

EventManager Service User's Guide

Version 3.4.0

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Overview

The EventManager service allows you to register with the Event service in order to execute STAF Commands. When an Event is generated, the Event Service (which normally sends messages to machines registered for specified events) will execute a STAF Command via the EventManager. The EventManager service also provides a User Interface to simplify interaction with the EventManager service

Note that EventManager registration information is persistent data. This means that if you register with the EventManager service, if you shutdown STAF and restart it (even if you reboot the machine), the prior registration information will still be active. When STAF starts, it reads in the previous EventManager registration information, and again registers each STAF command with the Event service.

Installation and Configuration

1. Install Java 1.5 (aka 5.0) or later.
2. Install STAF Version 3.1.0 or later by following the installation instructions in the STAF documentation.
3. If you want to use an Event service that is already registered on this or another machine, proceed to the next step. Otherwise, install and configure the Event service to be used by the EventManager service on this machine or another machine, following the instructions in the Event Service User's Guide.

Note: The version of the Event service must be 3.1.0 or later.

4. Install the EventManager service by downloading the EventManagerV340.zip/tar file from [Get STAF Services](#) into a local directory (e. g. C:/STAF/services or /usr/local/staf/services) and extracting it.
5. Configure the EventManager service by adding the following statement to your STAF configuration file:

```
SERVICE <Name> LIBRARY JSTAF EXECUTE <EventManager Jar File Name>
      [OPTION <Name[=Value]>]...
      [PARMS "[EVENTSERVICEMACHINE <EventServiceMachine>]
              [EVENTSERVICENAME <EventServiceName>]
              [OLDVARRESOLUTION]" ]
```

where:

- SERVICE specifies the name by which the EventManager service will be known on this machine.
- EXECUTE specifies the fully qualified name of the STAFEventManager.jar file. On Windows systems, this might be C:/STAF/services/eventmanager/STAFEventManager.jar. On Unix systems, this might be /usr/local/staf/services/eventmanager/STAFEventManager.jar. This option will resolve STAF variables, so you could use the STAF/Config/STAFRoot variable to specify the jar file name in a platform independent manner such as {STAF/Config/STAFRoot}/services/eventmanager/STAFEventManager.jar.
- OPTION specifies a configuration option that will be passed on to the JSTAF Java service proxy library. This is typically used by service proxy libraries to further control the interface to the actual service implementation. You may specify multiple OPTIONS for a given service. See the STAF User's Guide for more information on options for the JSTAF Java service proxy library.

- `EVENTSERVICEMACHINE` specifies the name of the Event service machine. It defaults to the EventManager service machine if not specified. This option will resolve STAF variables.
- `EVENTSERVICENAME` specifies the name that the Event service is registered as on the Event service machine. It defaults to "Event" (not case-sensitive) if not specified. This option will resolve STAF variables.
- `OLDVARRESOLUTION` specifies to perform the old way of variable resolution (e.g. the way variables resolution was done prior to EventManager V3.3.1). This means that on a `REGISTER` request, options `MACHINE`, `SERVICE`, and `REQUEST` will resolve STAF variables when the `REGISTER` request is submitted (which means the variables are resolved on the EventManager service machine). Note that in EventManager V3.3.1, these options were changed to not resolve STAF variables at the time when a `REGISTER` request is submitted so that STAF variables will be resolved when the STAF service request is submitted.

Notes:

1. If the Event service machine is NOT the same as the EventManager service machine, then you must specify the `EVENTSERVICEMACHINE` parameter.
2. If "Event" is NOT the name used when registering the Event service, then you must specify the `EVENTSERVICENAME` parameter.
3. If the Event service machine is the same as the EventManager service machine, then the configuration statement for the Event service must be specified in the STAF configuration file BEFORE the EventManager service configuration statement.

Examples:

```
SERVICE EventManager LIBRARY JSTAF EXECUTE {STAF/Config/STAFRoot}/services/eventmanager/STAFEventManager.jar
```

```
SERVICE EventManager LIBRARY JSTAF EXECUTE {STAF/Config/STAFRoot}/services/eventmanager/STAFEventManager.jar \
    OPTION JVMName=EM OPTION JVM=C:\j2sdk1.5.0\bin\java
```

```
SERVICE EventManager LIBRARY JSTAF EXECUTE {STAF/Config/STAFRoot}/services/eventmanager/STAFEventManager.jar \
    PARMS "EVENTSERVICEMACHINE machA.austin.ibm.com"
```

```
SERVICE EventManager LIBRARY JSTAF EXECUTE {STAF/Config/STAFRoot}/services/eventmanager/STAFEventManager.jar \
    PARMS "EVENTSERVICEMACHINE machA.austin.ibm.com EVENTSERVICENAME
Event2"
```

Request Syntax

The Event Manager service provides the following requests:

- `REGISTER` - Registers a STAF command to be executed when a specified event is generated.
- `UNREGISTER` - Unregisters a STAF command for event execution
- `LIST` - Lists registered STAF commands or the operational settings for the service
- `TRIGGER` - Triggers a registered STAF command to be executed immediately (without an event being generated)
- `ENABLE` - Enables a STAF command.
- `DISABLE` - Disables a STAF command.
- `HELP` - Displays a list of requests for the EventManager service and how to use them.

REGISTER

REGISTER registers a STAF command to be executed when the specified event is generated.

Syntax

```
REGISTER MACHINE <machine> | PYTHONMACHINE <machine>
SERVICE <service> | PYTHONSERVICE <service>
REQUEST <request> | PYTHONREQUEST <request>
TYPE <eventType> [SUBTYPE <eventSubType>]
[DESCRIPTION <description>]
[PREPARE <script>]
[ENABLED | DISABLED]
```

MACHINE specifies the name of the machine where the command will be executed. This option will not resolve STAF variables (unless the OLDVARRESOLUTION parameter is specified when registering the EventManager service). When the specified Event Type/Subtype is generated, the value of MACHINE will not be evaluated as a python string.

PYTHONMACHINE specifies the name of the machine where the command will be executed. This option will not resolve STAF variables. When the specified Event Type/Subtype is generated, the value of PYTHONMACHINE will be evaluated as a python string.

SERVICE specifies the name of the service to be executed. This option will not resolve STAF variables (unless the OLDVARRESOLUTION parameter is specified when registering the EventManager service). When the specified Event Type/Subtype is generated, the value of SERVICE will not be evaluated as a python string.

PYTHONSERVICE specifies the name of the service to be executed. This option will not resolve STAF variables. When the specified Event Type/Subtype is generated, the value of PYTHONSERVICE will be evaluated as a python string.

REQUEST specifies the request to be executed. This option will not resolve STAF variables (unless the OLDVARRESOLUTION parameter is specified when registering the EventManager service). When the specified Event Type/Subtype is generated, the value of REQUEST will not be evaluated as a python string. This option will handle private data.

PYTHONREQUEST specifies the request to be executed. This option will not resolve STAF variables. When the specified Event Type/Subtype is generated, the value of PYTHONREQUEST will be evaluated as a python string. This option will handle private data.

TYPE specifies the Event Type for which this command will be registered. It is not case sensitive. This option will resolve STAF variables.

SUBTYPE specifies the Event SubType for which this command will be registered. It is not case sensitive. This option will resolve STAF variables. If SUBTYPE is not specified, the request will be executed when any Event with the specified TYPE is generated.

DESCRIPTION specifies a description of the registration. It is for informational purposes only. This option will resolve STAF variables.

PREPARE specifies Python code which will be executed when the registered event is generated. This code will be executed prior to the PYTHONMACHINE, PYTHONSERVICE, and PYTHONREQUEST options being evaluated as python strings. This option will not resolve STAF variables. If the Python code sets the variable STAFEventManagerSubmit to any string other than 'true', then the request will not be submitted.

ENABLED specifies that the command will be enabled when it is registered. This means that the command will be submitted when an Event with the specified type/subtype is generated. This is the default if the ENABLED or DISABLED options are not specified.

DISABLED specifies that the command will be disabled when it is registered. This means that the command will not be submitted when an Event with the specified type/subtype is generated.

Security

This request requires at least trust level 5.

Results

Upon successful return, the result buffer contains the EventManager ID.

Event Generation

When an event is generated with a matching type/subtype, the following Python variables will be available when the PREPARE, PYTHONMACHINE, PYTHONSERVICE, and PYTHONREQUEST options are evaluated as python strings:

- eventservice
- eventid
- generatingmachine
- generatingprocess
- generatinghandle
- eventtimestamp
- eventtype
- eventsubtype

In addition, each PROPERTY option name=value pair for the generated event will be set as Python variables.

Also, a Python dictionary named "eventinfo" will contain all of the above name/value pairs.

Examples

- **Goal:** Execute the command "STAF COMMAND notepad" whenever an Event of Type a and Subtype b is generated.

Syntax: STAF local EVENTMANAGER REGISTER MACHINE local SERVICE PROCESS REQUEST "START COMMAND notepad" TYPE a SUBTYPE b DESCRIPTION "Start the Windows Notepad application"

- **Goal:** Execute the command "start command xxx" whenever an Event of Type a and Subtype b is generated (where xxx is a python variable called mycmd, which is set in the Event service GENERATE request).

Syntax:

```
STAF local EVENTMANAGER REGISTER MACHINE local SERVICE PROCESS PYTHONREQUEST "'START
COMMAND %s' % (mycmd)" TYPE a SUBTYPE b
```

```
STAF local EVENT GENERATE TYPE a SUBTYPE b PROPERTY mycmd=notepad
```

```
STAF local EVENT GENERATE TYPE a SUBTYPE b PROPERTY mycmd=regedit
```

- **Goal:** Execute STAX job /tests/TestA.xml on machine server1 whenever an Event of type RunSTAXJob and subtype TestA is generated. This STAX job's main function can be passed a map of arguments with the argument names 'testMachine' and 'serverMachine'. Pass the STAX job a map with these arguments and get the values for these arguments from Python variables named myTestMachine and myServerMachine which are set in the Event service GENERATE request.

Syntax:

This example uses the PYTHONREQUEST option to specify the request using Python syntax which is needed so that it can access the Python variables named myTestMachine and myServerMachine. Because the PYTHONREQUEST value is enclosed in double quotes and single quotes, any quotes used within this value need to be escaped with a backslash. This example also uses the PREPARE option to construct the map of arguments in Python which are passed to the STAX job which helps eliminate the need to escape some quotes.

```
STAF local EVENTMANAGER REGISTER MACHINE server1 SERVICE STAX PYTHONREQUEST "'EXECUTE
```

```
FILE /tests/TestA.xml ARGS \"%s\" ' % (args)" PREPARE "args = { 'testMachine':
myTestMachine, 'serverMachine': myServerMachine }" TYPE RunSTAXJob SUBTYPE TestA
```

```
STAF local EVENT GENERATE TYPE RunSTAXJob SUBTYPE TestA PROPERTY myTestMachine=client1
PROPERTY myServerMachine=server9
```

Actually, it's usually easier to register a more complex request like this that uses Python code via the EventManagerUI instead of the command line because then you don't have to bother so much with escaping quotes. See the [Registration Example using Python and Prepare Script](#) section for an example of how to register this STAF command via the EventManager User Interface.

UNREGISTER

UNREGISTER unregisters a STAF command with the Event service.

Syntax

```
UNREGISTER ID <registrationID>
```

ID specifies the EventManager ID which is to be unregistered.

Security

This request requires at least trust level 4.

LIST

LIST lists information about the commands registered with the EventManager service or the operational settings for the EventManager service.

Syntax

```
LIST <[MACHINE <machine>] [TYPE <eventType>] [LONG | SHORT]> | SETTINGS
```

MACHINE specifies the machine for which EventManager requests should be listed.

TYPE specifies the Type for which EventManager requests should be listed.

LONG indicates to list more detailed information about each EventManager request.

SETTINGS indicates to list the operational settings for the EventManager service. The operational settings include the name of the Event service machine and the name of the Event service that the EventManager service registers with. The Event service machine/name can be specified using the EVENTSERIVCEMACHINE and EVENTSERVICENAME parameters when registering the EventManager service.

Security

This request requires at least trust level 2.

