IBM Tivoli Monitoring V6.2.1

Private situations

© 2013 IBM Corporation

IBM Tivoli® Monitoring V6.2.1, Private situations.

Assumptions

- Environment configuration:
  - At least one IBM Tivoli Monitoring agent version 6.2.1 or later is installed
- Basic knowledge of these concepts:
  - Situations
  - Event forwarding
  - Simple XML files specification
  - Simple command to start and stop the IBM Tivoli Monitoring agents

The assumption for this module is that you installed at least one IBM Tivoli Monitoring agent, V6.2.1 or later. You must also have a basic concept of situations and event forwarding, simple XML files specification, and simple commands to start and stop the IBM Tivoli Monitoring agents.

When you complete this module, you can perform these tasks:

- Define private situations
- Describe the difference between private and enterprise situations
- Describe a private situation XML specification
- Create and activate a private situation

Overview

- What private situations are
- Difference between private and enterprise situations
- Creating and activating a private situation
- Private situation XML specification
- Simple private situation example
- Debugging
- Summary of private situations characteristics

Private situations   © 2013 IBM Corporation

This module briefly introduces private situations and how they differ from enterprise situations. You learn how to create and activate a private situation, and the XML specification that is required to create a private situation. You see a sample private situation and some debugging techniques, and some notes for you to consider when you use private situations.

Private situations

- Private situations can run locally and trigger events on the computer
- Private situations can be defined for Tivoli Enterprise Monitoring Agents and Tivoli System Monitor Agents
- Private situations are created in an XML-formatted file that does not interact with the Tivoli Enterprise Monitoring Server
- Private situation-generated events can remain local to your workstation or be sent as SNMP alerts to an event receiver such as the Netcool/OMNIbus SNMP probe
- The private situation configuration file is in the agent **localconfig/pc** directory, one file per agent, and it contains all the private situation definitions for the agent
- Private situation events can be sent directly from a Tivoli Monitoring Agent to an EIF or SNMP receiver without going through the Tivoli Enterprise Monitoring Server

You create private situations in a local private situation configuration XML file for the agent. This file does not interact with the Tivoli Enterprise Monitoring Server. You can specify that when private situations generate events, the software can retain the events locally on your workstation or send them as SNMP alerts to a receiver. A receiver might be a Netcool/OMNIbus SNMP Probe. The private situation configuration file is in the agent **localconfig/pc** directory, one file per agent, and it contains all the private situation definitions for the agent.

Enterprise situations

- Creating enterprise situations
  - Tivoli Enterprise Portal Situation editor
  - The **tacmd createSit** command
- Enterprise situations
  - Send events to the monitoring server
  - Can forward events to the event destination server when the hub monitoring server is configured to forward events

Private situations   © 2013 IBM Corporation

Enterprise situations are created with the Tivoli Enterprise Portal Situation editor or with the **tacmd createSit** command. Enterprise situations send events to the monitoring server and can forward events to an Event Integration Facility receiver. A receiver might be a Tivoli Enterprise Console® event server or Netcool/OMNIbus Probe for Tivoli EIF when the hub monitoring server is configured to forward events. The software can also send enterprise situation events as SNMP alerts to a receiver such as the Netcool/OMNIbus SNMP Probe.

Creating a private situation

- Use the elements from the private situation XML specification to create private situations in a file named **pc_situations.xml** and save it in the listed directory:

  Default private situation path and file name
  - Windows®:   **Install_dir\localconfig\pc\pc_situations.xml**
  - UNIX® or Linux®:   **Install_dir/localconfig/pc/pc_situations.xml**
  - z/OS®:   PCSICNFG in the RKANDATV data set
  - i5/OS®:   **CTIRA_SIT_PATH/pc_situations.xml**

  where **pc** is the unique two letter product code of the agent and CTIRA_SIT_PATH is the path to the situation files

- You can name the file differently or use a different path
  - Use the **IRA_PRIVATE_SITUATION_CONFIG** and **IRA_LOCALCONFIG_DIR** agent environment variables to change the default file name and path
  - Create a private situation file and use these two environment variables to point to the files

- For more details about the XML, see Private situation XML specification:

  http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=%2Fcom.ibm.itm.doc_6.2.3%2Fprivatesituation_xmlspec.htm

7   Private situations   © 2013 IBM Corporation

How can you create private situations?

Use the elements from the private situation XML specification to create private situations in a file named **pc_situations.xml**.

Save the file to the directory **Install_dir/localconfig/pc**, where pc is the product code. Use the default path for your environment.

If you want to, you can name the file differently or use a different path. Use the **IRA_PRIVATE_SITUATION_CONFIG** and **IRA_LOCALCONFIG_DIR** agent environment variables that are provided for you to change the file name and path. Create a private situation file and use these environment variables to point to the files.

