

**INSIDER
Smart Plug-In
For
REFLEX
(hp C E R T I F I E D)**

Date: 01/01/09
Author: ITL

Serial No: 1
No of pages: 81 (including this page)



Contents

| | |
|--|-----------|
| 1. INTRODUCTION | 5 |
| 2. REFLEX ALERTING ARCHITECTURE | 6 |
| 2.1. Reflex Architecture Overview..... | 6 |
| 2.2. General Data Flow for Enterprise Management Alerting..... | 7 |
| 3. HP OPENVIEW OPERATIONS INTEGRATION | 8 |
| 3.1. Reflex to hp OV Operations Data Flow Diagram | 8 |
| 3.2. Reflex to hp OV Operations Process Explanation | 9 |
| 4. HP CERTIFIED SMART PLUG-IN FOR REFLEX – CORE BENEFITS | 11 |
| 4.1. Automatic Detection to Provide an NSK hp OVO/W Service Tree Topology View | 11 |
| 4.2. Automatic Mapping of EMS Alerts to hp OVO/W Service Tree Branches and Icons | 12 |
| 4.3. Getting More Information about a Reflex Monitored Object in hp OVO/W..... | 14 |
| 4.4. Executing a Reflex Configured Task for an hp OVO/W Object Event..... | 16 |
| 4.5. NSK Probable Cause and Recommended Action Event Texts in hp OVO/W..... | 17 |
| 4.6. NSK Event Automatic Acknowledgement in hp OVO/W | 18 |
| 4.7. SPI for Reflex Powerful Pre-Filtering of hp OVO/W EMS Events..... | 19 |
| 4.8. SPI for Reflex Provides a ‘NonStop’ Approach for Relaying to hp OVO/W | 19 |
| 4.9. Data Flow Diagram Illustrating the Security, Auditing and Contingency Offered | 20 |
| 5. INSTALLING THE SMART PLUG-IN FOR REFLEX SOFTWARE..... | 21 |
| 5.1. Installation Pre-Requisites | 21 |
| 5.2. Installation Launch Conditions | 21 |
| 5.3. Installation of the ‘SPI for Reflex.MSI’ Smart Plug-In Executable | 22 |
| 5.4. hp OVO/W SPI For Reflex Tools Upload | 25 |
| 5.5. Checking the Installation of the SPI for Reflex..... | 28 |
| 5.6. The SPI Installation Folder..... | 30 |
| 5.7. Delivered SPI for Reflex WIN32 Files..... | 31 |
| 5.8. Installation Custom Actions for the SPI for Reflex.MSI..... | 32 |
| 5.8.1 Install the ‘ReflexNTServSvc’ WIN32 Service..... | 32 |



5.8.2 AutoDiscover Services and Generate ReflexServices.mof File32

5.8.3 Upload the ReflexServices.mof File to hp OVO/W Server.....32

5.8.4 Generate and Upload the NonStopServerPol file.....32

5.9. Manual Configuration Following Installation.....32

5.10. De-Installation of the Reflex Smart Plug-In33

5.11. Custom Actions via the Reflex GUI Client33

5.12. NSK EMS Alert Auto-acknowledgment34

5.13. The AUTOACKMAP.txt File35

5.14. The ReflexNTServSvc Service Registry Settings.....36

5.15. Heartbeat Tuning.....37

5.16. The SPI for Reflex Delivered Policies With Instructions37

6. CONFIGURING THE REFLEX PRODUCT TO CONNECT TO HP OVO/W..... 40

6.1. Overview40

6.2. Reflex NSK File Update Required.....40

6.3. Reflex GUI Client hp OVO/W Configuration.....42

7. AUTO-DETECTING REFLEX NSK OBJECT TYPES INTO HP OVO/W 51

7.1. Using the hp OVO/W Console GUI Tool to Upload New Reflex Types & Subtypes51

7.2. Using the Reflex Client GUI to Upload New Types & Subtypes.....52

7.3. Manual Upload of the ‘ReflexServices.MOF’ file to the hp OVO/W Service Tree.....57

8. CONFIGURING EMS EVENTS TO BE RELAYED TO HP OVO/W 59

8.1. Raising a Simple Test Event from the Reflex GUI Client59

8.2. Raising a Test Tandem File Event from the Reflex GUI Client63

9. USING THE SPI FOR REFLEX FEATURES..... 68

9.1. Overview68

9.2. Dealing with an NSK EMS Alert in hp OVO68

9.3. Other SPI for Reflex Tools Available.....74

10. INSTALLING THE REFLEX PRODUCT 76

10.1. Installing the Reflex NSK Based Software.....76

| | | |
|---------------|---|-----------|
| 10.2. | Installing the Reflex GUI Client Software..... | 76 |
| 10.2.1 | PC Requirements - Hardware | 76 |
| 10.2.2 | PC Requirements - Software..... | 76 |
| 10.2.3 | Reflex GUI Client Software | 77 |
| 10.2.4 | Reflex GUI Client Software Installation..... | 77 |
| 10.2.5 | Configuring Fastpipe for Reflex on the PC | 78 |
| 10.3. | Logon to the Reflex GUI Client | 80 |
| 11. | PRELIMINARY GUI CONFIGURATION AFTER REFLEX START-UP..... | 81 |
| 11.1. | Setting up a Reflex Administrator..... | 81 |

1. Introduction

This document provides a detailed insight into the Reflex Enterprise Management alerting gateway and the hp Certified SPI for Reflex architecture. It also provides details on the core Reflex SPI functions (SPI for Reflex version 1.1), installing the SPI software and using the software in the hp OpenView Operations™ Console to troubleshoot NSK event alerts relayed from the Reflex product. The document is split into 7 general areas in detailing the Smart Plug-In for Reflex.

The preliminary discussion relates to both the NonStop EMS event alerting architecture in the Reflex product and the Enterprise Management alerting function as it relates to hp OVO/W. Each key Reflex process is described (including NSK based functions) and represented in a “SPI for Reflex” Data Flow diagram. The 8 core benefits of the Reflex Smart Plug-In are also described along with the appropriate screenshots of each of the functions as viewed in the hp OVO/W Console.

The next area of the document provides instructions on how to install the SPI for Reflex and includes details on tuning, auto-acknowledgement of NSK events, policies, registry settings and de-installation.

Following on from Reflex SPI installation is a section on checking the connectivity of the SPI for Reflex, from the NSK platform(s) through to the hp OVO/W Server. Successful connection of the Reflex product to hp OVO/W will result in successful heartbeat events being relayed from NSK to the Service Tree view in the hp OVO/W Console.

Automatic detection of the monitored Reflex types and subtypes will be achieved as part of the successful installation of the SPI for Reflex software. A section is included providing instructions on how to use a detection tool for newly added NSK object types, which can be run as and when required.

The successful heartbeats being relayed to hp OVO/W provide confidence that Reflex on the NSK platform is talking to the hp OVO Server. A section is included to provide an example of how to set-up EMS alerts in the Reflex product for relaying to the hp OVO/W Server. The instructions offer a step-by-step guide to OVO/W EMS alert configuration and will result in 2 types of EMS alert being generated. These alerts will map directly to corresponding icons in the hp OVO/W topology and service tree views.

A SPI for Reflex guide in using the core functions of the Smart Plug-In is provided. The guide starts from an NSK alert being generated and displayed and provides instructions on how to invoke the operator initiated commands to retrieve information, as well as start Reflex tasks from the hp OVO/W Console.

The last 2 sections offer instructions on how to install the Reflex GUI Client on WIN32 platforms other than the hp OVO/W Server or hp OVO WIN32 managed nodes. These are included for completeness should other Reflex users wish to configure alerts to be sent to hp OVO/W.

2. Reflex Alerting Architecture

2.1. Reflex Architecture Overview

Reflex is an application which runs on the hp NonStop platform running the Guardian operating system. It is primarily responsible for hp NonStop system management and diagnostics, automation and service management. It is a product that runs on both the 'K' and 'S' series nodes under the Guardian 'D' and 'G' series operating systems respectively.

The Reflex application takes EMS event feeds from the NonStop system logfiles. Using the Visual C++ GUI interface linked to the hp NonStop platform by an ITL proprietary TCP/IP socket protocol (Fastpipe™), the user is able to configure EMS events (alerts) and event ranges. Identifying the subsystem identification (SSID) and event number of an event provides a unique tag for isolating a problem alert. Once an event or event range is registered with Reflex, it can be linked to a reaction or set of reactions. The main reactions available are as follows:

- Convert a '512' text event into a fully structured tokenised EMS event
- Initiate a command on the hp NonStop platform, e.g. start an X25 line
- Initiate a task that incorporates a series of commands (steps)
- Alert to a graphical monitoring screen detailing the offending objects status
- Generate an SNMP trap to a remote platform
- Alert to a pager or mobile phone (SMS), or EMAIL
- Send an API (data message) to a remote platform for Enterprise Management
- Send a message to the WIN32 Common Management Services (iCMS)

The Reflex architecture consists of a number of key components. The main one of these is the NonStop Event Monitor that is the backbone of the product. This process plugs directly into the Guardian EMS subsystem for receiving logged events. It acts as the junction point for all incoming EMS events that have been filtered through to this process. It extracts the EMS event programmatically and then searches the Reflex database to locate the reaction that has been configured for the event. It then calls the appropriate process to carry out the configured reaction, e.g. pager/SMS/EMAIL message, run a MACRO or program executable to fix the problem, report to the Reflex graphical monitoring screen or send an alert to a chosen Enterprise Manager and so on.

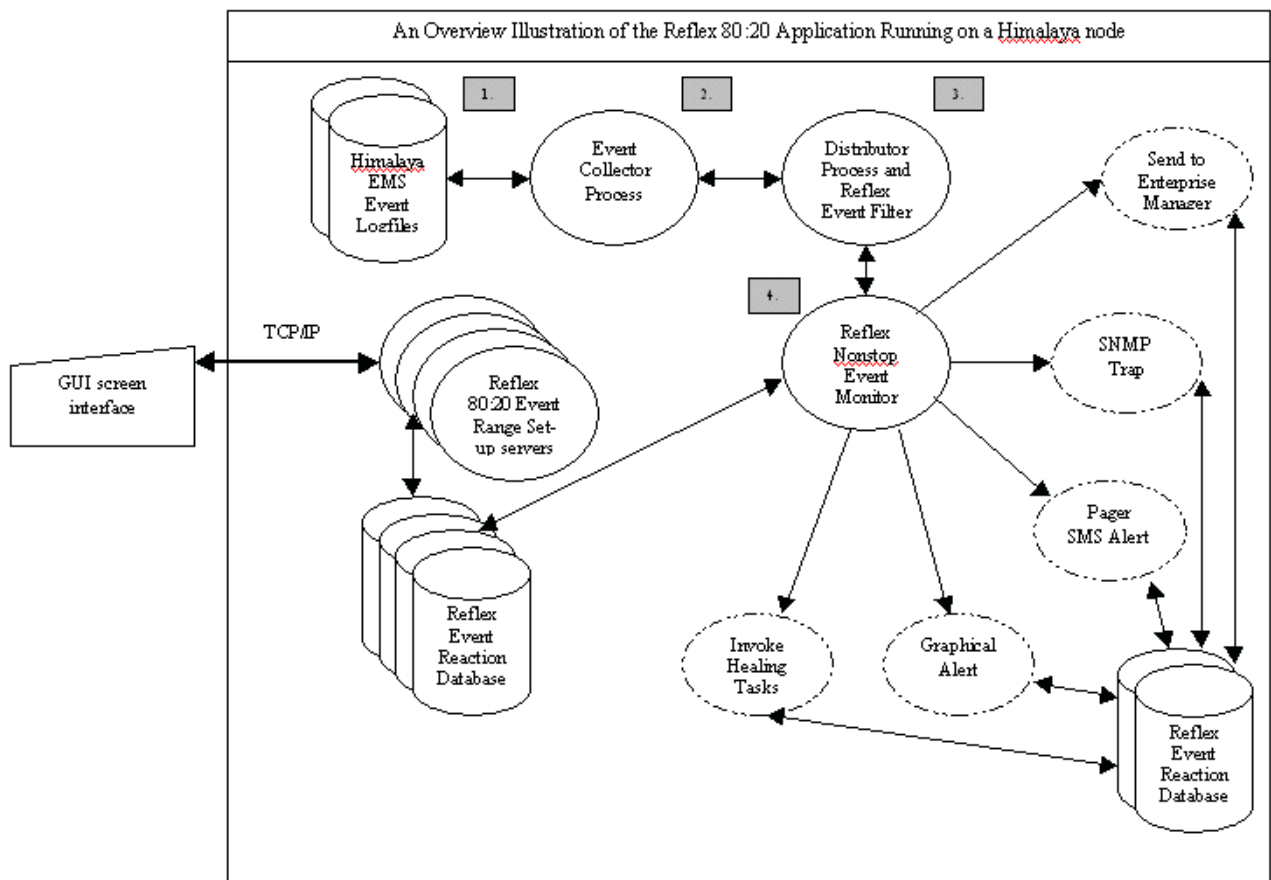
The other Reflex components on the hp NonStop node consist of:

- Process monitor
- X25 / MQ Series / TCP/IP / BASE24™ Monitor
- File monitors
- Command/Task monitors
- Raw text event monitors
- Pager process (EMAIL and SMS also)
- SNMP process
- Enterprise Manager process
- Job/Batch Monitoring

The GUI screens are typically run up in data centre environments where operators monitor the health of the hp NonStop nodes running critical path applications. Any number of GUI screens can be running concurrently to allow multiple users access. The GUI runs under all WIN32 platforms.

The Reflex product runs at a large number of data centre environments around the world including major telecommunications companies, large financial institutions, stock exchanges and stock settlement establishments.

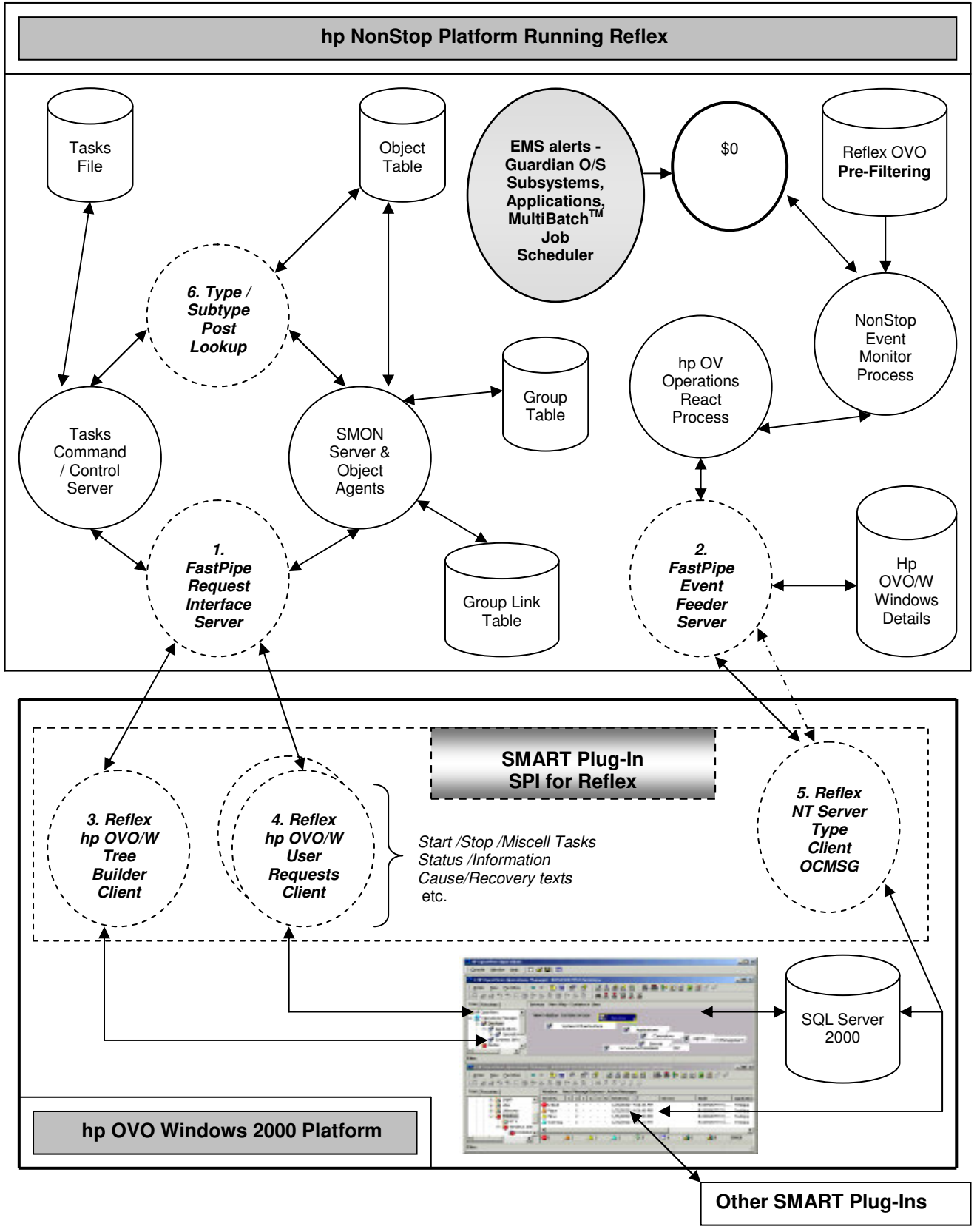
2.2. General Data Flow for Enterprise Management Alerting



3. hp OpenView Operations Integration

3.1. Reflex to hp OV Operations Data Flow Diagram

A diagram of the major Reflex process components and general data flow.