Results

Upon successful return:

- The result buffer for a LIST SETTINGS request will contain a marshalled <Map:STAF/Service/EventManager/Settings which represents the operational settings for the EventManager service. The map is defined as follows:

Definition of map class STAF/Service/EventManager/Settings

Description: This map class represents the operational settings for the service.

| Key Name | Display Name | Type | Format / Value |
|---------------------|-----------------------|----------|----------------|
| eventServiceMachine | Event Service Machine | <String> | |
| eventServiceName | Event Service Name | <String> | |

- The result buffer for a LIST request (without the SETTINGS or LONG or SHORT options specified) will contain a marshalled <List> of <Map:STAF/Service/EventManager/EMID> which represents a list of the matching registered EventManager requests. The map is defined as follows:

Definition of map class STAF/Service/EventManager/EMID

Description: This map class represents a registered EventManager request.

| Key Name | Display Name | Type | Format / Value |
|----------------|--------------------|-------------------|------------------------------|
| eventManagerID | ID | <String> | |
| description | Description (Desc) | <String> <None> | |
| machine | Machine | <String> | |
| service | Service | <String> | |
| request | Request | <String> | Private data will be masked. |
| type | Event Type | <String> | |
| subtype | Event Subtype | <String> <None> | |

- The result buffer for a LIST request with the SHORT option specified will contain a marshalled <List> of <Map:STAF/Service/EventManager/EventManagerIDShort> which represents a general list of the matching registered EventManager requests. The map is defined as follows:

Definition of map class STAF/Service/EventManager/EventManagerIDShort

Description: This map class represents a general registered EventManager request.

| Key Name | Display Name | Type | Format / Value |
|----------------|--------------------|-------------------|------------------------------|
| eventManagerID | ID | <String> | |
| description | Description (Desc) | <String> <None> | |
| machine | Machine | <String> | |
| service | Service | <String> | |
| request | Request | <String> | Private data will be masked. |

- The result buffer for a LIST LONG request will contain a marshalled <List> of <Map:STAF/Service/EventManager/EventManagerID> which represents a list of the matching registered EventManager requests with detailed information. The map is defined as follows:

Definition of map class STAF/Service/EventManager/EventManagerID

Description: This map class represents a registered EventManager request with detailed information.

| Key Name | Display Name | Type | Format / Value |
|----------------|--------------|----------|----------------|
| eventManagerID | ID | <String> | |

| | | | |
|---------------|----------------|-------------------|------------------------------|
| description | Description | <String> <None> | |
| machine | Machine | <String> | |
| machineType | Machine Type | <String> | 'Literal' 'Python' |
| service | Service | <String> | |
| serviceType | Service Type | <String> | 'Literal' 'Python' |
| request | Request | <String> | Private data will be masked. |
| requestType | Request Type | <String> | 'Literal' 'Python' |
| type | Event Type | <String> | |
| subtype | Event Subtype | <String> <None> | |
| prepareScript | Prepare Script | <String> <None> | Private data will be masked. |
| enabled | Enabled | <String> | 'true' 'false' |

Examples

- **Goal:** List information about all the commands registered with the EventManager service.

Syntax: STAF local EVENTMANAGER LIST

Result: If the request is submitted from the command line, the result, in the table format, could look like:

| ID | Description | Machine | Service | Request | Event Type | Event Subtype |
|----|--|------------------------|---------|--|-------------|---------------|
| 1 | Start the Windows Registry Editor | client1.austin.ibm.com | PROCESS | START COMMAND regedit | mytype | <None> |
| 2 | <None> | client2 | PROCESS | START COMMAND /tests/TestA | myType | mySubType |
| 3 | Notify tester that the manual test is ready to be executed | client1.austin.ibm.com | EMAIL | SEND TO JohnDoe@us.ibm.com MESSAGE "Manual Test begin" | manual-test | BEGIN:default |

- **Goal:** List general information about all the commands registered with the EventManager service.

Syntax: STAF local EVENTMANAGER LIST SHORT

Result: If the request is submitted from the command line, the result, in the table format, could look like:

| ID | Description | Machine | Service | Request |
|----|--|------------------------|---------|--|
| 1 | Start the Windows Registry Editor | client1.austin.ibm.com | PROCESS | START COMMAND regedit |
| 2 | <None> | client2 | PROCESS | START COMMAND /tests/TestA |
| 3 | Notify tester that the manual test is ready to be executed | client1.austin.ibm.com | EMAIL | SEND TO JohnDoe@us.ibm.com MESSAGE "Manual Test begin" |

- **Goal:** List detailed information about all the commands registered with the EventManager service with machine client1.austin.ibm.com and event type manual-test.

Syntax: STAF local EVENTMANAGER LIST MACHINE client1.austin.ibm.com TYPE manual-test LONG

Result: If the request is submitted from the command line, the result, in the verbose format, could look like:

```
[
  {
    ID                : 3
    Description       : Notify tester that the manual test is ready to be executed
    Machine           : client1.austin.ibm.com
    Machine Type      : Literal
    Service           : EMAIL
    Service Type      : Literal
    Request           : SEND TO JohnDoe@us.ibm.com MESSAGE "Manual Test begin"
    Request Type      : Literal
    Event Type        : manual-test
    Event Subtype     : BEGIN:default
    Prepare Script    : <None>
    Enabled           : true
  }
]
```

- **Goal:** List the operational settings for the EventManager service:

Syntax: STAF local EVENTMANAGER LIST SETTINGS

Result: If the request is submitted from the command line, the result could look like:

```
Event Service Machine: server1.austin.ibm.com
Event Service Name    : event
```

TRIGGER

TRIGGER submits a registered STAF command. It is useful for testing the STAF command without requiring that the registered Event type be generated.

Syntax

```
TRIGGER ID <registrationID> [SCRIPT ]...
```

ID specifies the EventManager ID which is to be triggered.

SCRIPT defines Python code to be executed. You may specify any number of SCRIPT options. They will be executed in the order specified, and will be executed prior to the registration's PREPARE, PYTHONMACHINE, PYTHONSERVICE, AND PYTHONREQUEST values are evaluated. It is useful when you need to simulate values that would normally be available with the event information (such as Properties).

Security

This request requires trust level 5.

Results

If the STAF command was successfully submitted, the return code will be zero. This does not mean that the STAF command was successful, however; it only indicates that the STAF command was successfully submitted. You will need to check the EventManager service log to determine the RC and result that the STAF command returned.

Upon successful return:

- The result buffer for a TRIGGER request will contain a marshalled <Map:STAF/Service/EventManager/Trigger> which

represents the information about the submitted STAF command. The map is defined as follows:

| Definition of map class STAF/Service/EventManager/Trigger | | | |
|---|----------------|----------|----------------|
| Description: This map class represents information about the submitted STAF command. | | | |
| Key Name | Display Name | Type | Format / Value |
| machine | Machine | <String> | |
| requestNumber | Request Number | <String> | |

Examples

- **Goal:** Submit the STAF command for registration ID 5.

Syntax: STAF local EVENTMANAGER TRIGGER ID 5

Result: If the request is submitted from the command line, the result, in the verbose format, could look like:

```
Machine          : dave2268.austin.ibm.com
Request Number: 1426
```

- **Goal:** Query the EventManager log for the previous TRIGGER request.

Syntax: STAF local LOG QUERY MACHINE {STAF/Config/MachineNickname} LOGNAME eventmanager CONTAINS "[ID=5] [dave2268.austin.ibm.com:1426]"

Result: If the request is submitted from the command line, the result, in the verbose format, could look like:

```
20060809-13:57:27 Info [ID=5] [dave2268.austin.ibm.com:1426] Submitted a STAF
                        command. Event information: N/A Submitted STAF command:
                        STAF local var RESOLVE STRING {STAF/Config/MachineNickname}
20060809-13:57:27 Info [ID=5] [dave2268.austin.ibm.com:1426] Completed a STAF
                        command. RC=0, Result=testmachine1
```

- **Goal:** Submit the STAF command for registration ID 12 and set two Python variables to be used when evaluating the STAF command.

Syntax:

```
STAF local EVENTMANAGER TRIGGER ID 12 SCRIPT "platform = 'win32'" SCRIPT "version = '3.x'"
```

Result: If the request is submitted from the command line, the result, in the verbose format, could look like:

```
Machine          : client1.austin.ibm.com
Request Number: 293851
```

ENABLE

ENABLE enables a STAF command. This means that the command will be submitted when an Event with the specified type/subtype is generated.

Syntax

```
ENABLE ID <registrationID>
```

ID specifies the EventManager ID which is to be enabled.

Security

This request requires at least trust level 4.

Results

Upon successful return, the result buffer will be empty. Note that an error will not be returned if the EventManager ID is already enabled.

DISABLE

DISABLE disables a STAF command. This means that the command will not be submitted when an Event with the specified type/subtype is generated.

Syntax

```
DISABLE ID <registrationID>
```

ID specifies the EventManager ID which is to be disabled.

Security

This request requires at least trust level 4.

Results

Upon successful return, the result buffer will be empty. Note that an error will not be returned if the EventManager ID is already disabled.

VERSION

VERSION displays the version level of the EventManager service or the version level of Jython packaged with the EventManager service.

Syntax

```
VERSION [ JYTHON ]
```

VERSION specifies to display the version level of the EventManager service or the version level of Jython packaged with the EventManager service.

JYTHON specifies to display the version level of Jython packaged with the EventManager service.

Security

This request requires at least trust level 1.

Results

The result buffer contains the version level of the EventManager service if option JYTHON is not specified. If option JYTHON is specified, the result buffer contains the version level of Jython packaged with the EventManager service.

Examples

- **Goal:** Display the version level of the EventManager service.

Syntax: VERSION

Result: 3.4.0

- **Goal:** Display the version level of Jython packaged with the EventManager service.

Syntax: VERSION JYTHON

Result: 2.5.2-staf-v1

HELP

HELP displays the request options and how to use them.

Syntax

HELP

Security

This request requires at least trust level 1.

Results

The result buffer contains the Help messages for the request options for the EventManager service.

Examples

- **Goal:** Display the help for the request options for the EventManager service.

Syntax: HELP

Result:

```
EventManager Service Help
REGISTER [DESCRIPTION <description>]
          MACHINE <machine> | PYTHONMACHINE <machine>
          SERVICE <service> | PYTHONSERVICE <machine>
          REQUEST <request> | PYTHONREQUEST <request>
          TYPE <eventType> [SUBTYPE <eventSubType>]
          [PREPARE <script>]
          [ENABLED | DISABLED]
UNREGISTER ID <registrationID>
LIST <[MACHINE <machine>] [TYPE <eventType>] [LONG | SHORT]> | SETTINGS
TRIGGER ID <registrationID> [SCRIPT <Python code>]...
ENABLE ID <registrationID>
DISABLE ID <registrationID>
VERSION [JYTHON]
HELP
```

Persistent Registration Data

Note that EventManager registration information is persistent data. This means that if you register with the EventManager Service, if you shutdown STAF and restart it (even if you reboot the machine), the prior registration information will still be active. When STAF starts, it reads in the previous EventManager registration information, and will execute the registered STAF commands when the corresponding events are generated.

In EventManager V3.1.3, the format of this data was modified. Persistent registration data for versions prior to EventManager V3.1.3 will automatically be migrated to the new format. Note that the new format can not be used with versions of EventManager prior to V3.1.3.

Service Logging

The EventManager service maintains a machine log where it writes information about the STAF commands that it has submitted. It is important to check the log to determine the results of STAF commands submitted by the EventManager service. The EventManager service will log an entry when the following occurs:

- A REGISTER request is received. This log entry will begin with

```
[ ID=<xx> ] [ <machine>, <handleName> ]
```

where <xx> is the ID that was registered, <machine> is the machine that originated the REGISTER request, and <handleName> is the name of the handle that originated the REGISTER request. The level of the log entry will be `Info`.

- An event has been generated that matches the type/subtype previously specified in a REGISTER request and the STAF command has been submitted. This log entry will begin with

```
[ ID=<xx> ] [ <machine>:<requestNumber> ]
```

where <xx> is the ID for which the STAF command was submitted, <machine> is the machine on which the STAF command was submitted, and <requestNumber> is the request number for the STAF command. The level of the log entry will be `Info`.

- An event has been generated that matches the type/subtype previously specified in a REGISTER request, but a Python error was encountered when evaluating the registration options. This log entry will begin with

```
[ ID=<xx> ] Python error
```

where <xx> is the registration ID for which the Python interpreter encountered an error. The level of the log entry will be `Error`.

- An event has been generated that matches the type/subtype previously specified in a REGISTER request, but an error was encountered when submitting the STAF command. This log entry will begin with

```
[ ID=<xx> ] Error submitting a STAF command.
```

where <xx> is the registration ID of the STAF command that was submitted. The level of the log entry will be `Error`.

- An event has been generated that matches the type/subtype previously specified in a REGISTER request, but the ID is disabled. This log entry will begin with

```
[ ID=<xx> ] ID is disabled. STAF command not submitted.
```

where <xx> is the registration ID for which the type/subtype matched. The level of the log entry will be `Info`.

