Net-Net® Interactive Session Recorder Application Monitor (VAM) Administration Guide

Version 5.0

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Notices

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About this Guide

Overview

The *Net-Net Interactive Session Recorder Application Monitor (VAM) Administration Guide* provides information about the Net-Net Interactive Session Recorder's (NN-ISR's) custom monitoring solution, created specifically to:

- Monitor the uptime of critical recording components
- Review the default tests configured upon installation
- Configure custom tests to monitor other components
- Configure SNMP and email alerts in the event a single test fails

This guide also provides the specific tests configured upon installation and the complete SNMP MIB for use with third-party trap software.

Audience

This guide is intended for network administrators who have interest in monitoring the uptime and responsiveness of their NN-ISR solution.

Who is Acme Packet?

Acme Packet (NASDAQ: APKT), the leader in session delivery network solutions, enables the trusted, first-class delivery of next-generation voice, data and unified communications services and applications across IP networks. Our Net-Net product family fulfills demanding security, service assurance and regulatory requirements in service provider, enterprise, and contact center networks. Based in Bedford, Massachusetts, Acme Packet designs and manufactures its products in the USA. For more information, visit www.acmepacket.com.

Related Documentation

The following table lists related documents.

Document Name	Document Description
Net-Net Interactive Session Recorder Release Notes	Contains information about new NN-ISR features and fixed issues in each release of the NN-ISR.
Net-Net Interactive Session Recorder Installation Guide	Provides an overview of the NN-ISR, hardware/software requirements and recommendations, storage considerations, pre-installation information, CIS and RSS installation procedures, post-install verification and configuration procedures, setting up and making a test call, and additional advanced topics about the NN-ISR.
Net-Net Interactive Session Recorder User's Guide	Contains information about using the NN-ISR Dashboard for all levels of users. Provides information about viewing, playing, deleting recordings, running reports, managing user profiles (Super User, Account Administrator, and Tenant Administrator only).
Net-Net Interactive Session Recorder Administrator Guide	Contains information about using the NN-ISR Dashboard for the Administrator level user (Super User, Account Administrator, and Tenant Administrator). Provides information about creating and managing accounts, routes, and users. Also provides information about configuring the NN-ISR, running reports, and viewing active calls.
Net-Net Interactive Session Recorder API Reference Guide	Contains information about Methods for Recording, VoiceXML Commands, representational state transfer (REST) application programming interface (API), Recording File Types/Formats Supported, Return Codes, sendIPCRCommand.jsp Subdialog, Advanced Options, Troubleshooting.

Revision History

This section contains the revision history for this document.

Date	Revision Number	Description
November 2011	Revision 1.10	• Initial release of the Net-Net Interactive Session Recorder Application Monitor (VAM) Administration Guide.
February 1, 2013	Revision 1.20	• Updates formatting of Net-Net ISR VAM Guide. • Updates VAM information.

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1 About the VAM

Introduction

The NN-ISR VAM tests network-attached application and MySQL database components using a series of synchronous request and result comparisons. Upon recognition of a service failure, the VAM alerts registered administrators by sending an email and/or SNMP trap.

The VAM can be configured to conduct the following types of tests:

- HTTP fetch from a web or application server, comparing the response to a value configured as a “confirmString” for the test
- MySQL database connection
- MySQL database query with alert if result set is empty
- MySQL database query and comparison of query result with configured test result value

If a test fails to connect to the device or does not return the expected result, the VAM can be configured to send the following notifications:

- SNMP trap with the Object ID and a message specific to that test
- Email alert through the configurable SMTP host with the subject and message detailing instructions configured specifically for that test
- Default email message if no test-specific notifications exist

Additionally, the VAM offers:

- Configurable alerts on repeat alarms—The administrator can configure whether the monitor sends a notification each time a service fails a test or only upon the first failure. This configuration is only for successive failures of the same service. If a new service fails, a notification is always sent. In the **do not resend** parameter, after the failing test is passed once, if it fails again a new email is sent.
- Configurable resend interval—To limit the number of repeat alerts during a string of failures of the same test, the **send after** parameter forces VAM to wait a certain number of tests before sending a subsequent alert.
- Configurable delays for start of testing and between tests—Set the test intervals based on criteria important to your operation.
- Unlimited test set size—While the component installs with a base set of tests focused on ISR operation, additional tests can be added as desired, even to monitor non-ISR components.
- Verbose mode for more detailed records of tests and failures

2 Installing the VAM

Introduction

This chapter provides information about importing and running the VAM virtual machine (VM).

