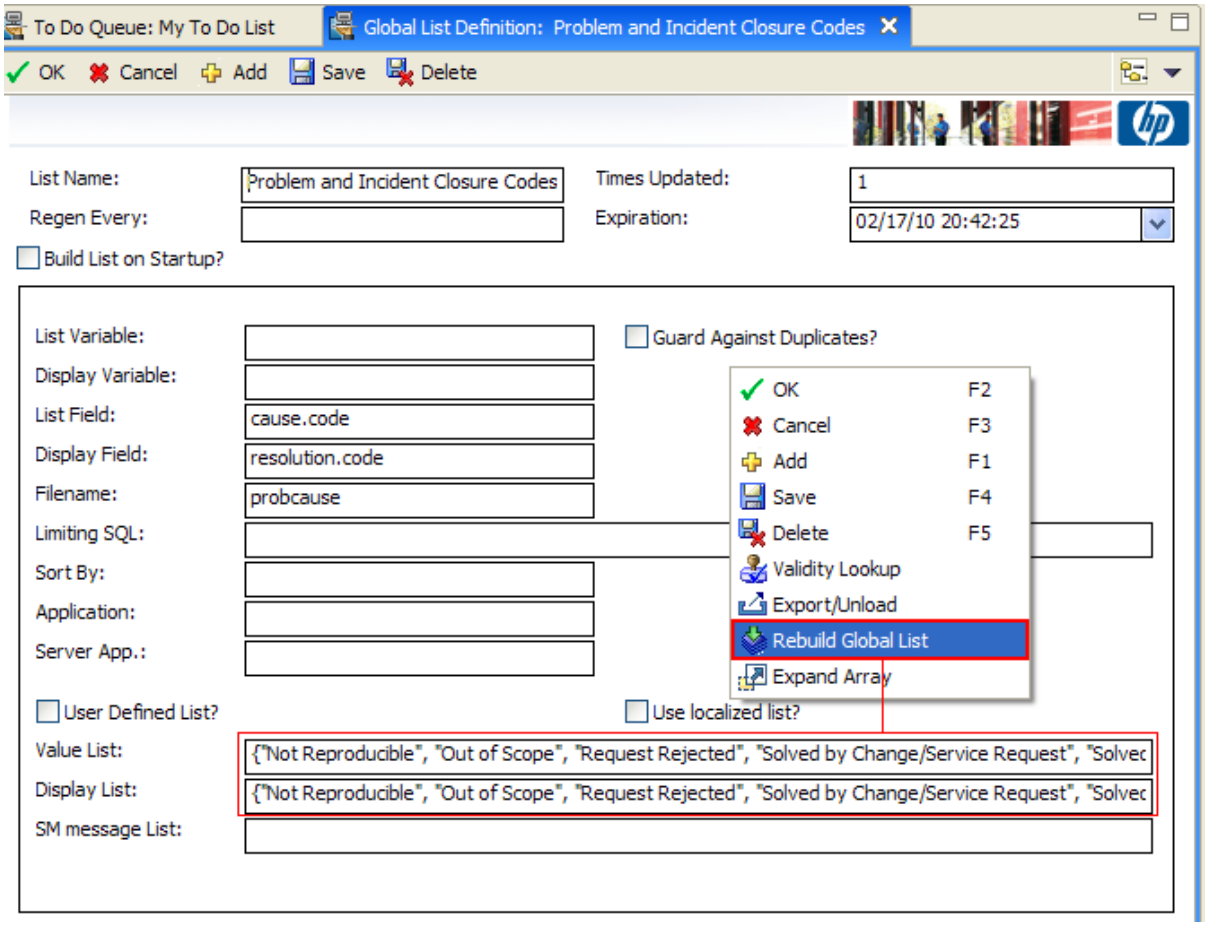


Figure 27 - Build Global List

5. Click **Save** and then click **OK**.

3 Versions

Operations Orchestration Version	HP Service Manager Version
10.01	9.30, 9.31 and 9.32

4 Service Manager integration operation infrastructure

The Service Manager integration includes the following operations in the OO Studio **Library/Integrations/Hewlett-Packard/Service Manager/** folder.