- The service receives notification that a submitted STAF command has completed. This log entry will begin with

```
[ ID=<xx> ] [ <machine>:<requestNumber> ]
```

where <xx> is the registration ID for which the STAF command was executed, <machine> is the machine on which the STAF command was executed, and <requestNumber> is the request number for the STAF command. The log entry will include the RC and Result from the STAF command. If the RC is 0, the level of the log entry will be Pass; otherwise the level of the log entry will be Fail.

- The service receives notification that an asynchronous PROCESS START command has completed. This log entry will begin with

```
[ID=<xx>] [<machine>:<requestNumber>]
```

where <xx> is the registration ID for which the STAF command was executed, <machine> is the machine on which the STAF command was executed, and <requestNumber> is the request number for the STAF command. The log entry will include the RC and Result from the STAF process. If the RC is 0, the level of the log entry will be Pass; otherwise the level of the log entry will be Fail.

- An UNREGISTER request is received. This log entry will begin with

```
[ID=<xx>] [<machine>, <handleName>]
```

where <xx> is the registration ID that was unregistered, <machine> is the machine that originated the UNREGISTER request, and <handleName> is the name of the handle that originated the UNREGISTER request. The level of the log entry will be Info.

- An ENABLE request is received. This log entry will begin with

```
[ID=<xx>] [<machine>, <handleName>]
```

where <xx> is the registration ID that was enabled, <machine> is the machine that originated the ENABLE request, and <handleName> is the name of the handle that originated the ENABLE request. The level of the log entry will be Info.

- A DISABLE request is received. This log entry will begin with

```
[ID=<xx>] [<machine>, <handleName>]
```

where <xx> is the registration ID that was disabled, <machine> is the machine that originated the DISABLE request, and <handleName> is the name of the handle that originated the DISABLE request. The level of the log entry will be Info.

The [ID=<xx>] and [ID=<xx>] [<machine>:<requestNumber>] tags in the log entries can be useful when querying the log. They can be used with the CONTAINS option of the log service's QUERY request.

The logname for the EventManager service is the name under which the service is registered.

Here is an example of what an EventManager service log on the local machine could look like shown via a request from the command line in the table format:

```
C:\>STAF local LOG QUERY MACHINE {STAF/Config/MachineNickname} LOGNAME eventmanager
Response
```

```
-----
Date-Time          Level  Message
-----
20060808-15:33:34  Info   [ID=1] [local://local, STAF/Client] Registered a STAF c
ommand. Register request: REGISTER DESCRIPTION :20:Get
the STAF version MACHINE local SERVICE misc REQUEST ver
sion TYPE q SUBTYPE p
20060808-15:33:34  Info   [ID=2] [local://local, STAF/Client] Registered a STAF c
ommand. Register request: REGISTER DESCRIPTION :17:Run
java -version MACHINE local SERVICE process REQUEST :61
:start command java parms -version returnstdout stderr
ostdout TYPE s SUBTYPE t
```

```

20060808-15:33:34 Info [ID=3] [local://local, STAF/Client] Registered a STAF c
ommand. Register request: REGISTER DESCRIPTION :20:Pyth
on runtime error MACHINE local SERVICE misc REQUEST ver
sion TYPE a SUBTYPE b PREPARE a=b
20060808-15:33:39 Info [ID=1] [dave2268.austin.ibm.com:2322] Submitted a STAF
command. Event information: type=q subtype=p prepare= e
ventservice=Event eventid=4 generatingmachine=local://l
ocal generatingprocess=STAF/Client generatinghandle=94
eventtimestamp=20060808-15:33:39 properties={} Submitt
ed STAF command: STAF local misc version
20060808-15:33:39 Pass [ID=1] [dave2268.austin.ibm.com:2322] Completed a STAF
command. RC=0, Result=3.1.4.1
20060808-15:33:42 Info [ID=2] [dave2268.austin.ibm.com:2336] Submitted a STAF
command. Event information: type=s subtype=t prepare= e
ventservice=Event eventid=5 generatingmachine=local://l
ocal generatingprocess=STAF/Client generatinghandle=95
eventtimestamp=20060808-15:33:42 properties={} Submitt
ed STAF command: STAF local process start command java p
arms -version returnstdout stderrtostdout
20060808-15:33:42 Pass [ID=2] [dave2268.austin.ibm.com:2336] Completed a STAF
command. RC=0, Result=96
20060808-15:33:42 Pass [ID=2] [dave2268.austin.ibm.com:2336] Process completed
. Process info: {key=, handle=96, rc=0, endTimestamp=20
060808-15:33:42, fileList=[{rc=0, data=java version "1.
5.0" Java(TM) 2 Runtime Environment, Standard Edition
(build 1.5.0-b64) Java HotSpot(TM) Client VM (build 1.
5.0-b64, mixed mode) }]}
20060808-15:33:45 Error [ID=3] Python error in the PREPARE value. PREPARE: a=b
  PyException: Traceback (innermost last): File "<st
ring>", line 1, in ? NameError: b Processing registr
ation: ID: 3 machine: local service: misc reque
st: version prepare: a=b Event service message infor
mation: eventservice: Event eventid: 6 type: a
subtype: b generatingmachine: local://local generat
ingprocess: STAF/Client generatinghandle: 97 eventt
imestamp: 20060808-15:33:45 properties: {}
20060808-15:33:48 Info [ID=3] [local://local, STAF/Client] Unregistered a STAF
command.
20060808-15:33:50 Info [ID=2] [local://local, STAF/Client] Unregistered a STAF
command.
20060808-15:33:50 Info [ID=1] [local://local, STAF/Client] Unregistered a STAF
command.

```

Here is an example of only displaying the log records for a particular registration ID:

```

C:\>STAF local LOG QUERY MACHINE {STAF/Config/MachineNickname} LOGNAME eventmanager CONTAINS
[ID=2]
Response
-----
Date-Time          Level Message
-----
20060808-15:33:34 Info [ID=2] [local://local, STAF/Client] Registered a STAF c
ommand. Register request: REGISTER DESCRIPTION :17:Run
java -version MACHINE local SERVICE process REQUEST :61
:start command java parms -version returnstdout stderrt
ostdout TYPE s SUBTYPE t
20060808-15:33:42 Info [ID=2] [dave2268.austin.ibm.com:2336] Submitted a STAF
command. Event information: type=s subtype=t prepare= e

```

```

ventservice=Event eventid=5 generatingmachine=local://l
ocal generatingprocess=STAF/Client generatinghandle=95
eventtimestamp=20060808-15:33:42 properties={} Submitt
ed STAF command: STAF local process start command java p
arms -version returnstdout stderrstdout

```

```

20060808-15:33:42 Info [ID=2] [dave2268.austin.ibm.com:2336] Completed a STAF
command. RC=0, Result=96
20060808-15:33:42 Info [ID=2] [dave2268.austin.ibm.com:2336] Process completed
. Process info: {key=, handle=96, rc=0, endTimestamp=20
060808-15:33:42, fileList=[{rc=0, data=java version "1.
5.0" Java(TM) 2 Runtime Environment, Standard Edition
(build 1.5.0-b64) Java HotSpot(TM) Client VM (build 1.
5.0-b64, mixed mode) }]}
20060808-15:33:50 Info [ID=2] [local://local, STAF/Client] Unregistered a STAF
command.

```

Here is an example of only displaying the log records for a particular registration ID, machine, and STAF request number:

```

C:\>STAF local LOG QUERY MACHINE {STAF/Config/MachineNickname} LOGNAME eventmanager CONTAINS
"[ID=2] [dave2268.austin.ibm.com:2336]"

```

Response

| Date-Time | Level | Message |
|-------------------|-------|--|
| 20060808-15:33:42 | Info | [ID=2] [dave2268.austin.ibm.com:2336] Submitted a STAF command. Event information: type=s subtype=t prepare= eventservice=Event eventid=5 generatingmachine=local://local generatingprocess=STAF/Client generatinghandle=95 eventtimestamp=20060808-15:33:42 properties={} Submitted STAF command: STAF local process start command java p arms -version returnstdout stderrstdout |
| 20060808-15:33:42 | Info | [ID=2] [dave2268.austin.ibm.com:2336] Completed a STAF command. RC=0, Result=96 |
| 20060808-15:33:42 | Info | [ID=2] [dave2268.austin.ibm.com:2336] Process completed . Process info: {key=, handle=96, rc=0, endTimestamp=20060808-15:33:42, fileList=[{rc=0, data=java version "1.5.0" Java(TM) 2 Runtime Environment, Standard Edition (build 1.5.0-b64) Java HotSpot(TM) Client VM (build 1.5.0-b64, mixed mode) }]}] |

Here is an example of only displaying the error log records, and using the `-verbose` option so that the error output is more readable:

```

C:\>STAF -verbose local LOG QUERY MACHINE {STAF/Config/MachineNickname} LOGNAME eventmanager
LEVELMASK error

```

Response

```

[
  {
    Date-Time: 20060808-15:33:45
    Level      : Error
    Message    : [ID=3] Python error in the PREPARE value.
  }
]

```

PREPARE:

a=b

PyException:

Traceback (innermost last):

File "<string>", line 1, in ?

```
NameError: b
```

```
Processing registration:
```

```
ID: 3
machine: local
service: misc
request: version
prepare: a=b
```

```
Event service message information:
```

```
eventservice: Event
eventid: 6
type: a
subtype: b
generatingmachine: local://local
generatingprocess: STAF/Client
generatinghandle: 97
eventtimestamp: 20060808-15:33:45
properties: {}
}
```

```
]
```

Using Python

The EventManager service lets uses the Python scripting language for variable and expression evaluation for the following REGISTER and TRIGGER request options:

- PYTHONMACHINE
- PYTHONSERVICE
- PYTHONREQUEST
- PREPARE
- SCRIPT

This allows the EventManager service to take advantage of the powerful and easy-to-use features of Python. The EventManager service uses Jython 2.5.2 to execute Python code. Jython is a version of Python written entirely in Java that runs under any compliant Java Virtual Machine (JVM).

Python variable names must follow the Python variable naming conventions. In Python, variable names come into existence when you assign values to them, but there are a few rules to follow when picking names for variables.

- *Syntax: (underscore or letter) + (any number of letters, digits or underscores)*
Variable names must start with an underscore or letter, and be followed by any number of letters, digits, or underscores. `_machine`, `machine`, and `Mach_1` are legal names, but `1_Mach`, `mach$`, and `@#!` are not.
- *Case matters: MACHNAME is not the same as machname*
Python always pays attention to case, both in names you create and in reserved words. For instance, `X` and `x` refer to two different variable names.
- *Python reserved words are off limits*
You cannot define variable names to be the same as words that mean special things in the Python language. Following are reserved words in Python: `and`, `assert`, `break`, `class`, `continue`, `def`, `del`, `elif`, `else`, `except`, `exec`, `finally`, `for`, `from`, `global`, `if`, `import`, `in`, `is`, `lambda`, `not`, `or`, `pass`, `print`, `raise`, `return`, `try`, `while`.

Note: Python lets you use the names of Python built-in functions as variable names. However, we recommend that you don't

use the name of a Python built-in function as a variable name because you may want to use the Python built-in function at some point when triggering your registration. Following are names of Python built-in functions: abs, basestring, bool, callable, chr, classmethod, cmp, compile, complex, delattr, dict, dir, divmod, enumerate, eval, execfile, file, filter, float, getattr, globals, hasattr, hash, help, hex, id, input, int, isinstance, issubclass, iter, len, locals, long, map, max, min, object, oct, open, ord, pow, property, range, raw_input, reduce, reload, repr, round, setattr, slice, staticmethod, str, sum, super, tuple, type, unichr, unicode, vars, xrange, zip.

Python string constants can be enclosed in single or double quotes, which allows embedded quotes of the opposite flavor.

For example, the following two lines of Python code do exactly the same thing. They assign a string constant (literal) "CoolTest" to the value of a variable named testName.

```
testName = "CoolTest1"
testName = 'CoolTest1'
```

However, the following line is not the same. It assigns the value of a variable named CoolTest1 to the value of a variable named testName. If this was not what you intended and a variable named CoolTest1 does not exist, a PythonException will be raised and logged in the service log.

```
testName = CoolTest1
```

Say, you wanted to use a Python variables named "pool" and "machName" in a STAF service request string. Your Python code could look like:

```
request = 'RELEASE POOL %s ENTRY %s FORCE' % (pool, machName)
```

where the %s indicates a String format (and can also be used for decimal format, etc.), and where the value of the Python variables would replace the %s markers, in the order specified.