VAM Platform Requirements

The VAM currently runs exclusively as a VM on the vSphere Hypervisor platform (formerly known as ESXi), the free edition of vSphere's bare-metal virtualization product.

The vSphere Hypervisor is required for operation of the NN-ISR and installation instructions can be found in the *Net-Net Interactive Session Recorder Installation Guide*.

The VAM VM is built with a default configuration that expects 1 virtual CPU (vCPU), 2GB of RAM, and 10GB of disk space available to the VAM guest OS. These initial configuration settings may be adjusted for specific deployment needs.

Deploying the VAM VM

To deploy the VAM VM, first import the VM and then assign it an IP address.

To import the VM:

1. Open VMWare vSphere Client.
2. Connect to your vSphere Host by checking **Install this certificate and do not display any security warnings for <*ip_address*>**. Click **Ignore**.
3. Click **File > Deploy OVF Template...**.
4. Browse to the unzipped "ISR VAM <*version #*> OVF Template.zip" directory, select **vam.ovf** and click **Next**.
5. Click **Next** at both the summary and VM name and location.
6. Select **Thin provisioned format** and click **Next**.
7. Verify that the "VM Network" and "VM Local" Source and Destination Networks are listed, review the summary, and click **Finish**.
8. Close the OVF deployment window.
9. Click on the VM named **vam** in the left panel and hit the **start** (play) button.

To assign an IP address to the VM:

1. Click the **Console** tab and place your cursor in the main panel.

   Note: Your mouse is confined to the console pane. Hit **Alt+Ctrl** to release.

2. Log in using username **root** and password **64^5377**.

   Then set the IP of the VAM VM by editing the ifcfg-eth0 file.

3. Enter **vi /etc/sysconfig/network-scripts/ifcfg-eth0** and hit **Enter**.
4. Enter **i** to enter insert mode.

5. Change IPADDR=<*your VAM IP*>
6. Change GATEWAY=<*network gateway*>
7. Change DNS1=<*network DNS*>
8. Change DNS2=<*network secondary DNS*>
9. Hit **<esc>**, enter **:wq**, and hit **Enter**.
10. Enter **service network start** and hit **Enter**.
11. Enter **chkconfig network on** and hit **Enter**.

3 Configuring the VAM

Introduction

This chapter provides instructions on configuring the NN-ISR VAM, as well information about the types of tests available and test failure notifications.

Configuration Overview

The VAM tests are individually configured in the database provided as part of the VAM VM. There are two categories of VAM tests:

- MySQL
- System

MySQL Testing

A MySQL test verifies the connection to a specific MySQL database instance and can execute customized queries to confirm a valid (expected) result set is returned. The following parameters are specific to the MySQL tests:

Parameter Name	Description	Example
DB_NAME	Name of the database instance that the VAM connects to.	ipcr_db
DB_USER	Name of the user that has been authorized to connect to DB_NAME and execute the intended queries.	ipcr_vam
DB_PASSWORD	DB_USER's assigned password.	p4ssw0rd
DB_URL	The location of the database that is to be tested, in JDBC syntax.	jdbc:mysql://195.161.110.210:5500
DB_DRIVER	The driver name is required for the configuration and is included in the installation. NOTE: This value should not be changed.	
DB_QUERY	If testing the result of a specific query in addition to the standard connectivity check, provide the MySQL query to be executed.	Select count(*) from recordings
DB_FAIL_ON_EMPTY_RESULT_SET	Designates whether a successful test query always contain a valid value.	true

System Testing

A System test makes a simple HTTP fetch to a configurable URL and compares the returned value with an expected one. The following parameters are specific to the System test:

Parameter Name	Description	Example
SYSTEM_URL	The URL of the page to be accessed.	http://193.161.110.210/vam/vamTest.html
SYSTEM_CONFIRM_STRING	The expected value on the page that should be compared.	Test passed

For all tests, the following parameters must be configured:

Parameter Name	Description	Example
SERVICE	Name (descriptor) of the server being tested.	Main Database
HOST	Name (if DNS is configured) or IP address of the host being tested.	171.33.50.123
TYPE	Which type of test is being run. This can be either system or mysql.	system
RESEND	Should a notification be sent for each failure. Valid values are: 0 — only send a notice on the first failure 1 — send a notice on each failure, regardless of the number in succession	1
RESEND_AFTER	The number of tests that should fail before a subsequent notification is sent.	10
ENABLED	Whether or not the test is active. Valid values are: 0 — inactive test (not currently in use) 1 — active test	0

The following parameters can be set on a global basis, but can also be overwritten on a test-by-test basis, making it possible to send specific traps to specific destinations.