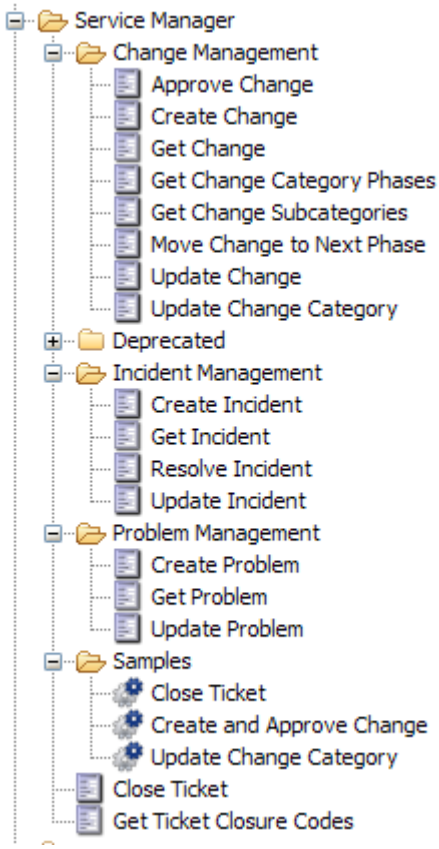


Figure 1 - Service Manager Integration operation and flow infrastructure

5 Common inputs in the integration

OO flows and operations use inputs to specify how they obtain the data that they need and when the data is obtained. The following inputs are used consistently throughout the HP Service Manager integration's operations and flows.

host

The ServiceManager host server. You can specify the host by using its IP address (for example, 10.2.255.116) or its DNS name (for example, www.smhost.com).

port

The Service Manager server port on which the SM is running. You can use port **13080** for http protocol and **13443** for https secure connections.

username

The username to use to connect to the Service Manager server (e.g. **falcon**).

password

The password for the username.

smVersion

The version number of SM you are using (e.g. **sm700**, **sm701**, **sm710**, **sm711**, **sm920**, **sm930**). **sm930** can support both Service Manager version 9.30, 9.31 and 9.32. The default version number is **sm701**.

6 Operation specifics

This section describes the HP Service Manager integration's flows and operations, including any operation- or flow-specific inputs. The flows and operations are grouped by their basic functionality:

- Change Management
- Incident Management
- Problem Management
- Sample flows
- Common operations for all types of tickets

Change Management Operations

These operations carry out tasks for managing change tickets. They are:

- Approve Change: approves or rejects a change ticket
- Create Change: creates a change
- Get Change: retrieves a change
- Get Change Category Phases: gets the phases of change tickets that belong to a certain category
- Get Change Subcategories: gets the subcategories of change tickets that belong to a certain category
- Move Change To Next Phase: moves a change to the next phase
- Update Change: updates the properties of a change ticket
- Update Change Category: updates the category of a change

Incident Management Operations

These are operations that can be used for managing incident tickets. They are:

- Create Incident: creates a new incident
- Get Incident: retrieves an incident
- Resolve Incident: resolves an incident ticket
- Update Incident: updates the properties of an incident ticket

Problem Management Operations

- Create Problem: creates a new problem
- Get Problem: retrieves a problem
- Update Problem: update the properties of a problem ticket

7 Troubleshooting

This section provides troubleshooting procedures and tools you can use to solve problems you may encounter while using this integration. It also includes a list of the error messages you may receive while using the integration and offers descriptions and possible fixes for the errors.

How to display Sched Outage Start and Sched Outage End fields

1. Open **Change Queue** and double-click on a change
2. In the changes table from the top of the screen, right-click and choose **Modify Columns**.