So, if the value of variable "pool" is 'MachinePool' and the value of variable "machName" is 'client1.company.com', after being evaluated by Python, the request variable's value would be:

```
'RELEASE POOL MachinePool ENTRY client1.company.com FORCE'
```

Here are a couple of examples of how you might use Python code in the PREPARE and PYTHONREQUEST options when submitting a REGISTER request to the EventManager service:

- This example registers a STAF command that submits a RELEASE request to the ResPool service on machine server1 to release an entry from a resource pool when an event is generated with type "MachineAvailable" and any subtype. This event also has Property keys **pool** and **machName** which are available as Python variables named the same as the Property keys and it uses Python code in the PYTHONREQUEST option to construct the request to release the machine specified by Python variable **machName** from the resource pool specified by Python variable **pool**.

```
STAF local EventManager REGISTER MACHINE server1 SERVICE ResPool PYTHONREQUEST "'RELEASE
POOL %s ENTRY %s FORCE' % (pool, machName)" TYPE MachineAvailable
```

- This example registers a STAF command that submits a START request to the PROCESS service on the local machine when an event is generated with type "MyApp" and subtype "run" to start running command C:/MyApp/myApp.exe passing it the EventManager registration ID as a parameter. In the PREPARE option, it imports the com.ibm.staf.STAFUtil Java class so it can use its wrapData() method to "wrap" the value for the COMMAND option since it contains a space. It also constructs the command to run (e.g. 'C:/MyApp/myApp.exe 1' if its registration ID is 1) passing Python variable STAFEventManagerID as a parameter to myApp.exe. Note that STAFEventManagerID is set by the EventManager service to the registration ID of the request being triggered.

```
STAF local EventManager REGISTER MACHINE local SERVICE PROCESS PYTHONREQUEST "'START
SHELL COMMAND %s RETURNSTDOUT STDERRTOSTDOUT' % (STAFUtil.wrapData(command))" PREPARE
"from com.ibm.staf import STAFUtil; command = 'C:/MyApp/myApp.exe %s' %
```

```
(STAFEventManagerID)" TYPE MyApp SUBTYPE run
```

Actually, it's usually easier to register more complex requests like these that use Python code via the EventManager User Interface (EventManagerUI) instead of the command line because then you don't have to bother so much with escaping quotes and you can have multiple lines of Python code. See the [Registration Example using Python and Prepare Script](#) section for an example of how to register a STAF command via the EventManagerUI.

Refer to the ["References"](#) section for where to get more information about Jython and Python.

If you are already a CPython programmer, or are hoping to use CPython code under Jython, refer to the ["Jython and CPython Differences"](#) section for information about differences in the two implementations of Python.

EventManager Python Variables

The following variables are set in Python by the EventManager service when a registration is triggered. These Python variables can be referenced by Python code in the PREPARE, PYTHONREQUEST, PYTHONMACHINE, and PYTHONSERVICE options for the REGISTER request and in the SCRIPT option for the TRIGGER request.

- **STAFEventManagerID**
 - Description: The ID of the EventManager registration being triggered
 - Assigned: When a registration is triggered
 - Type: numeric (PyInteger)
- **STAFEventManagerSubmit**
 - Description: Indicates whether the EventManager service should submit the STAF service request when its registration is triggered.
 - Assigned: When a registration is triggered, the EventManager service sets it to 'true' by default, but you can override its value if desired by setting it to any other string value in the PREPARE option on a REGISTER request
 - Type: string

The following variables are set in Python by the EventManager service when a registration is triggered by a generated event with a matching type/subtype (but not if triggered by a TRIGGER request). These Python variables can be referenced by Python code in the PREPARE, PYTHONMACHINE, PYTHONSERVICE, and PYTHONREQUEST options for the REGISTER request.

- **eventservice**
 - Description: The registered name of the Event service that generated the event
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **eventid**
 - Description: The event id of the generated event
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **generatingmachine**
 - Description: The endpoint of the machine that generated the event
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **generatingprocess**
 - Description: The STAF handle name that generated the event
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string

- **generatinghandle**
 - Description: The STAF handle number that generated the event
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **eventtimestamp**
 - Description: The date-time that the event was generated
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **eventtype**
 - Description: The type of the event that was generated
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **eventsubtype**
 - Description: The subtype of the event that was generated
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: string
- **The name in each PROPERTY option name=value pair for the event that was generated**
 - Description: The value in each PROPERTY option name=value pair for the event that was generated (e.g. if PROPERTY machName=client1.company.com is specified on the EVENT GENERATE request, then there will be a Python variable named **machName**)
 - Assigned: When a registration is triggered by an event with a matching type/subtype and with one or more properties specified
 - Type: string
- **eventinfo**
 - Description: A dictionary (aka map) containing all of the above key/value pairs for the event that was generated (e.g. **eventinfo** ['eventtype'], **eventinfo**['eventsubtype'], etc)
 - Assigned: When a registration is triggered by an event with a matching type/subtype
 - Type: PyDictionary

EventManagerUI

The EventManager service provides a User Interface (EventManagerUI) to simplify interaction with the EventManager service. The EventMangerUI is especially useful when registering complex STAF commands with Python code because it helps avoid some issues that you have when registering via the command line by reducing the need for escaping quotes and allows you to easily enter multiple lines of Python code via a text box for the PREPARE option, It also allows you to modify existing registrations (without having to unregister and the re-register the updated STAF command), and view the EventManager service's log.

Note that when viewing the EventManager service's log, the EventManager User Interface utilizes the STAFLogViewer class to display the logs. For more information on how to use the STAFLogViewer, refer to section "3.11 Class STAFLogViewer" of the STAF Java User's Guide (<http://staf.sourceforge.net/current/STAFJava.htm>).

Using the EventManagerUI

To use the EventManager User Interface, after installing and configuring the EventManager Service, from a command prompt enter one of the following commands:

- `java -jar STAFEventManager.jar`

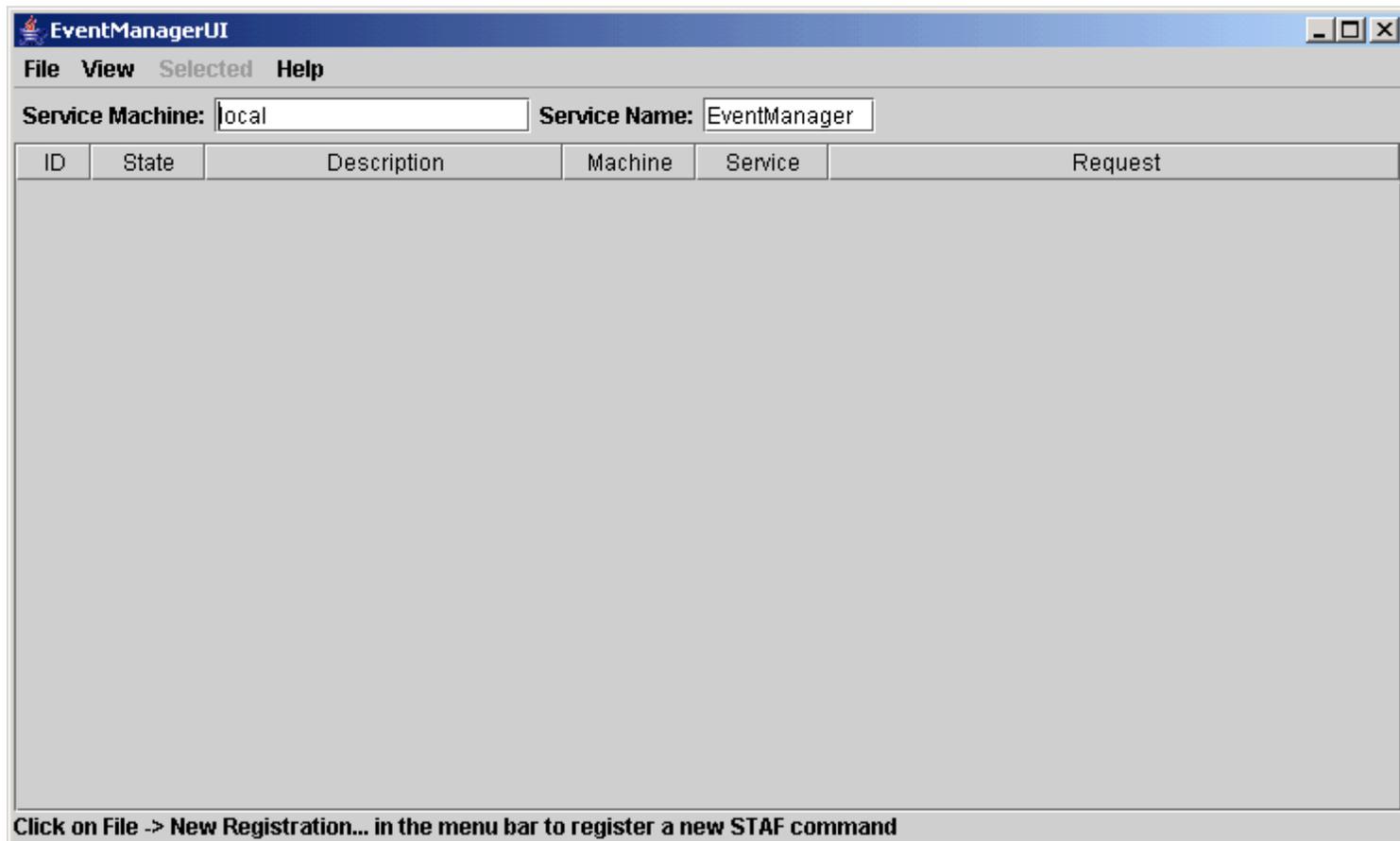
If the STAFEventManager.jar file is not in the current directory where you are executing this command, then you will need to specify the full path (or the path relative to the current directory) to the STAFEventManager.jar file.

Note that to run this command, the STAFEventManager.jar file does not need to be included in your CLASSPATH.

- `java com.ibm.staf.service.eventmanager.EventManagerUI`

Note that to run this command, the STAFEventManager.jar file must be included in your CLASSPATH.

A User Interface will be displayed which allows you to interact with the EventManager service.



The main EventManagerUI window displays a table of all of the currently registered STAF commands. The screen capture above shows what the table would look like if there are no registrations. The window is comprised of the following components (from top to bottom):

1. Menu bar
2. Service configuration options
3. Registration table
4. Status bar

Menu bar

The File menu bar contains the following menu items:

- **New Registration...** - This opens a new registration dialog where you can input information about a new STAF command you wish to register.
- **Exit** - This exits the EventManagerUI application.

The View menu bar contains the following menu items:

- **Refresh** - This refreshes the registration table by querying the specified EventManager service name on the specified machine name.
- **Service Log for ID...** - This allows you to query the service log records for a particular ID. A dialog will be displayed where you can enter the ID. It will generate a QUERY request with the option CONTAINS [ID=<xx>] where <xx> is the ID you specified.
- **Service Log last 100 records** - This allows you to query the last 100 records of the service log.
- **Service Log for submitted STAF commands...** - This allows you to query the service log records for a particular submitted STAF command. A new dialog will open that shows you a list of the submitted STAF commands in the service log. The most recent entries in the service log will be at the top of the list, and the oldest entries in the service log will be at the bottom of the list. The list entries will be in the format [ID=<xx>] [<machine>:<requestNumber>] <Submitted STAF command> where <xx> is the ID for which the STAF command was submitted, <machine> is the machine where the STAF command was submitted, <requestNumber> is the request number for the submitted STAF command, and <Submitted STAF command> is the actual STAF command that was submitted (this is the STAF command after all Python code has been evaluated). Select the entry in the list for which you wish to view the log records, and a QUERY request will be generated with the option CONTAINS [ID=<xx>] [<machine>:<requestNumber>] where <xx> is the ID for which the STAF command was submitted, <machine> is the machine where the STAF command was submitted, and <requestNumber> is the request number for the submitted STAF command.
- **Entire Service Log** - This allows you to query the entire service log.
- **Delete Service Log** - This allows you to delete the service log. A confirmation popup will be displayed.

The Selected menu bar will only be enabled if there is a row currently selected in the registration table, and contains the following menu items:

- **Edit** - This allows you edit the data for the selected ID. A new dialog will be displayed, similar to the dialog displayed when you click on "New Registration..." in the File menu bar, except the fields will be filled in with the data for the selected ID.
- **Enable** - This allows you enable the selected ID. This option will only be available if the selected ID is currently disabled.
- **Disable** - This allows you disable the selected ID. This option will only be available if the selected ID is currently enabled.
- **Trigger** - This allows you trigger the STAF command for the selected ID. This is useful when testing your registered STAF commands (where you don't want to actually generate the matching Event type/subtype). Any Python code in the registration will be evaluated, and the STAF command will be submitted. After the STAF command has been submitted, the service log will be queried with the option CONTAINS [ID=<xx>] [<machine>:<requestNumber>] where <xx> is the ID for which the STAF command was submitted, <machine> is the machine where the STAF command was submitted, and <requestNumber> is the request number for the submitted STAF command. In the log viewer, you can click on "Refresh" in the View menu bar to refresh the log entries and determine if the STAF command has completed.
- **Trigger with script...** - This is similar to the **Trigger** menu item, except prior to submitting the command, a dialog will be displayed where you can enter any Python code that you want to have executed by the Python interpreter, prior to the evaluation of any PREPARE, PYTHONMACHINE, PYTHONSERVICE, or PYTHONREQUEST options. This is useful if you need to simulate the setting of any variables, such as Event properties, that might be needed for these options.
- **Copy to new registration** - This allows to you copy the registration data for an existing registration to a new registration. A new dialog will be presented with all of the data from the selected registration. You can change any of the data as needed, and then click on the "Register" button and a new ID will be registered.
- **Unregister** - This allows you to unregister the selected registration. A confirmation popup will be displayed.

