IBM Cognos Analytics
Version 11.0

Event Studio User Guide

IBM

Introduction

This document is intended for use with IBM® Cognos® Event Studio. Event Studio is a web-based product for creating and managing agents that monitor data and perform tasks when the data meets predefined thresholds.

This document describes how to use Cognos Event Studio to ensure that critical information is detected quickly and delivered to key stakeholders in your business.

Audience

To use Cognos Event Studio, you should have
- Knowledge of your business requirements.
- Knowledge of business analysis concepts.
- Knowledge of databases and data modeling concepts.

Finding information

To find product documentation on the web, including all translated documentation, access IBM Knowledge Center (http://www.ibm.com/support/knowledgecenter).

Accessibility features

IBM Cognos Event Studio does not currently support accessibility features that help users with a physical disability, such as restricted mobility or limited vision, to use this product.

IBM Cognos HTML documentation has accessibility features. PDF documents are supplemental and, as such, include no added accessibility features.

Forward-looking statements

This documentation describes the current functionality of the product. References to items that are not currently available may be included. No implication of any future availability should be inferred. Any such references are not a commitment, promise, or legal obligation to deliver any material, code, or functionality. The development, release, and timing of features or functionality remain at the sole discretion of IBM.

Samples disclaimer

The Sample Outdoors Company, Great Outdoors Company, GO Sales, any variation of the Sample Outdoors or Great Outdoors names, and Planning Sample depict fictitious business operations with sample data used to develop sample applications for IBM and IBM customers. These fictitious records include sample data for sales transactions, product distribution, finance, and human resources. Any resemblance to actual names, addresses, contact numbers, or transaction values is coincidental. Other sample files may contain fictional data manually or machine generated, factual data compiled from academic or public sources, or data used with permission of the copyright holder, for use as sample data to develop sample applications. Product names referenced may be the trademarks of their

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Chapter 1. IBM Cognos Event Studio

Use IBM Cognos Event Studio to notify decision-makers in your organization of events as they happen, so that they can make timely and effective decisions.

You create agents that monitor your organization's data to detect occurrences of business events. An event is a situation that can affect the success of your business. An event is identified when specific items in your data achieve significant values. Specify the event condition, or a change in data, that is important to you. When an agent detects an event, it can perform tasks, such as sending an e-mail, adding information to the portal, and running reports.

For information about how to use Cognos Event Studio, see Chapter 2, "Creating an Agent," on page 19.

Note: Some of the features available in Cognos Event Studio are not compatible with Firefox. For this reason, you are recommended to use Microsoft Internet Explorer web browser.

You can follow a tutorial that shows you how to create and run an agent in response to a business scenario. For more information, see Chapter 3, "Tutorial," on page 47.

Source Items

IBM Cognos Event Studio works with source items that were defined in an IBM Cognos Framework Manager model and published as a package. Source items are used to specify an event condition that is monitored by the agent. You can also use source items to derive calculations or parameters that may be included in the event condition.

To use Cognos Event Studio effectively, you should be familiar your organization's business and its data. You may also need to be familiar with other components of IBM Cognos Analytics.

IBM Cognos Analytics - Reporting

IBM Cognos Analytics - Reporting is the professional reporting tool for IBM Cognos Analytics. Use it to author more complex reports.

Reporting offers greater flexibility in calculating and formatting results. Report authors can open IBM Cognos Query Studio reports to create more advanced reports.

Cognos Reporting gives users access to the full range of Cognos Reporting functionality. Use Cognos Reporting to create any report type, including charts, maps, lists, and repeaters, using any data source (relational or multi-dimensional).

IBM Cognos Workspace

IBM Cognos Workspace is a report consumption tool that provides an integrated business intelligence experience for business users. This web-based tool allows you to use IBM Cognos content and external data sources to build sophisticated

interactive dashboards that facilitate collaborative decision making.

IBM Cognos Framework Manager

IBM Cognos Framework Manager is the data modeling tool for IBM Cognos Analytics.

The packages you use to generate reports are based on models that are created in Cognos Framework Manager. A model is a set of related objects, such as query subjects, dimensions, filters, and calculations. When you open a package in Cognos Analytics, these model objects are visible in the frame.

IBM Cognos Analysis Studio

IBM Cognos Analysis Studio is the analysis tool for IBM Cognos Analytics. Use it to explore, analyze, and compare dimensional data.

Analysis Studio helps you answer business questions by finding meaningful information in large data sources.

IBM Cognos Query Studio

IBM Cognos Query Studio is the reporting tool for creating simple queries and reports in IBM Cognos Analytics, the web-based reporting solution. In Query Studio, you can view data, create reports, change the appearance of reports, and work with data in a report.

Building IBM Cognos Analytics Applications

You use the IBM Cognos Analytics components to build reporting and analysis applications.

The lifetime of an Cognos Analytics application can be months, or even years. During that time, data may change and new requirements appear. As the underlying data changes, authors must modify existing content and develop new content. Administrators must also update models and data sources over time. For more information about using data sources, see the IBM Cognos Analytics *Administration and Security Guide* and the IBM Cognos Framework Manager *User Guide*.

Before you begin

In a working application, the technical and security infrastructure and the portal are in place, as well as processes for change management, data control, and so on. For additional information, see the IBM Cognos Solutions Implementation Methodology toolkit, which includes implementation roadmaps and supporting documents. Information about the toolkit is available on the IBM Cognos Information Centers (http://pic.dhe.ibm.com/infocenter/cogic/v1r0m0/index.jsp).

The following graphic provides an overview for how to use Cognos Analytics to build applications across all of your Cognos Analytics components.

Procedure

1. Locate and prepare data sources and models

Cognos Analytics can report from a wide variety of data sources, both relational and dimensional. Database connections are created in the Web administration interface, and are used for modeling, for authoring, and for running the application.

To use data for authoring and viewing, the business intelligence studios need a subset of a model of the metadata (called a package). The metadata may need extensive modeling in Cognos Framework Manager.

2. Build and publish the content

Reports, scorecards, analysis, dashboards and more are created in the business intelligence studios of Cognos Analytics. Which studio you use depends on the content, lifespan, and audience of the report, and whether the data is modeled dimensionally or relationally. For example, self-service reporting and analysis are done through IBM Cognos Analytics - Reporting, IBM Cognos Query Studio, and IBM Cognos Analysis Studio, and scheduled reports are created in IBM Cognos Analytics - Reporting. Reporting reports and scorecards are usually prepared for a wider audience, published to a portal, and scheduled there for bursting, distribution, and so on. You can also use Cognos Reporting to prepare templates for self-service reporting.

3. Deliver and view the information

You deliver content from the IBM Cognos portal or other supported portals, and view information that has been saved to portals, or delivered by other mechanisms. You can also run reports, analyses, scorecards, and more from within the business intelligence studio in which they were created.

For information about tuning and performance, see the IBM Cognos Analytics *Administration and Security Guide* and the IBM Cognos Information Centers (http://pic.dhe.ibm.com/infocenter/cogic/v1r0m0/index.jsp).

The IBM Cognos Event Studio Window

Use the IBM Cognos Event Studio window to interactively create and manage agents.

The Cognos Event Studio window is made up of four areas:

- the **I want to** area

  This area shows the main tasks that you perform when you create an agent.
- the **Insertable Objects** area

  This area shows available source items, data items used by the current agent, functions you can insert in the event condition, and parameters you created.
- the summary area

  This area contains tabs with summary descriptions of the event condition and of each task defined for the agent.
- the content area

  This area contains the pages and dialogs that you use to create and manage an agent.

The four areas are shown in the following example.

I want to area

Summary area

Insertable Objects area

Content area
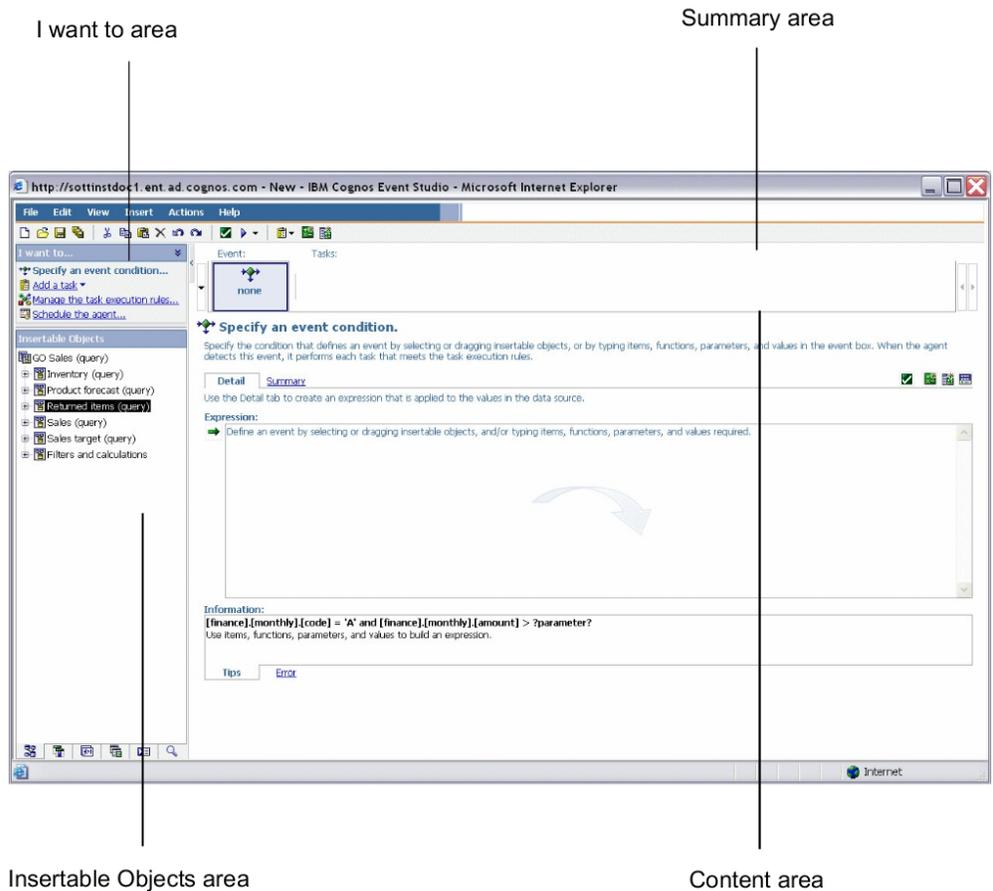
Figure 1. Event Studio user interface work areas

Insertable Objects Area

The **Insertable Objects** area contains items that you can add to the event condition and tasks.

The Source Tab

The source tab shows a hierarchical list of the source items, both relational and dimensional, in the model package.

The Data Items Tab

The data items tab shows a list of all the data items contained in the agent. The data items tab also shows the calculations used in the agent.

The Functions Tab

The functions tab ⊞ shows a list of mathematical functions, such as operators and summaries, that you can use in event conditions and to create calculated data items.

Tip: If you are specifying an event condition and want to know the meaning of a function icon, click the icon and read the description in the **Information** box.

The Parameters Tab

The parameters tab ⊞ shows a list of each parameter you defined, indicated by the parameter icon. You can use parameters when specifying the event condition.

The Run History Tab

The run history tab ⊞ shows a list of items you can specify when you add an on-error task to an agent.

Example - Create an Agent with a Single Task

You create an agent to perform a task when it detects a business event.

You are a sales manager who wants to ensure that your most valued customers are pleased with the quality of service they receive.

You decide that, whenever a valued customer calls your support group, you will call the customer the next day to make sure they're satisfied. You use IBM Cognos Event Studio to create an agent that monitors support call records. You specify an event condition as follows:

`[Call_Status]= Open AND [Customer_Profile]= Gold`

Next you add a task and specify that, when the event occurs, the agent sends you an e-mail entitled **Urgent: Call Customer Today**.