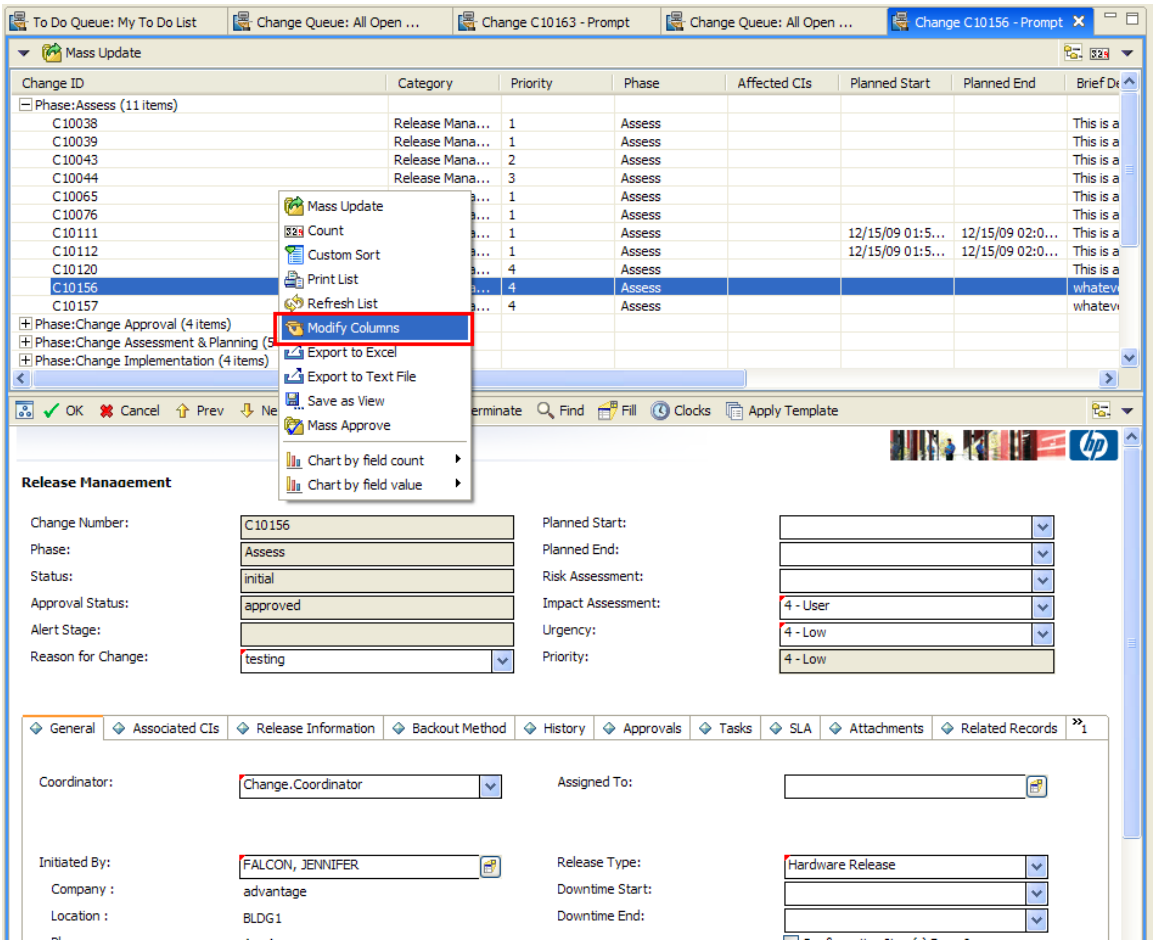


Figure 1 - Modify columns menu option

You can now see a list of the columns that are displayed in the changes table. Click on the last empty row and choose from the drop-down list **Sched Outage Start**; this will make the attribute available in the changes table. Do the same for **Sched Outage End**.