Activating private situations

- Initializing an agent
- Agent operations log
- Default agent operation log location:
  - Windows: **Install_dir\TMAITM6\logs\Primary_<*hostname*>_<PC>.LG0**

    Install_dir\TMAITM6\logs\<instance_name>_<hostname>_<PC>.LG0
  - UNIX or Linux: **Install_dir/logs/<*hostname*>:<PC>.LG0**
  - z/OS: RKLVLOG of the agent
- Active private situations run until the agent is shut down

How can you activate private situations?

When the software initializes an agent, an XML parser examines and validates the private situation definitions. The agent operations log records all XML parsing error messages. Until someone shuts down the agent, the private situations continue.

Distributing private situations

- Edit or delete a private situation
- Redistribute the situation locally or remotely
- Load the private configuration XML
- Use an alternative way to load definitions

© 2013 IBM Corporation

How can you distribute private situations?

You can edit or delete a private situation. You edit the private configuration XML file where the private situation is defined and then redistribute the situation locally or remotely.

Before any changes take effect, you must load the XML file with the edited or deleted private situations. To load the definitions, you stop and start the agent.

There is an alternative way to load the definitions. You can log on to the Agent Service Interface and enter private situation requests to start, stop, or recycle individual private situations.

Example situations: Text editor method

- You can create situations in the file by entering them manually using text editor
- The default location of configuration file
  - Windows: **Install_dir\localconfig\pc\pc_situations.xml**
  - UNIX or Linux: **Install_dir/localconfig/pc/pc_situations.xml**
  - z/OS: PCSICNFG in the RKANDATV data set

```xml
<PRIVATECONFIGURATION>
  <PRIVATESIT>
    <SITUATION>NT_Missing_Scheduler_pr </SITUATION>
    <CRITERIA> <![CDATA[ *MISSING NT_Process.Process_Name *EQ ("schedule")]]> </CRITERIA>
    <INTERVAL>001000</INTERVAL>
  </PRIVATESIT>
  <PRIVATESIT>
    <SITUATION>NT_Paging_File_Critical_pr </SITUATION>
    <CRITERIA> <![CDATA[ *VALUE NT_Paging_File.%_Usage *GE 80 ]]> </CRITERIA>
    <INTERVAL>001500</INTERVAL>
  </PRIVATESIT>
</PRIVATECONFIGURATION>
```

10   Private situations   © 2013 IBM Corporation

There are two situations that are defined in this example of a private situation configuration XML file for the Windows OS agent. This example shows a private situation configuration XML file for the Windows OS agent and has two situations named **NT_Missing_Scheduler_pr** and **NT_Paging_File_Critical_pr**.

There are two methods to create the situations in the file. The first is the text editor method. You can create situations in the file manually with any text editor. You can define as many situations as required.

The second method is by exporting.

Example situations: Export method

- Create situations in this file with two steps:
  1. Export existing enterprise situations from the monitoring server, with the command **tacmd bulkExportSit**
  2. Copy the exported situations that are eligible for use as private situations from their XML file to the agent Private Situation configuration file

- More Private situation examples:

http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=%2Fcom.ibm.itm.doc_6.2.3%2Fagentautonomy_situationprivate_example.htm

```xml
<PRIVATECONFIGURATION>
  <PRIVATESIT>
    <SITUATION>NT_Missing_Scheduler_pr </SITUATION>
    <CRITERIA> <![CDATA[ *MISSING NT_Process.Process_Name *EQ ("schedule")]]> </CRITERIA>
    <INTERVAL>001000</INTERVAL>
  </PRIVATESIT>
  <PRIVATESIT>
    <SITUATION>NT_Paging_File_Critical_pr </SITUATION>
    <CRITERIA> <![CDATA[ *VALUE NT_Paging_File.%_Usage *GE 80 ]]> </CRITERIA>
    <INTERVAL>001500</INTERVAL>
  </PRIVATESIT>
</PRIVATECONFIGURATION>
```

11   Private situations   © 2013 IBM Corporation

The export method has two steps.

1. Export existing enterprise situations from the monitoring server with the **ltacmd bulkExportSit** command.

2. Copy the exported situations that are eligible for use as private situations from their XML file to the agent Private Situation configuration file.

There are more examples of private situations at the link shown.