The e-mail message you receive contains details both about the customer and about the call. You do not need to continually check the call system or run reports. The relevant data is sent to you only when you need to act upon it.

Events

An event is an exceptional item of data, defined by specifying a query expression against items in a data package. When a record matches the event condition, it causes an agent to perform tasks.

When an agent runs, it checks the data for any event instances.

For example, you can specify an event condition as follows:

`[Account_Balance] < 0`

Event Instances

An event instance is a single row of data that matches the event query expression. When an agent monitors data, it detects each event instance. The agent then follows the task execution rules to determine if it should perform a task.

Some types of tasks are performed only once by the agent. Other types of tasks are repeated for each event instance. For more information, see "Task Frequency" on page 8.

Event List

An event list shows the events processed by the agent. Each event is categorized by one of the following statuses: new, ongoing but changed, ongoing and unchanged, or ceased.

When an agent runs, it derives the status by comparing the detected events with those detected in the previous run. There is only one event list per agent, and it is updated each time the agent runs.

For each task in an agent, the event list is checked against the task execution rules. The task is performed for each event that conforms to the rules.

Event Key

An event key is used to determine whether an event is new, ongoing but changed, ongoing and unchanged, or ceased.

IBM Cognos Event Studio compares the event instances detected in each agent run with those detected in the previous run. To ensure it correctly matches the event instances for comparison, you must define an event key. The event key is the combination of data items that uniquely defines an event instance.

For example, you are dealing with orders that were placed for out-of-stock goods. You define `Order Number` as the event key, because each order placed has a unique number. If Order Number 1234 appears in this run and in the previous run, it is an ongoing event. If Order Number 4567 appears in this run, but not in the previous run, it is a new event. If Order Number 7890 appeared in the last run but not this one, it has ceased.

Task Execution Rules

When an agent runs, it uses the event key to compare the event instances it detects with those of the previous run.

The agent allocates a status to each event - new, ongoing but changed, ongoing and unchanged, or ceased. If no event instances are detected, the status is no events. The task execution rules specify the event status for which each task is performed. You can optionally specify that an event must also pass a Boolean test before it is used in a task. If you do not set any execution rules, the agent performs its tasks for all the event instances it detects.

You can also set a special task to execute if the agent fails, for example, if the agent condition fails or one of the agent's tasks fails to complete. This special task can include items from the agent's run history, such as its run time, status, and error messages.

Example - Event Status of New

You want to receive an e-mail message advising you whenever a Gold category customer phones technical support about a new problem.

You specify that an e-mail task be performed only when the event status is new. You receive an e-mail when the call record from a Gold customer is first placed in

the call database. However, even if the call record is still open the next time the agent runs, you receive no further e-mails because the status of the event is now ongoing.

Example - Event Status of Ongoing But Changed

You want a report to run if the account balance of an overdrawn customer changes.

Example - Event Status of No Events

You want to receive a daily e-mail that reassures you that none of your company's accounts has a balance less than zero.

You define the following event condition:

```
[Account_Balance] < 0
```

You specify that an e-mail task be performed if the event status is no events.

In this example, you may also want to create another task that sends an urgent e-mail if any of the account balances does become less than zero. That is, you create another e-mail task that is performed if the event status is new.

Example - Task-Level Boolean Filter

You want to e-mail your Regional Managers whenever a very large order is received from a customer in their territory.

You create four calculated data items containing Boolean expressions:

- Item IsNorth: If ([Region] = 'North') then ('True') else ('False')
- Item IsEast: If ([Region] = 'East') then ('True') else ('False')
- Item IsSouth: If ([Region] = 'South') then ('True') else ('False')
- Item IsWest: If ([Region] = 'West') then ('True') else ('False')

Add four e-mail tasks to the agent, one addressed to each Regional Manager. Add the appropriate task-level filter to each task. In this example, the task that e-mails the Northern Regional Manager includes only orders that pass the test Region = 'North'.

Agents

Agents monitor data for instances of an event and perform tasks when events occur. These tasks can help to notify people about events immediately, so that they can make timely and effective decisions.

When an agent runs, it checks for occurrences of the event. If it detects the event, the agent performs its tasks for events that meet the execution rules. An agent runs its tasks either all at the same time or in the order that you specify.

Example - Create an Agent with Multiple Tasks

You are a meteorological analyst who wants to be alerted to extreme drops in air pressure that could result in a violent storm.

You create an agent named Pressure_Drop. You specify the event condition as follows:

```
[Air_Pressure].[Current_Time-60] - ([Air_Pressure].[Current_Time])>
5.0
```

Next, you add an e-mail task and specify that, when the event occurs, the agent sends you an e-mail entitled **Pressure Drop Alert**. Finally, you add a report task that sends a report of the latest air pressure readings to people in surrounding weather offices.

Prompting Agents

A prompting agent prompts a user to specify values for the event condition. This can result in the task being performed in a situation that is specific to the user.

For example, you specify an event condition that prompts sales managers to specify their region and their product. The task is then performed only for events that are of interest to the sales manager who is running the agent.

The prompts of an agent can also be answered by passing in the values of source items from the events of another agent.

Tasks

An agent can perform one or more tasks that you define for it. You can use some tasks to notify the right people quickly about a change in a business event so they can take appropriate action. Other tasks can help you to automate a work flow.

An agent can perform its tasks in sequence, where each task is performed in the order you choose, or in parallel, where you specify that tasks be performed at the same time. By default, tasks are performed in parallel.

Note: For parallel tasks, tasks are run in a specific order, depending on the task types included in an agent.

You can specify tasks that do the following:
- send an e-mail
- publish a news item
- run a report
- run a job
- run an agent
- send an approval request
- send a notification request
- update a database
- call a web service
- run an export
- run an import
- run a content maintenance task

Task Frequency

Before you specify an event condition, you should understand how often different tasks are performed.

Task type	Number of times performed
Run a report; run an agent; run a job; run an import; run an export; run a content maintenance task	Once

Task type	Number of times performed
Update a database; call a web service	Once per event instance
Send an e-mail; send an approval request; send a notification request	Variable For more information, see "How Multiple Events Affect E-mail Messages, Approval Requests, and Notification Requests" on page 10.
Publish a news item	Once

Notification Methods

If you want to notify people about a business event, you should understand the notification methods that an agent can use. The notification method you choose should contain all information relevant to the event, and each person who must know about the event should be notified.

An IBM Cognos Event Studio agent can notify people about business events by
- delivering an email to your audience
- publishing a news item to a folder frequently viewed by your audience

The notification feature can contain dynamic information. This means that source items from a package can be inserted into the message. The values for these items are not retrieved until the agent is run because a notification message about a critical data item always contains the current values.

Both e-mail and news item notifications can contain dynamic information. In an email task, the email can contain dynamic content in the list of recipients, the subject, and the message body. For more information, see "Add an Email Task" on page 52.

The parts of a news item notification that can contain dynamic content are the headline, the screen tip, and the text. For more information, see "Add a News Item Task" on page 54.

Although email and news item notifications can both show content dynamically, only email notifications can change their target dynamically. By inserting email address items in the recipient fields, you can specify that the recipient list change according to the data in the event list.

Email Notifications

You can notify people by e-mail using either a report task or an email task. To help you decide which method to use, you should understand how they differ.

You can use either a report task or an email task
- to send a single email text message
- to attach a single report in the specified output formats

  Note: If you attach only one HTML report and leave the body field empty, the report appears in the message body.
- to add links to a single report for the specified output formats

For an e-mail task but not a report task, you can also

- add dynamic content to the message, which may result in multiple emails

  This means that you can insert source items from a package into the message. If you insert an e-mail address item in the recipient fields, you can tailor the recipient list so that it is specific to the data in the message.

- send multiple reports in a single email as attachments, links, or both

  For example, you can attach a report about stock usage and a report on unfulfilled customer orders when a particular stock item falls below a reorder level.

- attach the event list

Emailing reports from an IBM Cognos Event Studio agent is useful if you want the report to be tailored to a specific event.

News Item Notifications

A news item task publishes a headline to a folder whose contents can be viewed in an IBM Cognos Navigator portlet and in any folder view. When someone clicks on a headline, they can open IBM Cognos Analytics content or view a web page.

How Multiple Events Affect E-mail Messages, Approval Requests, and Notification Requests

When you create an e-mail message, approval request or notification request, you can drag data items into the recipient, subject, and message body fields. These data items act as placeholders. When the agent runs, the placeholders are replaced with actual values from the data source.

If data items appear only in the message body, a single message is usually sent containing details of all the events detected. If the recipient or subject fields include data items, many e-mails or requests may be sent.

For an example that illustrates the effect of multiple events, see "Add an Email Task" on page 52.

Dynamic Address

For some e-mails or requests, the appropriate recipient depends on the values in the event. For example, an e-mail about a support call from Customer A must be addressed to Customer A's account manager.

If the data source includes an item that represents e-mail addresses, you can drag this item to the recipient fields. The agent uses this data to generate the e-mail address dynamically. If the agent detects several events that satisfy the event condition, it generates one message or request for each e-mail address. The source items in the message body are grouped by address.

Dynamic Subject

If you include a source item in the subject field, the agent generates one message or request for each subject. The source items in the message body are grouped by subject.

Dynamic Address and Dynamic Subject

If you include source items in both the address and subject fields, the messages or requests are grouped by address and subject.

Dynamic Message Body

If an agent detects several events that satisfy the event condition, the size of the message body in the delivered message or request can increase. Every line that contains a data item placeholder is repeated for each event instance that satisfies the task execution rules.

The Sample Outdoors Company

The Sample Outdoors Company samples illustrate product features and technical and business best practices.

You can also use them for experimenting with and sharing report design techniques and for troubleshooting. As you use the samples, you can connect to features in the product.

The Sample Outdoors Company, or GO Sales, or any variation of the Sample Outdoors name, is the name of a fictitious business operation whose sample data is used to develop sample applications for IBM and IBM customers. Its fictitious records include sample data for sales transactions, product distribution, finance, and human resources. Any resemblance to actual names, addresses, contact numbers, or transaction values, is coincidental. Unauthorized duplication is prohibited.

Samples outline

The samples consist of the following:
- Two databases that contain all corporate data, and the related sample models for query and analysis
- Sample cubes and the related models
- Reports, queries, query templates, and workspaces

    To run interactive reports, scripts are required. To see all the reports included in the samples packages, copy the files from the samples content installation into deployment folder and then import the deployments into the IBM Cognos Analytics product.

Security

Samples are available to all users.

To implement security, see the IBM Cognos Analytics *Administration and Security Guide*.

IBM Cognos Event Studio Samples

IBM Cognos Analytics includes report samples and an agent sample.

The Customer Contact Sample

This report sample is used in a tutorial in this document.

For more information, see Chapter 3, "Tutorial," on page 47.

The Returns Agent Sample

The **Returns Agent** sample notifies you when a customer returns a product because it was defective, unsatisfactory, or incomplete, or because the wrong product was shipped.

This agent sample was created using the IBM Cognos Event Studio example illustrated in IBM Cognos Analytics *Getting Started*. If you try this example yourself, you can compare the agent that you create with the **Returns Agent** sample.

The ELM Returns Agent Sample

The **ELM Returns Agent** sample notifies you when a customer returns a product because it was defective, unsatisfactory, or incomplete, or because the wrong product was shipped.

Two days after detecting the event, this agents checks if the issue is resolved. If unresolved event instances still exist, it runs the **ELM Escalation Agent** sample.

This agent sample is used in the topic "Example - Managing the Life Cycle of an Event."

The ELM Escalation Agent Sample

The **ELM Escalation Agent** sample is run by the **ELM Returns Agent** sample.

If more than two days have lapsed since the **ELM Returns Agent** sample detected an event, the **ELM Escalation Agent** sample escalates the issue by sending an e-mail to the customer fulfilment manager.

This agent sample is used in the topic "Example - Managing the Life Cycle of an Event."