3.2. Reflex to hp OV Operations Process Explanation

This section provides an explanation to some of the key processes shown in the data flow diagram in section 3.1. The processes explained are highlighted within dashed process symbols and bold italic text and are numbered 1 through 6.

1. ***FastPipe Request Interface Server***

This process incorporates a proprietary TCP/IP socket protocol that enables high-speed connectivity of the Reflex Smart Plug-In to the NSK Pathway servers. This connectivity allows user requests for status, information, cause/recommended action texts and task initiation to be relayed from the hp OVO/W Console directly to the appropriate Reflex Pathway servers. As such, hp OVO/W users are provided with a good level of management and control for NSK object troubleshooting purposes. Optionally, users can invoke the Reflex GUI Client Tool from within the hp OVO/W Console for more advanced NSK problem management.

2. ***FastPipe Event Feeder Server***

This event feeder Pathway server relays EMS events to the hp OVO/W product via the 'ReflexNTServSvc' OCMSG service. This area currently consists of a dedicated FastPipe feeder process and an Enterprise Manager Message builder. This event feeder process can be configured to relay alerts to an alternative WIN32 platform TCP/IP address in the event that the current WIN32 platform fails. This allows for a NonStop approach for hp OVO/W Server connectivity so that NSK alerts are not lost.

3. ***Reflex hp OVO/W Tree Builder Client***

An automatic detection process is incorporated into the Reflex Smart Plug-In to allow for an hp OVO/W service tree to be built. This detection requests all live Reflex object types and subtypes from the Reflex application and builds the appropriate topology view and NSK system node branches in the hp OVO/W Console. Multiple NSK systems can be incorporated so a single integrated network view of the NonStop network can be viewed.

4. ***Reflex hp OVO/W User Requests Client(s)***

Reflex hp OVO/W GUI tools have been developed and supplied within the Reflex Smart Plug-In solution. These tools provide the following functions:

- Get real-time status of an NSK object for a received alert
- Get detailed information for an NSK object for a received alert
- Securely initiate a Reflex Task for the current received alert
- Automatically detect current Reflex type & subtype for monitored NSK objects
- Upload policies from Reflex into the hp OVO/W Server Console
- Upload automatic event acknowledgement into the hp OVO/W Server Console
- Run the Reflex GUI for more advanced troubleshooting NSK management

5. Reflex NT Server Type Client

This process runs as a service on a nominated hp OVO/W WIN32 managed node (or the hp OVO/W Server itself). It is responsible for receiving formatted NSK alerts from the hp NonStop system and forwarding them to the hp OVO/W Server Console. It contains the hp OCMSG function for relaying the event using a standard hp OVO/W API. It also monitors for heartbeat events from the NSK platform emitted at a configurable rate so that NonStop connectivity can be assured across the network at all times. These heartbeat events are mapped against the appropriate service tree icons and can be viewed from within the hp OVO/W Console.

6. Type / Subtype Post Lookup

All EMS events raised by the NSK platform are tagged with a Reflex type and subtype. When a user makes a request using the hp OVO/W Console to initiate a task or get detailed information for an object, the type and subtype are used. This allows a look-up of appropriate tasks for an object or the appropriate Reflex agent to extract the detailed information or status for it.

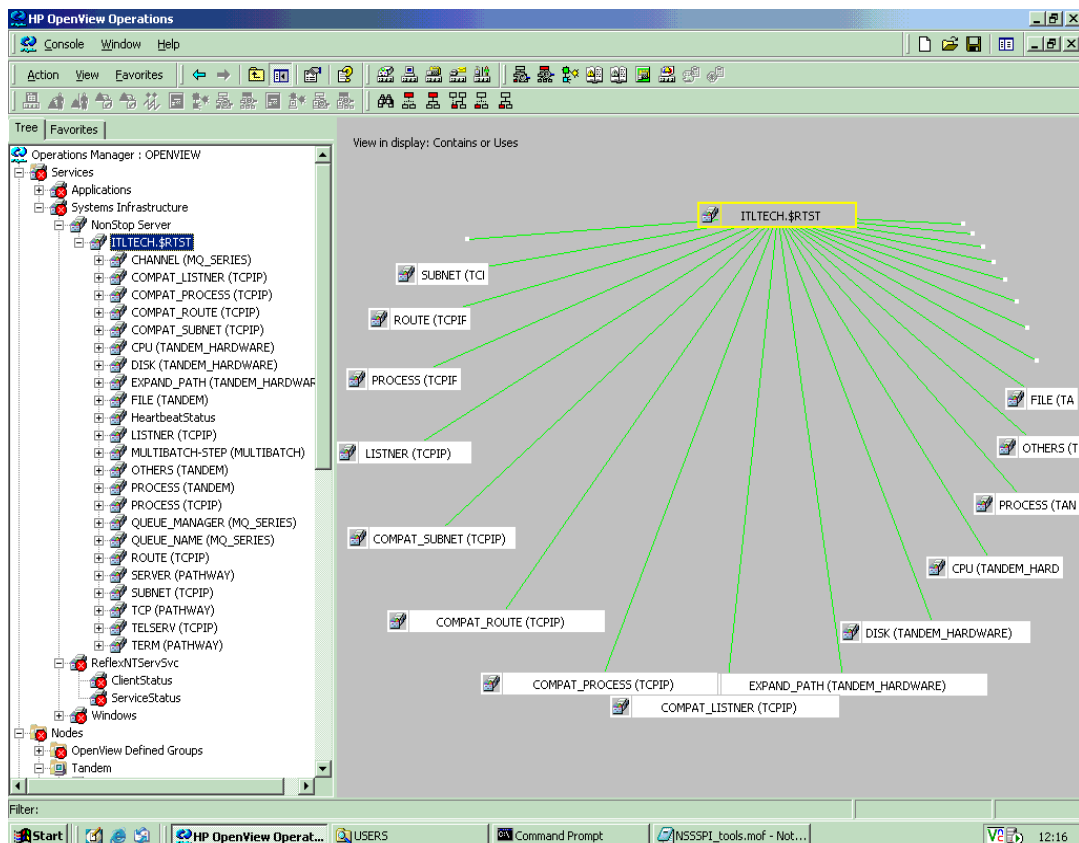
4. hp Certified Smart Plug-In for Reflex – Core Benefits

4.1. Automatic Detection to Provide an NSK hp OVO/W Service Tree Topology View

The Smart-Plug-In for Reflex at installation will extract all live Reflex types and subtypes for the various monitored NSK objects across an EXPANDED NonStop network. Examples are; TANDEM/PROCESS, TANDEM_HARDWARE/CPU, TANDEM_HARDWARE/DISK, XPNET/STATION, XPNET/LINE, MQ/PROCESS and so on. The automatic detection provides both Service Tree views in the hp OVO/W Console as well as a graphical topology view.

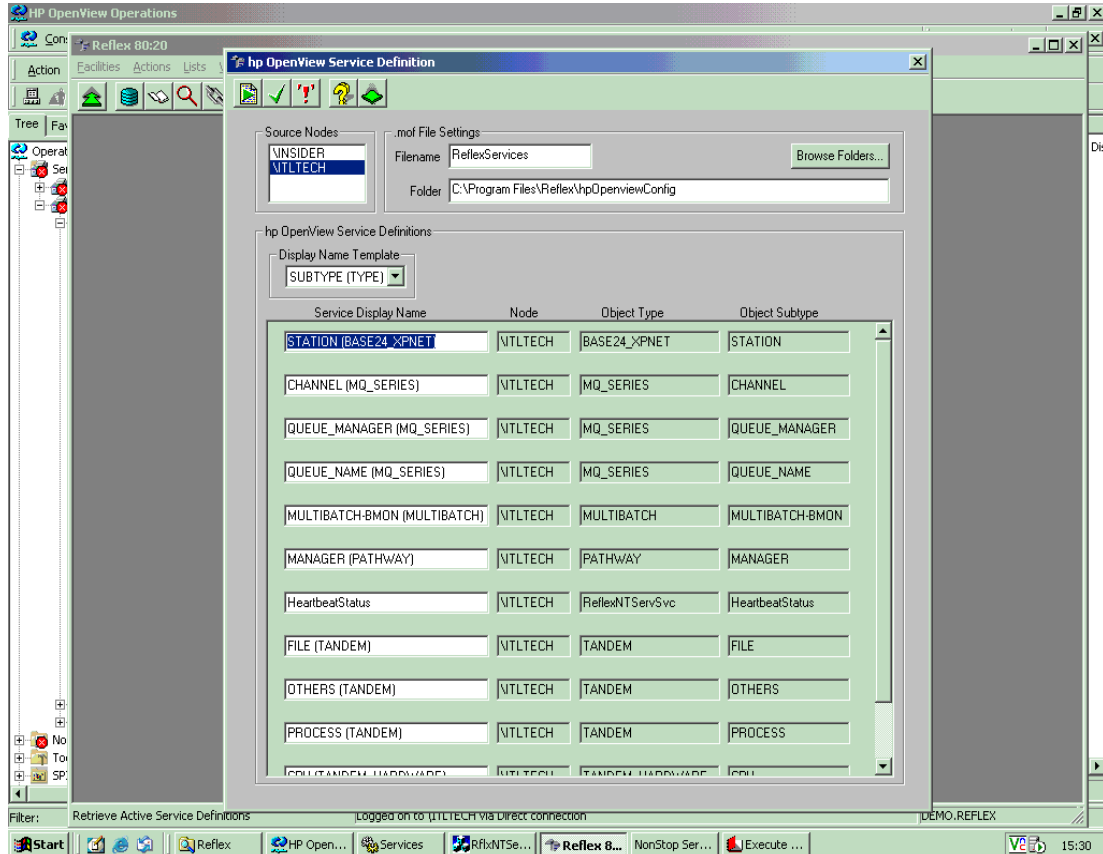
The detection routine can be re-run at any time after installation for newly added NSK types and subtypes. This can be done from within the hp OVO/W Console using a SPI for Reflex GUI Tool (or by running the Reflex GUI Client also available from within the hp OVO/W Console) and simply uploading the new configuration information directly and dynamically. The tools are "Reflex NonStopServer Service AutoDiscovery" and "Reflex NonStopServer Service Upload", which respectively generate and upload the 'ReflexServices.MOF' file.

Each NSK platform has its own dedicated Service tree view where each Reflex application PATHWAY process e.g. \ITLTECH.\$RTST (see below), will be represented with its subordinate monitored subsystems. All incoming EMS alerts from the NSK platforms will be mapped to the corresponding type, subtype branch under the respective NonStop system PATHWAY process.



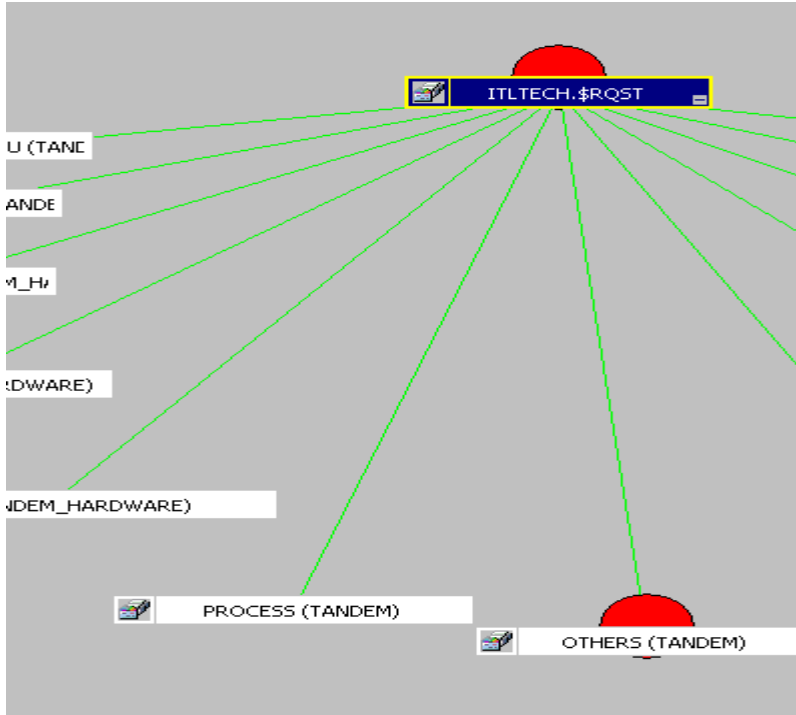
Using the Reflex GUI Client, types and subtypes can be edited to allow subsystem name formatting as required in the hp OVO/W Service tree and topology view. This can be done for each NSK system in the network. For example, a Service tree branch for a type, subtype can be represented as say 'TANDEM.PROCESS' or '(PROCESS) TANDEM' or as a string of text entered by the user, e.g. ATM XPNET PROCESSES.

Once this is done, the user can then generate the 'ReflexServices.MOF' file and upload it directly from the Reflex GUI Client or use the hp OVO/W Reflex GUI Tool to initiate an automatic detection and transfer directly into the hp OVO/W Console. The bitmap below shows the Reflex GUI Client dialog for editing the various branch representations within the hp OVO/W Console.

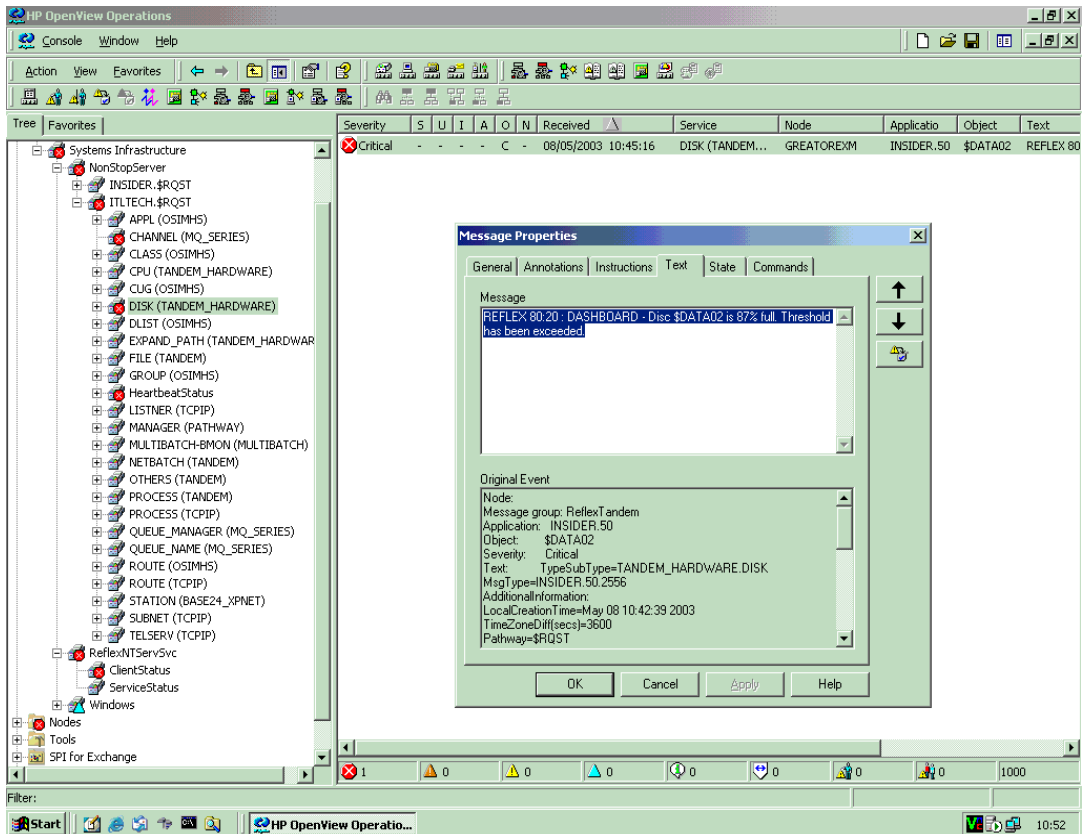


4.2. Automatic Mapping of EMS Alerts to hp OVO/W Service Tree Branches and Icons

All Reflex monitored EMS alerts are tagged with the Reflex object type and subtype, a flag indicating an available Reflex task(s) to remedy a problem and the NSK event characteristic (Action Needed, Action Completion / Acknowledge, Critical and Normal). The object type and subtype allows direct mapping of the EMS alert to the appropriate area of the hp OVO/W Console. All NSK EMS alert conventions for denoting alert criticality are fully maintained by Reflex through to the hp OVO/W Console.



The user is also free to choose a user defined severity when setting up the hp OVO/W alert from the Reflex product. Those available are; Major, Minor, Warning, Normal, Unchanged or Unknown. Users of hp OVO/W can view both the instructions and text for an event and optionally initiate a secured Reflex Task to remedy the problem.



