HP OpenView Troubleshooting Insight Packages

This document provides an overview of the exciting, new HP OpenView Troubleshooting Insight Packages (TIPs) software component that is included with OV Internet Services 6.0.

TIPs helps you quickly troubleshoot a service or infrastructure problem by automatically executing Commands on probe systems to collect troubleshooting information. The results are integrated into the OVIS dashboard.

When a problem is identified and a TIP meets the Conditions that are defined to troubleshoot that problem, you can run TIPs for that problem. When a TIP runs, each Command that meets defined Conditions automatically executes to collect troubleshooting information. Command results are displayed in the TIPs Viewer.

TIPs results are more useful than the actual command-line results because you receive a viewable Outcome for each command's output. The collected output is pruned to hide irrelevant information, but the hidden text can be displayed if you want to see it. In addition, words that you consider to be most important are highlighted in the TIPs results so that you can quickly scan for critical clues.

HP has provided several TIPs and Commands to start your troubleshooting experience. You can modify existing TIPs and create new TIPs that are specific to your environment. TIPs can also be extended to use data from other OpenView or third-party products.

Highlights

TIPs helps you reduce your mean time to repair (MTTR) for monitored services in the following ways:

- Execute troubleshooting commands on demand against target systems and alarms on remote probe systems in a distributed environment.
- Analyze command results quickly. Keywords are highlighted, predefined rules hide irrelevant information, and the overall success or failure of each command is displayed.
- Automatically trigger troubleshooting commands at the exact time a problem occurs.
- Configure and execute troubleshooting commands on all supported probe system platforms.
- Create TIPs to execute custom scripts developed in Perl, VBScript, JScript, Windows and UNIX/LINUX shell script, Expect, WMI scripts, etc.
- Leverage third-party troubleshooting commands to analyze monitored service alarms.
- Protect your data and systems with firewall-friendly communication, operator authentication, and confidentiality of commands and command results.
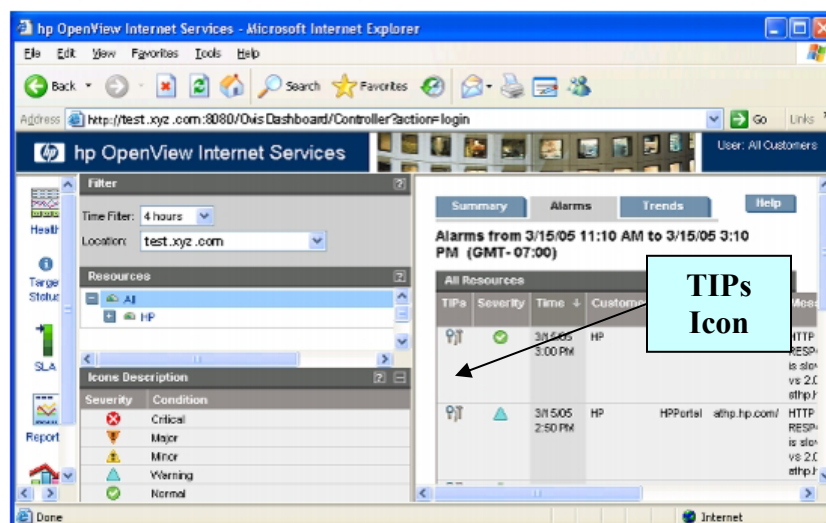
Launching TIPs

To launch the TIPs Viewer, click a TIPs icon. You will find TIPs icons in the Dashboard beside any Service Target or Alarm.