Example - Managing the Life Cycle of an Event

Try this example to see how the **ELM Returns Agent** sample performs different tasks depending on the stage of the life cycle for the event.

Event Life cycle Management (ELM) is the ability to identify, track, and take appropriate action on an event at the right time and in the right sequence. Different information, people, and tasks are required at different stages in the life cycle of an event.

You are the customer fulfilment manager for a company. After analyzing data warehouse metrics, you determine that when orders are returned for reasons that your company can control, there is a significant impact on customer loyalty. Customers withhold payment for the entire order until the issue is resolved.

To identify these issues and resolve them as quickly as possible, you decide to run the **ELM Returns Agent** sample. To run this agent, do the following:

- Perform setup tasks that are necessary only to demonstrate this example. These tasks are as follows:
  - Configure your mail server so that IBM Cognos Analytics can send notifications.
  - Modify the agent samples to send e-mails to you.
  - Simulate the occurrence of initial events.
  - Simulate the passage of time and the resolution of some events.
- Preview the output of all agent tasks.
- Detect initial events and act on them as necessary.
- Detect an ongoing, unresolved event and escalate the issue.
- Confirm that the **ELM Escalation Agent** sample completed all its tasks successfully

Example - Configure Your Mail Server

Configure your IBM Cognos Analytics mail server to send notifications using IBM Cognos Event Studio.

Procedure

1. Start IBM Cognos Configuration.
2. In the **Explorer** pane, click **Notification**.
3. Enter the notification properties:
   - In the **SMTP mail server** box, type a mail server that is appropriate for your environment.
   - In the **Account and Password** box, type your e-mail user ID and password.
   - In the **Default sender** box, type the following:

     `notifications@ibmcognos`
4. Save the configuration.

Example - Modify the Agent Samples to Send E-mails to You

The IBM Cognos Event Studio agent samples named **ELM Returns Agent** and **ELM Escalation Agent** are set up to send e-mails to other people.

To view the e-mails that these other people would normally receive, change the recipient e-mail address to your own e-mail address.

Modify the ELM Returns Agent Sample

Use the following steps for the **ELM Returns Agent** sample.

Procedure

1. In IBM Cognos Analytics, click **Team content** > **Samples** > **Models** > **GO Sales (Query)**.
2. Click **Event Studio Samples**.
3. Click the Event Studio button ![icon] on the actions toolbar next to the **ELM Returns Agent** sample.

   Event Studio starts, and the **ELM Returns Agent** sample appears.
4. Click the **Follow up required** e-mail task.
5. In the **Specify the email to send** window, in the **To** box, replace **salesrepresentative@yourcompany.com** with your own e-mail address.

6. From the **File** menu, click **Save**.
7. From the **File** menu, click **Exit**.

Results

The destination address is changed to your e-mail address so that the agent sends e-mails to you. The sender address remains notifications@ibmcognos.

Modify the ELM Escalation Agent Sample
Use the following steps for the **ELM Returns Agent** sample.

Procedure
1. In IBM Cognos Analytics, click **Team content** > **Samples** > **Models** > **ELM Escalation Agent** and launch Event Studio.

   Event Studio starts, and the **ELM Escalation Agent** sample appears.
2. Click the **Outstanding Returned Item Order** e-mail task.
3. In the **Specify the email to send** window, in the **To** box, replace **FulfilmentManager@yourcompany.com** with your own e-mail address.
4. From the **File** menu, click **Save**.
5. From the **File** menu, click **Exit**.

Results

The destination address is changed to your e-mail address so that the agent sends e-mails to you. The sender address remains notifications@ibmcognos.

Example - Simulate the Occurrence of Initial Events

Run part of the IBM Cognos Event_Studio_ELM_Agent_Modify_GoSales.sql script to simulate data changes.

The following data changes can be simulated:
- change the date to the current date
- change the follow-up code to -1 in four records

  A code of -1 indicates that follow-up is required.

Procedure
1. In SQL Query Analyzer, from the **File** menu, click **Open**.
2. Go to *c10_location*/webcontent/samples/datasources/sqlserver and double-click the Event_Studio_ELM_Agent_Modify_GoSales.sql file.
3. In the toolbar, from the list of databases, click **gosales**.
4. In the **Query** window, under **Part 1**, select all sixteen lines of code.
5. From the **Query** menu, click **Execute**.

Results

The database is updated with the changes.

Example - Preview the Output of Each Task of an Agent

You can preview the output of the IBM Cognos Event Studio **ELM Returns Agent** sample based on the current data, without running the agent.

Procedure

1. In IBM Cognos Analytics, click **Team content** > **Samples** > **Models** > **ELM Escalation Agent** and launch Event Studio.

   Event Studio starts, and the **ELM Escalation Agent** sample appears.
2. From the **Actions** menu, click **Preview All**.

Results

A window appears that shows the event list and the output that would be produced by each agent task. Based on this preview information, you can decide whether to run the agent.

Example - Detect Initial Events and Act on Them

Run the IBM Cognos Event Studio **ELM Returns Agent** to detect the initial instances of products returned for specific reasons.

When these events are detected, the **ELM Returns Agent** does the following:

* It runs the AssignStaff stored procedure.

  AssignStaff provides details about the sales representatives associated with each event instance, including the e-mail address.
* It sends an e-mail to the appropriate sales representatives, advising them to contact their customer.
* It runs the **ELM Escalation Agent**.

  The **ELM Escalation Agent** checks for returned product events flagged by the **ELM Returns Agent**. If one of these events still exists after two days, the **ELM Escalation Agent** sends an e-mail to the customer fulfilment manager.

Procedure

1. In IBM Cognos Analytics, click **Team content** > **Samples** > **Models** > **GO Sales (Query)** > **Event Studio Samples**.

2. Click the run with options button [▶] on the actions toolbar next to the **ELM Returns Agent** sample.
3. Under **Time**, click **Now**.
4. Under **Prompt values**, clear the **Prompt for values** check box.
5. Click **Run**.
6. Click **OK**.

Results

You receive two e-mails, originally intended for sales representatives Karen Bowman and Clarice Oliveira. The e-mail to Karen Bowman notifies her of one returned order. The e-mail to Clarice Oliveira notifies her of the three returned orders assigned to her.

The task execution rules for the **ELM Returns Agent** sample specify that all tasks are performed for new events only. If you do not receive any e-mails, the agent may already have run, so that none of the detected events are new. You can reset the event list so that when the agent runs next, all detected events have a status of new.

Tip: From the **Actions** menu, click **Reset Event List**.

Example - Simulate the Passage of Time and the Resolution of Some Events

Run part of the Event_Studio_ELM_Agent_Modify_GOSALES.sql script to simulate data changes.

First, change it so that two days elapsed since the ELM Returns Agent sample was last run. Second, for three of the four event instances found the last time that the ELM Returns Agent sample ran, change the follow-up code from -1 to +1. This indicates that only one of the these event instances still requires follow-up and the other instances are resolved.

Procedure

1. In SQL Query Analyzer, from the **File** menu, click **Open**.
2. Go to *install_location*/webcontent/samples/datasources/sqlserver and double-click the Event_Studio_ELM_Agent_Modify_GOSALES.sql file.
3. On the toolbar, click **GOSALES** from the list of databases.
4. In the **Query** window, under **Part 2**, select all lines of code that appear after the comments.
5. From the **Query** menu, click **Execute**.

Results

The database is updated with the changes.

Example - Detect an Ongoing Unresolved Event and Escalate the Issue

Run the IBM Cognos Event Studio **ELM Returns Agent** sample a second time. The agent now detects only one event because you modified the follow-up codes in the previous task. In addition, because two days lapsed since the sales representative was notified, the event condition of the **ELM Escalation Agent** sample is met. The **ELM Escalation Agent** sample detects the event and sends an e-mail to the customer fulfilment manager.

Procedure

1. In IBM Cognos Analytics, click **Team content** > **Samples** > **Models** > **GO Sales (Query)** > **Event Studio Samples**.

2. On the actions toolbar, click the run with options button next to the **ELM Returns Agent** sample.
3. Under **Time**, click **Now**.
4. Under **Prompt values**, clear the **Prompt for values** check box.
5. Click **Run**.
6. Click **OK** twice.

Results

After this agent runs, you receive only one e-mail. Instead of being sent to the sales representative, this issue is escalated to the customer fulfilment manager.

Example - Confirm that the ELM Escalation Agent Sample Completed Its Tasks Successfully

You can confirm that the IBM Cognos Event Studio **ELM Escalation Agent** sample, which is run by the **ELM Returns Agent** sample, completed its tasks successfully.

Procedure

1. In IBM Cognos Analytics, click **Team content** > **Samples** > **Models** > **GO Sales (Query)** > **Event Studio Samples**.
2. On the actions toolbar next to the **ELM Escalation Agent** sample, click **More**.
3. Click **View run history**.
4. In the **Actions** column, click the view run history details button .

Results

A window appears showing that the event query and e-mail task succeeded.

Chapter 2. Creating an Agent

Create an agent to monitor data for instances of an event and to perform tasks.

Before you begin

Before you create an agent, you should understand the notification methods that an agent can use. You should also know how often an agent performs different types of tasks.

To create an agent, do the following:
- Specify the event condition.
- Add one or more of the following types of tasks for the agent to perform when the event status meets the task execution rules:
  - e-mail task
  - news item task
  - report task
  - job task
  - agent task
  - approval request task
  - notification request task
  - database update task
  - web service task
  - export task
  - import task
  - content maintenance task
  - planning macro task
  - migration task
- Specify the task execution rules.

After you create an agent, you can:
- preview it
- test it
- run it
- modify the event condition
- modify a task
- modify the task execution rules

Specify an Event Condition

When you specify an event condition, you describe a specific occurrence of data items that an agent must detect before it performs its tasks. The event condition is a query expression that you create using items from the package.

For more information, see "Specify an Event Condition" on page 49.

Before you begin

If you want to include parameters or calculations in the event condition, you must create them before you define the event.

Procedure

1. From the **Actions** menu, click **Specify Event Condition** ⬥ .
2. Create a detail expression, a summary expression, or both:
   - If you want part of the event condition to apply to values of individual source items, click the **Detail** tab and follow step 3.
   - If you want part of the event condition to apply to aggregate values, click the **Summary** tab and follow step 3.
3. In the **Expression** box, create a query expression:
   - Drag items from the **source** tab or type text directly.
   - Drag operators, summaries, and other mathematical functions from the **functions** tab or type text directly.

     Tip: To see the meaning of an icon on the **functions** tab, click the icon and read the description in the **Information** box.
   - If you want to insert a parameter, drag it from the **parameters** tab.
   - If you want to insert a calculation, drag it from the **data items** tab.
   - Insert values if required.

     Tip: To select from a list of possible values for the selected item, click the

     select value button 🔲 . Move the values you want from the **Select Value** box to the **Selected Items** box and click **OK**.

   Note: IBM Cognos Event Studio always processes data items before performing aggregation on an expression. This can lead to conditions being evaluated before the data item contains information.

   For example, you can type the following expression:

   `[Unit price] * [Quantity sold]> 5000`
4. To check the event list to ensure that you specified the event condition correctly, from the **Actions** menu, click **Preview**.
5. To determine how many event instances there are, from the **Actions** menu, click **Count Events**.

6. From the **File** menu, click **Save As** ⬚ .
7. Specify a name and location for the agent and click **OK**.

Results

You can preview the event list returned by the event condition. For more information, see "Preview the Data" on page 39.

Define a Parameter

You can define a parameter and include it in an event condition. When the agent runs, it prompts the user to enter a value for the parameter. You can also use parameters to accept the results of a previous agent.

For more information, see "Define a Parameter to Insert Into an Event Condition" on page 48.

Procedure

1. From the **Insert** menu, click **Parameter** .
2. In the **Parameter name** box, type a name for the parameter.
3. Click **OK**.

   The parameter appears in the **data items** tab.

Results

You can include the parameter when you specify an event condition.