Parameter Name	Description	Example
SNMP_TO_HOST	IP address of SNMP listener.	
SNMP_TO_RETRIES	Number of retries that should be sent for a specific alert.	
SNMP_TO_TIMEOUT	Number of seconds the VAM waits for a reply from the listener before timing out.	

General System-Wide Configurations

Individual test configurations override their matching default configuration values at the system level.

Test Configurations

Parameter Name	Description	Example
APPLICATION_NAME	Default application/device name.	

Test Scheduling

Parameter Name	Description	Example
TEST_BEGIN_DELAY	The number of seconds to delay before starting the testing.	
TEST_INTERVAL	The number of minutes between each test.	

Notification Configurations

Parameter Name	Description	Example
SEND_BEGIN_DELAY	The number of seconds to wait before sending notifications at the start of the VAM service.	
SEND_INTERVAL	The number of seconds the VAM waits before checking for notifications to send.	
RESEND	Whether or not the VAM resents alerts after an initial failure. Valid values are: 0 — The VAM does not send subsequent alerts 1 — Send alerts for subsequent failures	
RESEND_AFTER	The default number of failed tests before the VAM sends another notification.	
DO_NOT_SEND	Disables notifications.	
NOTIFICATION_METHOD	The type of notification the VAM sends. Valid values are: • email • snmp • both	

Configuring ISR Component Tests

The default VAM deployment monitors four components:

- RSS
- ISR API deployment in JBoss (running on the RSS server)
- The MySQL Database instance (also known as the Index)

- User Dashboard deployment in NGINX

The base VAM configuration in a customer installation requires the following database script to be edited and executed:

```
UPDATE `vam_db`.`vam_tests` SET `host`='<your_index_db_ip>',
`trap_agent_ip`='<your_index_db_ip>' WHERE `id`='1';
UPDATE `vam_db`.`vam_tests` SET `host`='<your_user_dash_ip>',
`system_url`='http://<your_user_dash_ip>/',
`trap_agent_ip`='<your_user_dash_ip>' WHERE `id`='2';
UPDATE `vam_db`.`vam_tests` SET `host`='<your_api_ip>',
`system_url`='http://<your_user_dash_ip>:9000/VmgVxmlApi/',
`trap_agent_ip`='<your_api_ip>' WHERE `id`='3';
UPDATE `vam_db`.`vam_tests` SET `host`='<your_rss_ip>',
`system_url`='http://<your_user_dash_ip>:9000/VmgVxmlApi/
sendVMGCommand.jsp?command=StatusRequest&channelId=1',
`trap_agent_ip`='<your_rss_ip>' WHERE `id`='4';
```

To update the VAM base configuration using the script:

1. Open an SSH connection to the VAM host
2. Log in using the user **root** and password **64^5377**
3. Execute the following commands:
   - Enter **cd /tmp**
   - Enter **vi vam_config_base.sql**
   - Enter <**i**> to enable insert mode
   - Edit the appropriate values
   - Enter <**esc**> to quit insert mode
   - Enter **:wq**
   - Enter **mysql -u vam_service -pn3wf0und vam_db < vam_config_base.sql**

Failure Notifications

Upon a test failure, the VAM alerts the administrator(s) with either an email or SNMP trap.

Email Notifications

The following parameters are specific to the email notifications:

Parameter Name	Description	Example
EMAIL_TO	Default email recipient.	monitor@yourcompany.com
EMAIL_FROM_USER	SMTP account address.	vam@yourcompany.com
EMAIL_FROM_PASSWORD	EMAIL_FROM_USER's password.	
EMAIL_FROM_SMTP_PORT	SMTP Port.	25

Parameter Name	Description	Example
EMAIL_FROM_USE_AUTHENTICIATION	Whether or not SMTP authentication is required. Valid values are: 0 — No authentication is required. Outbound mail is always allowed, regardless of the user 1 — Yes, use EMAIL_FROM_USER and EMAIL_FROM_PASSWRD to authenticate.	1
EMAIL_TEXT	Subject line of the email message	
DEFAULT_INSTRUCTIONS	The body of the email message, which should contain an explanation of the test and instructions on how to address the failure.	

Test-specific configuration override:

Parameter Name	Description	Example
EMAIL_TO	Email address the alert is sent to.	monitor@yourcompany.com
INSTRUCTIONS	The body of the email message, which should contain an explanation of the test and instructions on how to address the failure.	If not provided, the content of DEFAULT_INSTRUCTIONS is used.

SNMP Notifications

The following parameters are specific to the SNMP notifications:

Parameter Name	Description	Example
TRAP_ENTERPRISE_ID	SNMP Enterprise ID. NOTE: This value should not be changed.	1.3.6.1.4.1.28153
TRAP_OBJECT_ID	SNMP object ID for tested device.	
TRAP_SPECIFIC_TYPE	An integer value for the enterprise-specific trap that is defined in a private MIB.	