XML specification elements (1 of 3)

- **<PRIVATECONFIGURATION>**
  - PRIVATECONFIGURATION is the root element that identifies this document as an agent private situation configuration document
- **<PRIVATESIT>**
  - Enclose each situation definition in PRIVATESIT **begin** and **end** tags
- **<SITUATION>**
  - Within each set of PRIVATESIT **begin** and **end** tags, add a set of SITUATION **begin** and **end** tags
  - Within each set of SITUATION **begin** and **end** tags is the complete situation definition
- **<INTERVAL>**
  - Specifies the situation sample interval in HHMMSS format

Use the elements from the private situation XML specification to create private situations for an agent on your computer. Here you can see four of the twelve elements that you can use.

XML specification elements (2 of 3)

- **<CRITERIA>**
  - The situation criteria is specified within this element and the CDATA element
- **<CMD>**
  - (Optional) Defines the action command or script to start when the situation criteria are true
- **<AUTOSOPT>**
  - This element is required if you specify an action <CMD>
  - It defines the action command execution options
- **<DISTRIBUTION>**
  - Required for products with subnodes (subagents)

　　　© 2013 IBM Corporation

Here are four more elements in the comprehensive list of twelve elements that you can use to create private situations.

XML specification elements (3 of 3)

- **<LSTDATE>**
  - (Optional) Situation last updated timestamp
- **<LSTUSRPRF>**
  - (Optional) This element is the ID of the user who last updated this situation definition
- **<SITINFO>**
  - (Optional) Defines the situation qualifiers for EIF events
- **<HISTORY>**
  - (Optional) Use the history element to specify each attribute group that you want to collect historical data for

Here are the remaining four elements in the comprehensive list of twelve elements that you can use to create private situations.

XML specifications

- XML tags are not case-sensitive
  - All other parameters are case-sensitive
  - For example, you can enter <PRIVATESIT>, <PrivateSit>, or <privatesit>
- For more details about the XML specification, see Private situation XML specification

http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=%2Fcom.ibm.itm.doc_6.2.3%2Fprivatesituation_xmlspec.htm

The XML tags are not case-sensitive, whereas all other parameters are case-sensitive.

For more information about the XML specifications, see the link shown.

Debugging (1 of 4)

Problem with Private Situation XML

The default RAS1 trace:
(502E412C.10AC-
1:kraaomsg.cpp,697,"outputAgentMessage") *PSCP-INFO:
length(116) XML Parsing Error: not well-formed (invalid
token) in /opt/IBM/ITM/localconfig/lz/lz_situations.xml, line 4
detected

Error messages

(502E412C.10B0-1:kraaulog.cpp,142,"CTIRA_insert_log")
Exit
(502E412C.10B1-1:kraacthi.cpp,1015,"parseXMLfile")
<0x7FFF81A84D90,0x194> Parsing Error: not well-formed
(invalid token) in /opt/IBM/ITM/localconfig/lz/lz_situations.xml,
line 4:
(502E412C.10B8-
1:kraaomsg.cpp,714,"outputAgentMessage") *PSCP-INFO:
Malformed private situation XML configuration file
specification. All definitions rejected

All definitions rejected

16   Private situations   © 2013 IBM Corporation
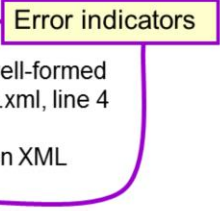
How can you verify if the private situations are loaded and started successfully? The agent default RAS1 log displays an error if there is a problem with the private situation xml file. Notice on the last line, "**All definitions rejected**."

Debugging (2 of 4)

Problem with Private Situation XML

Agent Operation log:

1120817090340432KRAX001E XML Parsing Error: not well-formed
(invalid token) in /opt/IBM/ITM/localconfig/lz/lz_situations.xml, line 4
detected
1120817090340432KRAP003I Malformed private situation XML
configuration file specification. All definitions rejected

Error indicators

The **agent operation** log also shows the starting message of each private situation. You can search for the keywords error or reject to help you locate the errors.

How can you verify if the private situations are loaded and started successfully? The agent default RAS1 log displays an error if there is a problem with the private situation xml file. Also, a successful message is displayed in the RAS1 log. The agent operation log also shows the starting message for each private situation.

Debugging (4 of 4)

- Symptoms
    - Situation is not working
    - The command **take action** does not work
    - Situation does not send the **SNMP Trap**
- To debug, perform these steps:
    - Edit the appropriate agent configuration file
        - Windows: **%itm_install%\tmaitm6\kpcenv**
        - UNIX or Linux: **$itm_install\config\pc.ini**
        - z/OS: **&rhilev.&rte.RKANPARU(KppENV)**
    - To set the trace level, replace KBB_RAS1 with KBB_RAS1=ERROR (UNIT:KRA ALL)
    - Stop and start the agent
    - Re-create the problem
    - Collect the **pdcollect** from the agent and send to IBM Support
        - where pc is the product code
    - Remember to put the trace level back to KBB_RAS1 after collecting the data

Private situations   © 2013 IBM Corporation

Debugging private situations issues are routine. Perform the steps that are shown to set the trace level and collect the data. Remember to return the trace level to the original value after you finish the data collection.