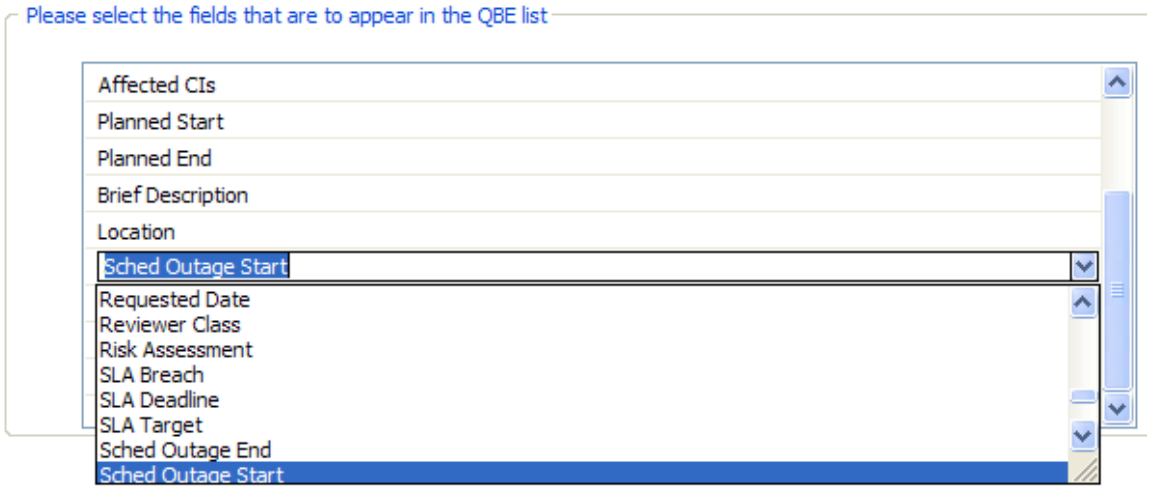


Figure 2 - Add new column

3. Click **Proceed** and the new columns should appear in the changes table. If this is not the case, check if the table has rescaled or you need to drag the right margin of the table to the right so that the new columns would be visible.

How to find user rights and properties (all SM versions)