Note that all of the "Selected" menu items are also available in a pop-up menu when you right click on a row in the registration table, and they perform the exact same functions as the "Selected" menu bar items.

The Help menu bar contains the following menu items:

- **About** - This displays the version of the EventManager service.

Service configuration options

The "Service Machine" text field allows you to specify the hostname of the machine where the EventManager service is running. The default is "local".

The "Service Name" text field allows you to specify the service name for which the EventManager service was configured. The default is "EventManager".

After changing either of these values, you can press the "Enter" key to refresh the table, or click on "View" in the menu bar, and then select "Refresh".

Registration table

The registration table displays the current registrations for the EventManager service you specified in the service configuration fields (for Service Machine and Service Name). It is refreshed every time you click on "View" in the menu bar and select "Refresh", as well as when you change the Service Machine or Service Name fields and press "Enter".

It is also refreshed whenever you add a new registration, unregister a registration, edit a registration, or copy an existing registration to a new registration.

The registration table has the following columns:

- **ID** - This is the registration ID.
- **Description** - This is the registration's description.
- **Machine** - This is the registration's machine. Note that it may contain Python code.
- **Service** - This is the registration's service. Note that it may contain Python code.
- **Request** - This is the registration's request. Note that it may contain Python code.

Status bar

The status bar shows informational messages. Here are the possible messages:

- **Double click on an existing registration to edit** - Displayed when there is at least one registration in the table.
- **Click on File -> New Registration... in the menu bar to register a new STAF command** - Displayed when there are currently no registrations in the table.
- **Enter a valid Service Machine and Service Name** - Displayed if the machine entered in the "Service Machine" text field cannot be reached, or if the service name entered in the "Service Name" text field is not a valid service name on the machine.

[Submit a New Registration](#)

To submit a new registration, click on "File" in the menu bar and then select "New Registration...". You will see the following window:

EventManager Registration

EventManager Register options

Registration ID: N/A

Description:

Target Machine: Python

Target Service: Python

Target Request: Python

Prepare Script:

Type:

Subtype:

Enabled:

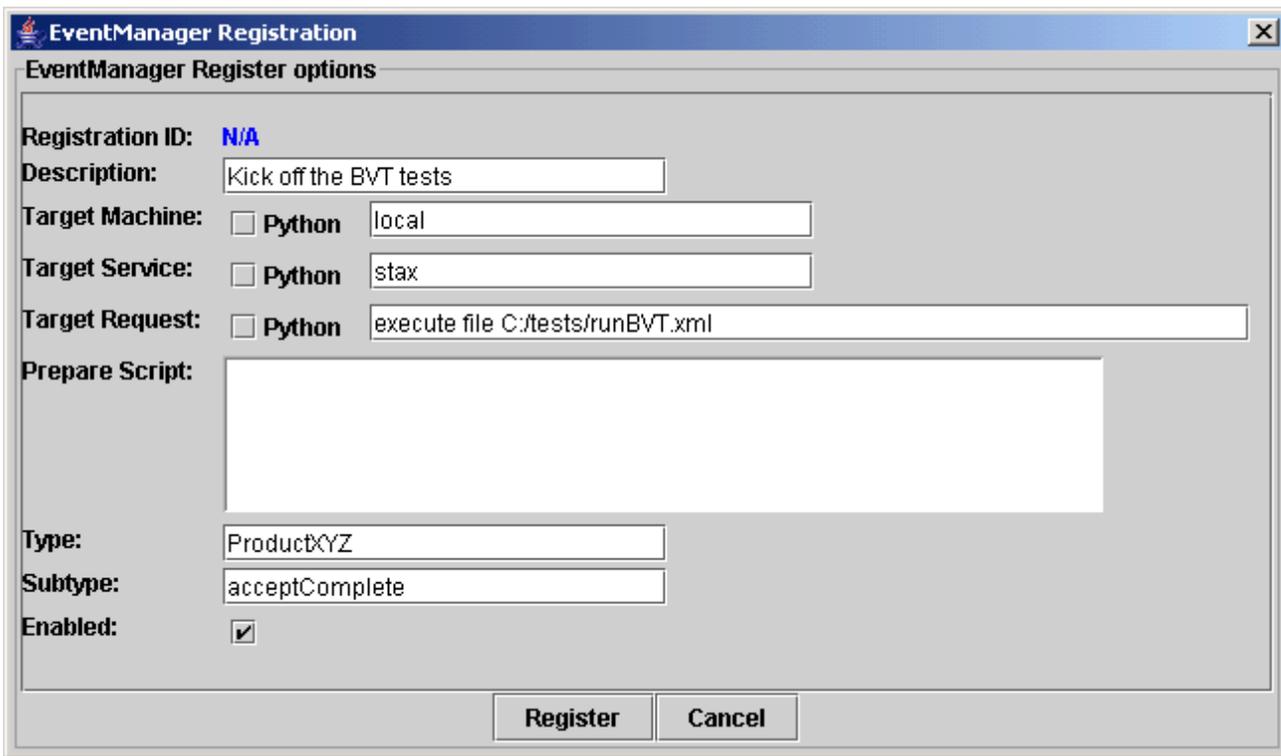
Register **Cancel**

This window allows you to specify the data for the registration:

- **Registration ID** - The registration ID. Since this is a new registration, the value is "N/A".
- **Description** - The description of the registration. This field is optional.
- **Target Machine** - The machine where you wish to have the STAF command executed. This field is required. If the text contains Python code, then select "Python" next to the "Target Machine" label.
- **Target Service** - The service for the STAF command you wish to have executed. This field is required. If the text contains Python code, then select "Python" next to the "Target Service" label.
- **Target Request** - The STAF request you wish to have executed. This field is required. If the text contains Python code, then select "Python" next to the "Target Request" label.
- **Prepare Script** - Any Python code that you wish to have evaluated prior to the evaluation of any PYTHONMACHINE, PYTHONSERVICE, or PYTHONREQUEST options. This field is optional.
- **Type** - This specifies the Event Type for which this command will be registered. This field is required.
- **Subtype** - This specifies the Event SubType for which this command will be registered. This field is optional.
- **Enabled** - Indicates that the STAF command will be enabled when it is registered. If the STAF command is disabled, it will not be submitted when its event type/subtype is generated.

To get help on any of these options while using EventManagerUI, mover the cursor over the text field or checkbox and a tool tip will be displayed.

Fill in the appropriate information for the STAF command you wish to have executed. For example, to have a STAX job executed whenever an Event of type "ProductXYZ" and subtype "acceptComplete" is generated:



EventManager Registration

EventManager Register options

Registration ID: N/A

Description: Kick off the BVT tests

Target Machine: Python local

Target Service: Python stax

Target Request: Python execute file C:/tests/runBVT.xml

Prepare Script:

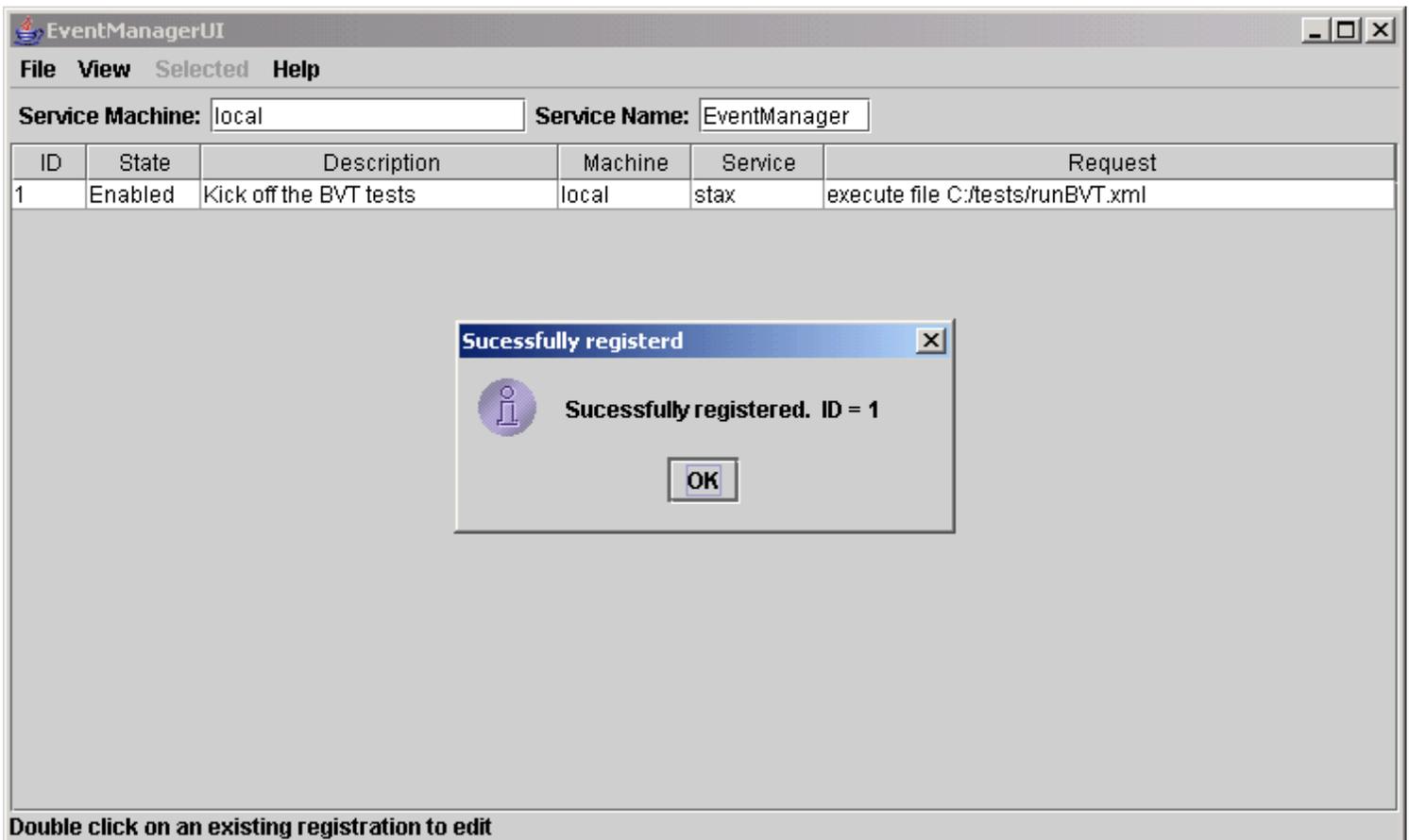
Type: ProductXYZ

Subtype: acceptComplete

Enabled:

Register Cancel

Click on the "Register" button and you will see that the STAF command has been assigned a unique registration ID, and that it is listed in the registration table.



EventManagerUI

File View Selected Help

Service Machine: local Service Name: EventManager

| ID | State | Description | Machine | Service | Request |
|----|---------|------------------------|---------|---------|----------------------------------|
| 1 | Enabled | Kick off the BVT tests | local | stax | execute file C:/tests/runBVT.xml |

Double click on an existing registration to edit

Sucessfully registerd

 Sucessfully registered. ID = 1

OK

[Registration Example using Python and Prepare Script](#)

To register a more complex STAF command, you may find it easier to use the EventManagerUI instead of submitting a REGISTER request

to the EventManager service via the command line. This is especially true for STAF commands that use Python and possibly need to access Python variables that are specified as properties when generating an event. Also, if you select to specify the request using Python and use the "Prepare Script" field, you usually don't have to escape as many quotes.

This section shows an example of registering a more complex STAF command using the EventManagerUI. It will use the same example that was discussed in the [REGISTER](#) section that registered a STAF command via the command line to execute STAX job /tests/TestA.xml via the STAX service on machine server1 whenever an event with type RunSTAXJob and subtype TestA is generated. This STAX job's main function must be passed a map of arguments with the names 'testMachine' and 'serverMachine'. This example passes the STAX job a map with these arguments and gets the values for these arguments from Python variables named myTestMachine and myServerMachine which are set using the property options when generating an Event with type "RunSTAXJob" and subtype "TestA" via the Event service's GENERATE request.