Define a Calculation

A calculation is a query expression that defines an arithmetic combination of data items. For example, you can define a calculation named Product Sales that is the product of the unit price and the quantity sold.

For more information, see "Define a Calculation to Insert Into an Event Condition" on page 48.

Procedure

1. From the **Insert** menu, click **Calculation** .
2. In the **Name** box, type a name for the calculation.
3. In the **Expression** box, define the calculation:
   - Drag items from the **source** tab or type text directly.

     Tip: If you type the text, you must include the full path of each data item. For example, you can type the following expression:

     ```
     [gosales_goretailers].[Orders].[Unit price] *
     [gosales_goretailers].[Orders].[Quantity]
     ```
   - Drag operators, summaries, and other mathematical functions from the **functions** tab or type text directly.

     Tip: To see the meaning of an icon on the **functions** tab, click the icon and read the description in the **Information** box.
   - Insert values if required.

     Tip: To select from a list of possible values for the selected item, click the

     select value button . Move the values you want from the **Select Value** box to the **Selected Items** box and click **OK**.
4. Click **OK**.

   The calculation icon appears on the **data items** tab.

Results

You can include the calculation when you specify an event condition or specify a task.

Adding Tasks

You can add multiple tasks to an agent. However, you can specify only one event condition per agent. Each task is performed for the event list that meets the execution rules you specify for the task. The agent performs tasks in the order that you add them, unless you change their order later. You can save an agent and add additional tasks to it later.

You can add source items or data items to some types of tasks. When the agent performs the task, it uses the current value of the item. If you want the agent to use the value that a particular item had the previous time the agent ran, you can insert the previous function before the item.

To insert the previous function, from the **Insert** menu, click **Previous Value**.

Add an Email Task

Add an email task to an agent to send an email about an event to specified recipients. You can include content, such as report output, in an email task.

For more information, see "Add an Email Task" on page 52.

You can also add other types of tasks. Email tasks share some similarities with report tasks. For more information, see "Email Notifications" on page 9.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Send an email**.
3. In the **To** box, and if applicable, in the **Cc** or **Bcc** boxes, enter the email addresses of the recipients using one or more of the following methods:
   - Type the addresses directly, separating each email address with a semicolon.
   - If your model contains a data item that is an email address, drag this item from the **source** tab or from the **data items** tab. When the agent runs, the current value in the package replaces the data item for each event instance.
   - Click **Select the recipients**. Select the users, groups, roles, contacts, and distribution lists. Select the entries you want, click the arrow button to update the **Selected entries** list, and click **OK**.
4. In the **Subject** box, type the subject of the email.

   Tip: You can also drag items from the **source** tab or from the **data items** tab. When the agent runs, the current value in the package replaces the data item for each event instance.
5. In the **Body** box, type the email message text directly or drag items from the **source** tab or from the **data items** tab.

   If you insert data items in the **Body** box, the body message will be longer. When the agent runs, the current value in the package replaces the data item for each event instance. For more information, see "How Multiple Events Affect E-mail Messages, Approval Requests, and Notification Requests" on page 10.

   If the email has a single HTML attachment and the **Body** box is empty, the attachment appears inline.

6. To change the message format from HTML to plain text or vice versa:
   - To change from the default HTML format to plain text format, click **Change to plain text**.

     Note: If you switch to plain text format, any HTML formatting changes are lost.
   - To change from plain text to HTML, click **Change to HTML format**. You can then use formatting buttons to edit the message.
7. To add attachments, click **Attach** and choose the attachments.
8. To add links, click **Add links**, select the entries you want, click the arrow button to update the **Selected entries** list, and click **OK**.

9. From the **File** menu, click **Save** ▣ .

Results

You can preview the email task. When the agent runs, it retrieves values for all source and data items and sends the email to the recipients you chose.

Add a News Item Task

Add a news item task to an agent to publish a headline to a folder.

For more information, see "Add a News Item Task" on page 54.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure
1. In IBM Cognos Analytics, create a new folder.
2. In IBM Cognos Event Studio, specify an event condition.
3. In the **I want to** area, click **Add a task**.
4. Click **Publish a news item**.
5. In the **Headline** box, type the text you want to appear at the top of your news item.

   Tip: You can also drag items from the **source** tab or the **data items** tab.
6. To add a description in the **Screen tip** box and in the **Text** box, type a description of the entry.

   The screen tip is limited to 100 characters.

   Tip: You can also drag items from the **source** tab or from the **data items** tab.
7. Under **Link to**, choose an object to appear when you click a news headline:
   - To link to IBM Cognos Analytics content, click **Select an entry**, go to the entry, and click **OK**. For example, if you want the Customer Contact report to appear when someone clicks the headline, click **Select an entry**, locate the Customer Contact report, and click **OK**.

     Tip: You can add a report task that runs a report before the news item task is performed. If you link that report to the news item task, the report always shows information about current event instances when someone clicks the headline.

- To link to a URL, type the URL address in the box.

  If the URL points to a web site address, include the protocol, such as http. For example, to create a URL for the IBM web site, you would type http://www.ibm.com.

8. Under **News list location**, click **Select a location**, go to the folder or portlet in which the news item will be published and click **OK**.

9. From the **File** menu, click **Save** .

Results

You can preview the news item task. When the agent performs the news item task, it publishes the news headline to the location you chose. When you click the headline, the Cognos Analytics entry or the web page you linked to appears.

The description text appears when you set your preferences to use the details view. The screen tip appears when you pause your pointer over the icon for the entry in the news list location.

Add a Report Task

Add a report task to an agent to run a report that is related to an event.

For more information, see "Add a Report Task" on page 50.

You can also add other types of tasks. Email tasks share some similarities with report tasks. For more information, see "Email Notifications" on page 9.

Before you begin

Before you add any type of task, you must specify an event condition.

You must have permissions to run the report that you select. For more information, see the IBM Cognos Analytics - Reporting *User Guide*.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Run a report**.
3. In the **Select the Report** dialog box, specify the report, query, analysis, or report view to include in the agent.
   - Search the folders to find the entry you want.
   - Click the entry and click **OK**.
4. To customize the report, under **Options**, click **Set** and make the necessary changes.
5. If the report includes parameters, under **Prompt values**, choose how to specify prompt values for each parameter:
   - If you are using an item, in the **Method** column, click **Use an item** and drag an item from the **source** tab or from the **data items** tab to the **Value** column.

     Tip: When you specify a data item, values from the event list are passed as prompt values in the report. If the event list has multiple instances, then multiple values are passed as prompt values. Therefore, you must ensure that the report being run has a prompt that can accept multiple values. For more information, see the IBM Cognos Analytics - Reporting *User Guide*.

- If you are using a value, in the **Method** column, click **Use a value**, click **Specify values**, and in the **Value** column, type a value.

  Tip: If you want to clear the prompt values and return to the default values, click **Reset to default**.

6. From the **File** menu, click **Save** ⊞ .

Results

You can preview the report task. When the agent performs the report task, it runs the report and delivers it according to the delivery options you chose.

Customize the Report

You can change the report options from the defaults to customize the report for your audience.

The following are the options you can change:
- Change one or more report output formats.
- Change one or more languages.
- Change one or more delivery methods.
- Burst the report if it was authored with bursting specifications.

Default options are set by the report author. You can change some default run options for reports.

You change the report options when you click **Set** or **Edit** in the **Specify the report to run** dialog box. For more information, see "Add a Report Task" on page 24.

Procedure

1. In the **Select the report options** dialog box, select the **Override the default values** check box.
2. Under **Formats**, click the formats you want for the report output.
3. To select different or additional languages for the report, click **Select the languages** and use the arrow keys to move the available languages to the **Selected languages box** and click **OK**.

   Tip: To select multiple languages, press Ctrl+click or Shift+click.
4. Under **Delivery**, choose a delivery method:
   - To save the report, select the **Save** check box, then click the button next to **Save the report**.
   - To save the report as a report view, select the **Save** check box, then click the button next to **Save the report as a report view**. You can change the name or target folder of the report view by clicking **Edit the options**. Make the changes, and click **OK**.

     Tip: Save the report as a report view if you do not have write access to the report. You can then add a link to the report view when you specify an e-mail task.
   - To print the report, select the **Print the report** check box and click **Select a printer.** Click the button next to the printer you want to use and click **OK**. Or, if the printer is not listed, you can type the printer information.

     Tip: If you have administrator privileges and want to set up the printer for future use, click **New printer**. You must type the network address of the printer by using the format *server_name**printer_name* for a network printer

on a Windows operating system installation and *printer_name* for a UNIX operating system installation or for a local printer.

- To e-mail the report, select the **Send the report by email** check box.

5. If you clicked **Send the report by email**, click **Edit the options** to specify what you want:

- To send the e-mail to IBM Cognos Analytics recipients, click **Select the recipients**. Select the check box next to the names you want to include, and click **To**, **Cc** (copy), or **Bcc** (blind copy). The entries that you select are listed under **Selected entries**. Click **OK**.

  Tip: To select all entries in a list, click the check box. To remove names from **Selected entries**, select the check box next to the name and click **Remove**. To search, click **Search**. In the **Search string** box, type the phrase you want to search for. For advanced search features, click **Advanced**.

- If you want to send the e-mail to other recipients, in the **To:**, **Cc**, or **Bcc** boxes, type the email addresses separated by semicolons (;).

  Tip: If you logged on, your name automatically appears in the **To** list box.

- Under **Subject**, type the subject of the e-mail.

- Under **Body**, type a message to be included in the e-mail.

- If you want to include an attachment, select the check box to include the report or a link to the report, and click **OK**.

  If you are an administrator, you can prevent users from including attachments. For more information, see the IBM Cognos *Administration and Security Guide*.

6. Under **Bursting**, specify whether the report should be bursted.

   This option is available only if the report author defined burst keys in the report.

7. Click **OK**.

   The **Specify the report to run** dialog box appears.

8. Continue specifying the report. For more information, see "Add a Report Task" on page 24.

Add a Job Task

Add a job task to an agent to run a job. A job identifies a collection of reports, report views, agents, and other jobs that are scheduled together and share the same schedule settings.

For example, you create a job named Two Reports, and select two reports that you want the job to run. In IBM Cognos Event Studio, you add a job task and select the Two Reports job. When the agent runs and detects events that meet the task execution rules, it runs the Two Reports job.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Before you create a job task, you must create a job.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Run a job**.
3. In the **Select the job** dialog box, specify the job to include in the agent.
   - Search the folders to find the job you want.
   - Click the entry and click **OK**.
4. From the **File** menu, click **Save** .

Results

You can preview the job task. When the agent performs the job task, it runs all the IBM Cognos Analytics items identified in the job.

Add an Agent Task

Add an agent task to an agent to run another agent. By running multiple agents in sequence, you can use the output from one agent as the input to another agent. You can also use multiple agents that interact with each other using data retrieved from different data sources. This removes the need to join databases using IBM Cognos Framework Manager.

For more information, see "Example - Adding an Agent Task" on page 28.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Run an agent**.
3. In the **Select the agent** dialog box, choose an agent.
   - Search the folders to find the agent you want.
   - Click the entry and click **OK**.
4. If the task includes parameters, under **Prompt values**, choose how to specify prompt values for each parameter:
   - If you are using a value, in the **Method** column, click **Use a value**, click **Specify values**, and in the **Value** column, type a value.
   - If you are using an item, in the **Method** column, click **Use an item** and drag an item from the **source** tab or from the **data items tab** to the **Value** column.

   Tip: If you want to clear the prompt values and return to the default values, click **Reset to default**.
5. From the **File** menu, click **Save** .

Results

You can preview the agent task. When the agent performs the agent task, it runs the agent you specified.

Example - Adding an Agent Task

You want to run the high_returns_followup agent to detect a high rate of returned items and resolve the related issue. However, for each item that has a high rate of return, you also want to check the importance of the customer to your company as calculated from data in a data warehouse system. The customer's importance value is calculated using projected sales and profit data.