Temporary override

- Situation overrides
- Default situation override path and file name:
  - Windows: **Install_dir\TMAITM6\pc_thresholds.xml**
  - UNIX or Linux: **Install_dir/bin/pc_thresholds.xml**
  - z/OS: PCTHRESH in the RKANDATV data set
  - i5/OS: **ctira_sit_path/hostname_pc_thresholds.xml**
- For more details, see Situation override XML specification

http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=%2Fcom.ibm.itm.doc_6.2.3%2Fagentautonomy_situationoverridexmlspec.htm

- For more details, see Private history

http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=%2Fcom.ibm.itm.doc_6.2.3%2Fhistoryprivate_info.htm

You can temporarily override the thresholds by defining a "situation override" in the thresholds XML specification for a Tivoli Enterprise Monitoring Agent. You can manage them locally. Any updates that you make to the local XML thresholds file take effect after you stop and start the agent.

Private history is the collection and short-term storage of data from a local monitoring agent. You can define a historical collection in a private situation configuration file for an agent. Then, you can use the Agent Service Interface to view the short-term history. For more details, see the links shown.

Situation limitations

- Distribution tag <DISTRIBUTION>
- MISSING function distributed to subnodes
- For more details, see Situation limitation

http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/index.jsp?topic=%2Fcom.ibm.itm.doc_6.2.3%2Fagentautonomy_situationlimits_itm.htm

If the distribution tag <DISTRIBUTION> is not specified in the configuration XML, the private situation is distributed to all subnodes, except for a private situation with the MISSING function.

Private situations with the MISSING function distributed to subnodes must have a list of subnodes in the DISTRIBUTION tag. Private situations with the MISSING function distributed to agents do not require this list.

Summary of private situations characteristics (1 of 2)

- Create private situations at the agent locally with a simple editor
- Maximum number of expression that Private situations supports
- Support for all enterprise situation threshold operators
- Support for the reflex automation action command

This slide and the next slide summarize some of the points to consider before creating a private situation.

Private situations are agent monitoring requests that are defined by a local administrator with criteria that is pertinent to the local agent environment.

Private situations are created at the agent locally through a simple editor. They emit results and events with agent SNMP traps. Private situations run from the time the agent starts until it stops, regardless of monitoring server connectivity.

Multiple expressions in a formula must have logic connectors that are uniformly conjunctive AND or disjunctive OR. You cannot mix both connectors in a formula.

Private situations support up to nine expressions in the situation formula when connected by Boolean AND logic. It supports up to ten expressions when connected by Boolean OR logic.

Private situations support all enterprise situation threshold operators. These operators include equal (EQ), not equal (NE), greater than (GT), less than (LT), greater than or equal (GE), and less than or equal (LE).

Private situations support the reflex automation action command.

Summary of private situations characteristics (2 of 2)

- VALUE and MISSING formula functions only
- No support for group functions or other cell functions
- Wildcard characters are not supported
- One attribute group in a situation
- Private situations run concurrently with enterprise situations when the agent is connected to the monitoring server
  - Run on a Tivoli Enterprise Monitoring Agent
  - Run on a Tivoli System Monitor Agent
  - Remain unknown to the IBM Tivoli Monitoring centrally managed infrastructure
- Unique situation names

Private situations include support for the VALUE and MISSING formula functions only. There is no support for group functions or other cell functions.

Private situations and situation overrides do not support wildcard characters.

You can put only one attribute group in a situation. The software does not support two different attribute groups.

Private situations run concurrently with enterprise situations when the agent is connected to the monitoring server.

Private situations can run on a Tivoli Enterprise Monitoring Agent, whether it is connected or autonomous, or a Tivoli System Monitor Agent.

Private situations remain unknown to the IBM Tivoli Monitoring centrally managed infrastructure. Tivoli Enterprise Monitoring Server and other IBM Tivoli Monitoring components are unaware of their existence, including their monitoring data and events. Therefore, private situations do not participate in event caching or persistence across agent restarts while the agent is disconnected from its monitoring server.

Enterprise and private situations must have unique situation names.

You might find these links on the slide useful:

- Introduction to Private situations

- Private situation operation

- Private situation XML specification

- Private situation examples

Summary

Now that you completed this module, you can perform these tasks:

- Define private situations
- Describe the difference between private and enterprise situations
- Describe a private situation XML specification
- Create and activate a private situation

Trademarks, disclaimer, and copyright information