When monitoring a service target …
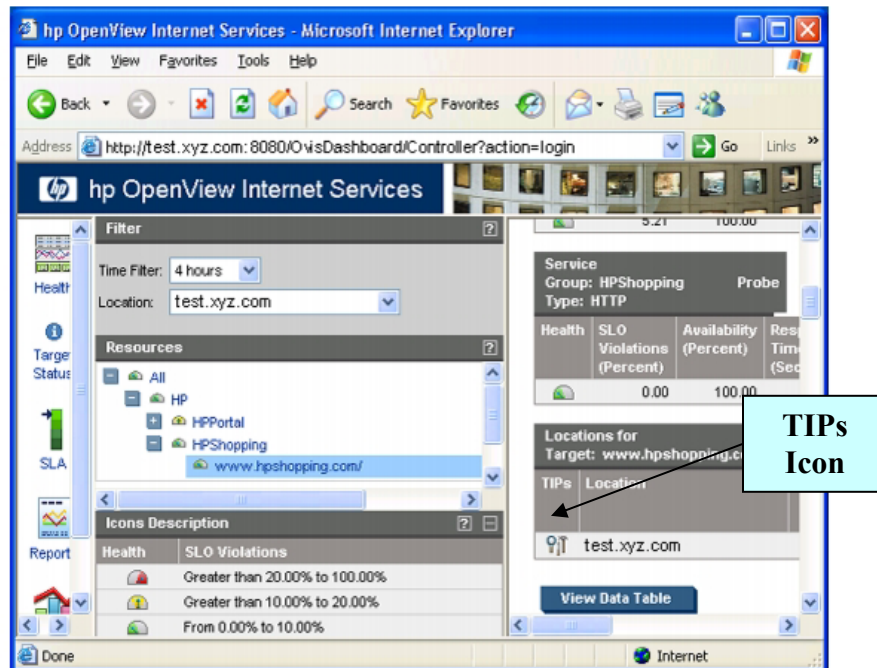

When monitoring an alarm …

TIPs Viewer Overview

Results from TIPs Commands display in the TIPs Viewer. The TIPs Viewer opens when you click a TIPs icon.

The scope pane is on the left in the TIPs Viewer window. The scope pane displays the list of TIPs that run when you click a TIPs icon. If you click a TIPs icon beside a specific alarm, only the TIPs that qualify to troubleshoot that alarm are listed.
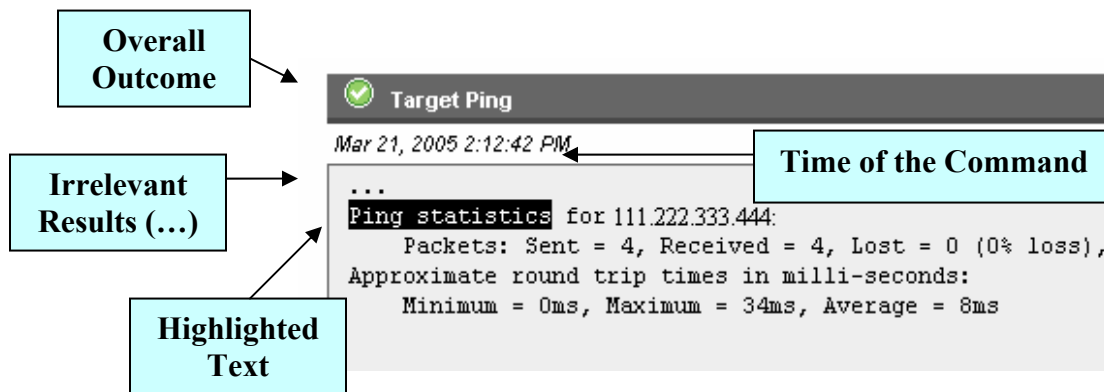
When a TIP in the scope pane is selected, the Command results for that TIP display in the TIPs content pane, on the right of the TIPs Viewer.