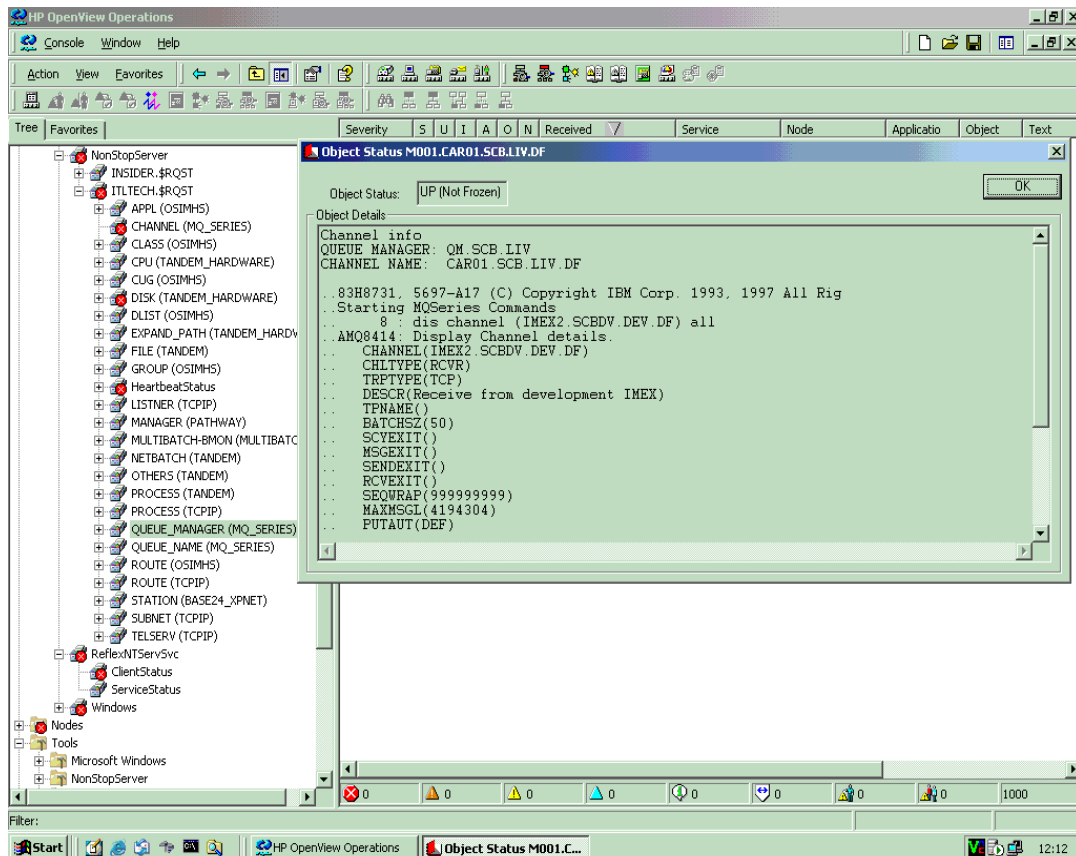
4.3. Getting More Information about a Reflex Monitored Object in hp OVO/W

The Reflex product incorporates a number of status agents that provide both real-time status and detailed information about an NSK object (as part of an operator initiated command within hp OVO/W). A GUI Tool is provided in the SPI for Reflex, which allows for an object event request for more information from the appropriate agent. This is found by using the event type and subtype tag, which is attached to the event by the Reflex product before sending to the hp OVO/W Server.

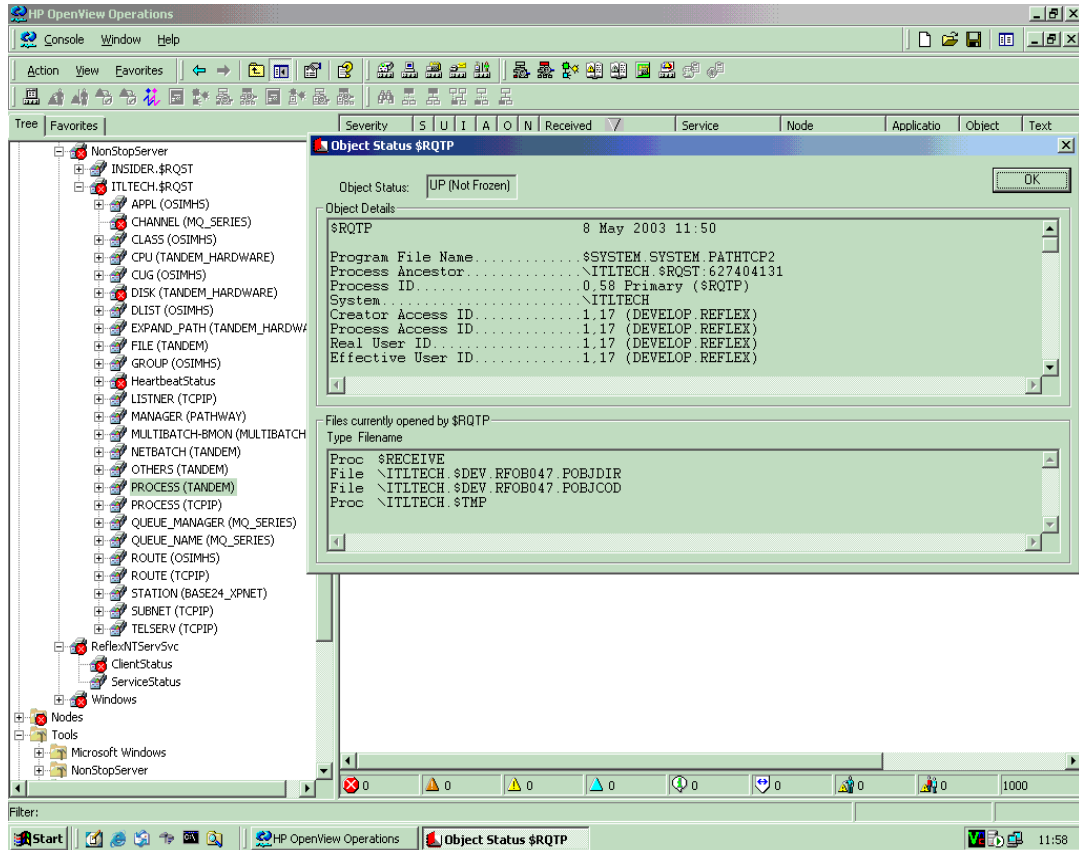
Information / Status can be requested for the following NSK object event types and subtypes:

- All file types, e.g. ENSCRIBE, SQL
- MQ Series entities
- OSI / MHS entities
- PATHWAY components, e.g. SERVER, TCP
- Processes
- Spooler components
- All NSK hardware
- TCP/IP entities
- X25 entities
- BASE24™ XPNET components

The example shown below shows an information request using the Reflex SPI from the OVO/W Console for an NSK MQ Series Queue Manager:



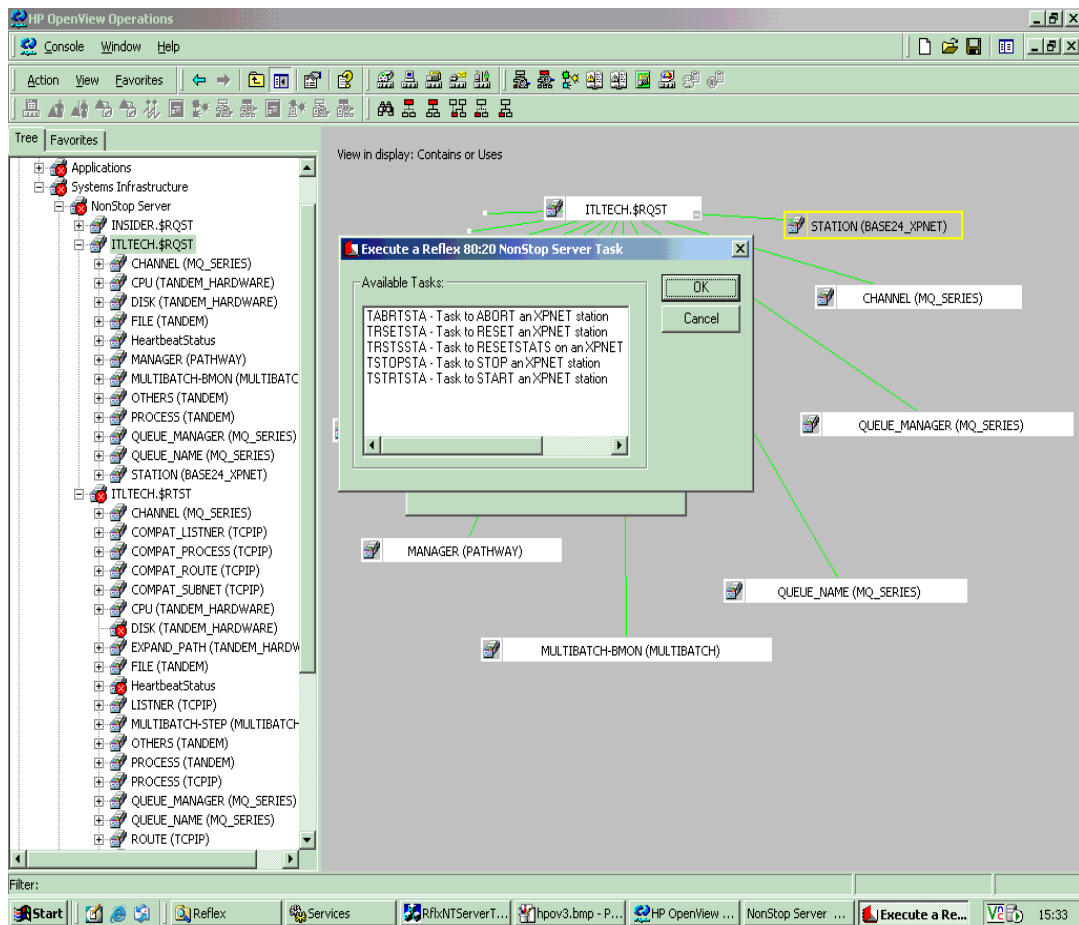
The current Reflex Object State is also displayed at the top of the information window. The example below shows an information request for an NSK process. It also displays the files that the process currently has opened.



4.4. Executing a Reflex Configured Task for an hp OVO/W Object Event

If an incoming EMS alert has been tagged by Reflex as having Tasks associated with it, an hp OVO/W user can list the tasks using a SPI for Reflex GUI Tool. This will provide a list of all available Reflex tasks for an object event (as part of an hp OVO/W initiated command). A task consists of one or more commands or programs to be initiated on the NonStop platform. These can be macros, obey files or object code executables. The Reflex SPI solution goes beyond just mere scripting typically associated with Enterprise Management solutions. It does this by plugging into the Guardian and Reflex secured and audited tasks database on the NSK platform.

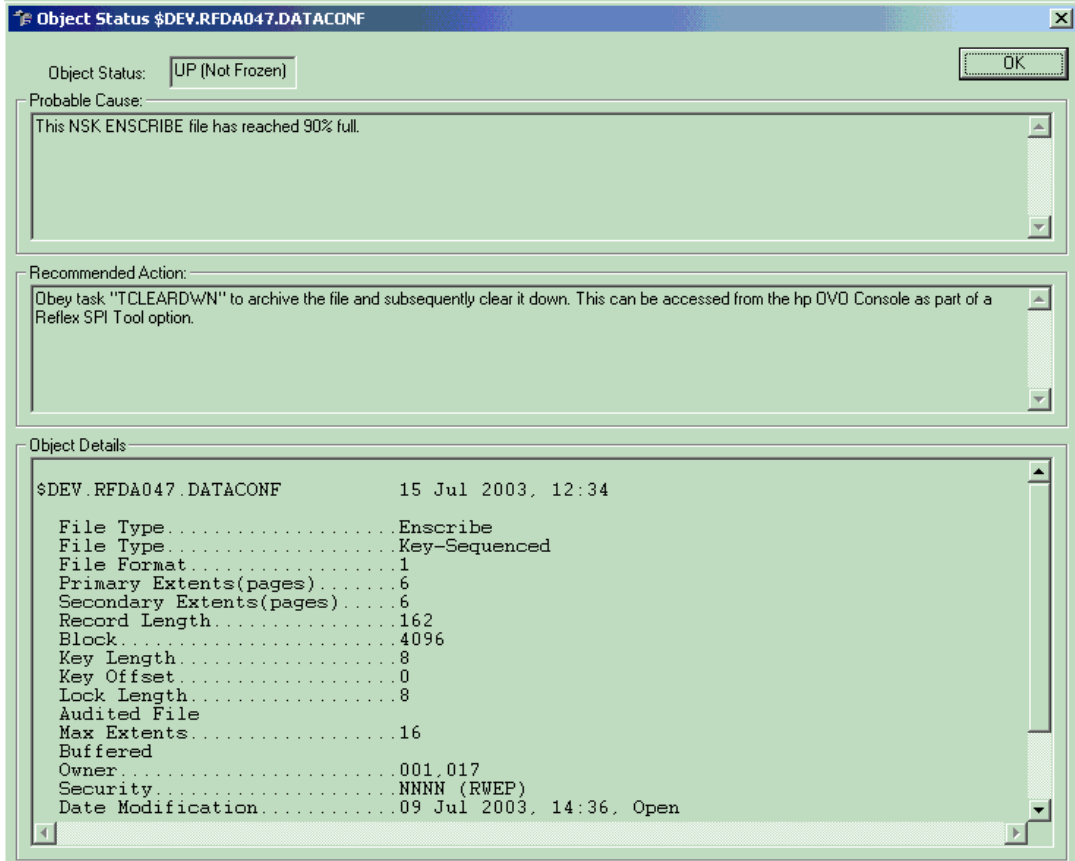
These tasks are set-up within the Reflex product and tagged with a type and subtype so that only relevant tasks are listed in the hp OVO/W Console for a particular EMS alert. An appropriate description is also supplied next to the task key.



A hp OVO/W user first requires the Reflex Tasks function to be allocated to them otherwise they will not be allowed to invoke NSK based task automation. Once allocated, if a hp OVO/W user requests an NSK task to be initiated, they will be required to enter an appropriate NSK Guardian User ID first. If the supplied user ID does not own the Reflex Task then the task will not be initiated. If the task is assigned a runtime Guardian User ID that does not have appropriate authority to execute the files associated with the task, the task will fail to initiate. This provides a totally secure and tiered interface within hp OVO/W for initiating NSK based tasks. All operator actions are audited and held for historical look-up within the Reflex product.

4.5. NSK Probable Cause and Recommended Action Event Texts in hp OVO/W

A user, as part of an initiated command within hp OVO/W, can request both cause and recovery information for a particular NSK event. The recovery information can then point the user at any relevant Reflex task that can be initiated to resolve the problem and/or appropriate procedures to follow to inform NSK departments of the current NSK issue (contact numbers, emails etc.).

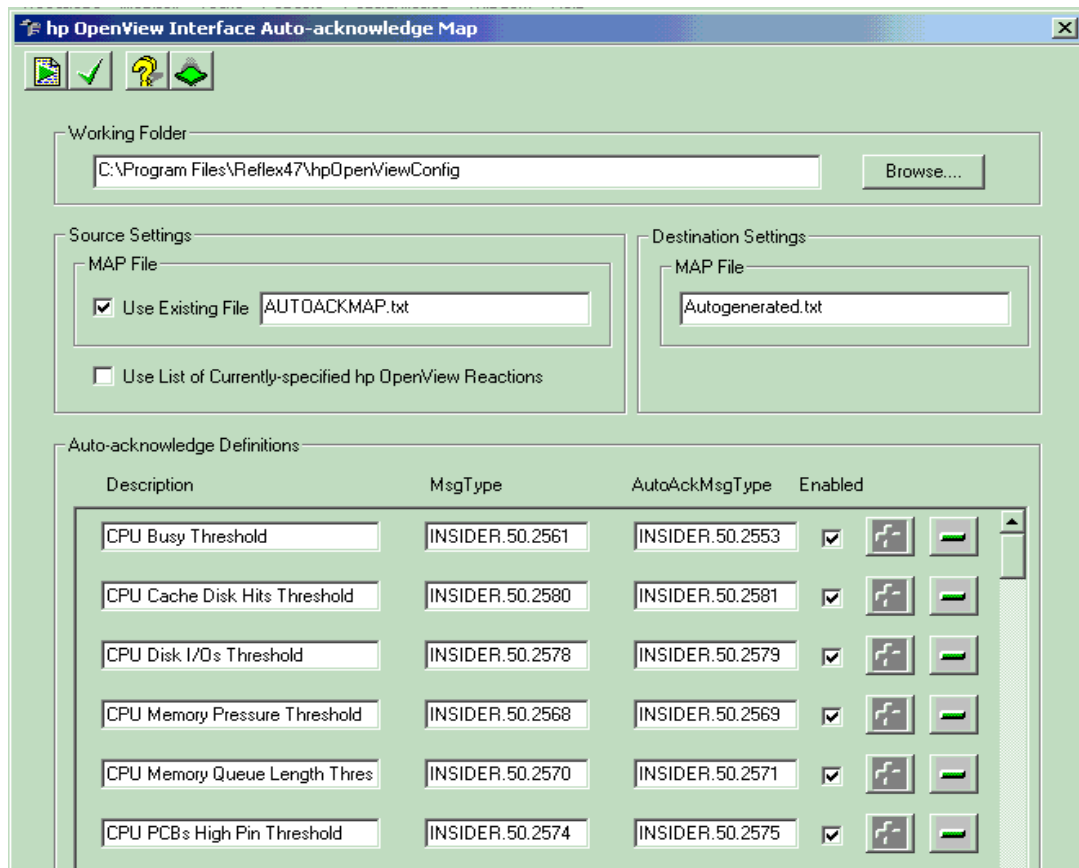


4.6. NSK Event Automatic Acknowledgement in hp OVO/W

Reflex users are able to configure which NSK alerts will ‘Acknowledge’ the ‘Active’ messages within the hp OVO/W Console. This can be achieved within the Reflex GUI Client. A number of pre-deliverable acknowledgement entries are uploaded as standard to the hp OVO/W Server. These are NSK system metric events for processes, disks and CPUs e.g. Process \$RXOVO above 30% busy, Process \$RXOVO no longer above 30% busy, Disk \$DATA7 above 90% full, Disk \$DATA7 no longer above 90% full and so on.