You create a second agent named high_returns_customer_check that is run by the high_returns_followup agent. When a high return event occurs, the high_returns_followup agent runs and passes customer details to the high_returns_customer_check agent. The high_returns_customer_check agent then runs a query to check the customer importance value. If the customer importance value is high, the high_returns_customer_check agent sends an e-mail asking the customer services agent to contact the customer and fix the problem immediately.

Add an Approval Request Task

Add an approval request task to an agent when you want an event to occur only after approval. This task sends an approval request related to an event to the task inbox of specified recipients in IBM Cognos Analytics.

A recipient can be a potential owner or a stakeholder. Multiple users, groups, roles, and distribution lists can be assigned as potential owners of an approval request task. Stakeholders can be users, groups, roles, and distribution lists that are identified as interested parties, but are not potential owners.

Tip: To track the progress of an approval request task that you create, you can add yourself as a stakeholder.

You can include content, such as report output, in an approval request.

You can set up approval requests with different actions:
- Approve/Reject the request

  The task owner must approve or reject the request from their task inbox to complete the task. If you schedule further agent tasks to run after the approval request task, these are dependent on approval by the task owner. If the request is rejected, no further agent tasks will run.
- Specify which of the remaining tasks to run

  When you schedule further agent tasks to run after the approval request, the task owner must select which of those tasks to run on completion of the approval request.

You can add start date and due date deadlines to an approval request when you create the task in IBM Cognos Event Studio. Alternatively, potential owners or stakeholders can add deadlines at a later date by updating the approval request from their task inbox.

You can set up notification options for e-mails to be sent to
- all potential owners when an approval request is created
- the task owner when an approval request is not completed by the due date
- the task owner when an approval request is not started by the start date

Note: Stakeholders are also copied on e-mails.

In addition, you can set up notification options for the task owner and all stakeholders to receive emails when
- the status of an approval request changes (started, completed or canceled)
- the owner of an approval request changes
- a comment is added to an approval request

Note: Potential owners and stakeholders can unsubscribe from receiving specific notifications by updating the approval request from their task inbox.

You can add customized icons, using your own graphic files, to approval requests that appear in a recipient's task inbox.

To add a customized icon, use one of the following methods:
- Type the explicit location and name for the graphic file.
- Insert an item from the Insertable Items pane that contains a value for the relative path and name for the graphic file.

Files to support custom icons must be located within the *c10_location*\webcontent directory and a copy of the files must exist on all Cognos Analytics gateway server installs.

For example, to use the file green.jpg, where Cognos Analytics is installed in c:\program files\IBM\cognos\c10\, green.jpg must exist within a path contained within c:\program files\IBM\cognos\c10\webcontent\

When you configure a task to use green.jpg (located in c:\program files\IBM\cognos\c10\webcontent\samples\images\) as a customized icon, the value you enter in the icon Item box is either
- ./samples/images/green.jpg (explicit location)
- or, an item from the insertable items pane which contains the value ./samples/images/green.jpg (relative location)

You can also add other types of tasks.

Procedure

1. Specify an event condition which always returns the value True. For example "1=1".

   For more information, see "Specify an Event Condition" on page 19.
2. In the **I want to** area, click **Add a task**.
3. Click **Run an approval request**.
4. In the **Potential owners** box, and if applicable, in the **Stakeholders** box, enter the names of the recipients by using one or more of the following methods:
   - If your model contains a data item that is a user, group, role or distribution list, drag this item from the **source** tab or from the **data items** tab. When the agent runs, the current value in the package replaces the data item for each event instance.
   - Click **Select the recipients** to select the users, groups, roles or distribution lists.

     To choose from listed entries, click the appropriate namespace, and then select the required check boxes.

     Tip: To make the user entries visible, click **Show users** in the list.

To search for entries, click **Search** and in the **Search string** box, type the phrase you want to search for. For search options, click **Edit**. Find and click the entry you want.

Click the **Potential Owner** or **Stakeholder** arrow button to update the **Selected entries** list, and click **OK**.

Tip: To remove entries from the **Selected entries** list, select them and click **Remove**. To select all entries in a list, click the check box.

Click **OK**.

Note: You must add at least one stakeholder. By default, you are added as a stakeholder when you create the approval request.

5. In the **Subject** box, type the subject of the approval request.

   Tip: You can also drag items from the **source** tab or from the **data items** tab. When the agent runs, the current value in the package replaces the data item for each event instance.

6. In the **Body** box, type text directly or drag items from the **source** tab or from the **data items** tab.

   If you insert data items, the body message will be longer. When the agent runs, the current value in the package replaces the data item for each event instance. For more information, see "How Multiple Events Affect E-mail Messages, Approval Requests, and Notification Requests" on page 10.

7. To change the message format:

   - Click **Change to plain text** to change from the default HTML format to plain text format.

     Note: If you switch to plain text format, any HTML formatting changes are lost.

   - Click **Change to HTML format** to change from plain text to HTML. You can then use formatting buttons to edit the message.

8. To add attachments, click **Attach** and choose the attachments.

9. To add links, click **Add links**, select the entries you want, click the arrow button to update the **Selected entries** list, and click **OK**.

10. Select the following due date options if required:

    - **Start within** to add a start by deadline, and then type the number of days in the **Days** box.

    - **Due within** to add a due date deadline, and then type the number of days in the **Days** box.

11. To add a customized icon to the approval request in the task inbox, drag an item from the **source** tab or from the **data items** tab into the icon **Item** box.

    Tip: To revert to using the default task icon, select the **Default** icon option.

12. To change the priority of the approval request, select a predefined option from the **Priority** list or drag an item from the **source** tab or from the **data items** tab into the priority **Item** box.

13. Select the action required by the task owner to complete the task:

    - **Approve/Reject the running of all remaining tasks** (default)

      By default, the approval request contains **Approve** and **Reject** action buttons. To change the default button names, click **Customize**, type the required names, and then click **OK**.

    - **Specify which of the remaining tasks to run**

      Select the tasks to include in the approval request.

Note: Only agent tasks that are scheduled to run after the approval request are listed here.

By default, the approval request contains a **Submit** action button. To change the default button name, click **Customize**, and type the required button name. When you have finished, click **OK**.

Tip: You can also change the names of the agent tasks as they appear in the task inbox. For example, you could append the task type to the agent task name.

14. Select the approval request creation and deadline notification options as required:
    - **Send notification upon creation** (default)
    - **Send notification if not started by start by date**
    - **Send notification if not completed by due date**

15. Select the approval request change notification options as required:
    - **Started**
    - **Comment**
    - **Owner changed**
    - **Completed**
    - **Canceled**

16. From the **File** menu, click **Save** ![save icon].

Results

You can preview the approval request task. When the agent runs, it retrieves values for all source and data items and sends the approval request to the recipients you specified.

Add a Notification Request Task

Add a notification request task to an agent to send a secure notification about an event to the task inbox of specified recipients in IBM Cognos Analytics.

A notification request can have various recipients:
- users, groups, roles, and distribution lists to whom the request is sent (To list recipients)
- stakeholders to whom the request is copied (CC list recipients)

Tip: To track the progress of a notification request task that you create, you can add yourself as a copied (CC) recipient (stakeholder).

You can include content, such as report output, in a notification request.

You can set up the following notification options:
- Request an acknowledgement from each recipient included on the To list, with an optional deadline date.
- All recipients receive an email when a notification request is added to their task inbox.
- Recipients included on the To list receive an email if they have not acknowledged a notification request by the deadline date.

- Stakeholders included on the CC list receive an email on the deadline date informing them that some recipients on the To list have not acknowledged the notification request.

You can also add other types of tasks.

Procedure

1. Specify an event condition which always returns the value True. For example 1=1.

   For more information, see "Specify an Event Condition" on page 19.
2. In the **I want to** area, click **Add a task**.
3. Click **Run a notification request**.
4. In the **To** box, and if applicable, in the **Cc** box, enter the names of the recipients by using one or more of the following methods:
   - If your model contains a data item that is a user, role or group, drag this item from the **source** tab or from the **data items** tab. When the agent runs, the current value in the package replaces the data item for each event instance.
   - Click **Select the recipients** to select the users, groups, roles or distribution lists.

     To choose from listed entries, click the appropriate namespace, and then select the required check boxes.

     Tip: To make the user entries visible, click **Show users** in the list.

     To search for entries, click **Search** and in the **Search string** box, type the phrase you want to search for. For search options, click **Edit**. Find and click the entry you want.

     Click the **To** or **Cc** arrow button to update the **Selected entries** list, and click **OK**.

     Tip: To remove entries from the **Selected entries** list, select them and click **Remove**. To select all entries in a list, click the check box.

     Click **OK**.
5. In the **Subject** box, type the subject of the notification request.

   Tip: You can also drag items from the **source** tab or from the **data items** tab. When the agent runs, the current value in the package replaces the data item for each event instance.
6. In the **Body** box, type text directly or drag items from the **source** tab or from the **data items** tab.

   If you insert data items, the body message will be longer. When the agent runs, the current value in the package replaces the data item for each event instance. For more information, see "How Multiple Events Affect E-mail Messages, Approval Requests, and Notification Requests" on page 10.

   If the notification request has a single HTML attachment and the **Body** box is empty, the attachment appears inline.
7. To change the message format:
   - Click **Change to plain text** to change from the default HTML format to plain text format.

     Note: If you switch to plain text format, any HTML formatting changes are lost.

- Click **Change to HTML format** to change from plain text to HTML. You can then use formatting buttons to edit the message.

8. To add attachments, click **Attach** and choose the attachments.
9. To add links, click **Add links**, select the entries you want, click the arrow button to update the **Selected entries** list, and click **OK**.
10. To change the priority, select a predefined option from the **Priority** list or drag an item from the **source** tab or from the **data items** tab into the **Item** box.
11. Select the notification request notification options as required:
    - **Send notification by email upon creation**
    - **Request acknowledgement**
    - **Send notification if not acknowledged within**
      Type the specified number of days in the **Days** box.
12. From the **File** menu, click **Save** .

Results

You can preview the notification request task. When the agent runs, it retrieves values for all source and data items and sends the notification request to the recipients you specified.

Add a Database Update Task

Add a database update task to an agent to run stored procedures that exist in a database. A stored procedure takes arguments as input and updates the database. The database that contains the stored procedures can be different from the database in the package that the agent is monitoring.

For information about running stored procedures, see the IBM Cognos *Administration and Security Guide*.

You can also add other types of tasks.

A stored procedure is accessible in IBM Cognos Event Studio only if it was marked as a data modification type in IBM Cognos Framework Manager. If the input parameters to the stored procedure task are unavailable, check how your procedure has been modelled. For more information, see the IBM Cognos Framework Manager *User Guide*.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Update a database**.
3. Under **Package**, select the package to use to update the database.
4. Under **Data modification stored procedure**, select a stored procedure that exists for the package you selected.
5. If the stored procedure includes arguments, under **Arguments**, choose how to specify values for each argument:
   - If you are using a value, in the **Method** column, click **Use a value**, click **Specify values**, and in the **Value** column, type a value.

- If you are using an item, in the **Method** column, click **Use an item** and drag

  an item from the **source** tab or from the **data items tab** to the **Value** column.

  Tip: To clear the argument values and return to the default values, click **Reset to default**.

6. From the **File** menu, click **Save** .

Results

You can preview the database update task. When the agent performs the database update task, the stored procedures are run and the database is updated.

Add a Web Service Task

Use a web service task to trigger an external process. Web services let software programs interact with one another using standard Internet protocols, so interaction is not dependant on operating system or program language compatibility. Web services also work well in a distributed environment because they use URLs to reference programs.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

When you specify the web service URL, IBM Cognos Event Studio calls a web server and requests the Web Services Description Language (WSDL). This shows you the web service input and output parameters.