The title bar at the top of the content pane displays the context of the TIP results displayed.
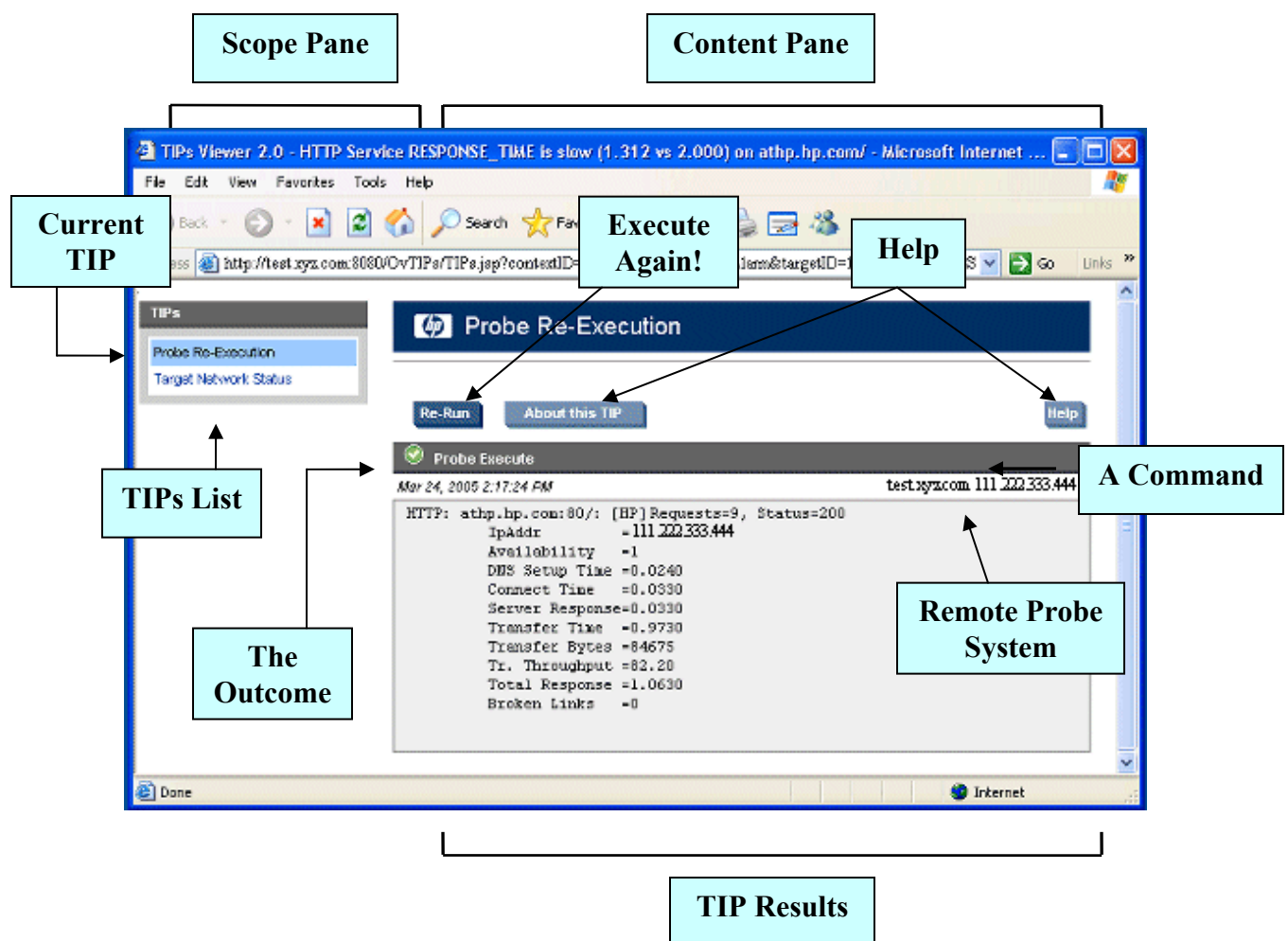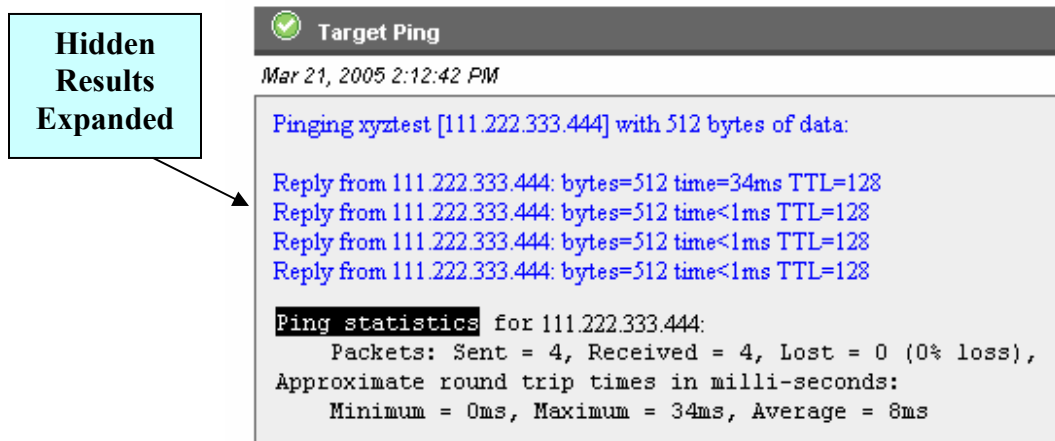
Understanding TIPs Results

Each TIP can run multiple commands. Each command displays results separately in the contents pane. You may need to scroll down to view all the command results. The time stamp represents the time on the probe system.

Overall Outcome

Time of the Command

Irrelevant Results (…)

Highlighted Text

```
✓ Target Ping
Mar 21, 2005 2:12:42 PM
...
Ping statistics for 111.222.333.444:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 34ms, Average = 8ms
```

Command results may have the following enhancements:

- *Optional.* An icon represents the overall status of each result.
- *Optional.* Highlighted text indicates the most important data.
- *Optional.* Three periods (. . .) indicate that some details are hidden to reduce volume. You can display the hidden information by clicking the three periods.