EventManager Registration

EventManager Register options

Registration ID: **N/A**

Description: Run STAX Job TestA

Target Machine: Python server1

Target Service: Python STAX

Target Request: Python 'EXECUTE FILE "%s" ARGS "%s" % (xmlFile, args)

Prepare Script: xmlFile = '/tests/TestA.xml'
args = { 'testMachine': myTestMachine, 'serverMachine': myServerMachine }

Type: RunSTAXJob

Subtype: TestA

Enabled:

Register **Cancel**

For example, the following event generation:

```
STAF local EVENT GENERATE TYPE RunSTAXJob SUBTYPE TestA PROPERTY myTestMachine=client1
PROPERTY myServerMachine=server9
```

will trigger the following STAX EXECUTE command to run:

```
STAF server1 STAX EXECUTE FILE "/tests/TestA.xml" ARGS "{ 'testMachine': 'client1',
'serverMachine': 'server9' }
```

[Edit a Registration](#)

To edit a registration, double click on its row in the registration table, click on "Selected" in the menu bar and select "Edit", or right-click on its row in the registration table, and select "Edit" in the popup menu.

For example, if we wanted to change the registration ID 1 to change the STAX job to be executed:

EventManager Registration

EventManager Register options

Registration ID: **1**

Description: Kick off the BVT tests

Target Machine: Python local

Target Service: Python stax

Target Request: Python execute file C:/tests/runAutoBVT.xml

Prepare Script:

Type: ProductXYZ

Subtype: acceptComplete

Enabled:

Register **Cancel**

Click on the "Register" button to unregister the existing ID, and register the updated registration data:

EventManager Registration

EventManager Register options

Registration ID: **1**

Description: Kick off the BVT tests

Target Machine: Python local

Target Service: Python stax

Target Request: Python execute file C:/tests/runAutoBVT.xml

Prepare Script:

Type: ProductXYZ

Subtype: acceptComplete

Enabled:

Register **Cancel**

Select an Option

Do you want to unregister ID 1 and re-register the STAF request?

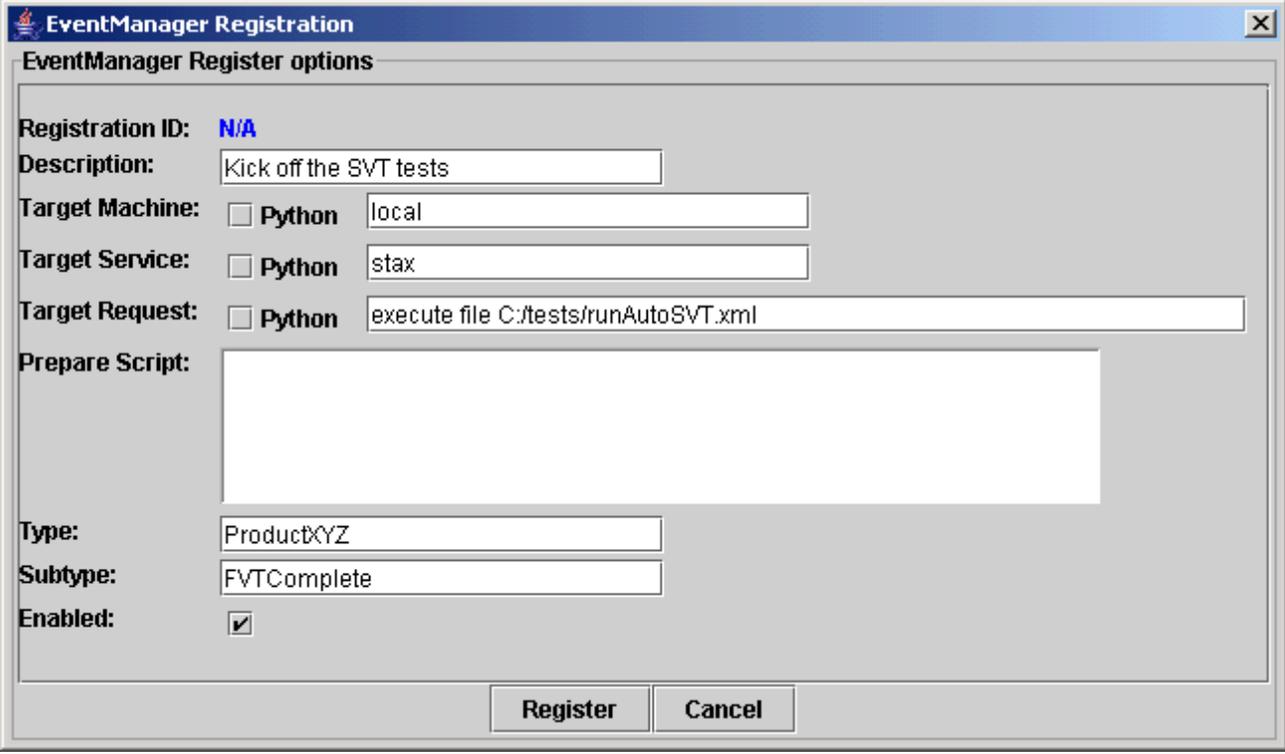
Yes **No** **Cancel**

Click on yes, and you will see that the updated registration data has been saved. In this scenario, since we only had one existing registration, the ID for the updated registration is still 1. If there are already existing registration IDs, then the assigned registration id would be the next sequential ID.

[Copy a Registration](#)

To copy the information from an existing registration to a new registration, click on "Selected" in the menu bar and select "Copy to new registration", or right-click on its row in the registration table, and select "Copy to new registration" in the popup menu.

Update the information for the new registration:



EventManager Registration

EventManager Register options

Registration ID: **N/A**

Description:

Target Machine: Python

Target Service: Python

Target Request: Python

Prepare Script:

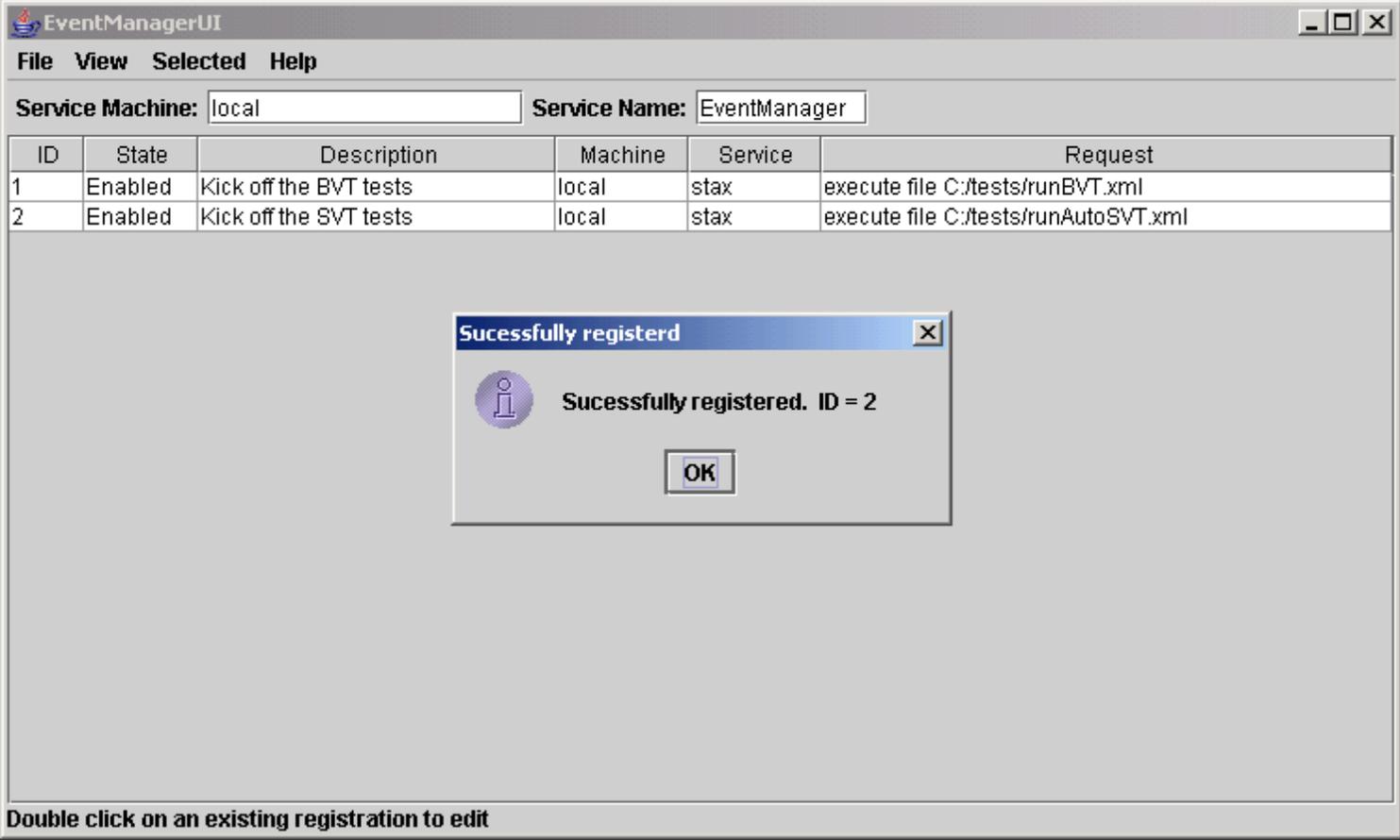
Type:

Subtype:

Enabled:

Register **Cancel**

Click on the "Register" button to register.



EventManagerUI

File View Selected Help

Service Machine: Service Name:

| ID | State | Description | Machine | Service | Request |
|----|---------|------------------------|---------|---------|--------------------------------------|
| 1 | Enabled | Kick off the BVT tests | local | stax | execute file C:/tests/runBVT.xml |
| 2 | Enabled | Kick off the SVT tests | local | stax | execute file C:/tests/runAutoSVT.xml |