1. Go to the SM command bar.
2. Enter **operator** and press ENTER.

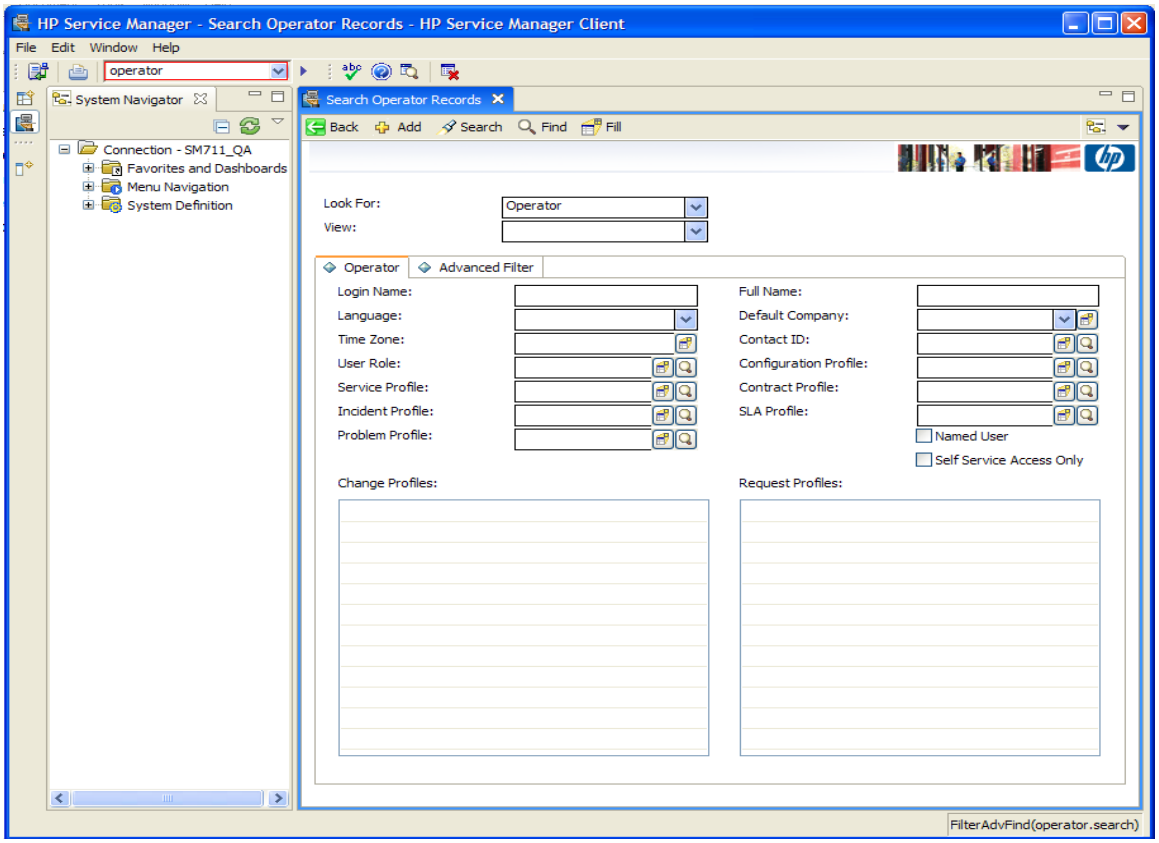


Figure 3 - Search for operator

3. Type the user (e.g. **falcon**) in the **Login Name** text box and press ENTER.

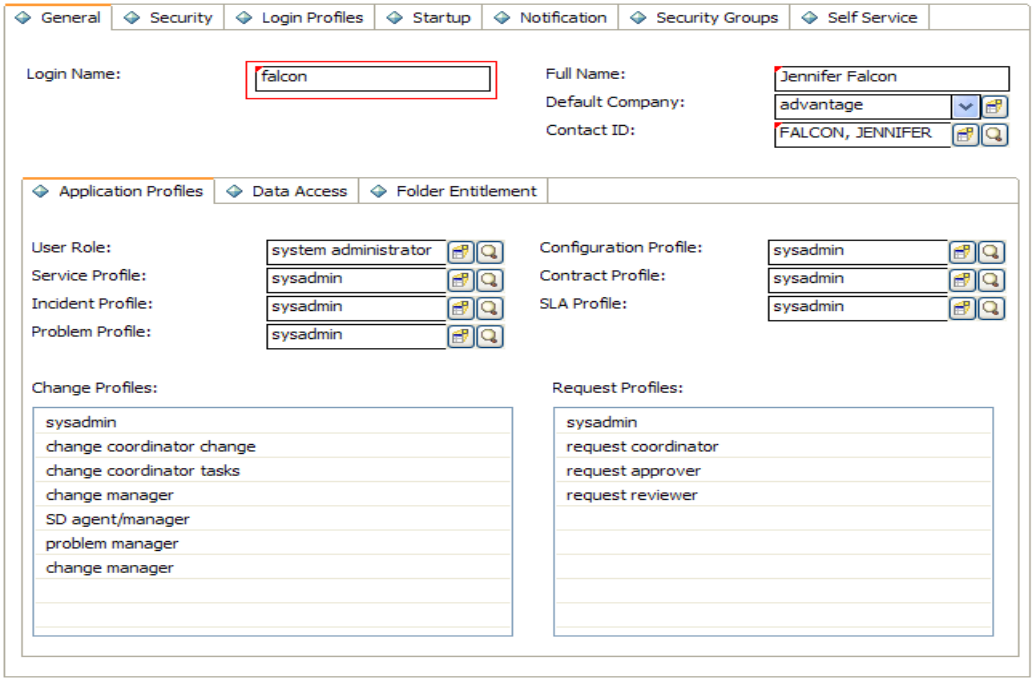
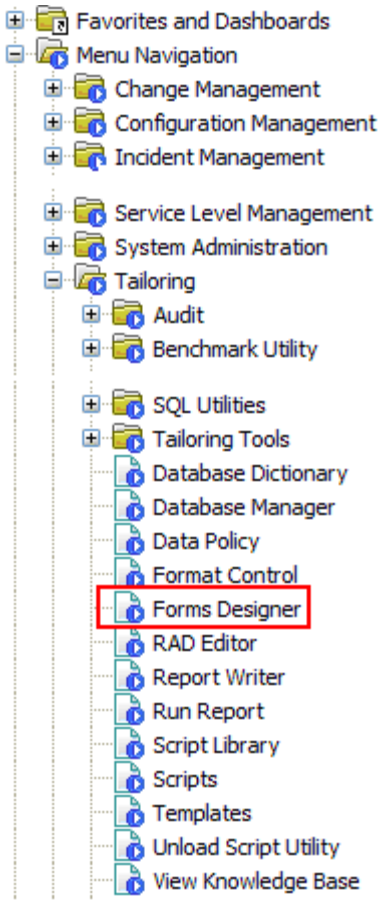