Hidden Results Expanded

```
✓ Target Ping
Mar 21, 2005 2:12:42 PM

Pinging xyztest [111.222.333.444] with 512 bytes of data:

Reply from 111.222.333.444: bytes=512 time=34ms TTL=128
Reply from 111.222.333.444: bytes=512 time<1ms TTL=128
Reply from 111.222.333.444: bytes=512 time<1ms TTL=128
Reply from 111.222.333.444: bytes=512 time<1ms TTL=128

Ping statistics for 111.222.333.444:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 34ms, Average = 8ms
```

Understanding the TIPs Architecture

The TIPs architecture has the following five components:

- The *TIPs Server* is a web application that operates in the Tomcat web server on the server system.
- The *TIPs Action Processor* on the TIPs Server uses a dedicated port to forward requests for information to the TIPs Runners.
- The *TIPs Configuration program* is installed on the server system. Use it to create new TIPs and Commands and modify existing TIPs and Commands.
- The *TIPs Configuration Data* is stored in a TIPs database on the server system.
- A *TIPs Runner* resides on the server and remote systems. TIPs Runners execute troubleshooting Commands and return results to the TIPs Server.
- The *TIPs Viewers* are web clients that communicate with the TIPs Server. A TIPs Viewer sends requests for TIPs to the TIPs Server and presents the results received in return.
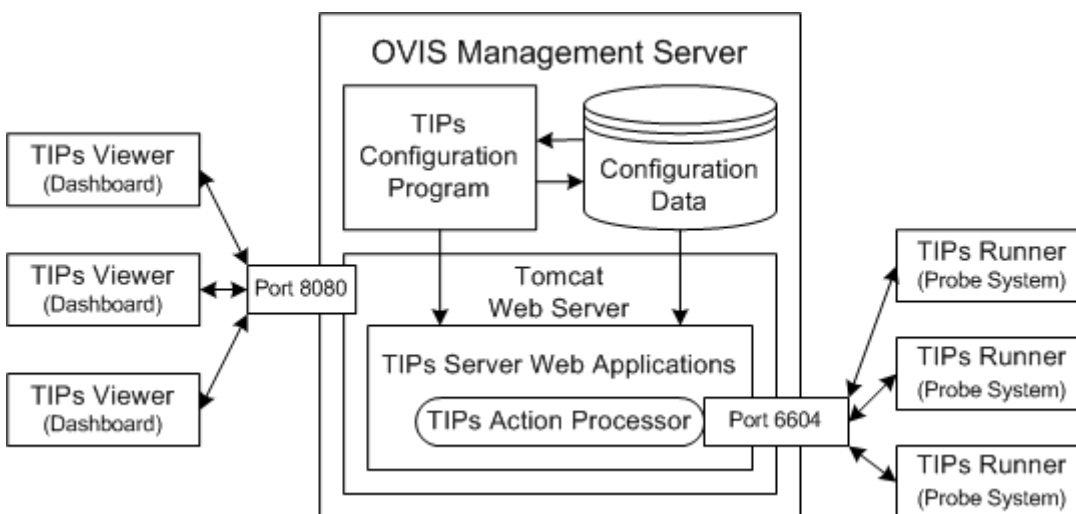
You can request a TIP from the OVIS Dashboard. TIP requests are sent to the TIPs Server. The TIPs Server forwards the request for information to the TIPs Runner that can provide context-specific information. The TIPs Runner returns Command results to the TIPs Server, and these results are forwarded to the TIPs Viewer for presentation.

TIPs Configuration Program

Use the TIPs Configuration program to create and configure TIPs. HP provides a rich set of TIPs and Commands. You can modify these TIPs and Commands or create your own to satisfy the unique needs of your monitoring environment.