Successfully registered

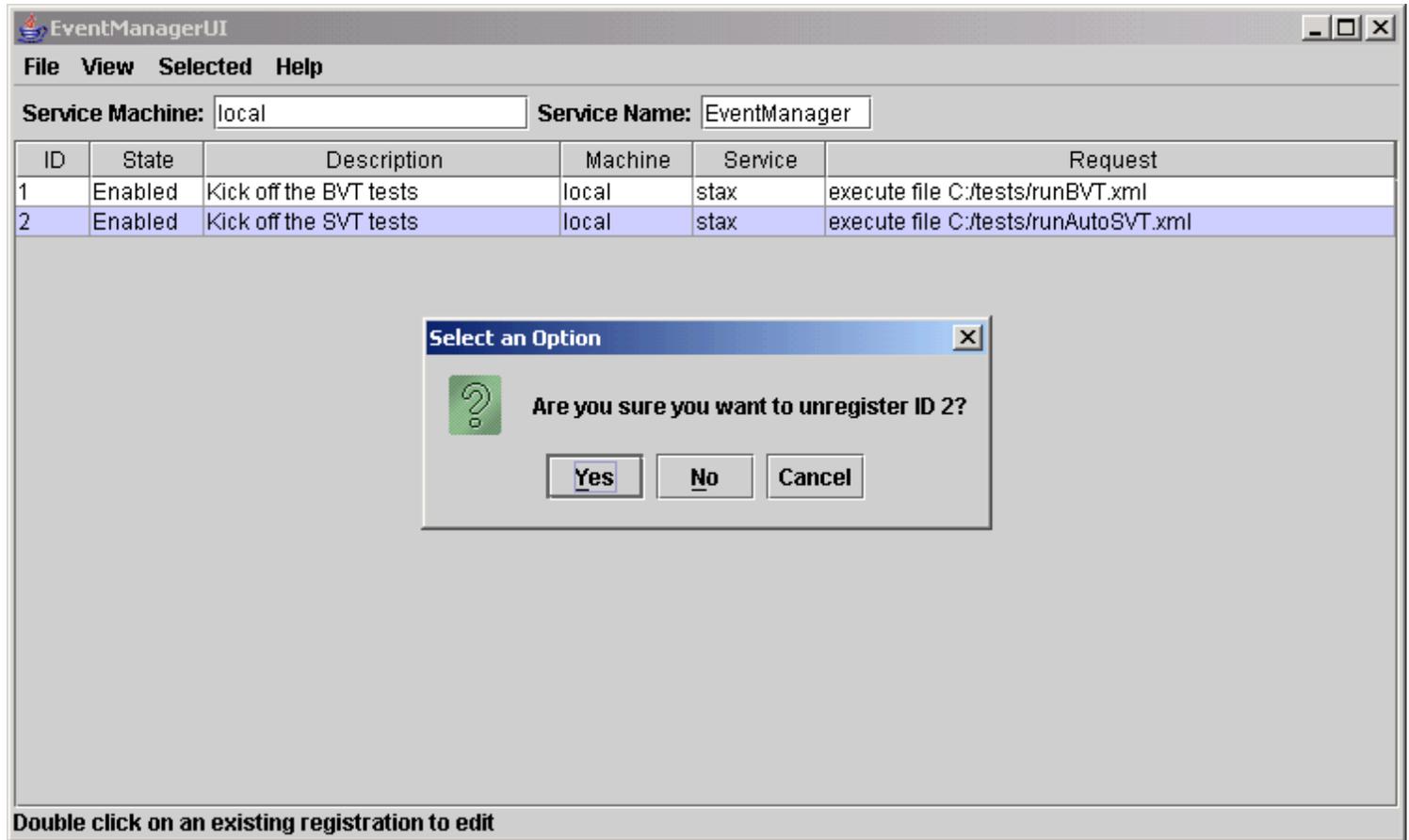
 **Successfully registered. ID = 2**

OK

Double click on an existing registration to edit

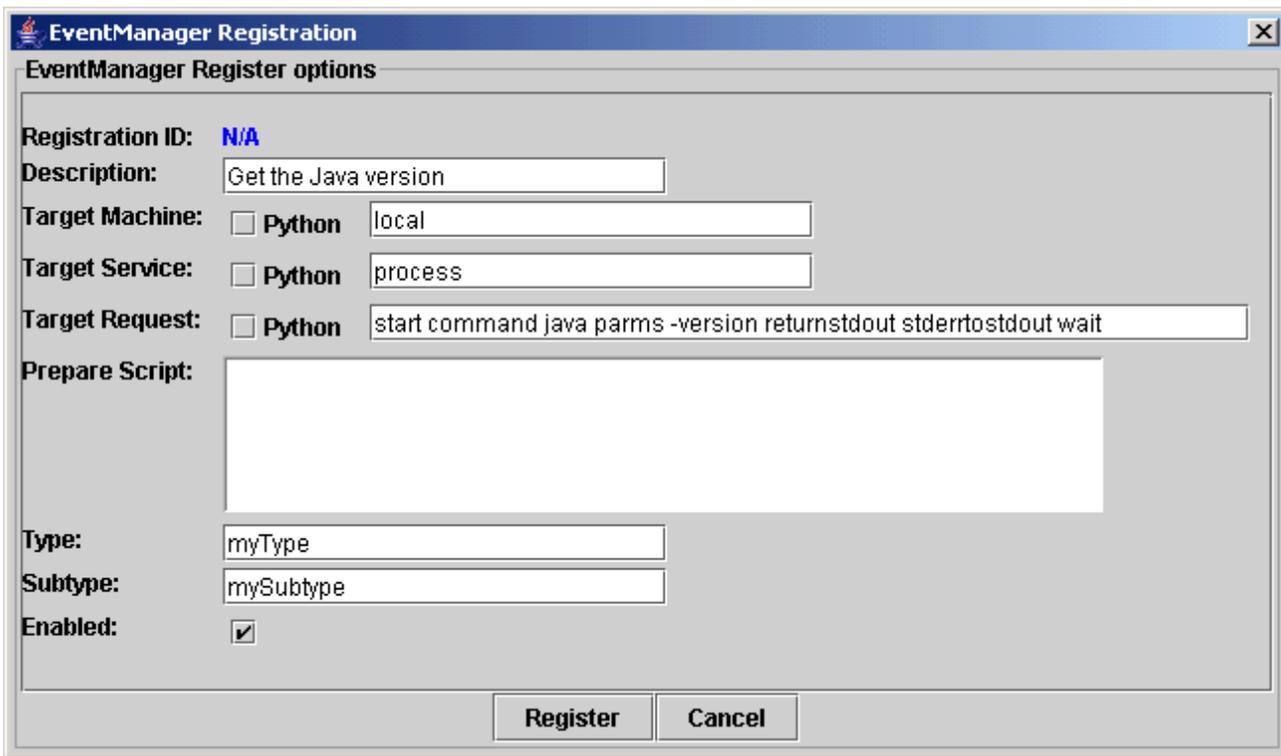
[Unregister a Registration](#)

To unregister a registration, click on "Selected" in the menu bar and select "Unregister", or right-click on its row in the registration table, and select "Unregister" in the popup menu. You will get a confirmation popup:



Click on "Yes" and the ID will be unregistered.

Next, let's register to have the command "java -version" executed when an event is generated with type "myType" and subtype "mySubtype". In the menu bar click on "File" and then "New Registration..." and fill in the data:



EventManager Registration

EventManager Register options

Registration ID: **N/A**

Description:

Target Machine: Python

Target Service: Python

Target Request: Python

Prepare Script:

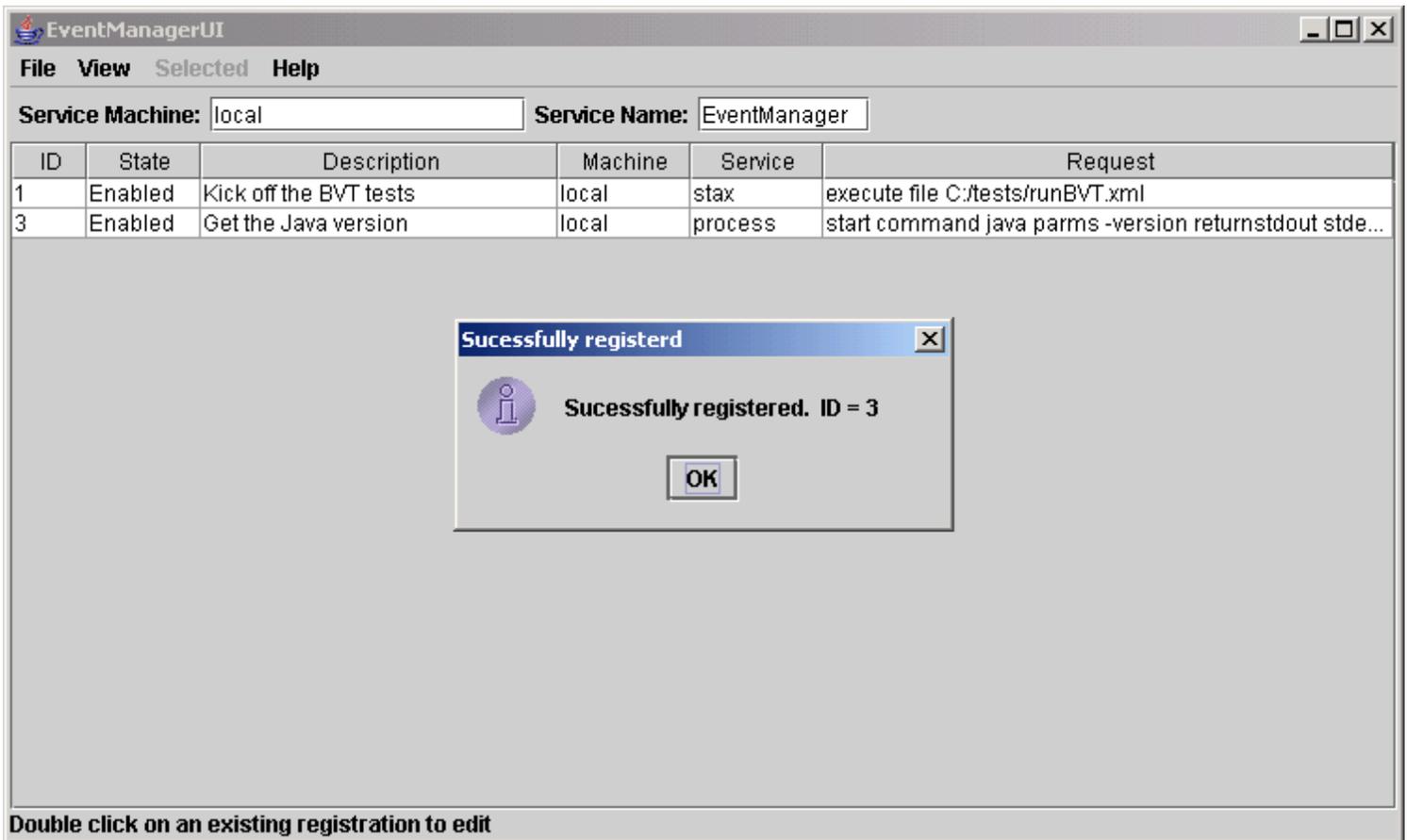
Type:

Subtype:

Enabled:

Register **Cancel**

Click on the "Register" button and we will see that it has been assigned a unique registration ID:



EventManagerUI

File View Selected Help

Service Machine: Service Name:

| ID | State | Description | Machine | Service | Request |
|----|---------|------------------------|---------|---------|--|
| 1 | Enabled | Kick off the BVT tests | local | stax | execute file C:/tests/runBVT.xml |
| 3 | Enabled | Get the Java version | local | process | start command java parms -version returnstdout stde... |

Sucessfully registerd

 **Sucessfully registered. ID = 3**

OK

Double click on an existing registration to edit

[Trigger a Registration](#)

Suppose we want to test the STAF command that we just registered, and we don't want to generate the Event. To do this, click on "Selected" in the menu bar and select "Trigger", or right-click on its row in the registration table, and select "Trigger" in the popup menu.

The STAF command will be submitted and a STAFLogViewer window will open to display the service log entries for that STAF command:

| Timestamp | Level | Message |
|-------------------|-------|---|
| 20071106-16:43:26 | Info | [ID=3] [staf3f.austin.ibm.com:263] Submitted a STAF command. Event information: N/A Submitted STAF command: STAF local process start command java parms -version returnstd |
| 20071106-16:43:26 | Pass | [ID=3] [staf3f.austin.ibm.com:263] Completed a STAF command. RC=0, Result={ Return Code: 0 Key : <None> Files : [{ Return Code: 0 Data : java version "1.4.2" Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2) Classic VM (build 1.4.2, J2RE 1.4.2 IBM Windows 32 build cn142sr1a-20050209 (JIT enabl }] } |

In this case, since the process returned the version immediately, the log query shows that the process has completed, and includes the information it returned.

[View the Service Log](#)

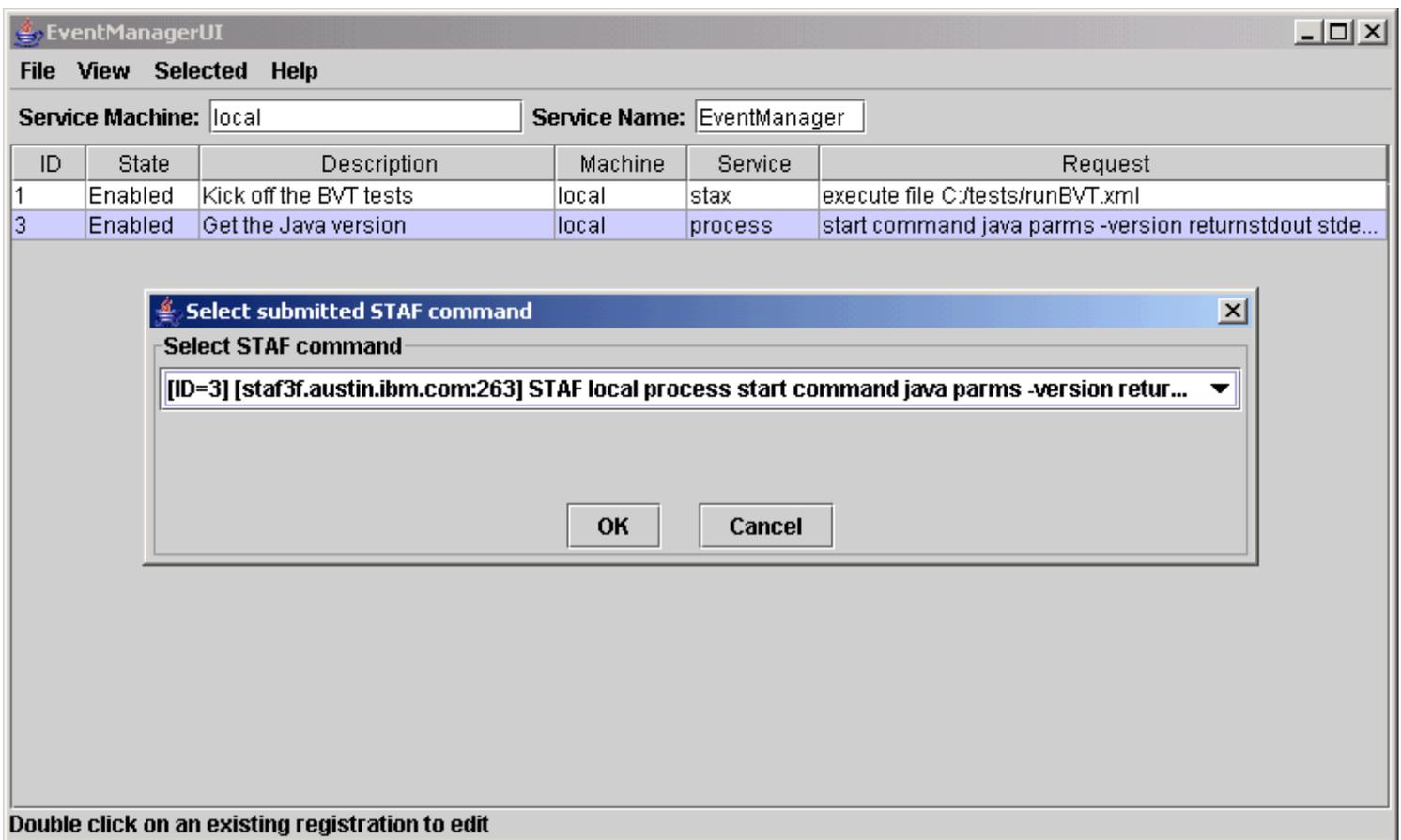
To view the service log's entries for a particular registration ID, click on "View" in the menu bar and then select "Service Log for ID...". In the popup dialog, enter ID "3" and click on OK. A STAFLogViewer window will open with all of the log entries for ID 3:

| STAF local LOG QUERY MACHINE staf3f.austin.ibm.com LOGNAME EventManager CONTAINS :6:[ID=3] | | |
|--|-------|---|
| Timestamp | Level | Message |
| 20071106-16:42:36 | Info | [ID=3] [local://local, STAF/EventManager/UI] Registered a STAF command. Register request: REGISTER MACHINE :5:local SERVICE :7:process REQUEST :66:start com |
| 20071106-16:43:26 | Info | [ID=3] [local://local, STAF/EventManager/UI] Triggering a STAF command. TRIGGER ID 3 |
| 20071106-16:43:26 | Info | [ID=3] [staf3f.austin.ibm.com:263] Submitted a STAF command. Event information: N/A Submitted STAF command: STAF local process start command java parms -version returns |
| 20071106-16:43:26 | Pass | [ID=3] [staf3f.austin.ibm.com:263] Completed a STAF command. RC=0, Result={ Return Code: 0 Key : <None> Files : [{ Return Code: 0 Data : java version "1.4.2" Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2) Classic VM (build 1.4.2, J2RE 1.4.2 IBM Windows 32 build cn142sr1a-20050209 (JIT ena } |

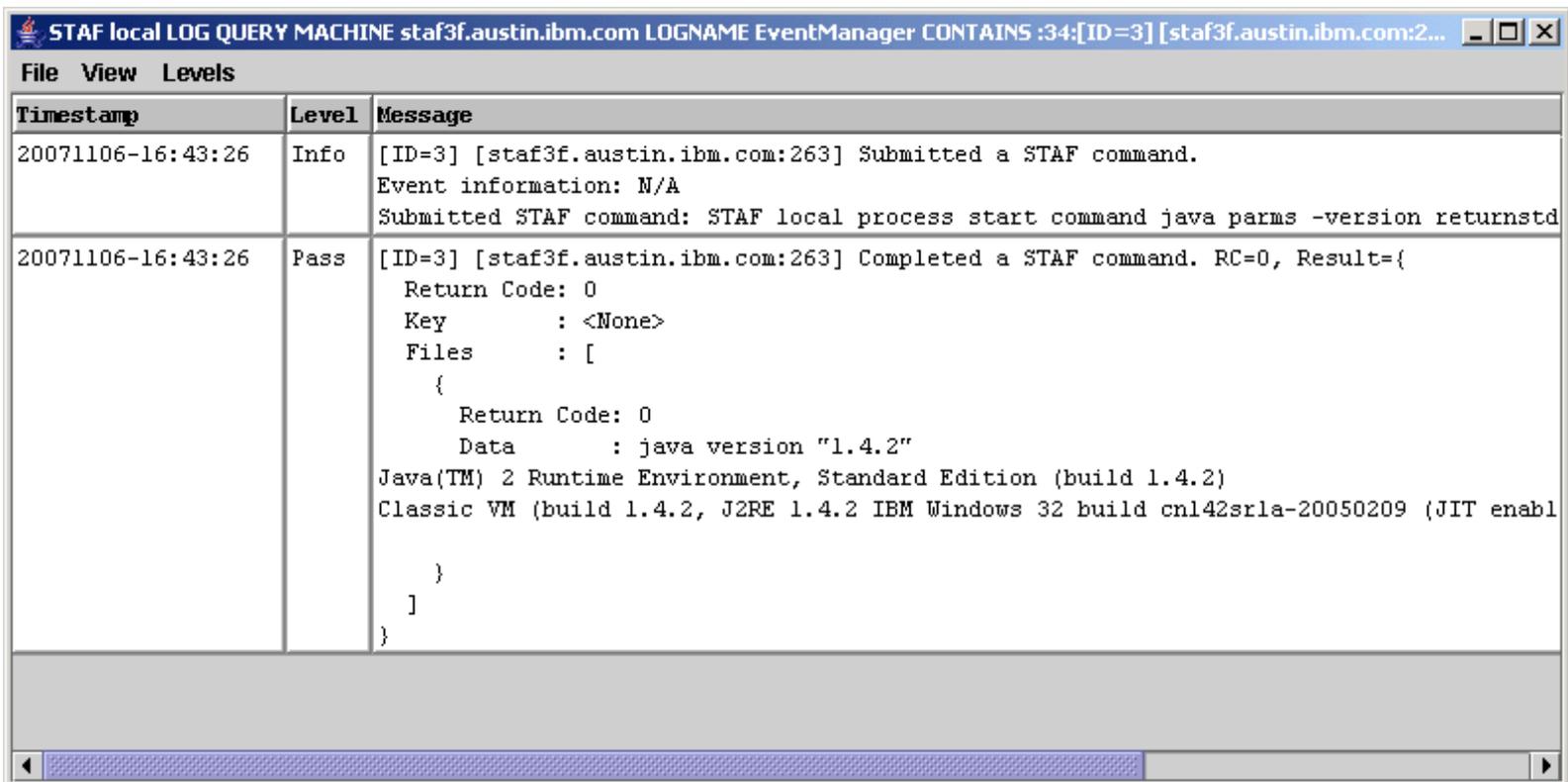
To view the last 100 entries in the service log, click on "View" in the menu bar and then select "Service Log last 100 records". A STAFLogViewer window will open with the last 100 entries:

| STAF local LOG QUERY MACHINE staf3f.austin.ibm.com LOGNAME EventManager LAST 100 | | |
|--|-------|--|
| Timestamp | Level | Message |
| 20071106-16:40:27 | Info | [ID=2] [local://local, STAF/EventManager/UI] Registered a STAF command. Register request: REGISTER MACHINE :5:local SERVICE :4:stax REQUEST :36:execute file |
| 20071106-16:41:46 | Info | [ID=2] [local://local, STAF/EventManager/UI] Unregistered a STAF command. |
| 20071106-16:42:36 | Info | [ID=3] [local://local, STAF/EventManager/UI] Registered a STAF command. Register request: REGISTER MACHINE :5:local SERVICE :7:process REQUEST :66:start com |
| 20071106-16:43:26 | Info | [ID=3] [local://local, STAF/EventManager/UI] Triggering a STAF command. TRIGGER ID 3 |
| 20071106-16:43:26 | Info | [ID=3] [staf3f.austin.ibm.com:263] Submitted a STAF command. Event information: N/A Submitted STAF command: STAF local process start command java parms -version returns |
| 20071106-16:43:26 | Pass | [ID=3] [staf3f.austin.ibm.com:263] Completed a STAF command. RC=0, Result={ Return Code: 0 Key : <None> Files : [{ Return Code: 0 Data : java version "1.4.2" Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2) |

To view the log entries for a particular submitted STAF command, click on "View" in the menu bar and then select "Service log for submitted STAF command...". A new dialog will be displayed showing a list of all of the submitted STAF commands:



Select the submitted STAF command, and click on "OK". A STAFLogViewer window will open with all of the log entries for that submitted STAF command:



To view the entire service log, click on "View" in the menu bar and then select "Entire Service Log". A STAFLogViewer window will open with all of the log entries:

| STAF local LOG QUERY MACHINE staf3f.austin.ibm.com LOGNAME EventManager ALL | | |
|---|-------|--|
| Timestamp | Level | Message |
| 20071106-16:40:27 | Info | [ID=2] [local://local, STAF/EventManager/UI] Registered a STAF command. Register request: REGISTER MACHINE :5:local SERVICE :4:stax REQUEST :36:execute file |
| 20071106-16:41:46 | Info | [ID=2] [local://local, STAF/EventManager/UI] Unregistered a STAF command. |
| 20071106-16:42:36 | Info | [ID=3] [local://local, STAF/EventManager/UI] Registered a STAF command. Register request: REGISTER MACHINE :5:local SERVICE :7:process REQUEST :66:start com |
| 20071106-16:43:26 | Info | [ID=3] [local://local, STAF/EventManager/UI] Triggering a STAF command. TRIGGER ID 3 |
| 20071106-16:43:26 | Info | [ID=3] [staf3f.austin.ibm.com:263] Submitted a STAF command. Event information: N/A Submitted STAF command: STAF local process start command java parms -version returns |
| 20071106-16:43:26 | Pass | [ID=3] [staf3f.austin.ibm.com:263] Completed a STAF command. RC=0, Result={ Return Code: 0 Key : <None> Files : [{ Return Code: 0 Data : java version "1.4.2" Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2) |

[Delete the Service Log](#)

To delete the service log, click on "View" in the menu bar and then select "Delete Service Log". You will receive a confirmation popup:

The screenshot shows the EventManagerUI application window. The menu bar includes "File", "View", "Selected", and "Help". The "Service Machine" field is set to "local" and the "Service Name" field is set to "EventManager". A table displays the service log entries:

| ID | State | Description | Machine | Service | Request |
|----|---------|------------------------|---------|---------|--|
| 1 | Enabled | Kick off the BVT tests | local | stax | execute file C:/tests/runBVT.xml |
| 3 | Enabled | Get the Java version | local | process | start command java parms -version returnstdout stde... |

A confirmation dialog box titled "Select an Option" is displayed in the foreground. It contains a question mark icon and the text "Are you sure you want to delete the service log?". Below the text are three buttons: "Yes", "No", and "Cancel".

Double click on an existing registration to edit

EventManager Error Code Reference

In addition to the common STAF return codes, the following EventManager return codes are defined:

Table 1. EventManager Service Return Codes

| Error Code | Meaning | Comment |
|------------|-----------------------|--|
| 4001 | Python error | A Python error during a TRIGGER command occurred while evaluating the request to be submitted. The result buffer will include details about the Python error. |
| 4002 | Request not submitted | The request for a TRIGGER command was not submitted because the value of STAFEventManagerSubmit was not set to true. The result buffer will include the value of STAFEventManagerSubmit. |

Appendix A: References

- See the <http://www.jython.org> website for more information about Jython.
- See the <http://www.python.org> website for more information about Python.

Appendix B: Jython and CPython Differences

Although in most cases Jython behavior is identical to the C-language implementation of Python (CPython), there are still cases where the two implementations differ. If you are already a CPython programmer, or are hoping to use CPython code under Jython, you need to be aware of these differences. Also, there is a time lag between a new CPython release and the corresponding Jython release. The EventManager service uses Jython 2.5.2 which implements the same set of language features as CPython 2.5. Jython 2.5.2 cannot execute Python code that uses functions that were provided in later versions of Python, such as Python 2.6.

Most Python modules that are written in Python work fine in Jython. A few types of modules will not run under Jython such as:

- Modules that contain functionality not included in a JVM

Some standard CPython modules depend on operating system calls that are not available under Java. The most notable of these is *os*, which actually does run in Jython, but is missing much of its functionality.

- Modules that are implemented in C

A number of common CPython modules are implemented in C rather than Python, either for a speed boost or because the module is a C wrapper around an external C library. The C modules, or any modules that depend on them, will not run in Jython.

See the "Jython Essentials" book, written by Samuele Pedroni and Noel Rappin, for more information about the differences between Jython and CPython.

Appendix C: Licenses and Acknowledgements

Jython

Jython is an implementation of the high-level, dynamic, object-oriented language Python written in 100% Pure Java, and seamlessly integrated with the Java platform. It thus allows you to run Python on any Java platform.

Acknowledgement

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