Note: Before you can run a web service task in Cognos Event Studio, you must follow additional preparation steps. For more information, see "Preparing to Run a Web Service Task" on page 43.

Procedure
1. In the **I want to** area, click **Add a task**.
2. Click **Advanced**.
3. Click **Call a Web service**.
4. In the **Web service URL** box, type the URL of the web service.

   If the URL points to a web site address, you must include the protocol, such as http.
5. Click **Retrieve**.

   The available web service operations are retrieved.
6. Under **Operation**, click the web service operation you want to perform.

   The available method and the list of arguments is retrieved.
7. If the operation includes arguments, under **Arguments**, choose how to specify values for each argument:
   - If you are using a value, in the **Method** column, click **Use a value**, click **Specify values**, and in the **Value** column, type a value.

- If you are using an item, in the **Method** column, click **Use an item** and drag an item from the **source** tab or from the **data items** tab to the **Value** column.

  Tip: To clear the argument values and return to the default values, click **Reset to default**.

8. From the **File** menu, click **Save** .

Results

You can preview the web service task. When the agent performs the web service task, it calls the web service and runs its service.

Example - Adding a Web Service Task

You want to notify customer service representatives and suppliers about orders that have a high rate of return. You could do this by adding an e-mail task. However, you know that some of the service representatives and suppliers do not have access to e-mail. You also know that they all closely monitor the Customer Relationship Management (CRM) system.

You decide to notify the service representatives and suppliers by creating records in the CRM system. Each record is linked to a customer name and to the type of product that was returned. Your company developed a web service that creates CRM records. In IBM Cognos Event Studio, you add a web service task that calls your company's web service.

When the agent performs the web service task, the web service updates the profile of customers who returned products. An updated customer profile can improve your sales performance in two ways:

- It helps the services representative contact the customer quickly to resolve the current problem.
- It helps the supplier ensure that they don't make the mistake of supplying a particular product to that customer again.

Add an Export Task

Add an export task to an agent to export entries to a deployment archive.

For more information, see the IBM Cognos *Administration and Security Guide*.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Run an export**.
3. Click **Select the export**, and specify the export to include in the agent.
   - Search the folders to find the export you want.
   - Click the entry and click **OK**.

4. From the **File** menu, click **Save** .

Results

You can preview the export task.

Add an Import Task

Add an import task to an agent to import entries from a deployment archive to your target environment.

For more information, see the IBM Cognos *Administration and Security Guide*.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Run an import**.
3. Click **Select the import** and specify the import to include in the agent.
   - Search the folders to find the import you want.
   - Click the entry and click **OK**.
4. From the **File** menu, click **Save**

Results

You can preview the import task.

Add a Content Maintenance Task

Add a content maintenance task to an agent to run a content maintenance task. A content maintenance task searches the content store for user information that no longer exists in your external namespaces. It can also fix the content store by deleting any users that do not exist in your external namespaces.

For more information, see the IBM Cognos *Administration and Security Guide*

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Run a content maintenance task**.
3. Click **Select the content maintenance task** and specify the content maintenance task to include in the agent.
   - Search the folders to find the content maintenance task you want.

- Click the entry and click **OK**.
4. Under **Mode**, choose whether to find or find and fix problems:
   - To find user information that no longer exists in your external namespaces, click **Find only**.
   - To find and delete from the content store any users that do not exist in your external namespaces, click **Find and fix**.
5. From the **File** menu, click **Save** .

Results

You can preview the content maintenance task.

Add a Planning Macro Task

Add a planning macro task to an agent to run Contributor macros when specified conditions are met. A planning macro is created in IBM Cognos Planning Contributor to automate tasks such as loading import data and publishing data.

For more information about planning macros, see the IBM Cognos Planning Contributor *Administration Guide*.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure
1. In the **I want to** area, click **Add a task**.
2. Click **Advanced**.
3. Click **Run a planning macro task**.
4. Click **Select the planning macro** and specify the task to include in the agent.
   - Search the folders to find the task you want.
   - Click the entry and click **OK**.
5. From the **File** menu, click **Save** .

Results

You can preview the task.

Add a Migration Task

Add a migration task to an agent to migrate IBM Cognos Series 7 PowerPlay® content to IBM Cognos PowerPlay. The migration task must be defined in IBM Cognos Administration.

For more information on defining a migration task, see the IBM Cognos PowerPlay *Migration and Administration Guide*.

You can also add other types of tasks.

Before you begin

Before you add any type of task, you must specify an event condition.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Advanced**.
3. Click **Run a migration task**.
4. Click **Select the migration task** and specify the task to include in the agent.
   - Search the folders to find the task you want.
   - Click the entry and click **OK**.

5. From the **File** menu, click **Save** .

Results

You can preview the task.

Specify the Task Execution Rules

Task execution rules specify when a task is performed. By default, a task is performed for new instances of events and all ongoing instances of events, but you can change this.

For more information, see "Change the Task Execution Rules for a Report Task" on page 51 or "Change the Task Execution Rules for an Email Task" on page 54.

You specify the task execution rules separately for each task in the agent.

Before you begin

Before you specify the task execution rules, you must add one or more tasks.

Procedure

1. In the **I want to** area, click **Manage the task execution rules** .
2. On the **Event Key** tab, click one of the following:
   - **Include all items (default)**

   - **Include only selected items**, then on the **source** tab , click one or more data items that uniquely define an event and drag it to the box.

     For example, click **Order Number**, because no two event instances can have the same order number.

   The event key is defined for all tasks in the agent.
3. Click the **Event Selection** tab.
4. In the **Task** box, click the task that the agent will perform for the event statuses you specify.
5. Under **Select when to perform each task** page, click one of the following:
   - **For selected events**, and select one or more event status values.
   - **When the agent or any of its tasks fail**.
6. Click **OK**.

The execution rules for each task you selected are set.

Tip: If you want to reset the execution rules for every task in the agent to the default values, from the **Actions** menu, click **Remove Task Execution Rules**. Each task is reset to be performed for new instances of events and all ongoing instances of events.

7. Save the agent.

Preview the Data

You can see the list of events detected when the event definition is applied to the current data. You can also see preview information about each task in your agent.

For example, you are an administrator and want to preview the event list and all the tasks before you make the agent available for other people to use.

The preview information for each type of agent item is described in the following table.

Agent item	Preview information
The event list	A table appears with columns for each data item contained in the event condition. For each event instance, a row appears that shows the value of each data item.
e-mail task	Representations appear of all e-mails that would be sent using the default task execution rules. Data items in the recipient, subject, and body fields are replaced by values from the source data.
News item task	A representation appears of the news item that would be created using the default task execution rules. Data items in the recipient, subject, and body fields are replaced by values from the source data.
Report task	If the report accepts prompt values, a table appears with columns for each parameter. For each event instance, a row appears that contains the prompt values. If the report does not accept prompt values, a sentence appears telling you that the report will run once.
Job task	A sentence appears telling you that the task will run once.
Agent task	If the agent accepts prompt values, a table appears with columns for each parameter. For each event instance, a row appears that contains the prompt values. If the agent does not accept prompt values, a sentence appears telling you that the agent will run once.
Approval request task	A representation appears of the approval request that would be created using the default task execution rules. Data items in the recipient, subject, and body fields are replaced by values from the source data. In addition, a table appears indicating the approval request deadlines, priority, and action button names.
Notification request task	A representation appears of the notification request that would be created using the default task execution rules. Data items in the recipient, subject, and body fields are replaced by values from the source data. In addition, a table appears indicating the priority and notification request options.

Agent item	Preview information
Database update task	If the stored procedure accepts arguments, a table appears with columns for each argument. For each event instance, a row appears that contains the argument values. If the stored procedure does not accept arguments, a sentence appears telling you that the stored procedure will run once.
Web service task	If the web service accepts arguments, a table appears with columns for each argument. For each event instance, a row appears that contains the argument values. If the web service does not accept arguments, a sentence appears telling you that the web service will run once.
Export task	A sentence appears telling you that the task will run once.
Import task	A sentence appears telling you that the task will run once.
Content maintenance task	A sentence appears telling you that the task will run once.
Planning macro task	A sentence appears telling you that the task will run once.
Migration task	A sentence appears telling you that the task will run once.

Items shown on the preview pages show data for every event instance in the event list. If you change the task execution rules, the preview data remains the same. For more information, see "Specify the Task Execution Rules" on page 38.

Before you begin

Before you can preview data, you must define an event condition.

Procedure

From the **Actions** menu, click **Preview All** or **Preview**.

Results

The **Preview All** report begins with a table of contents that contains links to the preview information for each agent item. The **Preview** report shows preview information for the agent item on the current page.

Create a Schedule for an Agent

By scheduling an agent to run at regular intervals, you do not have to manually run the agent. The agent monitors data and performs tasks to ensure that problems are dealt with as soon as possible.

Only one schedule can be associated with each agent. If you require multiple schedules for an agent, create agent views and then create a schedule for each view.

Procedure

1. In the **I want to** area, click **Schedule the agent**.
2. Under **Frequency**, select how often you want the schedule to run.
3. Under **Start**, select the date and time when you want the schedule to start.

4. Under **End**, select when you want the schedule to end.

   Tip: If you want to create the schedule but not apply it right away, select the **Disable the schedule** check box. To later enable the schedule, clear the check box.

5. If you want to override the default values that you defined for the agent, under **Prompt values**, select the check box.

6. Click **OK**.

Specify Default Options for an Agent

Specify default options for an agent when you want every task in the agent to use the same values for report task options or content maintenance options.

Procedure

1. From the **Actions** menu, click **Set Default Options for All Tasks**.

2. Specify the default options you want.

3. From the **File** menu, click **Save** ![save icon].

Allow Users to Subscribe to the Alert List of the Agent

You can specify that you want users to be able to add their e-mail addresses to the agent alert list.

When the agent runs, the alert list is added to the **Bcc** box in all e-mails sent using e-mail tasks or report tasks.

Procedure

1. From the **Actions** menu, click **Manage Alert List**.

2. Select the **Allow users to add themselves to the alert list** check box.

   Tip: If you want to remove everyone from the alert list, click **Remove all**.

3. From the **File** menu, click **Save** ![save icon].

Change the Order in Which to Run Tasks

You can change the order in which to run tasks. By default, all tasks run at the same time. These tasks are called parallel tasks. If some tasks require a significant amount of processing time, parallel tasks can save time.

Note: For parallel tasks, tasks are run in a specific order, depending on the task types included in an agent.

You can also specify that one task finishes before the next task begins. These tasks are known as sequential tasks.

For example, an agent runs a report task that saves a prompted report. Next, the agent runs an e-mail task and attaches the saved report. For more information, see Chapter 3, "Tutorial," on page 47.

If your agent contains any of the following tasks, and the task includes a saved report from a report task, you must order the tasks in a particular way:

- email task

- approval request task
- notification request task

You must order the e-mail task or request task after the report task. If you do not order the tasks in this way, the saved report output or report link is missing from the e-mail or request that is created.

Procedure

1. In the **I want to** area, click **Reorder the tasks** .
2. Choose whether to specify the order or run all tasks at the same time:
   - To run the tasks in a specific order, click **In sequence** and, in the **Tasks** box, click tasks and change their order by clicking **Up** or **Down**.
   - To run all the tasks in parallel, click **All at once**.
3. Click **OK**.
4. From the **File** menu, click **Save** .

Modify an Event Condition

Modify an event condition when you want to change the data instances that prompt the agent to perform its tasks.

Procedure

1. Click the edit agent button for the agent you want to modify.
2. In the summary area, click the **Event** tab.
3. Change the values as required. For more information about the values required for an event condition, see "Specify an Event Condition" on page 19.
4. From the **File** menu, click **Save** .

Modify or Delete a Task

Modify or delete a task when you want to make changes to any of the tasks in the agent.

If you want to add a task, in the **I want to** area, click **Add a task**, and click a task type. For more information, see "Adding Tasks" on page 22.