TIPs provided by HP
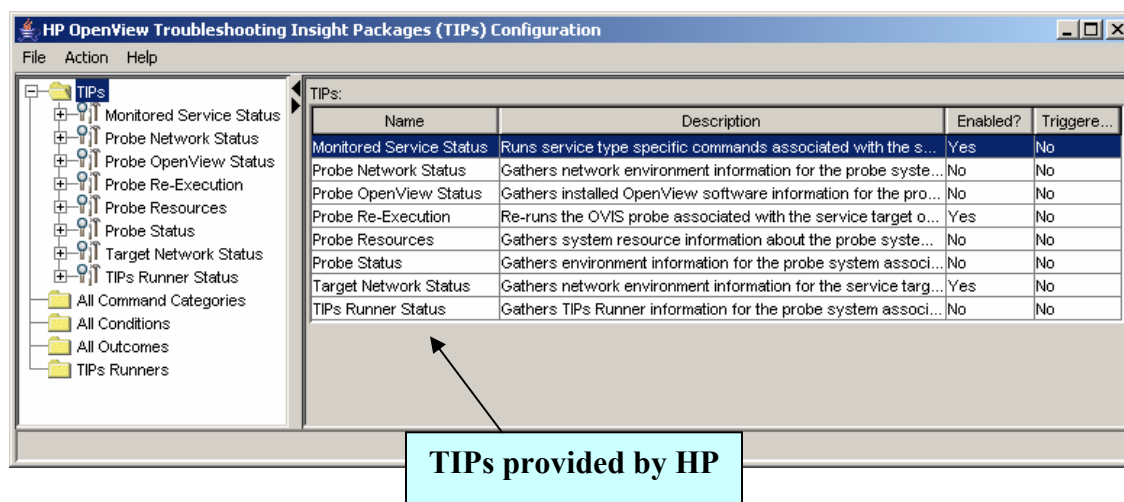
Within the TIPs Configuration program, the pane on the left is the scope pane, and the pane on the right is the content pane. Your selection in the scope pane defines the information that is displayed in the content pane.

There are five main folders in the scope pane:

- The *TIPs* folder contains all the TIPs that are defined on your system. You can create, edit, or delete a TIP from the content pane.

- The *All Command Categories* folder contains a complete list of all the defined Command Categories that are used for various TIPs. You can create, edit, or delete a Command Category from the content pane.

- The *All Conditions* folder contains a complete list of all the defined Conditions that are used for various TIPs or Commands. You can create, edit, or delete a Condition from the content pane.

- The *All Outcomes* folder displays a complete list of all the Outcomes you can use to define your troubleshooting results. You can create, edit, or delete an Outcome from the content pane.

- The *TIPs Runners* folder displays all the instances of TIPs Runners that communicate with the TIPs Server.

Creating Your Own TIPs

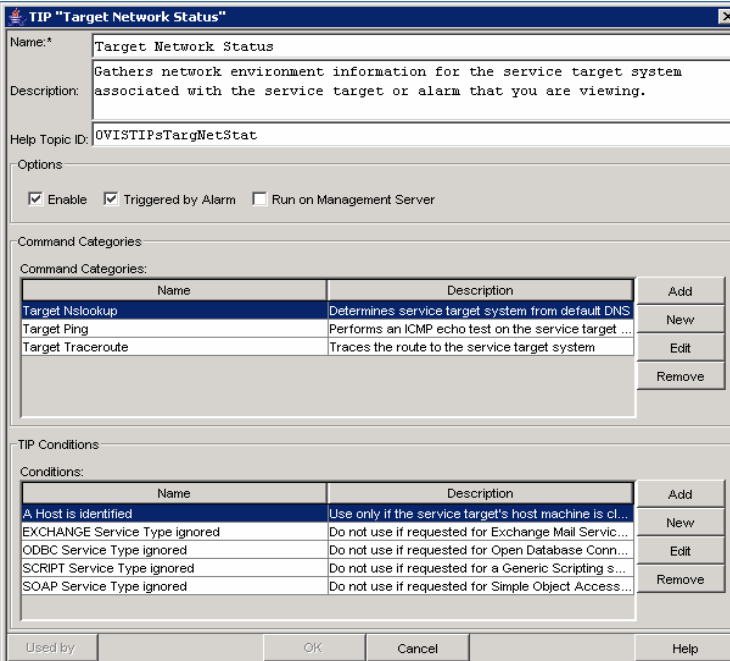There are several elements that define a TIP. The following hierarchical structure defines TIPs configuration.

TIP
A TIP contains TIP Conditions and Command Categories at the highest level.

TIP CONDITIONS - *Optional*
A TIP Condition controls when a TIP runs. A TIP will run if no Conditions are specified or if all assigned Conditions are met. *You can have 0 or more Conditions for a TIP.*

COMMAND CATEGORIES - *Required*
A TIP Command Category is a container for operating system specific versions of the same command. *You can have 1 or more Command Categories in a TIP.*

COMMANDS - *Required*
A Command is a traditional command line interface command that generates textual output. *You can have 1 or more Commands in a Command Category.*

INPUT - *Optional*
You can provide standard input (stdin) for a command.