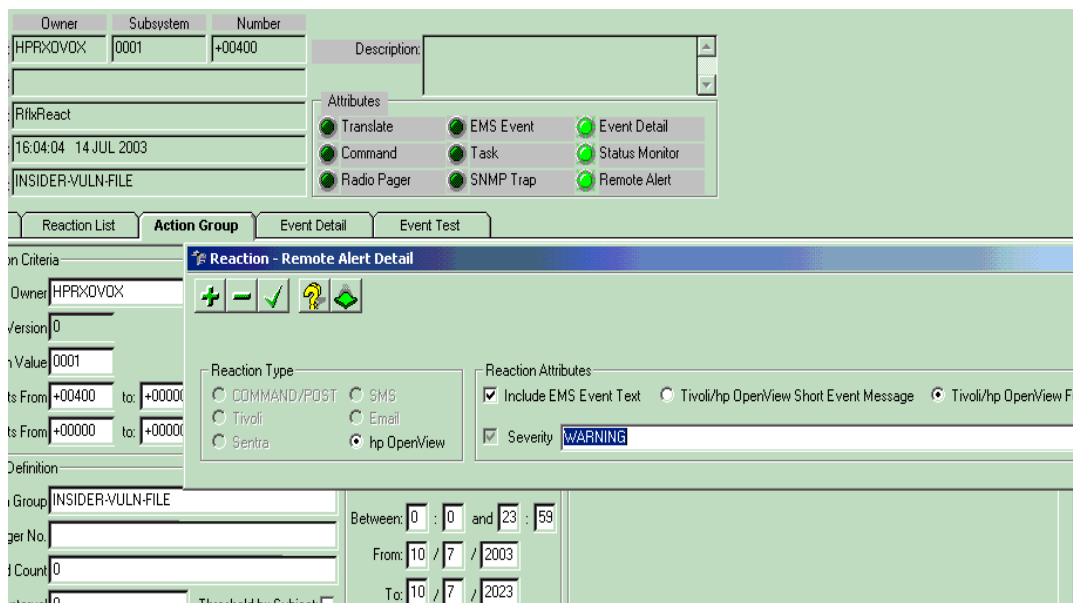
Similarly, identical events for the same event object will cause an acknowledgement of a duplicate previous event. For example, 2 events reporting that a particular NSK based file is corrupt. This will stop the ‘Active Messages’ view within the hp OVO/W Console from becoming cluttered with identical events.

The bitmap below shows the Reflex GUI Client dialog for setting up ‘acknowledgement event pairs’ that can subsequently be uploaded to the hp OVO/W Server.



4.7. SPI for Reflex Powerful Pre-Filtering of hp OVO/W EMS Events

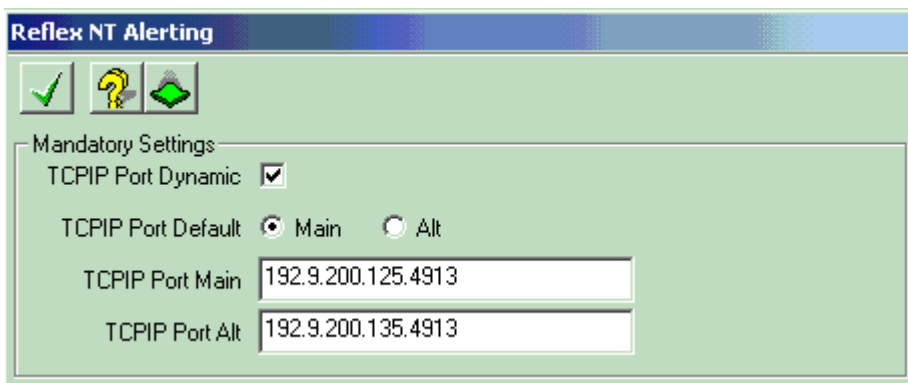
Using the Reflex GUI hp OVO/W Tool to access the hp NonStop Server(s) allows powerful selective pre-filtering of both Guardian subsystem and live application EMS alerts. The intuitive GUI interface provides users with the ability to customize alerts and assign hp OpenView compatible severity. All alerts relayed to the hp OVO/W Management Console contain all standard EMS tokens including; log-time, CPU, PIN, SSID, event number, subject, manager, user, explanative text etc. along with Reflex customized settings for severity, type/subtype and linked Reflex task(s) functions. This provides considerably more troubleshooting capability than using cryptic SNMP alerts and builds on the long established event handling capabilities of the Reflex product.



4.8. SPI for Reflex Provides a 'NonStop' Approach for Relaying to hp OVO/W

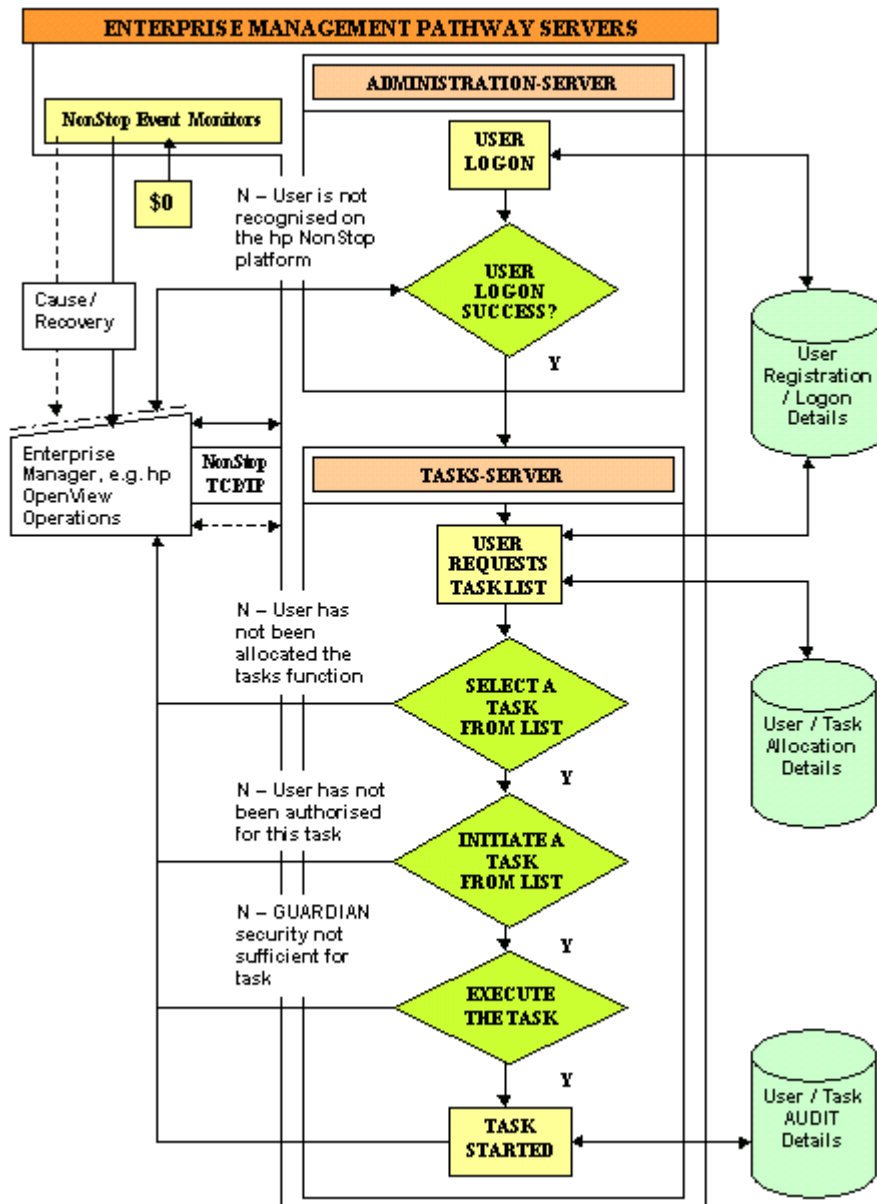
When bringing into play remote platforms for Enterprise Management, the strict traditions of the hp NonStop platform can often be forgotten or overlooked, NonStop operation and fault tolerance. What if the TCP/IP relay mechanisms fail? In looking at NSK SPI solutions, failover recovery is a mandatory consideration.

The SPI for Reflex incorporates heart beating of key software components involved in the alert relay to hp OVO/W (at both ends of course) as well as dynamic switching of NSK alert feeder mechanisms in the event of WIN32 server failure. A secondary WIN32 platform can be nominated and the Reflex OCMMSG service can be engaged on this second box for relaying all filtered EMS events to the hp OVO/W Management Console.



4.9. Data Flow Diagram Illustrating the Security, Auditing and Contingency Offered

One of the observed shortfalls of integrated solutions for Enterprise Management approaches is the lack of appropriate levels of security, auditing and contingency for each proprietary platform monitored. In providing an integrated, end-to-end graphical view of service provision in hp OVO, the rudimentary design considerations engineered into key, industry-leading solutions should also be *securely* extended to the users of the enterprise layer of the business. This consideration is especially highlighted when relaying critical events *away* from a 'NonStop platform', to be dealt with by non-platform specific solutions. The diagram below illustrates the Reflex SPI multi-tiered approach to user and task security checking.



5. Installing the Smart Plug-In for Reflex Software

5.1. Installation Pre-Requisites

Prior to the installation of the hp OVO/W Reflex Smart Plug-In, ensure that:

1. The hp OVO/W 7.x for Windows server (henceforth referred to as the “hp OVO/W Server”) is configured and up-and-running.
2. A designated managed node has been configured. *NOTE: the designated managed node and hp OVO/W Server may be one and the same.*

NOTE: The designated managed node will host the service “ReflexNTServSvc” which is used to relay NSK EMS events (alerts) from the NonStop platform to the hp OVO/W Server via the Open Message Interface API.

3. Reflex is running on the nominated NSK platform(s). Make a note of the following properties as they are needed during installation (see Reflex directory SERVER.ini file if you have already previously installed a Reflex GUI Client for your site):
 - Reflex PATHMON process name, e.g. \$RFLX, \$RQST
 - NSK Fastpipe Listener IP address, e.g. 192.9.200.151
(***IMPORTANT NOTE: this is the TCP/IP address of the NSK node Fastpipe Listener Process and not the hp OVO/W OCMSG service WIN32 platform***)
 - NSK Fastpipe Listener port number, e.g. 5601
 - NSK node name, e.g. \ITLTECH

NOTE:

The following configuration will be discussed later in this document to connect Reflex, running on the NSK platform with the ‘ReflexNTServSvc’ OCMSG service.

The Reflex remote platform setting for WIN32 alerting will be configured with the IP address of the designated managed node. The port number will typically be assigned the default 4913 at installation. This is a different port number to that specified in point 3 above.

The desired hp OVO/W alert reactions will be configured within the Reflex product to relay the nominated NSK event messages to the hp OVO/W Server Console.

5.2. Installation Launch Conditions

Installation will not proceed in the absence of the following registry keys:

- HKEY_LOCAL_MACHINE \ SOFTWARE \ Hewlett-Packard \ HP OpenView \ InstallDir
- HKEY_LOCAL_MACHINE \ SOFTWARE \ Hewlett-Packard \ HP OpenView \ DataDir

These keys should exist on the hp OVO/W Server and/or the managed node depending on where the installation is being carried out.

5.3. Installation of the 'SPI for Reflex.MSI' Smart Plug-In Executable

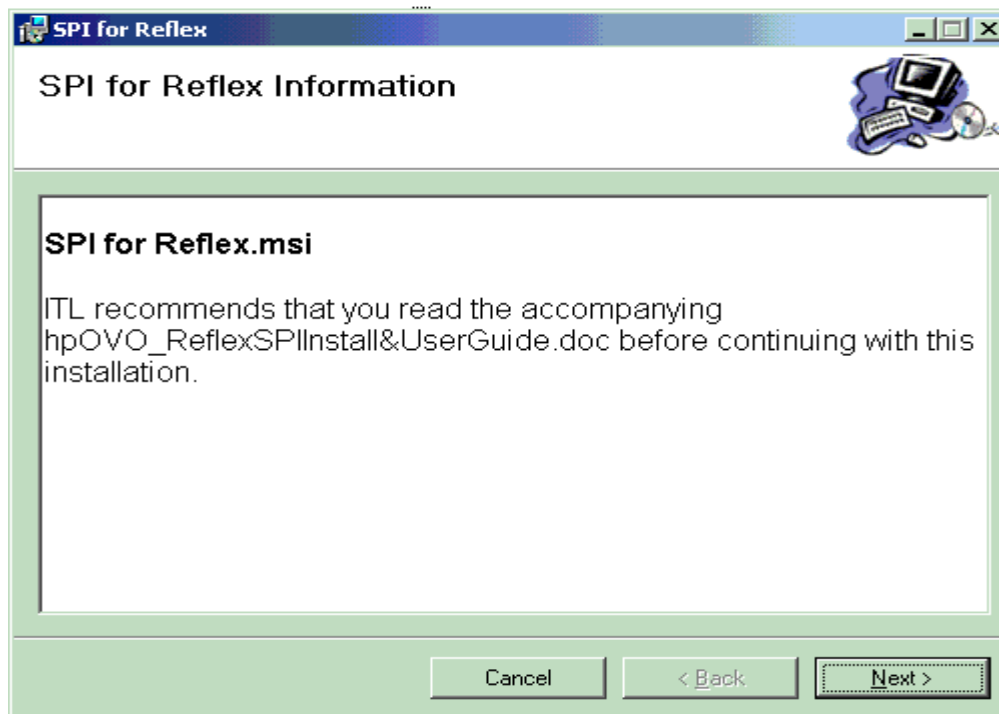
Carry out the following steps:

NOTE: It is advisable to close the hp OVO/W Console for the duration of this installation process.

If you have a Reflex GUI Client session running during the above operations, this may cause NSK connectivity problems. Shut this down prior to installation of the MSI file.