Parameter Name	Description	Example
TRAP_GENERIC_TYPE	If the trap type value is zero through five, then the trap is one of the generic SNMP traps defined by the SNMP group of MIB-II and the specific trap type is zero. If the trap type value is six, then the trap is an enterprise-specific trap that is defined in a private MIB. Valid values are: 0 – coldStart 1 – warmStart 2 – linkDown 3 – linkUp 4 – authenticationFailure 5 – egpNeighborLoss 6 – enterpriseSpecific	0
TRAP_AGENT_IP	IP address of the tested device.	
TRAP_MESSAGE	Description of the failure.	

Sending Email Notifications

To send email notifications during failures, VAM requires the following database script to be edited and executed:

```
UPDATE `vam_db`.`system_configuration` SET `do_not_send`=0,
`notification_method`='email',
`email_from_user`='<email_from_usr_address>',
`email_from_password`='<email_from_usr_pwd>',
`email_from_smtp_host`='<email_smtp_host>',
`email_to`='<email_to_address>' WHERE `id`='1';
```

To update the VAM email configuration using the script:

1. Open an SSH connection to the VAM host
2. Log in using the user **root** and password **64^5377**
3. Execute the following commands:
   - Enter **cd /tmp**
   - Enter **vi vam_config_email.sql**
   - Enter <**i**> to enable insert mode
   - Edit the appropriate values
   - Enter <**esc**> to quit insert mode
   - Enter **:wq**
   - Enter **mysql -u vam_service -pn3wf0und vam_db < vam_config_email.sql**

Sending SNMP Notifications

To send SNMP notifications during failures, VAM requires the following database script to be edited and executed:

```
UPDATE `vam_db`.`system_configuration` SET `do_not_send`=0,
`notification_method`='snmp', `snmp_to_host`='<snmp_host>' WHERE
`id`='1';
```

To update the VAM email configuration using the script:

1. Open an SSH connection to the VAM host

2. Log in using the user **root** and password **64^5377**
3. Execute the following commands:
   - Enter **cd /tmp**
   - Enter **vi vam_config_snmp.sql**
   - Enter <**i**> to enable insert mode
   - Edit the appropriate values
   - Enter <**esc**> to quit insert mode
   - Enter **:wq**
   - Enter **mysql -u vam_service -pn3wf0und vam_db < vam_config_snmp.sql**

Sending Both Email and SNMP Notifications

To extend VAM to send both email and SNMP notifications, first configure email and SNMP from the above sections. To set notifications for both protocols, the following script is executed:

```
UPDATE `vam_db`.`system_configuration` SET
`notification_method`='both' WHERE `id`='1';
```

To update the VAM email configuration using the script:

1. Open an SSH connection to the VAM host
2. Log in using the user **root** and password **64^5377**
3. Execute the following commands:
   - Enter **cd /tmp**
   - Enter **vi vam_config_both.sql**
   - Enter <**i**> to enable insert mode
   - Edit the appropriate values.
   - Enter <**esc**> to quit insert mode
   - Enter **:wq**
   - Enter **mysql -u vam_service -pn3wf0und vam_db < vam_config_both.sql**

The running VAM prints to the log file in "/opt/jboss/server/default/VAMService.log" and rolls log files by size, deleting files over the maximum total size. Verify successful tests and recognize failed services in both of the logs. Failed and successful tests are also logged in VAM's MySQL database instance.

SNMP MIB

Below is a brief description of the NN-ISR MIB. The current implementation of the SNMP trap system is not necessarily standard since the NN-ISR SNMP manager acts as a delegate for the monitored agents. VAM sends traps on behalf of the agent by setting the trap's agent IP as the IP address of the device that causes the trap.

The SNMP host information is configured in the VAM, and there is no polling to individual devices needed for SNMP monitoring. The administrator simply enables the SNMP trap listener, and VAM sends an alert to the listener when there is a notable status during VAM's configured testing cycle.

Currently the VAM implementation includes the trap in the type OCTET STRING, and traps are sent only when a device test has failed.