COMMAND CONDITIONS - *Optional*
A Command Condition controls when a Command runs. A Command will run if no Conditions are specified or if all assigned Conditions are met. *You can have 0 or more Conditions for a Command.*

KEYWORDS - *Optional*
You can specify words and phrases to highlight in the Command results in the TIPs Viewer. *You can have 0 or more Keywords for a Command.*

OUTCOME RULES - *Optional*
An Outcome Rule is criteria that evaluates Command results and assigns a value like Critical, Warning, or Normal. *You can have 0 or more Outcome Rules for a Command.*

OUTCOMES - *Optional*
You can specify icons or colors that will define Outcome Rule values in the TIPs Viewer.

FILES - *Optional*
You can define files to be collected by the TIPs Runner and displayed in the TIPs Viewer. These files reside on the TIPs Runner system. *You can have 0 or more files for each Command.*

Defining Your Own TIP

A TIP is a container for Commands, globally defined as Command Categories. A Command Category is a container for operating system specific versions of the same Command. Command Categories allow you to configure a TIP to run on multiple operating systems.

A TIP is configured to run a Command or set of Commands when defined Conditions are met. You can define Conditions to control if a TIP runs. You can also define Conditions to control if each Command in a TIP runs. If a TIP runs, only the Commands that pass their uniquely specified Conditions will run.

Command results provide troubleshooting data that displays in the TIPs Viewer.

TIP states define how the TIP executes.
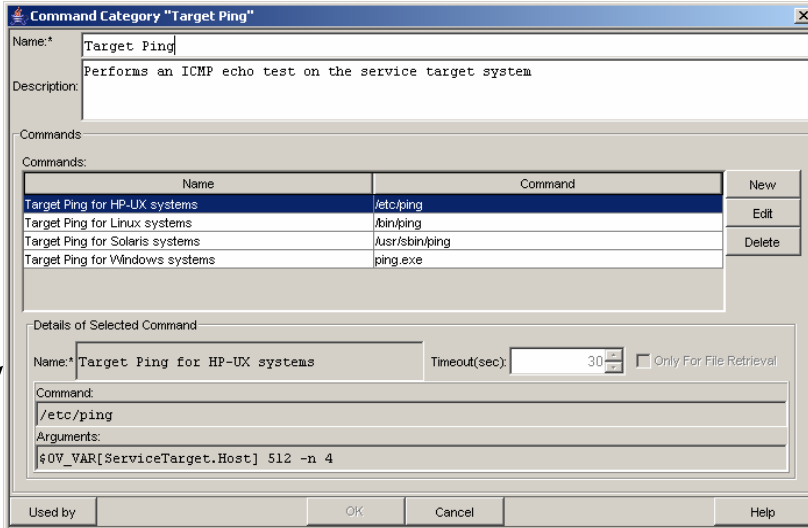
- Enable - When checked, the TIP is available to run *on demand*.
- Triggered by Alarm - When checked, the TIP automatically executes *at the time* a problem occurs.
- Run on Management Server - When checked, the TIP only runs *via the local TIPs Runner* that is installed on the OVIS management server.

Defining Your Own TIPs Command Categories

A Command Category is a container for operating system specific versions of the same Command. For example, a ping command requires unique syntax for each operating system.

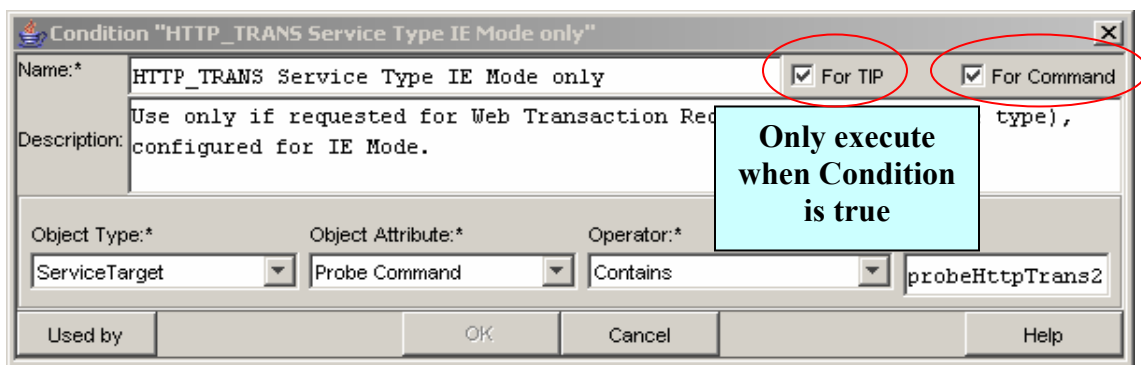**Multiple Command Implementations by OS**