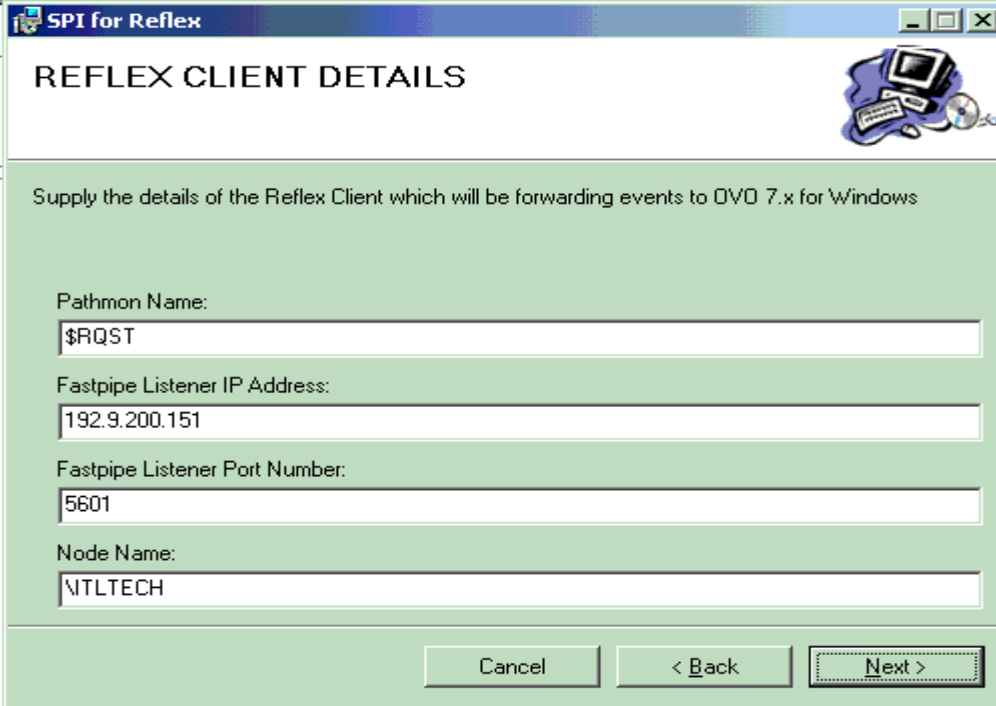
IMPORTANT *if this is a 're-installation' of the SPI for Reflex, de-install first by carrying out all instructions in section 5.10.*

1. Double-Click on the 'SPI for Reflex.MSI' file to start the installation process and if the WIN32 platform has been set-up correctly as a 'managed node' then the following dialog should appear:



2. The initial installation dialog box prompts the user to read and understand this document before proceeding.

3. Enter the appropriate NSK related details for your NonStop system (an example is shown below):



SPI for Reflex

REFLEX CLIENT DETAILS

Supply the details of the Reflex Client which will be forwarding events to DVD 7.x for Windows

Pathmon Name:
\$RQST

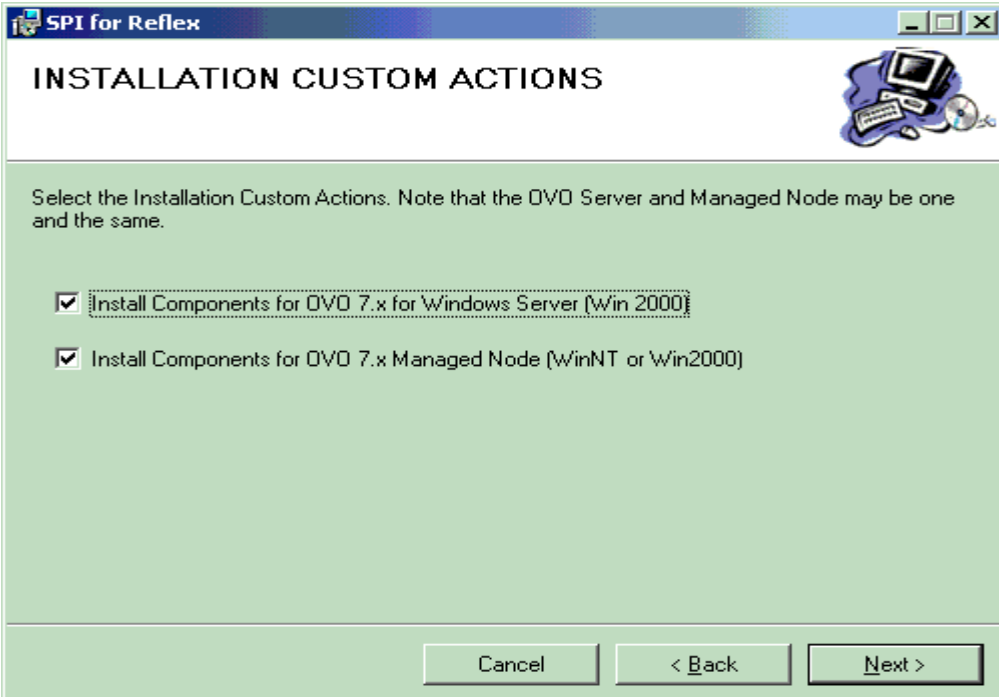
Fastpipe Listener IP Address:
192.9.200.151

Fastpipe Listener Port Number:
5601

Node Name:
\NTLTECH

Cancel < Back Next >

4. Depending on whether you are installing on a WIN32 'managed node' or the hp OVO/W Server, tick the appropriate boxes.



SPI for Reflex

INSTALLATION CUSTOM ACTIONS

Select the Installation Custom Actions. Note that the DVD Server and Managed Node may be one and the same.

Install Components for DVD 7.x for Windows Server (Win 2000)

Install Components for DVD 7.x Managed Node (WinNT or Win2000)

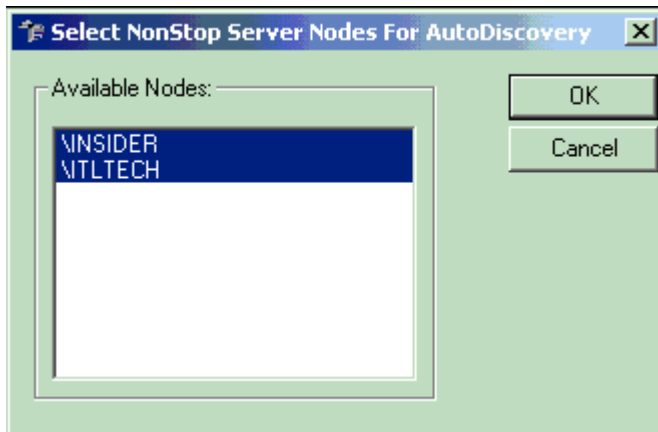
Cancel < Back Next >

Both tick boxes can be selected if installing on the hp OVO/W Server and wanting to run the 'ReflexNTServSvc' service on this WIN32 platform also. Click 'Next >' and follow the on-screen instructions.

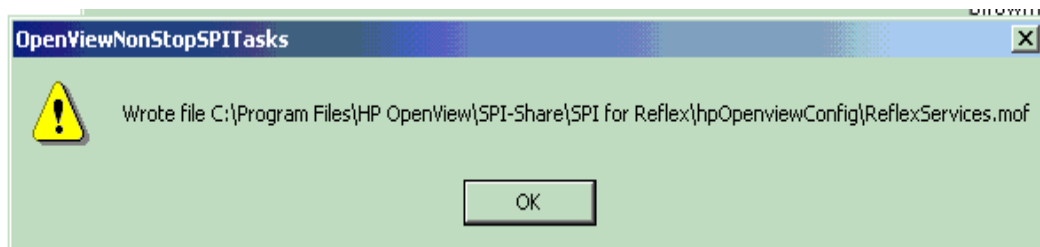
NOTE: The Reflex GUI Client is installed as part of installing the first option in the above dialog. The Reflex GUI Client can be installed on any other non-OVO-managed WIN32 platform just by installing the supplied XFP<>.exe file and following the instructions provided later in this document.

The Reflex GUI Client can be invoked from the hp OVO/W Server Console under the 'Tools' option once installation has completed.

5. Select the required NSK node and continue by clicking 'OK'.

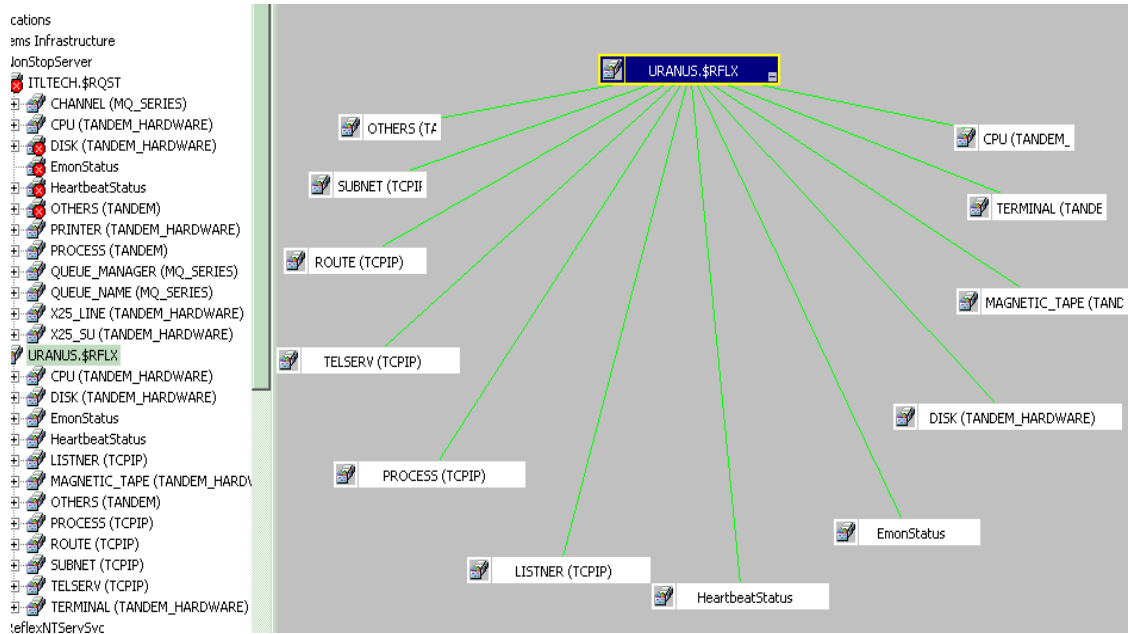


6. Wait for the box below to be displayed (*this may take a minute or more*). Click on the 'OK' prompt on the box returned as shown below:



7. In response to all Command Prompt windows requesting 'Press any key to continue....' and 'OK' information boxes, press the 'RETURN' key whether failure or success is displayed. At the end of the installation, check all Command Prompt windows with those displayed in the next subsection. If there are any failures, then review all previous install steps especially in the areas of network security and the NSK, details including the TCP/IP address for the Reflex Fastpipe™ Listener process.

The resulting hp OVO/W Console Services Tree should look similar to the following display (NOTE: the Reflex product configuration requires NSK objects to be actively monitored within Reflex to allow the various corresponding types and subtypes to be seen in this view):



5.4. hp OVO/W SPI For Reflex Tools Upload

Having successfully installed all of the above software and policies, the Reflex SPI tools can now be uploaded using the Reflex GUI Client. These will allow re-runnable options for auto detection and upload to be available from the hp OVO/W console.

These tools are as follows (described in Section 9 of this document):

- Reflex GUI Client
- Reflex NonStopServer Policy Restore tool
- Reflex NonStopServer Policy Upload tool
- Reflex NonStopServer Service AutoDiscovery tool
- Reflex NonStopServer Service Upload tool

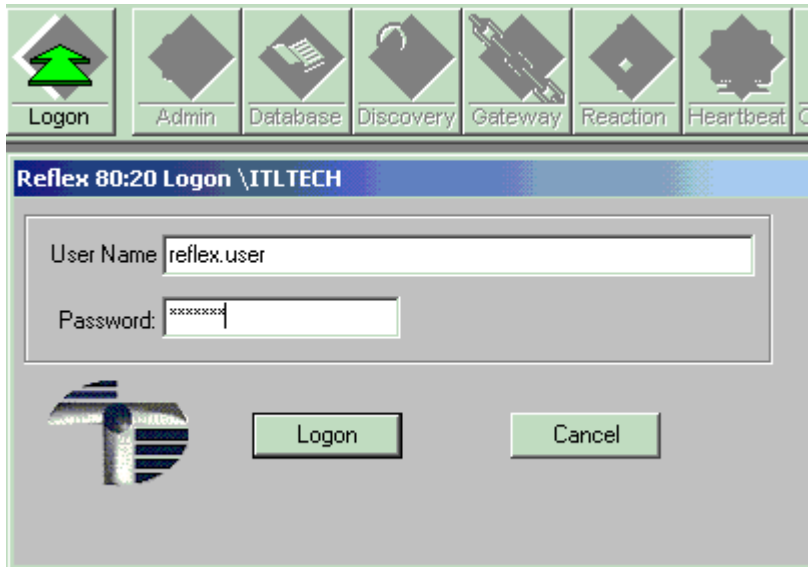
NOTE:

Locate the Reflex.exe file on the PC on which you installed the SPI for Reflex software so it can be used in the following steps. *After these steps, the Reflex GUI Client will be available from the hp OVO/W Console.*

Carry out the following tasks:

1. Double-click the Reflex executable 'Reflex.exe' to invoke the Reflex GUI Client software. (NOTE: After carrying out the operations in this section, this can also be done in the hp OVO/W Console under the 'Tools' option).
2. Click on the LOGON button in the top left-hand corner of the GUI to invoke the logon dialog box.

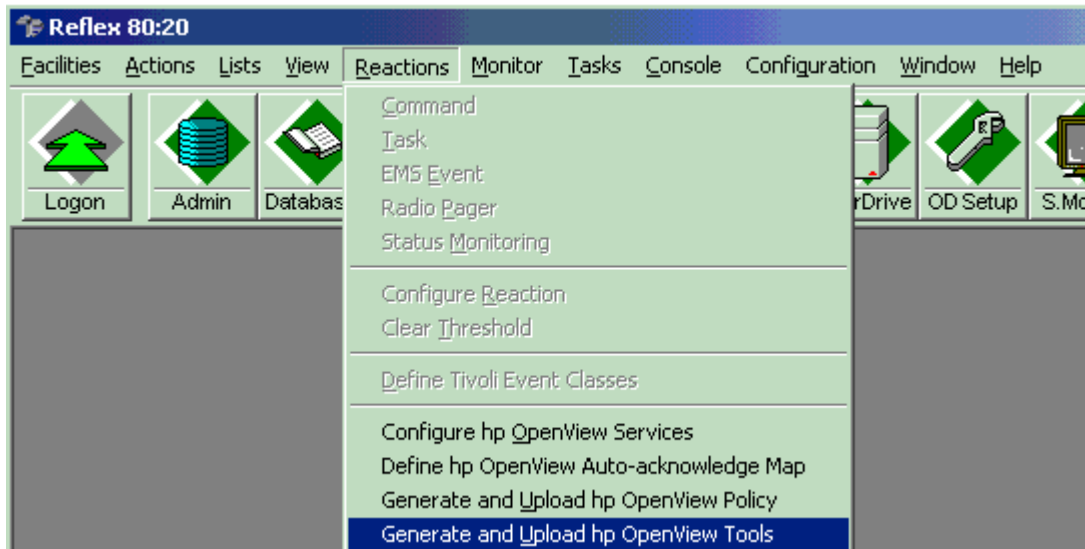
- Logon using an assigned Reflex Guardian User ID as shown below and then click the logon button: (NOTE. Contact the Reflex Administrator if you have not been assigned a Reflex Guardian User ID).



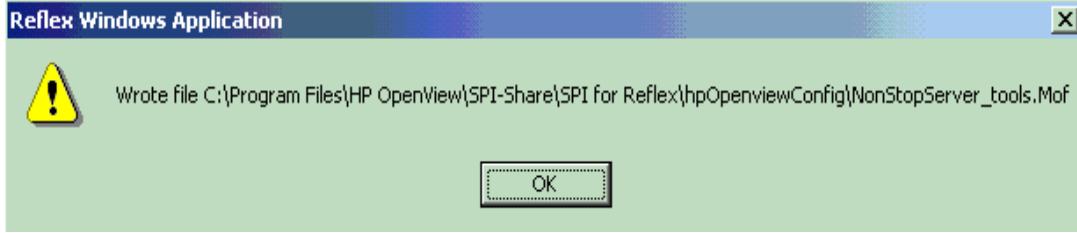
- Once logged on the entire main toolbar should appear fully coloured as shown below:



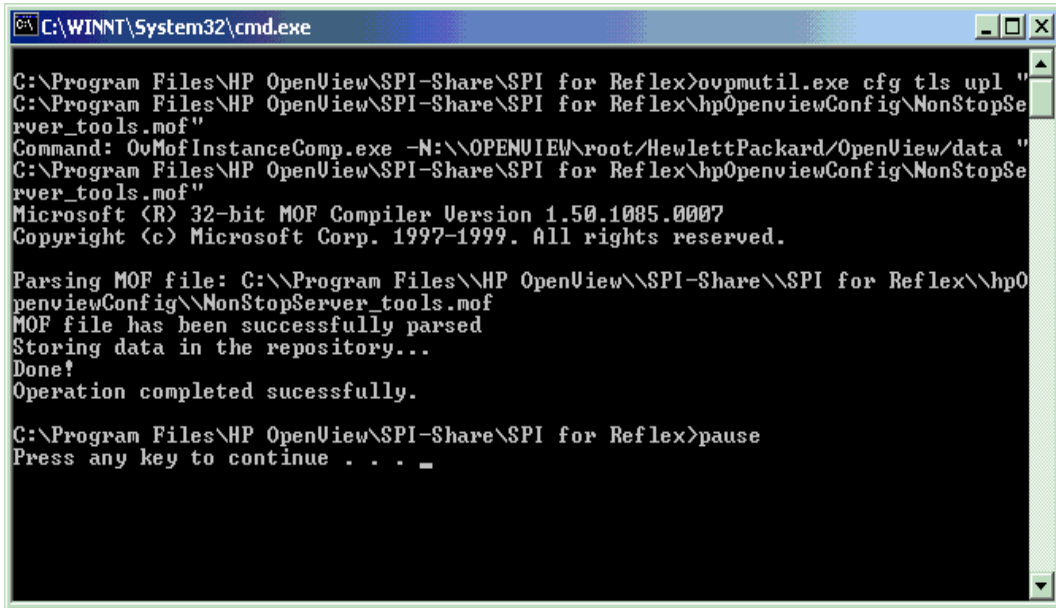
- Click on the Reactions menu option above the main toolbar as shown below:



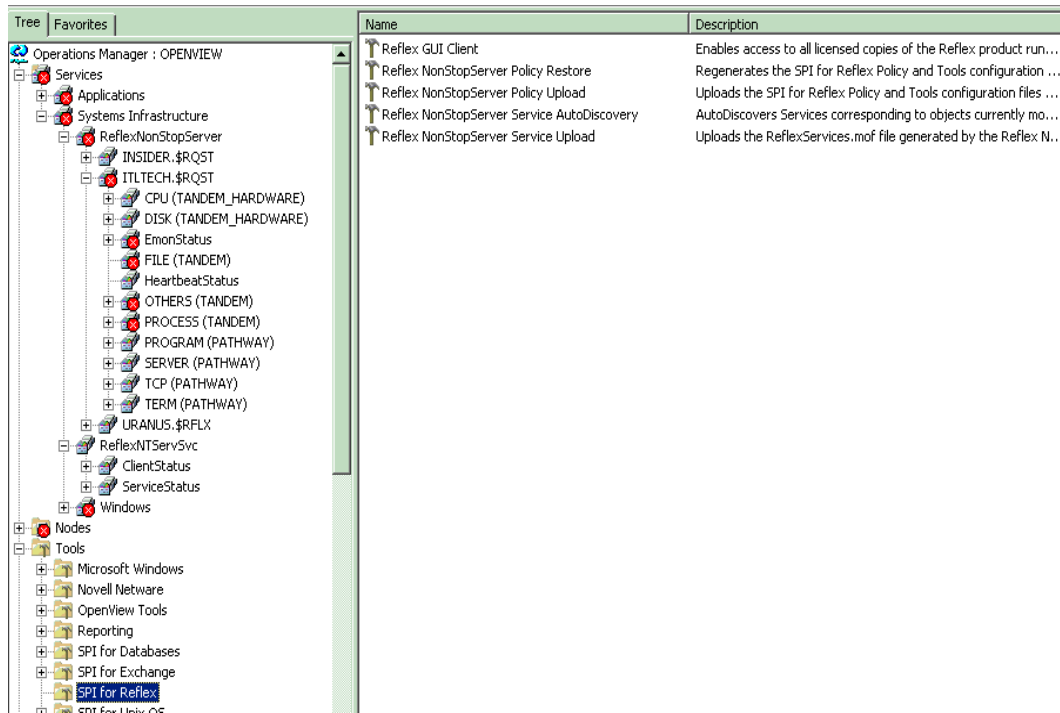
- Click on the highlighted option 'Generate and Upload hp OpenView Tools'. This will upload a number of SPI for Reflex tools to the hp OVO/W Console.
- Click on the 'OK' prompt returned:



- Check for success in the resulting command prompt window and then press a key to continue and close the window.