Figure 4 - Search for a specific user

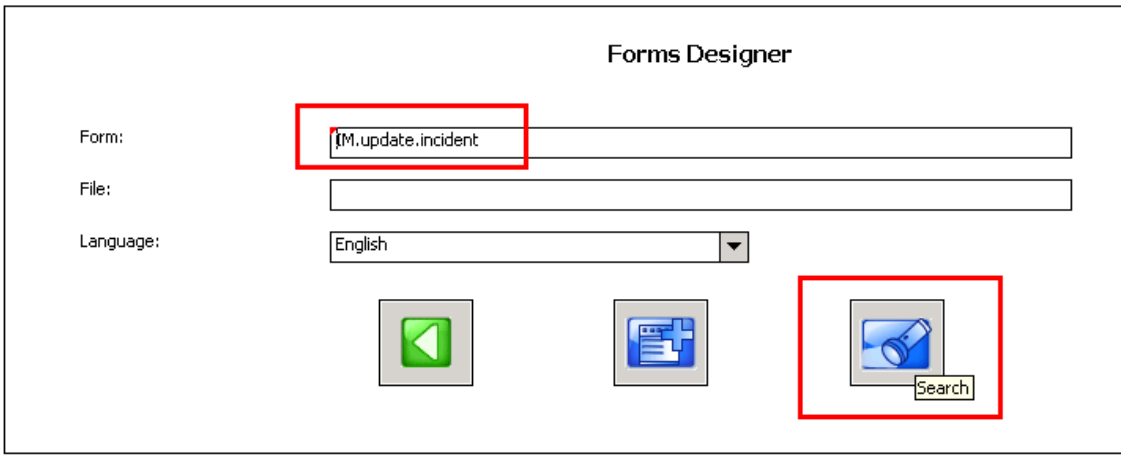
How to view a list of recommended values for siteCategory

For incident tickets, you can see a list of recommended values that can be used in order to update an incident by following the next steps:

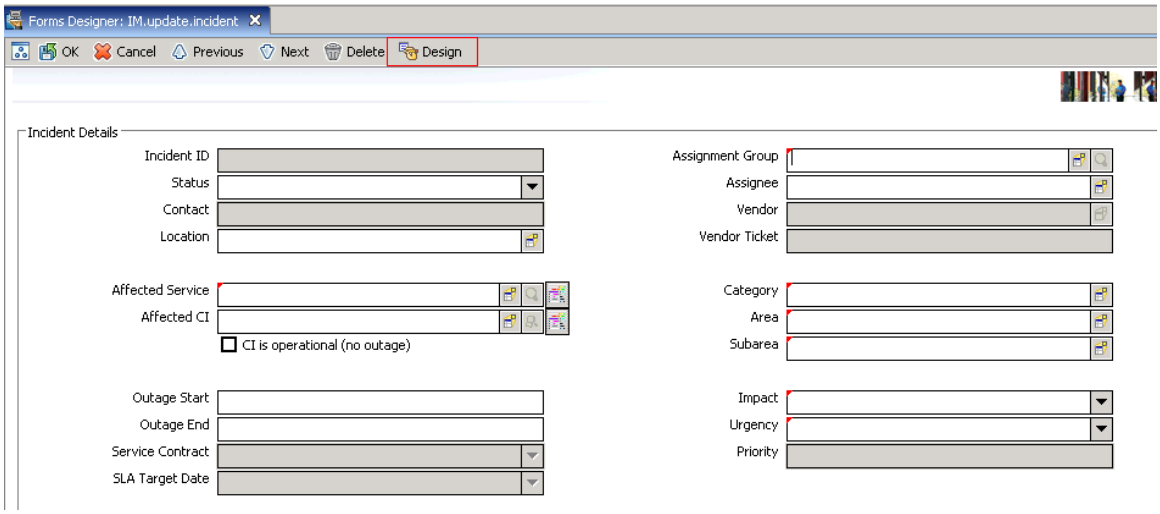
1. Go to **Menu Navigation**, then **Form Designer**.