Procedure

1. Click the edit agent button for the agent you want to modify.
2. If you want to modify a task, do the following:
   - In the summary area, under **Tasks**, click the tab for the task you want.
   - Change the values as required. For more information about the values required for each type of task, see "Adding Tasks" on page 22.
3. If you want to delete a task, do the following:
   - In the summary area, under **Tasks**, click the tab for the task you want to delete.
   - From the **Edit** menu, click **Delete** .
4. Save the agent.

Modify the Task Execution Rules

Modify the task execution rules when you want to change the list of event instances for which a task is performed.

Procedure

1. Click the edit agent button ![edit agent] for the agent you want to modify.
2. In the **I want to** area, click **Manage the task execution rules**.
3. Change the values as required. For more information, see "Specify the Task Execution Rules" on page 38.
4. If you want to reset the task execution rules to the default values, from the **Actions** menu, click **Remove Task Execution Rules**.

   The task is performed for new instances of events and all ongoing instances of events.

5. From the **File** menu, click **Save** ![save].

Test an Agent

Before you run an agent, you can test whether certain conditions are met to increase the chance that the agent runs successfully.

The conditions are as follows:
- The event condition is a valid query expression.
- All parameters are satisfied correctly.
- All referenced data items exist.

Procedure

1. From the **Actions** menu, click **Validate** ![validate].

   The **View the validation results** dialog box appears.
2. If an error message appears, fix the error and then repeat steps 1 to 2.

   If an error message appears when you run the agent, write down the error message and troubleshoot the problem.

   For more information, see the Troubleshooting section of the IBM Cognos Analytics *Administration and Security Guide*.
3. When the No Errors message appears, click **OK**.

Results

The agent is now ready to run.

Preparing to Run a Web Service Task

Before you can run a web service task in IBM Cognos Event Studio, you must generate the required Java™ object (.jar) file for the web service and register the domain name for the web service.

Generating a Java Object File

When you generate Java object (.jar) files, the folder `c10_location`\webapps\p2pd\ WEB-INF\lib\es_ws_objs is created automatically, and files are stored here by default.

If you are an administrator, you can change this folder using IBM Cognos Configuration.

To generate .jar files, you must be running Java Development Kit (JDK) with a Java compiler (javac.exe).

Note: If you are running multiple web services, you must generate a separate .jar file for each one. Because each generated file has the same file name, you must rename each .jar file before generating the next one.

Procedure

1. On a Windows operating system, open the file `c10_location`\bin\ es_build_ws_objs.bat in an XML editor.

   On non Windows operating systems, open the file `c10_location`\bin\ es_build_ws_objs.sh in an XML editor.

2. Modify the JAVA_HOME environment variable to point a JDK location.

3. Run the following command from the `c10_location`\bin location:

   On a Windows operating system, type

   es_build_ws_objs <web_service_URL>

   For example, es_build_ws_objs http://wtwincqclab7/ws6/service.asmx?wsdl

   On non Windows operating systems, type

   ./es_build_ws_objs.sh <web_service_URL>

   This command generates a file named es_ws_objs.jar in the specified location.

   The following steps are optional, and only required if you want to change the default location for your Java object files.

4. Start IBM Cognos Configuration.

5. In the **Explorer** window, click **Local Configuration**.

6. In the **Properties** window, next to **Advanced properties**, click inside the **Value** box, and then click the edit button.

7. Click **Add**, and then type the following property name in the **Name** box:

   emf.webservice.objs.folder

   Note: You must create this folder manually in your directory structure.

8. In the **Value** box, type the required folder location.

   Note: The location must be accessible to the server user.

9. Click **OK**, and save your changes.

10. Restart the services.

Registering the Domain Name

You must register the domain name for the web service in the IBM Cognos Application Firewall (CAF) using IBM Cognos Configuration.

Procedure

1. Start Cognos Configuration.

2. In the **Explorer** window, under **Security**, click **IBM Cognos Application Firewall**.
3. Add host and domain name to the Cognos list of valid names:
   - For the **Valid domains and hosts** property, click the value and then click the edit button.
   - In the **Value - Valid domains or hosts** dialog box, click **Add**.
   - In the blank row of the table, click and then type the host or domain name.
4. Click **OK**, and save your changes.
5. Restart the services.

Chapter 3. Tutorial

This tutorial shows how the various tasks in creating an agent are related to each other. It shows that managing task execution rules is performed for each task in an agent, but that specifying an event condition is performed once for an agent.

Scenario

You are the Director of Sales of a company. The Finance department identified a problem with invoice payments. Analysis of warehouse data shows that a large proportion of late payments are by customers who returned damaged or faulty items and did not receive replacements.

Customers tend to withhold payment for the entire order even if only one or two items are in dispute. They may even refuse to pay for other completed orders until the disputed order is resolved.

Therefore, rapid resolution of the returns issues has a direct effect on cash flow. The Director of Finance asks you to establish a process that closely monitors data for problems with high rates of return and takes immediate action to resolve any problem it detects.

Solution

You decide to use IBM Cognos Event Studio to detect event instances and notify the people who must quickly resolve the issue.

You create an agent named high_returns_followup. The agent detects cases where the actual value of returned products is greater than the threshold value that the person running the agent defines. You include a parameter in the event condition to represent this threshold value. Initially, you concentrate on large return orders because they have the greatest effect on cash received. After you address problems with the largest returns, you monitor lower valued returns.

To provide sales representatives with customer contact information, you decide to add a report task that runs the Customer Contact report. The sales representatives can then quickly call the retailer and try to resolve the issue.

Before you can distribute the report, you require a sales manager to approve and sign it off as being accurate, so you decide to an approval request task.

When you add the e-mail task to distribute the report, you specify that the e-mail message be in HTML format. When you edit an HTML message, you can click a button that inserts a table. You list return values by order number in the table. Then you attach to the e-mail message both the report that you saved in the report task and the event list that shows the event instances for which the agent performed its tasks.

To create this example agent, perform the following tasks:
- Start Cognos Event Studio and select the **Go Sales (query)** package.
- Define a parameter named total_return_value_for_item.
- Define a calculation named order_item_return_value_calc.

- Specify an event condition that contains the calculation and parameter.
- Add a report task that saves a report customized with contact information for the retailers who returned the products.
- Change the task execution rules for the report task.
- Add an approval request task that sends the report to the sales manager for sign-off.
- Add an e-mail task that sends an email to the sales representative for the returned product. Attached to the email is the approved report.
- Change the task execution rules for the email task.
- Add a news item task that publishes a dynamic headline that shows the current value of preventable returns.
- Schedule the agent.
- Save the agent.
- Run the agent.

Start IBM Cognos Event Studio

You want to start IBM Cognos Event Studio and ensure that your agent uses a data package that it can monitor for the events you want and that it can use to perform tasks.

You decide to use the Go Sales (query) package because it contains data items related to returned products, retailers, and order details.

Procedure

1. Click the **Event Studio** link .
2. In the **Select a package** window, click **Go Sales (query)**.

   Cognos Event Studio opens in a new window. The data items you can use are listed in the **Insertable Objects** area.

Define a Parameter to Insert Into an Event Condition

You want to define a parameter named total_return_value that you can insert into an event condition.

Procedure

1. From the **Insert** menu, click **Parameter**.
2. In the **Parameter name** box, type

   `total_return_value_for_item`
3. Click **OK**.

Results

To see the parameter, in the **Insertable Objects** area, click the **parameters** tab .

Define a Calculation to Insert Into an Event Condition

You want to define a calculation named total_return_value_calc that you can insert into an event condition. This calculation must determine the total value of each order returned.

Procedure

1. From the **Insert** menu, click **Calculation**.
2. In the **Name** box, type

   order_item_return_value_calc
3. In the **Expression** box, do the following:
   - In the **Insertable Objects** area, click the **functions** tab and expand **Summaries**.
   - Click the **total** function item, and drag it to the **Expression** box.
   - In the **Insertable Objects** area, click the **source** tab and expand **Returned items (query)**.
   - Under **Returned items (query)**, expand **Returned items**.
   - Click the **Return quantity** measure item, and drag it to the **Expression** box.
   - After you insert the source item, type for.
   - Under **Returned items (query)**, expand **Order**.
   - Click the **Order number** item, and drag it to the end of the expression.
   - After you insert the source item, type a closing parenthesis.

   The calculation expression is defined as follows:

   total([Returned items (query)].[Returned items].[Return quantity]for[Returned items (query)].[Order].[Order number])
4. Click **OK**.

Results

The calculation appears as a calculation icon on the **data items** tab.

Specify an Event Condition

You want the agent to detect cases where the actual value of returned products is greater than the threshold value that the person running the agent defines.

Also, you want to see what parameter value would return an event list of between 5 and 10 items from the current data.

Procedure

1. Click the **Detail** tab.

2. In the **Insertable Objects** area, click the **source** tab .
3. Expand **Returned items (query)**.
4. Under **Returned items (query)**, expand **Returned items**.
5. Click the **Return quantity** measure item, and drag it into the expression box.
6. After the source item you just inserted, type

   > 0 and

7. On the **data items** tab , click the **order_item_return_value_calc** calculation that you defined previously, and drag it to the end of the expression.
8. At the end of the expression, type a greater than symbol:

   >

9. Click the **parameters** tab ![icon], click the **total_return_value** parameter that you defined previously, and drag it to the end of the expression.

10. At the end of the expression, type

    and

11. On the **source** tab, under **Returned items (query)**, expand **Return reason**.

12. Click **Reason description**, and drag it to the end of the expression.

13. At the end of the expression, type

    in

14. To include only the description types you want, do the following:

    - On the **source** tab, under **Return reason**, click **Reason description**.

    - Above the **Expression** box, click the select value button ![icon].

    - In the **Select Value** window, use Shift+Click to select **Incomplete product**, **Unsatisfactory product**, and **Defective product**.

    - Click the insert button ![icon], and click **OK**.

    The detail expression appears as follows:

    [Return quantity]>0 and [order_item_return_value_calc]>?total_return_value_for_item? and [Reason description] in ('Defective product','Incomplete product','Unsatisfactory product')

15. Do the following to see whether an event list of between 5 to 10 items is returned when the total return value calculation exceeds $4000:

    - From the **Actions** menu, click **Preview**.

    - On the report viewer **Prompt** pages, in the **Provide a number** box, type

      4000

    - Click **OK**.

Add a Report Task

Sales representatives must ensure that items returned for a preventable reason are not returned again for the same reason. You want to save a report of customer contact information associated with the excessive rate of return event that you defined. Sales representatives can use this information to contact the retailer, discuss how to prevent future returns, and then take the appropriate action.

You decide to add a report task that runs the sample report named Customer Contact. When the agent runs the report task, the value of the Retailer name data item for each event instance is passed to the report output.

By adding an email task, you can include additional information in the e-mail message that you cannot include using the report task.

Procedure

1. In the **I want to** area, click **Add a task**.

2. Click **Run a report**.

3. Specify the report that you want to run:

   - Click **Public Folders**, and click **Go Sales (query)**.

   - Click **Event Studio Samples**.

- Click **Customer Contact Report** and click **OK**.
4. Under **Options**, click **Set**.
5. Specify the run options that you want:
    - Select the **Override the default values** check box.
    - Under **Formats**, select the **PDF** check box and ensure that none of the other check boxes are selected.
    - Under **Delivery**, select the **Save** check box, and ensure that **Save the report** is selected.
    - Click **OK**.
6. Specify the prompt values that you want:
    - In the **Method** column, click **Use an item**.
    - In the **Insertable Objects** area, click the **source** tab and expand **Sales (query)**, **Retailer**.
    - Click **Retailer name**, and drag it to the **Value** box.
7. Save the agent.

Change the Task Execution Rules for a Report Task

The status of each event instance is obtained by comparing the event instances of the current run of the agent to those of the previous run. You want to specify which event statuses will cause the agent to perform the report task.