- Check in the hp OVO/W Console that the tools are all present as shown below:



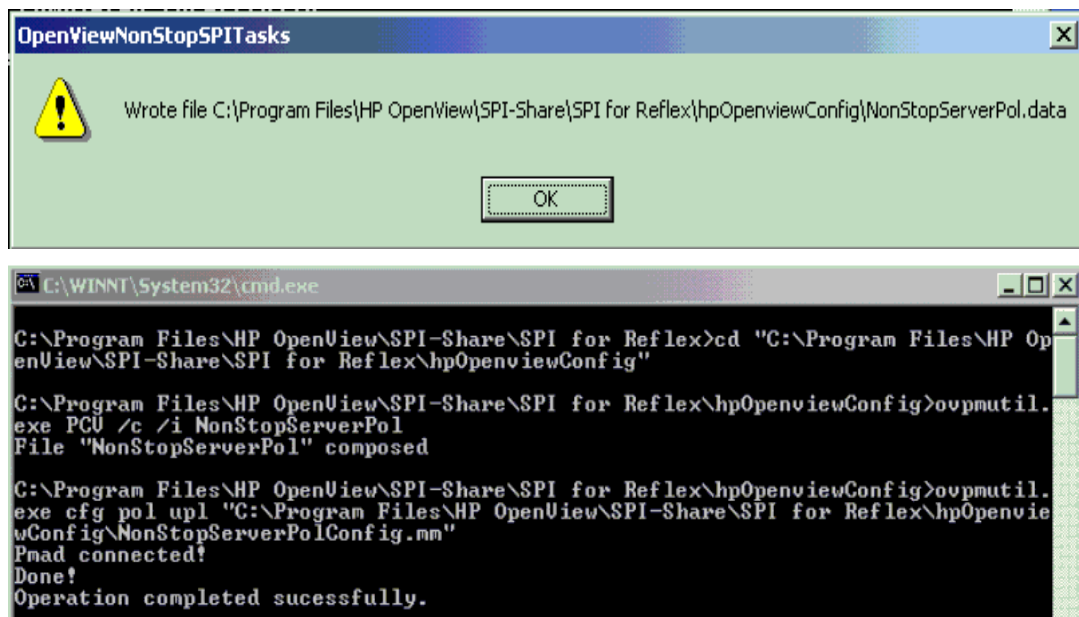
5.5. Checking the Installation of the SPI for Reflex

A number of Command Prompt windows will be opened during the installation of the SPI for Reflex. Each window should show success for each of the stages of the installation. These are shown below with a description of each.

NOTE: See also section 5.8 for a description of each of the custom actions associated with the SPI for Reflex installation process.

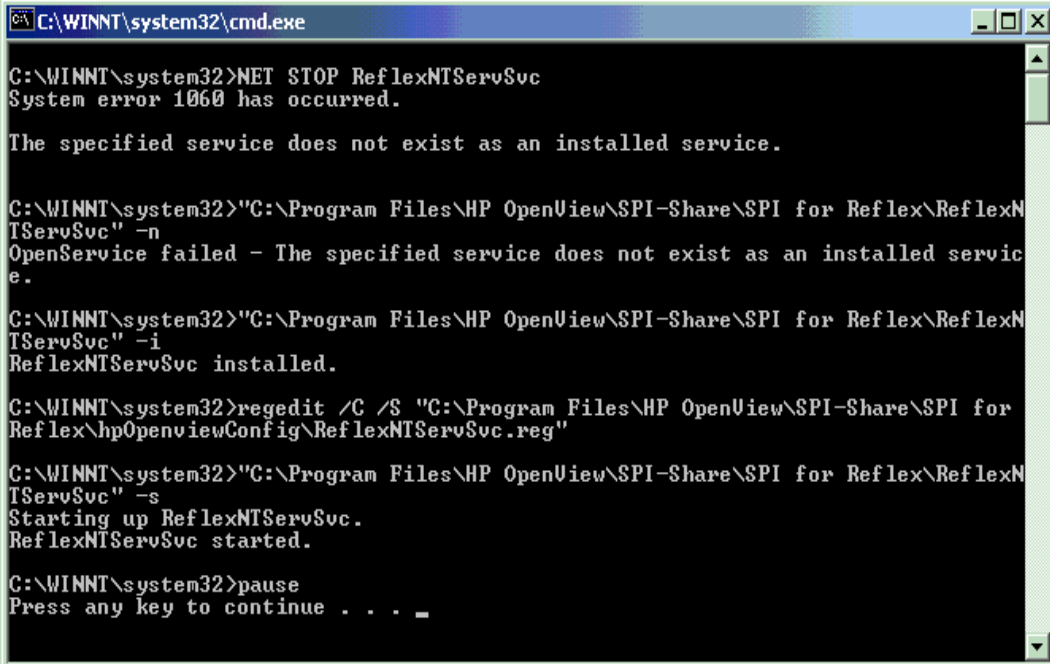
5.5.1 Policy Compose and Upload Window:

As part of this stage of the installation process, the following information box will be output. Click on 'OK' to move on to the upload.



This window will be displayed when installing on the hp OVO/W Server. This particular stage processes and merges 2 textual files (a header and data file) to produce a proprietary hp OVO/W policy file ready for upload to the hp OVO/W Server. It then proceeds to upload the policies to the hp OVO/W Server.

5.5.2 ReflexNTServSvc Installation Window:



```
C:\WINNT\system32\cmd.exe

C:\WINNT\system32>NET STOP ReflexNTServSvc
System error 1060 has occurred.

The specified service does not exist as an installed service.

C:\WINNT\system32>"C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\ReflexN
TServSvc" -n
OpenService failed - The specified service does not exist as an installed servic
e.

C:\WINNT\system32>"C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\ReflexN
TServSvc" -i
ReflexNTServSvc installed.

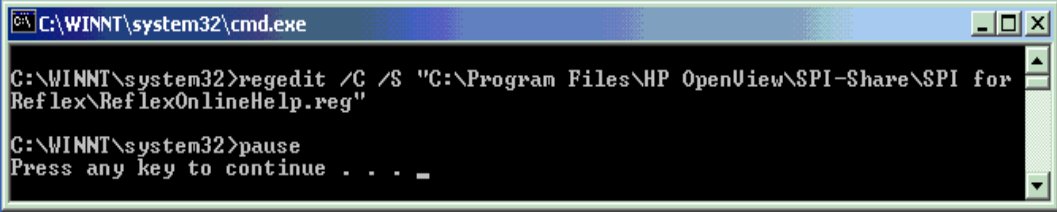
C:\WINNT\system32>regedit /C /S "C:\Program Files\HP OpenView\SPI-Share\SPI for
Reflex\hpOpenviewConfig\ReflexNTServSvc.reg"

C:\WINNT\system32>"C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\ReflexN
TServSvc" -s
Starting up ReflexNTServSvc.
ReflexNTServSvc started.

C:\WINNT\system32>pause
Press any key to continue . . . _
```

This window is only presented if you perform a managed node install (i.e. ReflexNTServSvc – the second check box in the install wizard). It installs the service that accepts EMS alert messages from the NSK platform named as part of the installation process. Failure here will result in no alerts being relayed to the hp OVO/W Console.

5.5.3 Register Help Window:



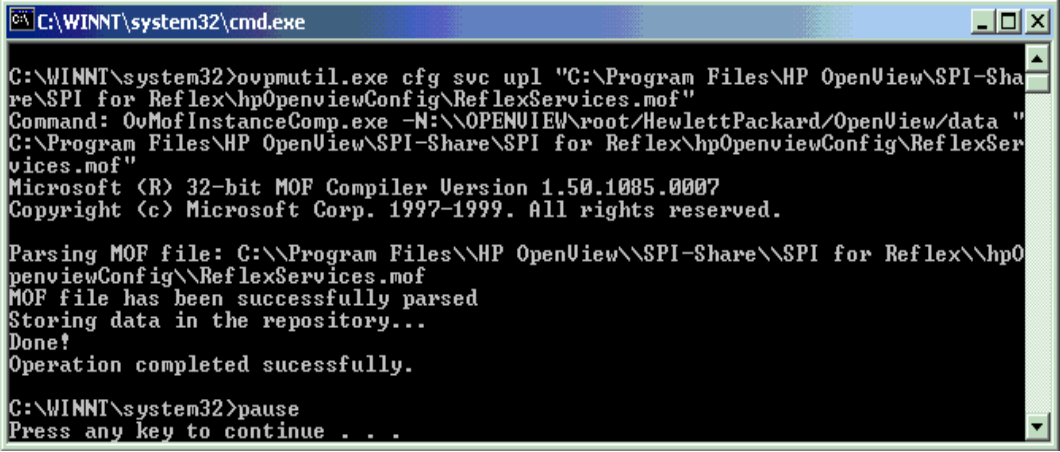
```
C:\WINNT\system32\cmd.exe

C:\WINNT\system32>regedit /C /S "C:\Program Files\HP OpenView\SPI-Share\SPI for
Reflex\ReflexOnlineHelp.reg"

C:\WINNT\system32>pause
Press any key to continue . . . _
```

This window will be displayed when installing on the hp OVO/W Server. It provides the registry keys for the Reflex GUI help files. If this stage fails, it will not affect the install of the Reflex SPI. When invoking the Reflex GUI Client tool, no help will be available.

5.5.4 Service Upload Window:



```
C:\WINNT\system32\cmd.exe

C:\WINNT\system32>ovpmutil.exe cfg svc upl "C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig\ReflexServices.mof"
Command: OvMofInstanceComp.exe -N:\\OPENVIEW\root/HewlettPackard/OpenView\data "C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig\ReflexServices.mof"
Microsoft (R) 32-bit MOF Compiler Version 1.50.1085.0007
Copyright (c) Microsoft Corp. 1997-1999. All rights reserved.

Parsing MOF file: C:\\Program Files\\HP OpenView\\SPI-Share\\SPI for Reflex\\hpOpenviewConfig\\ReflexServices.mof
MOF file has been successfully parsed
Storing data in the repository...
Done!
Operation completed successfully.

C:\WINNT\system32>pause
Press any key to continue . . .
```

This window will be displayed when installing on the hp OVO/W Server. This stage uploads the service trees seen in the hp OVO/W Console. Failure here will provide no mapping for the incoming NSK EMS alerts.

5.6. The SPI Installation Folder

All delivered files are placed under:

<InstallDir> \ SPI-share \ SPI for Reflex

where **<InstallDir>** is given by the registry key:

HKEY_LOCAL_MACHINE \ SOFTWARE \ Hewlett-Packard \ HP OpenView \ InstallDir

<InstallDir> typically will have the value "**C: \ Program Files \ HP OpenView**".

5.7. Delivered SPI for Reflex WIN32 Files

The following files are delivered as part of the SPI for Reflex Smart Plug-In installation:

| | |
|---|---|
| 1. Zlib.dll | 2. Dash.ini |
| 3. ServerIniTemplate.txt | 4. MessageMaster.dll |
| 5. MmiCom.dll | 6. ReflexObjUp.wav |
| 7. ReflexObjDown.wav | 8. Reflex.ico |
| 9. Reflex.exe | 10. PcTree32.dll |
| 11. OpenViewNonStopSPITasks.exe | 12. Console.ini |
| 13. NetmonIniTemplate.txt | 14. Dash.exe |
| 15. Reflex.ini | 16. ReflexNTServSvc.exe |
| 17. ItlUtil.dll | 18. Fastpipe.dll |
| 19. ReflexOnlineHelp.reg | 20. Reflex.chm |
| 21. Itl_db_util.dll | 22. ReflexObjVuln.wav |
| 23. Server.ini <i>generated during execution of the .MSI installation file</i> | 24. Netmon.ini <i>generated during execution of the .MSI installation file</i> |
| 25. ReflexHelpInstall.bat | 26. ReflexSPIReadMe.rtf |

<DIR>hpOpenViewConfig:

| | |
|---|---|
| 1. NonStopServerPol.data <i>generated during execution of the .MSI installation file</i> | 2. ReflexServices.bat |
| 3. ReflexServices.mof <i>generated during execution of the .MSI installation file</i> | 4. NonStopServerPolDataTemplate.txt |
| 5. NonStopServerPol.header | 6. ReflexNTServSvc.reg |
| 7. MofTypeSubtypeTemplate.txt | 8. NonStopServerTool.bat |
| 9. ReflexNtServSvcUninstall.bat | 10. MofNodeTemplate.txt |
| 11. NonStopServerPol.bat | 12. NonStopServer_toolsMofTemplate.txt |
| 13. ReflexNtServSvcInstall.bat | 14. AutoAckMap.txt |
| 15. NonStopServerPolConfig.mm | 16. MofHeader.txt |
| 17. NonStopServerPol <i>generated during execution of the .MSI installation file</i> | 18. NonStopServer_tools.mof <i>generated during execution of the GUI "Generate and Upload hp OpenView Tools"</i> |

5.8. Installation Custom Actions for the SPI for Reflex.MSI

The following installation custom actions may be initiated during execution of the 'SPI for Reflex.MSI':

5.8.1 Install the 'ReflexNTServSvc' WIN32 Service

This action will automatically stop and uninstall any existing 'ReflexNTServSvc' service, install the new 'ReflexNTServSvc' service, apply the appropriate registry settings (see registry settings below), and start the 'ReflexNTServSvc' service. This is the service that contains the 'hp OCMSG function' for relaying alerts to the hp OVO/W Server.

5.8.2 AutoDiscover Services and Generate ReflexServices.mof File

This action will query Reflex NSK PATHWAY servers on the appropriate NonStop system in order to discover the nodes and distinct types and subtypes of all NSK based Reflex objects currently being monitored. It will then generate a '**ReflexServices.mof**' file in which each system node / type / subtype has a corresponding hp OVO/W "Service" definition.

5.8.3 Upload the ReflexServices.mof File to hp OVO/W Server

This action will upload the 'ReflexServices.mof' file into the hp OVO/W Console. When the hp OVO/W Console is subsequently re-opened the Service tree will have the auto-discovered services beneath the following branches (also qualified with the appropriate NSK node entry):

- Service / Systems Infrastructure / ReflexNonStopServer
- Service / Systems Infrastructure / ReflexNTServSvc.

5.8.4 Generate and Upload the NonStopServerPol file

This action will generate and upload the 'NonStopServerPol' file into the hp OVO/W Console. When the hp OVO/W Console is subsequently re-opened the policy management tree will now include the 'SPI for Reflex' policy group.

NOTE:

Custom Action 5.8.1 will be selected automatically ONLY when installing on the designated managed node (which may be the same node as the hp OVO/W Server).

Custom Actions 5.8.2 through 5.8.4 will only be selected automatically ONLY when installing on the hp OVO/W Server.

Should the hp OVO/W Server and the designated managed node be one and the same then all custom actions 5.8.1 through 5.8.4 will be selected.

5.9. Manual Configuration Following Installation

Following installation it is necessary to deploy the 'SPI for Reflex-NonStopServer-opcmsg' policy to the designated managed node. This can be done via the hp OVO/W Server Console. The policy will be located within the policy tree:

Policy management / Policy groups / SPI for Reflex.

Also see the sections '5.11. Custom Actions via the Reflex GUI Client', '5.12. NSK EMS Alert Auto-acknowledgement' and '5.15. Reflex Heartbeat Tuning' for optional re-configuration possibilities.