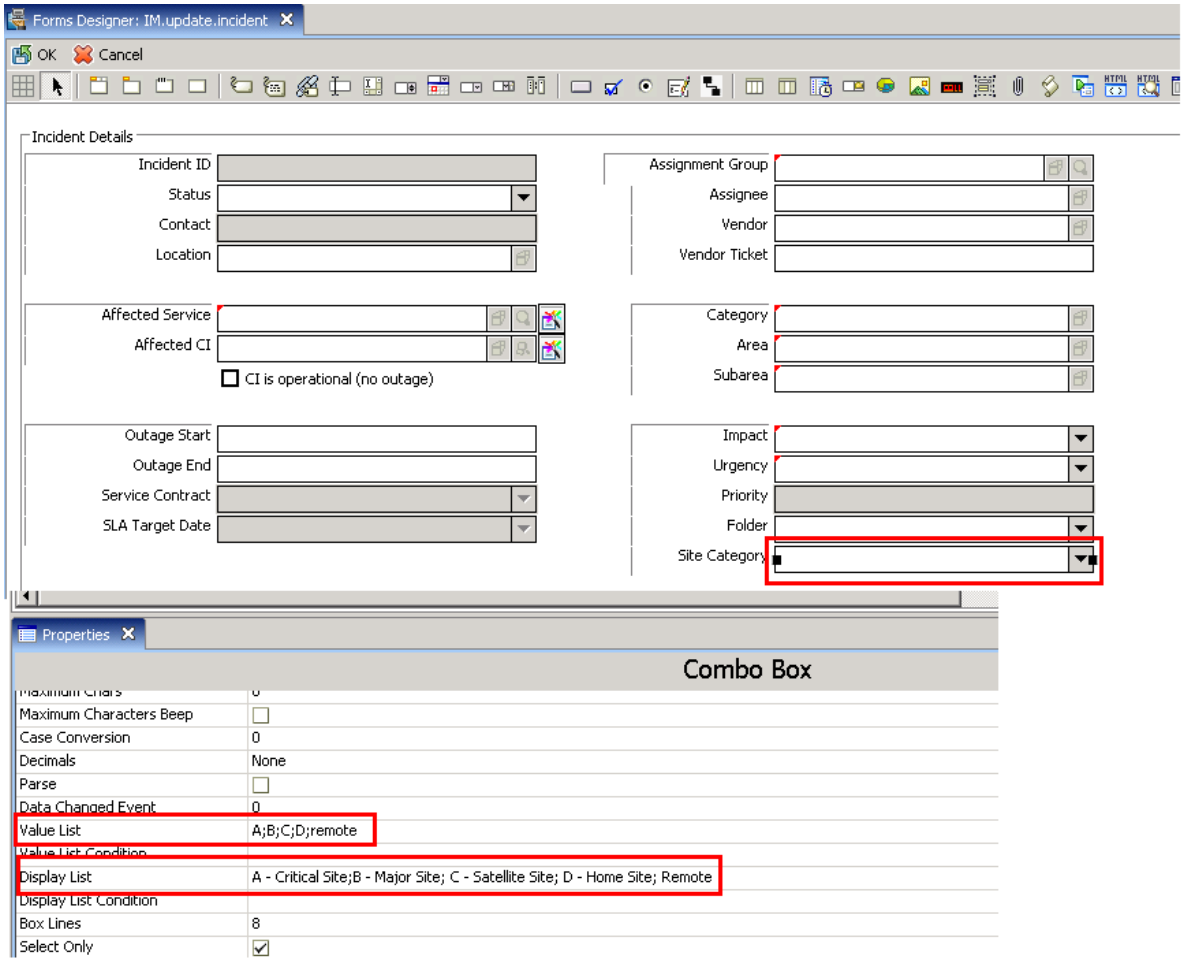
2. In the **Form** field enter **IM.update.incident** and then click **Search**.