A VAM Database Schema

Dash_Config

Field Name	Field Type	Nullable	Supported Values	Default	Description
config_id	tinyint(3) unsigned	NOT NULL AUTO_INCREMENT			
header_footer_color	varchar(255)	DEFAULT NULL			
logo_url	varchar(255)	DEFAULT NULL			

Notify

Field Name	Field Type	Nullable	Supported Values	Default	Description
id	bigint(20) unsigned	NOT NULL AUTO_INCREMENT			
send_type	varchar(20)	NOT NULL			
email_to	varchar(255)	DEFAULT NULL			
email_subject	varchar(255)	DEFAULT NULL			
email_body	text				
snmp_to_host	varchar(255)	DEFAULT NULL			
snmp_to_retries	int(10) unsigned	DEFAULT NULL			
snmp_to_timeout	int(10) unsigned	DEFAULT NULL			
object_id	varchar(30)	DEFAULT NULL			
agent_ip	varchar(30)	DEFAULT NULL			
enterprise_id	varchar(30)	DEFAULT NULL			
generic_type	int(10) unsigned	DEFAULT NULL			
specific_type	int(10) unsigned	DEFAULT NULL			
trap_message	text				
send	tinyint(1) unsigned	NOT NULL		1	
added_time	datetime	DEFAULT NULL			
sent_time	datetime	DEFAULT NULL			
message	varchar(50)	DEFAULT NULL			

Scheduler

Field Name	Field Type	Nullable	Supported Values	Default	Description
start_time	datetime	NOT NULL		0000-00-00 00:00:00	

Service_Failure

Field Name	Field Type	Nullable	Supported Values	Default	Description
failure_time	datetime	NOT NULL		0000-00-00 00:00:00	
service_name	varchar(255)	NOT NULL			

System Configuration

Field Name	Field Type	Nullable	Supported Values	Default	Description
id	tinyint(3) unsigned	NOT NULL AUTO_INCREMENT			
application_name	varchar(100)	NOT NULL			
test_begin_delay	int(10) unsigned	NOT NULL		0	
test_interval	int(10) unsigned	NOT NULL		5	
send_begin_delay	int(10) unsigned	NOT NULL		15	
send_interval	int(10) unsigned	NOT NULL		30	
resend	tinyint(1) unsigned	NOT NULL		1	
resend_after	int(10) unsigned	NOT NULL		0	
do_not_send	tinyint(1) unsigned	NOT NULL		0	
default_instructions	text				
notification_method	varchar(10)	NOT NULL		email	
email_from_user	varchar(100)	DEFAULT NULL			
email_from_password	varchar(20)	DEFAULT NULL			
email_from_smtp_host	varchar(25)	DEFAULT NULL			
email_from_smtp_port	int(10) unsigned	DEFAULT NULL			
email_from_use_authentication	tinyint(1) unsigned	DEFAULT NULL			
email_text	text				
email_to	text				

Field Name	Field Type	Nullable	Supported Values	Default	Description
snmp_to_host	text				
snmp_to_retries	iint(10) unsigned	DEFAULT NULL			
snmp_to_timeout	int(10) unsigned	DEFAULT NULL			

Test Time

Field Name	Field Type	Nullable	Supported Values	Default	Description
last_test_occurence	datetime	NOT NULL		0000-00-00 00:00:00	

VAM Tests

Field Name	Field Type	Nullable	Supported Values	Default	Description
id	int(10) unsigned	NOT NULL AUTO_INCREMENT			
service	varchar(255)	NOT NULL			
host	varchar(50)	NOT NULL			
test_type	varchar(10)	NOT NULL		system	
system_url	varchar(255)	DEFAULT NULL			
system_confirm_string	varchar(255)	DEFAULT NULL			
db_name	varchar(50)	DEFAULT NULL			
db_user	varchar(30)	DEFAULT NULL			
db_password	varchar(30)	DEFAULT NULL			
db_driver	varchar(80)	DEFAULT NULL			
db_url	varchar(255)	DEFAULT NULL			
db_query	text				
db_fail_on_empty_result_set	tinyint(1)	DEFULT NULL			
instructions	text				
trap_enterprise_id	varchar(30)	DEFAULT NULL			
trap_object_id	varchar(30)	DEFAULT NULL			
trap_agent_ip	varchar(30)	DEFAULT NULL			
trap_generic_type	int(10) unsigned	DEFAULT NULL			
trap_specific_type	int(10) unsigned	DEFAULT NULL			
trap_message	text				

Field Name	Field Type	Nullable	Supported Values	Default	Description
resend	tinyint(1) unsigned	DEFAULT NULL			
resend_after	tinyint(1) unsigned	DEFAULT NULL			
email_to	varchar(255)	DEFAULT NULL			
snmp_to_host	varchar(255)	DEFAULT NULL			
snmp_to_retries	int(10) unsigned	DEFAULT NULL			
snmp_to_timeout	int(10) unsigned	DEFAULT NULL			
enabled	tinyint(1)	NOT NULL		0	