Command Definition for Selected Command

Defining Your Own TIPs Conditions

There are two types of Conditions in TIPs:
- A TIP Condition controls if a TIP runs.
- A Command Condition controls if a specific Command within a TIP runs

Only execute when Condition is true

A TIP or a Command runs when no Conditions are specified or when all specified Conditions are met.

Defining Your Own TIPs Commands

Commands are traditional command line interface commands, specifying a command name, and arguments, which generate textual output. Variables can be used to enhance a command during runtime.

Commands can be configured to display files by checking *Only for File Retrieval*.

Configure for File Retrieval

A Command

Runtime Variables

Input for a Script Command

Command Arguments
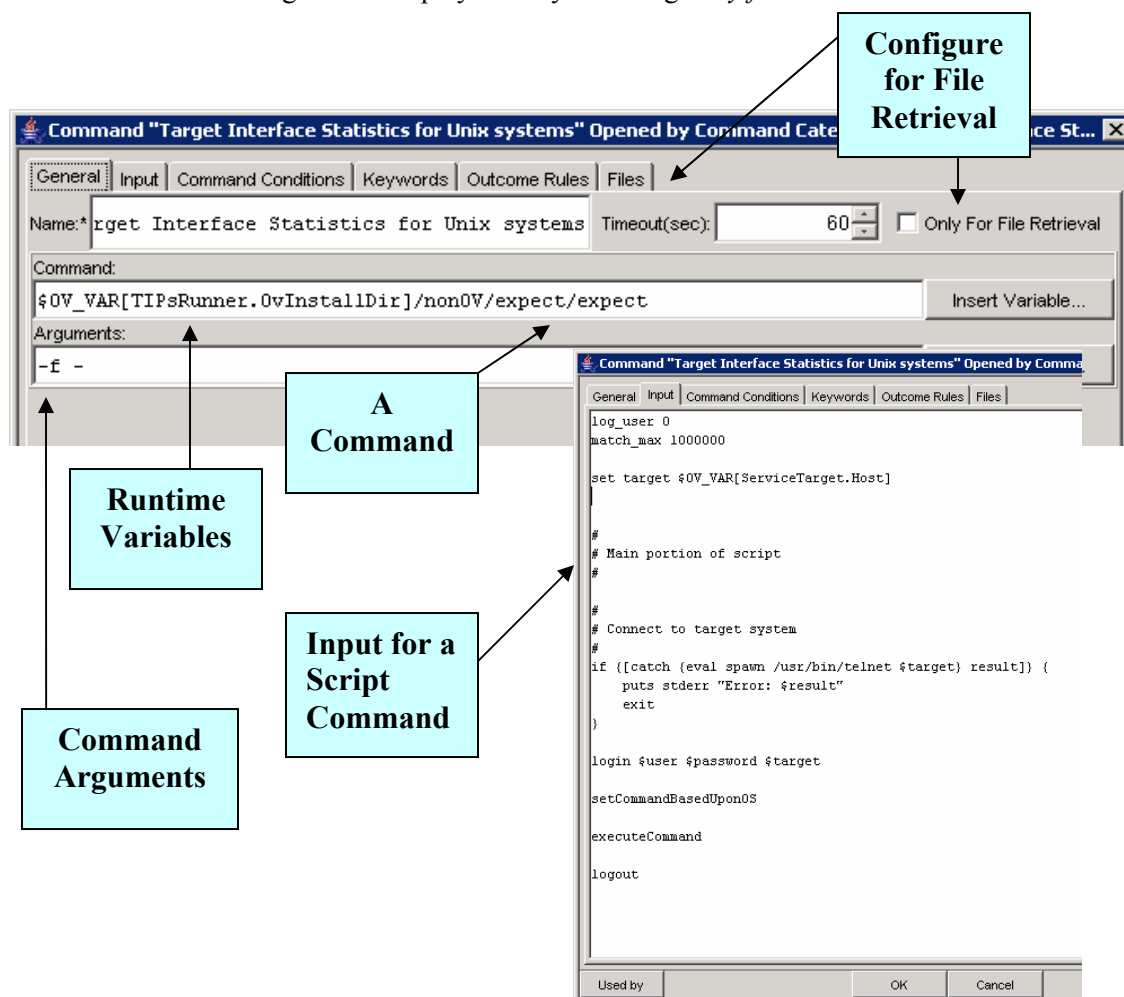
Some commands require standard input (stdin), such as script commands. Standard input is input that a command accepts while it is executing. Any text entered on the *Input* tab is programmatically submitted to the Command's stdin, just as though it came from the keyboard or a redirected file.
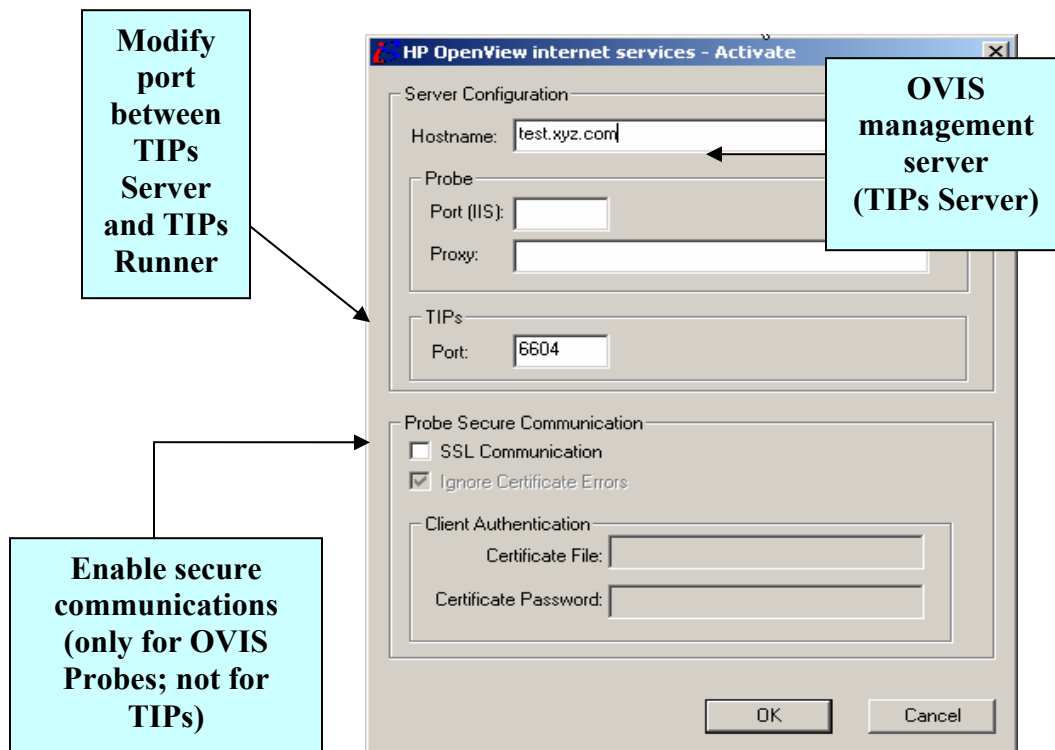
Securing TIPs Interaction Within Your Network