You can now see the **Update Incident** form. Click **Design** from the top bar menu:



3. Click the **Site Category** box and in the **Properties** tab, scroll down and look at the **Value List** property. If you can't see the **Properties** tab go to **Window**, then **Show view**, and then **Other** and choose the **Properties** view. The **Value List** property contains the values that can be provided to the **siteCategory** input, and the **Display list** field contains the displayable values associated with the **Value List** content. Each value from Value List has a corresponding value in **Display** List.



Error messages

This section lists the error messages you may receive while using this integration. Each error message includes possible causes and fixes for the error.

Error Message: Connection refused

This error message can be seen if OO can't connect to the SM server host. If the host and credentials are good make sure that SM server machine allows the specified protocol. Service Manager Server installed by default does not support https, therefore check sure your SM host supports the indicated protocol. If you want to enable https on the server then go to %SM Path%/Service Manager 7.xx/Server, execute configure.bat and select to enable https protocol.

Error Message: Unauthorized

This message indicates that the logon information for SM may be incorrect. Check the username and password inputs to make sure that they are correct.

Error Message: Not Authorized

This error message is issued when a user does not have sufficient rights to perform a certain action (e.g. closing a problem ticket). It can be seen even if you specify an existent user from the SM server. Make sure that you entered valid values for inputs and the user has sufficient rights to perform the action (he could be change manager, but not problem manager).

Error Message: Resource Unavailable

This message indicates that the specified resource (change, incident or problem ticket) is used by another application (e.g. HP Service Manager Client). If you encounter this issue check your HP Server Manager Client instance and close the windows that are using your resource.

Error Message: A CXmlApiException was raised in native code : error 19 : scxmlapi(19) - Doc Engine call failed with cc -1

This message appears for some of the Service Manager Operations when they run on SM710 or SM711 servers. Sometimes it is an error given from Service Manager when you try to invoke a service but it does not necessarily mean that the operation did not accomplish its task. A possible workaround is to verify if the operation actually made the requested changes and catch the exception in this case.

Error Message: Unspecified error

This message appears for some of the Service Manager Operations when they run on SM700 or SM701 servers. For some service invocations SM issues this message, but it does not necessary mean that the operation did not accomplish its task. A possible workaround is to verify if the operation actually made the requested changes and catch the exception in this case.

Error Message: Validation failed

In order to successfully run a SM operation you must pass in valid input values. If your inputs are valid and the operation still fails than make sure your WSDL configuration is the same as specified in Installation and Configuration Instructions.

8 Known Issues – Service Manager sessions

Earlier versions of the operation created a new session with the server every time was invoked a web service available on the server. Service Manager interprets each session as a new connection and limits these connections to a well-established number (for example, 50 connections/user). Therefore, after running an operation repeatedly 50 times or more, there were chances to receive an error message caused because of the exceeding maximum number of users.

Current operations normally use eight sessions with the server, one for each service (change, incident, problem, global lists) and protocol used for a host (http or https) so it will not throw an error message if you stress a SM operation more than 50 times in 30 minutes. It could be that sometimes Service Manager status will show more connections than those mentioned above. This is caused because a new session is also created when an operation tries to invoke a SM service and this call fails (not to confuse an invocation failure with an operation failure). Still the Service Manager doesn't close a connection for that user immediately after the session ends.

The operations could also fail sometimes with an error message like "Session no longer valid". This is a known issue caused by the SM server, rarely met and hard to reproduce. Normally a new run of the operation will fix this problem.

9 Security

Service Manager servers are accessed via SOAP over HTTP (or HTTPS, if enabled on the host). The Service Manager server administrator provides logon credentials for connecting with the SOAP. The SOAP client needs the username and password of an integration user defined in the Service Manager server.