5.10. De-Installation of the Reflex Smart Plug-In

Prior to de-installation, the following tasks must be performed manually:

1. Stop the 'ReflexNTServSvc' on the managed node using Control Panel
2. Then (via the hp OVO/W Server Console)....
3. Uninstall the PolicyGroup / SPI for Reflex / Reflex-opcmmsg policy from the managed node (or hp OVO/W Server) – if distributed
4. Delete the 'SPI for Reflex-NonStopServer-opcmmsg' policy from the server and then the PolicyGroup / SPI for Reflex policy group
5. Delete from the server the Policies Grouped By Type / Open Message Interface / Reflex-opcmmsg policy
6. Delete the 'Service / Systems Infrastructure / ReflexNonStopServer' and 'Service / Systems Infrastructure / ReflexNTServSvc' service trees – *if present*
7. Delete the folder 'Tools / SPI for Reflex' and its contents.

IMPORTANT NOTE:

User customisation of the 'SPI for Reflex-NonStopServer-opcmmsg' policy is not recommended. Upon subsequent re-installation, any customisation will need to be re-applied as appropriate.

To de-install the files use:

Start -> Settings -> Control Panel -> Add/Remove Programs -> SPI for Reflex

During de-installation, the 'ReflexNTServSvc' (if selected during installation) will be uninstalled and the corresponding registry settings removed. The delivered files will also be removed.

Following de-installation the following registry branch should be removed:

HKEY_LOCAL_MACHINE \ SOFTWARE \ Insider Technologies Ltd \ Reflex \ ContextSensitiveHelp \ CONTEXT_SENSITIVE_HELP_IDS

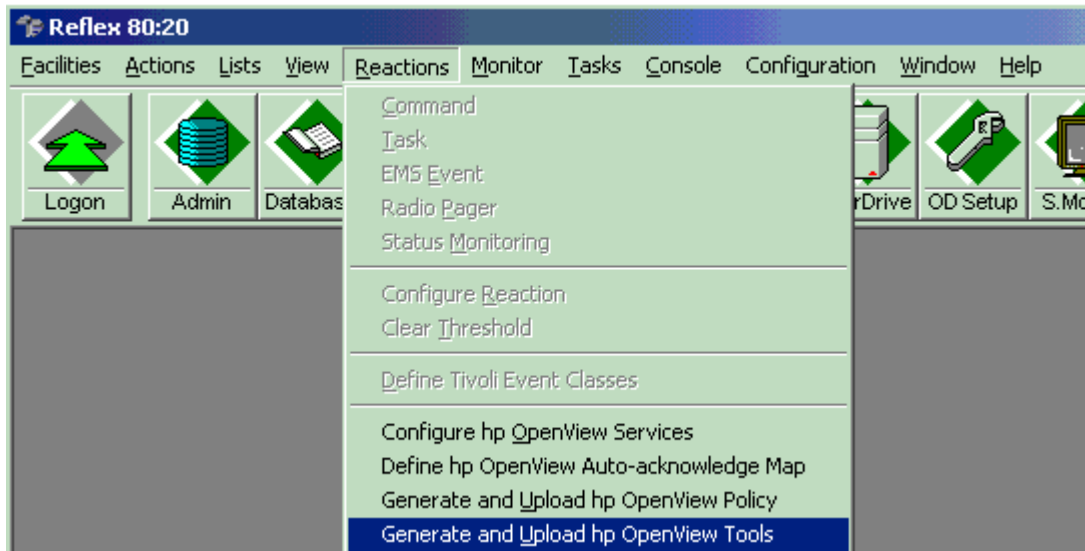
The installation folder (see Section 5.6 above) and its contents may then be removed.

5.11. Custom Actions via the Reflex GUI Client

NOTE:

The following installation custom actions can also be carried out using the Reflex GUI Tool under 'SPI for Reflex' on the hp OVO/W Server Console or by double clicking on the 'Reflex.exe' file on the same server. This is discussed in more detail later in this document. This section details the custom actions that are available and is for information only. These will have been carried out by the installation procedure earlier in this section.

1. Auto-Discover the services and generate a '**ReflexServices.mof**' file
2. Upload the '**ReflexServices.mof**' file
3. Generate and Upload the policy file, i.e. the '**NonStopServerPol**' file.
4. Generate and Upload hp OpenView Tools (i.e. NonStopServer_Tools.mof)



5. The "**AutoDiscover Services and Generate ReflexServices.mof file**" and "**Upload ReflexServices.mof file**" actions should be used whenever new Reflex types and subtypes of newly added NSK objects are configured within the Reflex product. These should be carried out on the hp OVO/W Server using the installed Reflex GUI Client.

It is not necessary to perform the above custom actions (1 and 2) if NSK Reflex objects of the same type and subtype have been configured within the Reflex product.

NOTE:

It is advisable to close the hp OVO/W Console before uploading policy or '.MOF' files.

5.12. NSK EMS Alert Auto-acknowledgment

The 'SPI for Reflex Reflex-opcmsg' policy rules support "Auto-acknowledgment" whereby an existing message in the "Active Messages" view is automatically acknowledged (and therefore moved to the "Acknowledged Messages" view) upon receipt of a corresponding "Acknowledging" message.

Auto-acknowledgment is supported for 3 distinct varieties of messages:

1. Status events generated by 'ReflexNTServSvc' as follows:
 - ReflexNTServer Running – ReflexNTServer Stop Pending
 - Client Heartbeat Resumed – Client Heartbeat Missed
 - Client Connected – Client Disconnected
 - Emon Running – Emon Not Running
2. Reflex Action Clear – Action Needed Events
3. Mapped Events - these are events appearing in the user-configurable 'AUTOACKMAP.txt' file

5.13. The AUTOACKMAP.txt File

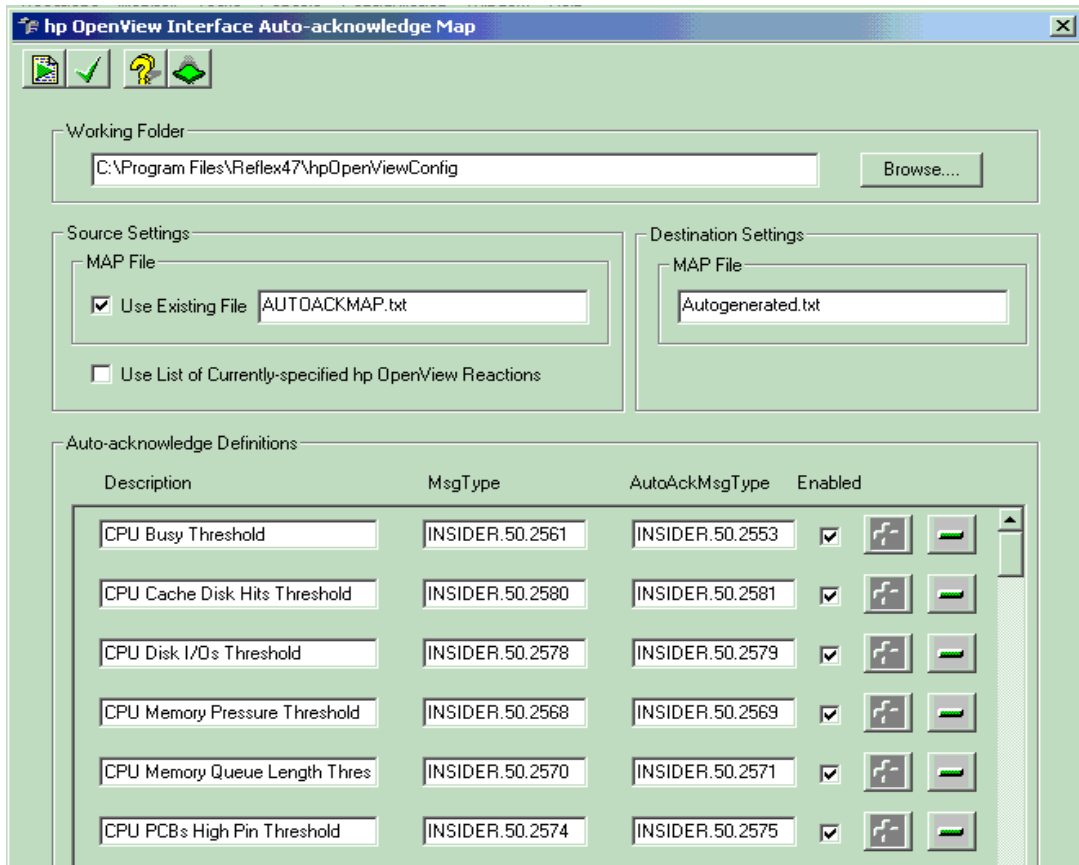
This file is used by the 'ReflexNTServSvc' service to tag those events (other than 'ReflexNTServSvc' status events and Action Needed / Action Clear events) which are deemed to auto-acknowledge specific previous events. The tagging enables the 'SPI for Reflex Reflex-opcmsg' rules to perform the auto-acknowledgement.

The default 'AUTOACKMAP.txt' file contains mappings for the pre-configured Reflex "Dashboard" events (covering Disk, Process, CPU, X25, TCP/IP), e.g. "DiskPercentFullThreshold – DiskPercentFullThresholdNoLongerExceeded".

NOTE: The SPI for Reflex Reflex-opcmsg policy rules provide for an event with the *same* subsystem ID (SSID), EMS event number, node and object tokens to acknowledge an event with the exact same value tokens. This stops the active message window in the OVO/W Console from being cluttered up with duplicate events.

The default Disk, Process, CPU mappings are enabled and the X25, TCP/IP mappings are disabled.

The Reflex GUI Client (via the menu item Reactions -> Define hp OpenView Auto-acknowledge Map) facilitates tailoring of the 'AUTOACKMAP.txt' file. Not only can the existing mappings be selectively enabled, disabled or removed but also user-defined events can be auto-discovered and the corresponding mappings added.



In order for the changes in the 'AUTOACKMAP.txt' file to take effect, it is necessary to perform the following steps on the designated managed node:

1. Stop the 'ReflexNTServSvc' service using Control Panel
2. Copy the new 'AUTOACKMAP.txt' to the location specified by the registry setting:
 HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Services \
 ReflexNTServSvc \ Parameters \ OPENVIEW_AUTOACKMAPFILE_SETTINGS \ PATH
3. Restart the 'ReflexNTServSvc' service.

NOTE:

Auto-acknowledgement of mapped events may be disabled by setting to a numeric zero (0) the value of the registry key:

```
HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Services \ ReflexNTServSvc \
Parameters \ OPENVIEW_AUTOACKMAPFILE_SETTINGS \
USE_OPENVIEW_AUTOACKMAPFILE
```

5.14. The ReflexNTServSvc Service Registry Settings

Default settings for the 'ReflexNTServSvc' are written to the registry during the execution of the 'SPI for Reflex.msi'. The customer, using a tool such as REGEDIT can alter the default settings. Altered settings are activated only when the service is restarted.

Some important hp OVO/W specific settings for the 'ReflexNTServSvc' service are described below. Unless specified otherwise, values are 1 – ON, 0 – OFF):

HKEY LOCAL MACHINE->SYSTEM->
CurrentControlSet->Services->ReflexNTServSvc->SERVER ACTIONS

- **MONITOR_CLIENT_ACTIONS** – specifies whether to generate client status events (client_connected, client_disconnected, heartbeat_missed, heartbeat_resumed, emon_running, emon_not_running).
Default value = 1.
- **MONITOR_SERVER_ACTION** – specifies whether to generate server status events (ReflexNTServSvc_server_running, ReflexNTServSvc_server_stop_pending).
Default value = 1.
- **PERFORM_OPENVIEW_CALLS** – specifies whether to forward events to the hp OVO/W Server via the OpenMessage API.
Default value = 1.

HKEY LOCAL MACHINE->SYSTEM->
CurrentControlSet->Services->ReflexNTServSvc->SERVER SETTINGS

- **MAX_HEARTBEAT_INTERVAL_SECS** – specifies the number of seconds between events before it is deemed that the client heartbeat has been missed (causing a 'heartbeat_missed' event to be generated).
Default value = 120. (see Section 5.15 – Tuning)
- **MAX_NUM_MISSED_HEARTBEATS** – specifies how many consecutive heartbeats should be missed before a further 'heartbeat_missed' event is to be forwarded to the hp OVO/W Server.
Default value = 5.
- **PORT_NUMBER** – specifies the port number upon which the 'ReflexNTServSvc' service will listen for client connections.
Default value = 4913.

HKEY LOCAL MACHINE->SYSTEM->
CurrentControlSet->Services->ReflexNTServSvc->
OPENVIEW_AUTOACKMAPFILE_SETTINGS

- **USE_OPENVIEW_AUTOACKMAPFILE** – specifies whether to enable the Auto-acknowledgement facility.
Default value = 1.
- **PATH** – specifies path to AUTOACKMAP.txt file (see Auto-acknowledgement of events above).
Default value points to the hpOpenViewConfig \ AUTOACKMAP.txt file beneath the folder into which 'ReflexNTServSvc' service is installed. Typically this will be
C: \ Program Files \ HP OpenView \ SPI-Share \ SPI for Reflex \
hpOpenViewConfig \ AUTOACKMAP.txt
This value is determined by 'ReflexNTServSvc' service when it first runs.

5.16.3 Reflex Tandem Auto Acknowledge

There are no operator actions for this message.

This message may auto-acknowledge any previous corresponding ReflexNonStopServer message.

5.16.4 Other Reflex Tandem

Click on the user initiated action to view the real-time status, information and the probable cause and recommended action texts for this event. If the "recommended action" text indicates a Reflex Task to run then re-run the operator action and select the Task List. Execute the Task named in the "recovery" text by clicking on it. Failure of the task will result in a NSK failure event being passed to the hp OVO/W Console.

An NSK Guardian User ID and password will be required for the above operations to be carried out. All Task initiated actions are audited (by user) on the NSK platform. If Task initiation fails due to lack of authorisation, check with the Reflex Administrator that you have the appropriate level of security.

If the Task fails to remedy the problem, invoke the "Reflex GUI Client" Tool for more advanced troubleshooting of the NSK issue. You will be required to logon using a Guardian User ID and password. Invoke the Reflex Client NSK Event Viewing Console to further isolate related problems that may have given rise to the OVO event alert.

See "Reflex GUI Client" Reference Manuals for more information about the various functions.

NOTE: This message may be auto-acknowledged by a corresponding AutoAcknowledge event message

5.16.5 Reflex Client Resumed Heartbeat

There are no operator actions for this message. This message indicates that the NSK client has connected/reconnected to the "ReflexNTServerSvc" service.

5.16.6 Reflex Client Missed Heartbeat

There are no operator actions for this message. This message indicates that the NSK client has disconnected from the "ReflexNTServerSvc" service. This may be because the NSK client has been stopped or is in the process of warm booting. Contact the Reflex Administrator to verify that Reflex is currently off-line for housekeeping purposes only. HP OVO/W requires this client process to be running to aid in the relaying of HP OVO/W event alerts.

5.16.7 Reflex Client Emon Running

There are no operator actions for this message. This message indicates that the NSK client Event Monitor process is running.

5.16.8 Reflex Client Emon Not Running

There are no operator actions for this message. This message indicates that the NSK client Event Monitor process (\$EMON) is not running. Contact the Reflex Administrator to verify that this is purely for Reflex housekeeping purposes. HP OVO/W requires this process to be running to aid in the relaying of hp OVO/W event alerts.

5.16.9 ReflexNTServSvc Running

There are no operator actions for this message. This message indicates that the "ReflexNTServerSvc" is running.

5.16.10 ReflexNTServSvc Stop Pending

There are no operator actions for this message. This message indicates that the "ReflexNTServerSvc" is stopping. Check with the Reflex Administrator that the stopping of this service has been authorised. HP OVO/W requires this service to be running for NSK event relay.

5.16.11 Reflex Client Connected

There are no operator actions for this message. This message indicates that the NSK client has connected/reconnected to the ReflexNTServerSvc service.

5.16.12 Reflex Client Disconnected

There are no operator actions for this message. This message indicates that the NSK client has disconnected from the "ReflexNTServerSvc". Contact the Reflex Administrator to verify that Reflex is currently in a stopped or stopping state for housekeeping purposes only. No NSK alerts will be seen in the hp OVO/W Console until re-connection occurs.

5.16.13 ReflexNTServSvc

There are no operator actions for this message. This is an informational Reflex message.

6. Configuring the Reflex Product to Connect to hp OVO/W

6.1. Overview

A licensed copy of Reflex should be installed on the appropriate NSK node(s). Refer to the PDF documents 'Reflex Install Macro Vnn' and 'Reflex Installation Guide Vnn' on the supplied CD-ROM. These documents supply both an 'automatic' and 'manual' approach to installing the NSK based software respectively. The NSK based installation may have already been carried out on your site.

This section details the Reflex configuration requirements for enabling Reflex (running on the appropriate NSK systems) to connect and relay alerts to the hp OVO/W OCMMSG Reflex module running (as a service) on a nominated WIN32 platform. This can be the same WIN32 platform running the hp OVO/W Console.

It is assumed that the OVO/W 7.x for Windows Server PC is up-and-running and that a suitable NT or Windows 2000 PC has been configured as a "Managed Node".