You know that for the event condition you specified, the **Product name**, **Retailer name**, and **Order method** data items have duplicate values in two or more event instances. However, because the **Order number** data item has a different value for each event instance, you choose it as the event key.

You decide that the report task that you added previously should be performed for both:
- new event instances

    New event instances are instances that are detected when the agent runs and were not previously detected.
- ongoing event instances in which the return quantity has changed

    Ongoing event instances are detected when the agent runs and have previously been detected. In this case, only ongoing event instances in which the return quantity has changed cause the report task to run.

Procedure

1. In the summary area, click **new report**.
2. In the **I want to** area, click **Manage the task execution rules**.
3. Click the **Event Key** tab.
4. Click **Include only selected items**.
5. On the **source** tab , expand **Returned items (query)** and **Order**.
6. Under **Order**, click **Order number**, and drag it to the **Event key** box.
7. Click the **Event Selection** tab.
8. Under **Select when to perform each task**, select the **New events** and **Ongoing events** check boxes.

    This chooses the event status for which the report task is performed.

9. Click **OK**.
10. Save the agent.

Add an Approval Request Task

You require a sales manager to approve the accuracy of the report that you saved previously and to sign it off before it is distributed to the sales representatives.

You decide to add an approval request task. When the agent is run, a task will be created within My Inbox in IBM Cognos Analytics and notifications will be sent via email to the potential owner and stakeholder identified for the task.

For more information on approval request tasks, see "Add an Approval Request Task" on page 28.

Note: When you add an approval request, the task execution is automatically set to sequential.

Procedure

1. In the **I want to** area, click **Run an approval request**.
2. Click the **source** tab , and expand **Sales (query)**.
3. Expand **Sales Staff**.
4. Click **Manager Email** and drag it to the **Potential owners** box.

   Note: You are automatically added as a stakeholder of the task.
5. In the **Subject** box, type

   Customer Contact Report for Approval
6. In the **Body** box, type:

   Please approve or reject the content of the attached report. If you approve this report it will be distributed to
7. To add the email distribution list for the sales representatives to the message:
   • Click the **source** tab, and expand **Sales (query)**.
   • Expand **Sales Staff**.
   • Click **Email** and drag it to the end of your message.
8. Save the agent.

Add an Email Task

When the Customer Contact report has been approved by the sales manager, you want to notify sales representatives about orders that have a high rate of return.

You decide to add an email task. You specify that the e-mail message use HTML format. When you edit an HTML message, you can click a button that inserts a table. You list return values by order number in a table. Then you attach to the email message both the report that you saved previously, and the event list showing the event instances for which the agent performed its tasks.

Note: The email task will only execute if the approval request that you previously added is approved by the potential owner.

Procedure

1. In the **I want to** area, click **Add a task**.
2. Click **Send an email**.
3. Click the **source** tab ![source tab icon], and expand **Sales (query)**.
4. Expand **Sales Staff**.
5. Click **Email** and drag it to the **To:** box.
6. In the **Subject** box, type

   `Urgent: Please contact customer`
7. In the **Body** box, type:

   `Please contact your customer about the following returned order(s), and determine how to prevent it from happening again`
8. Add a table to the Body message:

   - Click the insert table button ![insert table button].
   - Type 4 in the **Number of columns** box, type 2 in the **Number of rows** box, and click **OK**.
9. Type the column headings in the first row:
   - In the first cell, type

     `Order Number`
   - In the second cell, type

     `Value of items returned`
   - In the third cell, type

     `Reason description`
   - In the fourth cell, type

     `Customer name (see attached contact information)`
10. Select the heading row, and click the bold button ![B].
11. Enter data items in the second row:
    - Click the **source** tab, expand **Sales (query)**, then expand **Order**, and click **Order number** and drag it to the first cell.
    - Click the **data items** tab ![data items tab icon], click **total_return_value_calc**, and drag it to the second cell.
    - Click the **source** tab, expand **Returned items (query)**, then expand **Return reason**, and click **Reason description** and drag it to the third cell.
    - Expand **Sales (query)**, then expand **Retailer site**, and click **Retailer name** and drag it to the fourth cell.
12. In the **Body** box, after the table, type

    `Thanks, the GO Sales Customer Loyalty Team`
13. Click **Attach**, and click **Attach the event output**.
14. Click **Attach**, and click **Attach the report Customer Contact**.
15. Save the agent.

Change the Task Execution Rules for an Email Task

The status of each event instance is obtained by comparing the event instances of the current run of the agent to those of the previous run. You want to specify which event statuses will cause the agent to perform the email task.

You know that for the event condition you specified, the **Product name**, **Retailer name**, and **Order method** data items have duplicate values in two or more event instances. However, because the **Order number** data item has a different value for each event instance, you choose it as the event key.

You decide that the email task you added previously should be performed only for event instances that did not appear in the event list the last time the agent was run.

Tip: You can add multiple tasks to an agent and use task-level filters to include only those events that satisfy a Boolean condition. See "Example - Task-Level Boolean Filter" on page 7.

Procedure

1. In the summary area, click **new message**.
2. In the **I want to** area, click **Manage the task execution rules**.
3. Under **Select when to perform each task**, select the **New events** check box and ensure that none of the other check boxes are selected.
4. Click **OK**.
5. Save the agent.

Add a News Item Task

The customer fulfilment manager wants to be informed of the current preventable returns. However, he does not always check his e-mail. He prefers to view important updates on a Web dashboard that he checks regularly.

You decide to add a news item task that updates a headline with the total value of returns that are preventable. That is, you publish the values of products returned because they are incomplete, defective, or unsatisfactory.

Procedure

1. Create a folder named **High Returns**.

   - Click the new folder button .
   - In the **Name** box, type

     High Returns
   - Under **Location**, click **Select My Folders**.
   - Click **Finish**.

   The **High Returns** folder appears in **My Folders**.
2. In IBM Cognos Event Studio, in the **I want to** area, click **Add a task**.
3. Click **Publish a news Item**.
4. In the **Headline** box, type Preventable Returns for Large Value Individual Items.
5. Drag the calculation data item **total_return_value_calc** to the end of the text you just typed.

6. Under **Link to**, choose what you want to link to:
    - Click **Select an entry**.
    - Click **Public Folders**, and click **Go Sales (query)**.
    - Click **Event Studio Samples**.
    - Click **Customer Contact Report** and click **OK**.
7. Under **News list location**, click **Select a location**, go to the **High Returns** folder in which the news item will be published and click **OK**.
8. Under **Run this news item for the events**, review the event status that will cause the news item to be published.
9. From the **File** menu, click **Save**.

Results

When the agent performs the news item task, it publishes the news item to the **My Headlines** folder.

The description text appears when you set your preferences to use the details view. The screen tip appears when you pause your pointer over the icon for the entry in the news list location.

Schedule an Agent

When the excessive rate of return event you defined occurs, significant potential revenue has already been lost. Following up on returned products increases your shipping charges and administration fees. However, the most important impact of returned products is that they can reduce customer loyalty and decrease your future sales. Therefore, it is important that you respond quickly to an event instance as soon as it occurs.

You decide that you can provide a timely response to event instances by monitoring the data hourly. You also decide that $17,000 is an appropriate threshold value for this initial schedule.

Procedure

1. In the **I want to** area, click **Schedule the agent**.
2. Under **Frequency**, click **By Day**, and ensure that the frequency is **Every 1 hour(s)**.
3. Under **Start**, select the date of tomorrow, and specify the time as **9:00 AM**.
4. Under **End**, click **No end date**.
    Tip: You can edit the schedule later if you want to add an end date.
5. Under **Prompt values**, select the **Override the default values** check box, and then click **Set**.
6. On the prompt page, in the **Provide a number** box, type
    17000
7. Click **OK** twice.

Results

A schedule is created and the **high_returns_followup** agent runs hourly, starting tomorrow at 9:00 a.m.

Save an Agent

You want to save the agent in **My Folders**. You also want to give the agent a meaningful name and description so that you can easily distinguish it from other agents.

Procedure

1. From the **File** menu, click **Save**.
2. If this is the first time you are saving the agent, in the **Save As** dialog box, describe the agent:
   - In the **Name** box, type

     high_returns_followup
   - In the description field, type

     This agent checks for orders that have a high value of returned products. It then sends a report by e-mail to the appropriate sales reps so that they can contact the retailers and prevent future returns.
   - Ensure that the **Location** is set to **My Folders**.
   - Click **OK**.

Results

The agent **high_returns_followup** appears in **My Folders**, next to an agent icon

 .

Run an Agent

You decide to run the agent immediately to test the results.

If you want to successfully run the agent described in this tutorial, you must first perform the tasks in all the other examples. For more information, see Chapter 3, "Tutorial," on page 47.

Procedure

1. In **My Folders**, click the run with options button on the actions toolbar next to the **high_returns_followup** agent.
2. Under **Time**, click **Now**.
3. Under **Prompt Values**, select the **Prompt for values** check box.
4. Click **Run**.
5. On the **Prompt** page, in the **Provide a number** box, type

   17000
6. Click **OK** twice.

Results

The high_returns_followup agent runs using the prompt value you entered. To see the results of the run, you can review the run history of the agent.

Chapter 4. Troubleshooting

This chapter describes some common problems you may encounter.

You can find more troubleshooting topics in the Troubleshooting section of the IBM Cognos *Administration and Security Guide*.

A Report Link in an Email Notification Does Not Work

If a report link in an email notification does not work, the Gateway URI may not be configured correctly.

You must change the host name portion of the Gateway URI from localhost to either the IP address of the computer or the computer name. If the URL in the email contains localhost, remote users cannot open the report.

The Page Cannot Be Found Error Appears for Reports

When a report is distributed by email, no error message appears if the report output from the email link is not available. This can occur when the output is deleted or when the user does not have permissions to the report. Instead, the error The Page Cannot Be Found appears.

You are unable to view the report output from the email link when **Allow Anonymous Access** is set to **True** and when the Anonymous user does not have access to the report output.

When you run a secured report from an email link and when **Allow Anonymous Access** is set to **True**, a passport is automatically issued to the Anonymous user. The Anonymous user is not prompted to log on and is unable to view the report output.

Metadata Change in Oracle Essbase Not Reflected in Reports and in the Studios

When there is a metadata change on the Oracle Essbase server, the change is not immediately reflected in the metadata tree in the studios. In addition, when a report is run, the report does not pick up the republished changes.

To view the new structure, you must restart the IBM Cognos Content Manager server.

Errors When Running Web Service Tasks

When running a Web service task, you might encounter errors.

You must modify one the following files to add the ThreadStackSize (Xss) parameter:
- bootstrap_win32.xml in the bin folder for a 32-bit installation
- bootstrap_win64.xml in the bin64 folder for a 64-bit installation

Adding this parameter prevents these errors:

CNC-ASV-0001 The Following Agent Service General Error Occurred:
java.lang.StackOverflowError

CNC-ASV-0007 An error occurred with the agent Web service task.

Procedure

1. Open the appropriate version of the *install_location*\bin\bootstrap_win.xml file
   in an XML editor.
2. Add the following text for the parameter (shown in bold) exactly as shown
   here:

```
...
<condValue="Sun">-XX:NewSize=${dispatcherMaxMemoryBy4}m</param>
  <param condName="${java_vendor}" condValue="Sun">-XX
  <process name="catalina"> ...<param condName="${java_vendor}"
   condValue="Sun">-XX:MaxPermSize=512m</param><
   param condName="${java_vendor}"
   condValue="IBM">-Xss512m</param>
```

The maximum stack size (Xss) parameter is set to 512 MB to avoid an overflow
exception error.

Email editing toolbar buttons not available in Firefox 14.01 or Firefox 10.06

When you create an email to send to an individual, group or dynamic recipient,
the editing toolbar buttons are not available when you use Firefox 14.01 or Firefox
10.06.

These toolbar buttons are available in Microsoft Internet Explorer.

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