

SYSCOM Workitem Handling Facility

Introduction

IBM's MQSeries Workflow provides workitems and activity notifications as a means to deliver work to users and to notify appropriate staff about any work that is overdue based on notification rules defined for the process or activity. The SYSCOM Workitem Handling Facility allows specialized processing for MQSeries Workflow workitems and notifications.

The SYSCOM Workitem Handling Facility provides the ability to start or finish a workitem, transfer it to another user, or terminate process instances for given workitems or notifications. It also offers a callable exit to allow customized implementations of workitem and notification processing.

The SYSCOM Workitem Handling Facility can be used for process and system administrative functions, such as:

- E-mail, system console or other event notifications to system administrators, production supervisors or management based on workitems assigned to special workflow userids
- Automated restart of failed activities
- Termination of process instances, e.g. an order cancelled and supporting processes need to be terminated
- Implementation of "janitorial" tasks, e.g. react to one notification and cleanup associated workitems, or coordinated processing of cleanup tasks when a process completes

Functional overview

The SYSCOM Workitem Handling Facility (WiHF) uses a worklist filter and an authorized MQSeries Workflow userid and password to access workitems and/or activity notifications on a given worklist. Based on task definitions in the WiHF's property file, various actions can be invoked for each workitem or activity notification.

The following list summarizes the main features of the WiHF:

- Uses MQSeries Workflow Java APIs to connect to MQSeries Workflow and query worklists for workitems and activity notifications.
- Command-line invocation (for single-use applications), programmatic invocation, or scheduled execution of the WiHF using native OS schedulers (e.g. cron or at).
- Execution of one or more tasks in a single invocation of the WiHF.
- Flexible definition of tasks, filters and actions through properties file.
- Integration with the SYSCOM Error Handling Facility: This allows – for example – the WiHF to detect overdue workflow activities and report them to the Error Handling Facility. This could in turn generate emails to report those overdue items to supervisory or administrative personnel.
- Custom extensions are possible through implementation of Java classes callable by the WiHF.
- Flexible logging capabilities to allow detailed log output by the WiHF.

For each workitem, or activity notification retrieved as a result of applying the worklist filter, a specific action is applied. The following actions, for example, could be specified:

- Start workitem for each workitem matching the filter
(OWNER=CURRENT_USER AND NAME='SomeActivity')
- Finish workitem for each workitem matching the filter
(OWNER=CURRENT_USER AND NAME='SomeActivity2')

- **Baltimore**
 - **Irvine**
 - **Kansas City**
- Transfer workitem to "USERID" for each notification matching the filter (OWNER=CURRENT_USER AND NAME='SomeActivity3')
 - Terminate the process instance of each workitem matching the filter (OWNER=CURRENT_USER AND NAME='SomeActivity4')
 - Call a Java class method (fully qualified class name) for each workitem matching the filter (OWNER=CURRENT_USER AND NAME='SomeActivity6')

High level design

The WiHF properties file specifies tasks, which are a set of actions and corresponding worklist filters. A task is described to the workitem handler utility according to the following grammar:

<task id>=<action>;using<filter handler>, where

<task id>: Any identifier starting with "task." (must be unique for each task)

<action>: start | finish | transfer(userid) | terminate | call(java class)

<filter handler>: WORKITEM FILTER | NOTIFICATION FILTER (i.e. the worklist filter specification)

The following example shows sample Workitem Handler tasks specified in the properties file:

```
task.1=start;using WORKITEM FILTER(OWNER=CURRENT_USER AND NAME='TestActivity');
task.2=finish;using NOTIFICATION FILTER(DESCRIPTION LIKE
    '*Date:@NOW(MM/dd/yyyy)*');
task.3=transfer(ADMIN);using WORKITEM FILTER(OWNER=CURRENT_USER AND
    NAME='TestActivity');
task.4=terminate;using WORKITEM FILTER(OWNER=CURRENT_USER AND
    NAME='TestActivity');
task.5=call(com.syscom.workflow.test);using WORKITEM
    FILTER(OWNER=CURRENT_USER AND NAME='Test Activity');
```

- Task 1 would start all workitems for activity "TestActivity" found on the worklist for the userid used by the WiHF
- Task 2 would finish all activity notifications where the description contained the string "Date: 07/18/2002", if 7/19/2002 was today's date
- Task 3 would transfer all workitems for activity "TestActivity" found on the worklist for the userid used by the WiHF to the userid ADMIN
- Task 4 would terminate all processes for the workitems for activity "TestActivity" found on the worklist for the userid used by the WiHF
- Task 5 would call a custom Java class on the workitems for activity "TestActivity" found on the worklist for the userid used by the WiHF

In addition to the predefined activities of starting, finishing and transferring workitems and activity notifications, as well as terminating process instances, the WiHF also provides the "call" action that allows the creation of customized Java classes for react to workitems and/or activity notifications.

The "call" action invokes a Java class that either implements the IcallActionHandler interface or extends the CallActionHandler class. Methods for initialization, processing of workitems, processing of notifications, and destruction are available. The processWorkitems method provides access to the MQSeries Workflow workitems retrieved through the applied worklist filter, and the processNotifications method can access the activity notifications available through the worklist filter.

The WiHF can be invoked via command line:

```
java com.syscom.workflow.wih.WorkitemHandler -t=<task id A>[,<task id B>,etc...] [-props=properties file] [-u=user id] [-p=password]
```

It can also be invoked through the normal scheduling services provided by the operating system, e.g. "cron" for UNIX and "at" for Windows NT/2000/XP, or any other third-party scheduling system. The WiHF can also be programmatically invoked by using the provided "executeTask" method.

The WiHF connects to MQSeries Workflow using all available connectivity configurations, including LOCAL and JNDI protocol. It requires that at minimum MQSeries client and the MQSeries Workflow APIs are available on the machine where the WiHF is installed.

To provide logging capabilities, the WiHF properties file can include the definition of the log class (such as the SYSCOM logging framework), as well as logging-specific parameters, such as logging levels and log file.

For more information...

If you would like additional information about the **SYSCOM Workitem Handling Facility**, or, if you would like to engage SYSCOM in your project, please contact us at Sales@SYSCOM.com or:

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