TIPs Runners reside alongside a probe, communicating to the TIPs Server component on the OVIS management server. Each TIPs Runner, local or remote, must be registered with a specific TIPs Server.

The default port number used by a TIPs Server and its registered TIPs Runners is 6604. You can change the port number that the TIPs Server and TIPs Runners use to communicate.

The default communication protocol between the TIPs Runners and the TIPs Server at install time is standard http. If more secure communication is desired between all TIPs Runners and the TIPs Server, https/SSL certificate based communication can be used instead. To change the configuration to use https/SSL, refer to the *Configuring Communication Protocol* section within the TIPs online help.

Please note that during installation SSL Communication can be selected using the ovisactivate program as depicted in the following diagram. However, this setting only affects communication between OVIS probes and the OVIS server and does not affect the communication protocol used by TIPs. The procedure documented in the TIPs online help must be followed to configure use of https/SSL for TIPs.

Modify port between TIPs Server and TIPs Runner

OVIS management server (TIPs Server)

HP OpenView internet services - Activate

Server Configuration
Hostname: test.xyz.com

Probe
Port (IIS):
Proxy:

TIPs
Port: 6604

Probe Secure Communication
☐ SSL Communication
☑ Ignore Certificate Errors

Client Authentication
Certificate File:
Certificate Password:

OK   Cancel

Enable secure communications (only for OVIS Probes; not for TIPs)