NOTE:

The managed node will host the WIN32 service "ReflexNTServSvc" which is used to relay NSK NonStop server events to the hp OpenView Server via the OpenMessageInterface API.

IMPORTANT: It is recommended that the above service be installed and started on the nominated WIN32 platform before configuring the NSK based Reflex product to relay alerts to it.

In order to activate hp OVO/W Server alerting via the SPI for Reflex Smart Plug-in, a number of basic steps should be carried as detailed in the following sections.

6.2. Reflex NSK File Update Required

The file 'RUNEMON' which exists on the NSK platform(s) within the Reflex executable subvolume needs to be updated. This update informs the NonStop Reflex Event Monitor to direct Enterprise Manager alerts to the hp OVO/W OCMMSG service

Carry out the following tasks:

1. Obtain a TACL prompt by logging onto the relevant NSK system node using the appropriate Reflex Guardian User ID, e.g. REFLEX.OWNER. The user is typically the one assigned to start the Reflex PATHWAY system and/or owns the Reflex application files.
2. Navigate to the Reflex executable subvolume using the volume command, e.g.
>volume \$LIVE.RFLXOBJ
3. Edit the 'RUNEMON' file by typing the following command:
>TEDIT RUNEMON [return]

6.3. Reflex GUI Client hp OVO/W Configuration

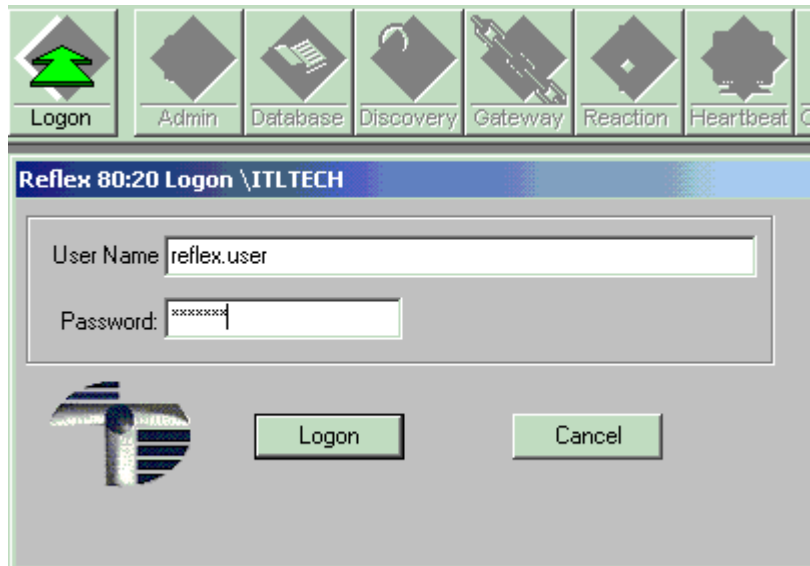
A number of basic updates are required in order to configure Reflex on the NSK platform to relay nominated alerts to an appropriate TCP/IP address. This is the address of the WIN32 platform on which the 'ReflexNTServSvc' OCMMSG service is installed.

NOTE:

The following tasks require that a Reflex GUI Client has been installed and set-up to point to the appropriate NSK node(s).

Carry out the following tasks:

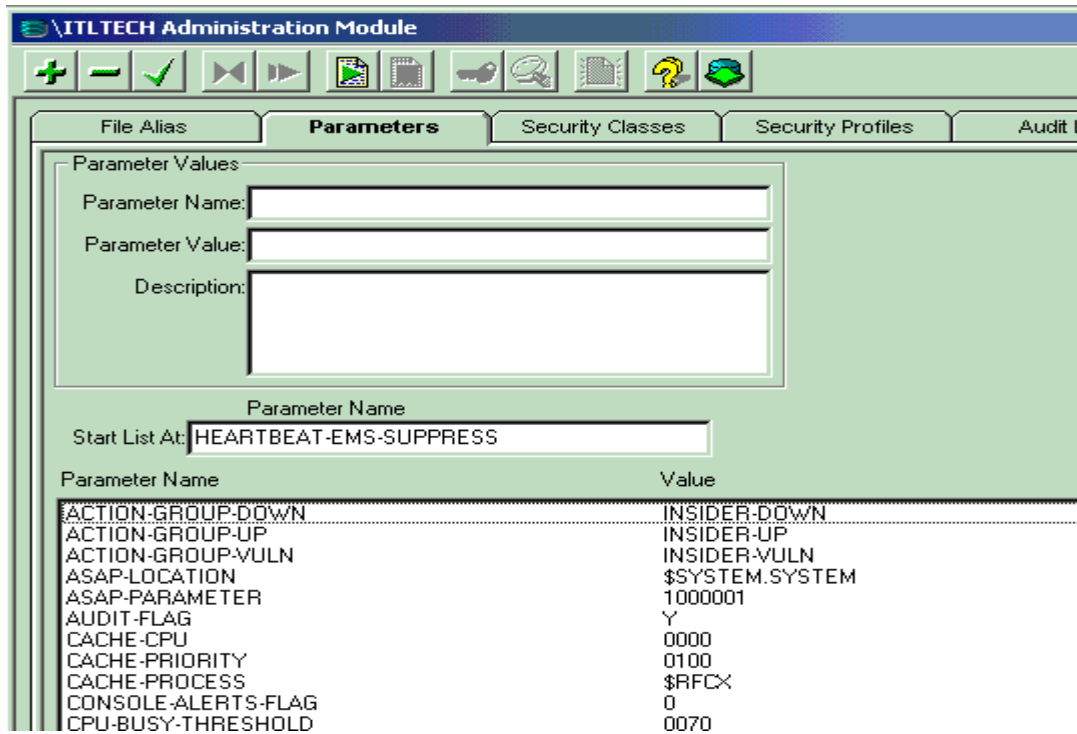
1. Double-click the Reflex executable 'Reflex.exe' to invoke the Reflex GUI Client software. This can also be done in the hp OVO/W Console under the "Tools" option.
2. Click on the LOGON button in the top left-hand corner of the GUI to invoke the logon dialog box.
3. Logon using an assigned Reflex Guardian User ID as shown below and then click the logon button:



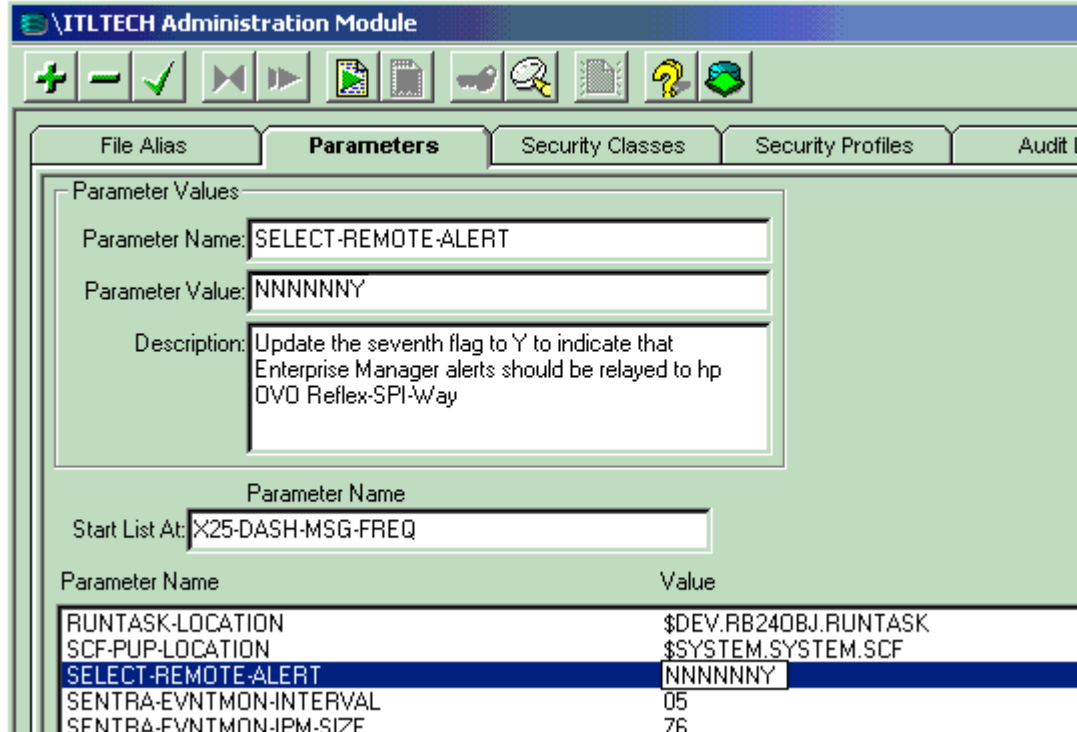
4. Once logged on the entire main toolbar should appear fully coloured as shown below:



5. Click on the 'Admin' module next to the 'Logon' module to invoke the Administration functions and navigate to the parameters tab by clicking on it (second tab along from the left). This should appear as shown in the next Reflex GUI Client screenshot:



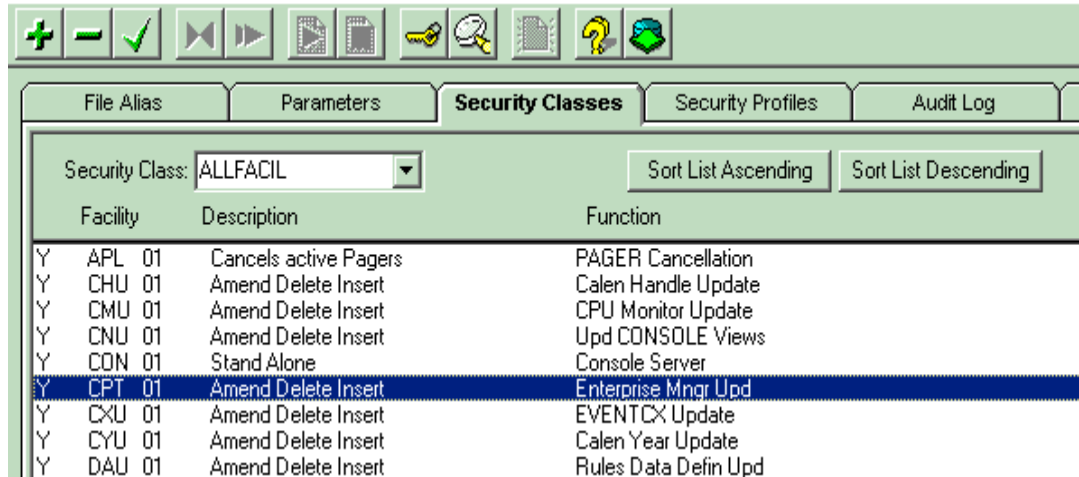
6. Scroll down to the parameter 'SELECT-REMOTE-ALERT' and subsequently double-click on the parameter in the list to show the detail for it at the top of the parameter window as shown below:



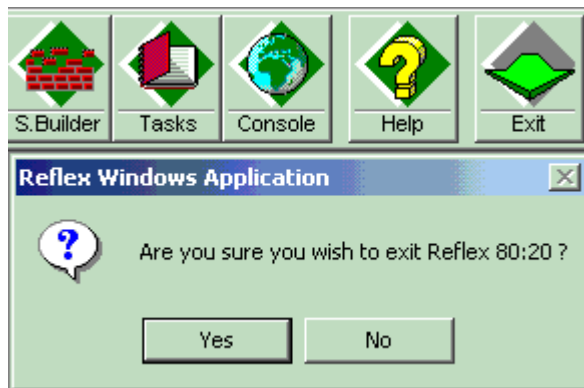
7. Update the seventh flag as shown in the bitmap in [6], to a 'Y' to indicate that Enterprise Manager alerts should be relayed to hp OpenView Operations. Click amend:



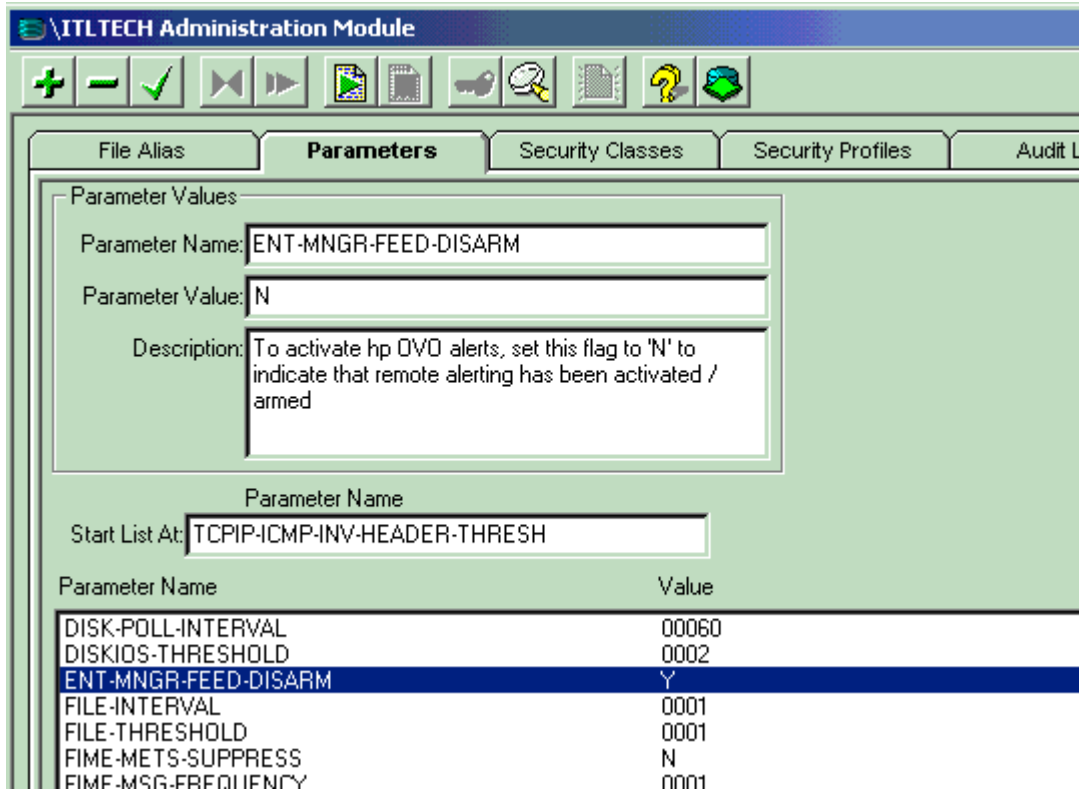
8. Once amended, go to the Security Classes Tab (third along), and select the ALLFACIL class. Check that you are licensed for Enterprise Management Alerting (CPT):



If you are not licensed, contact Insider Technologies limited before proceeding. Exit from the dialog using the green arrow icon and subsequently click on the EXIT icon on the main toolbar of Reflex.



9. Click 'Yes' to confirm the logoff.
10. Go back to the TAACL session from the previous section and (in the executable subvolume, e.g. RFLXOBJ) stop Reflex by typing:
 - > obey STOPRFLX [return]
11. Subsequently restart Reflex from the same subvolume by typing:
 - > obey RUNRFLX [return]
12. Repeat steps 1 to 5 again in order to logon to the Reflex GUI client and navigate to the Reflex parameters tab.
13. Scroll down to the parameter 'ENT-MNGR-FEED-DISARM' and subsequently double-click on the parameter in the list to show the detail for it at the top of the parameter window as shown in the following Reflex GUI Client screenshot:



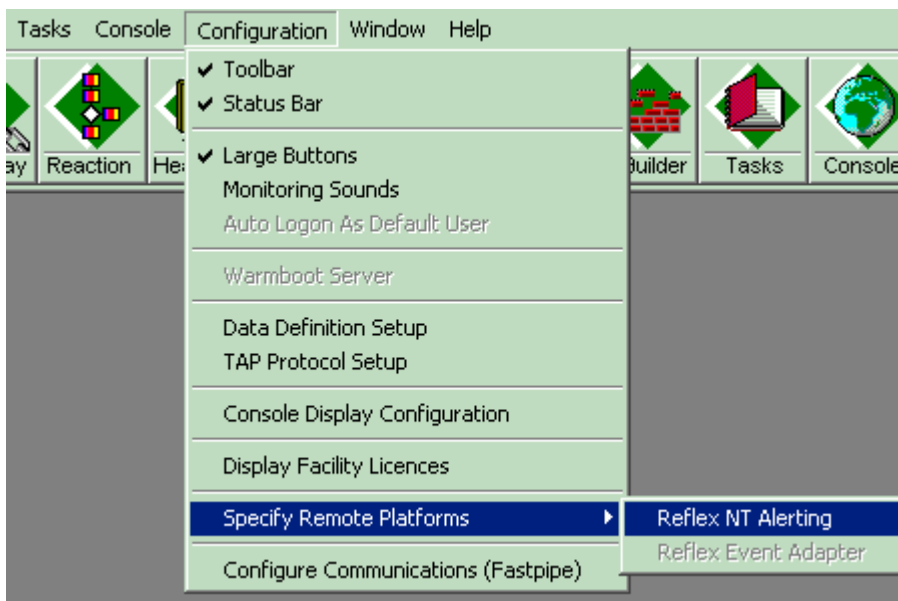
14. Update the flag to a 'N' to indicate that Enterprise Manager alerts are now active / armed for remote hp OVO/W relay. Click amend:



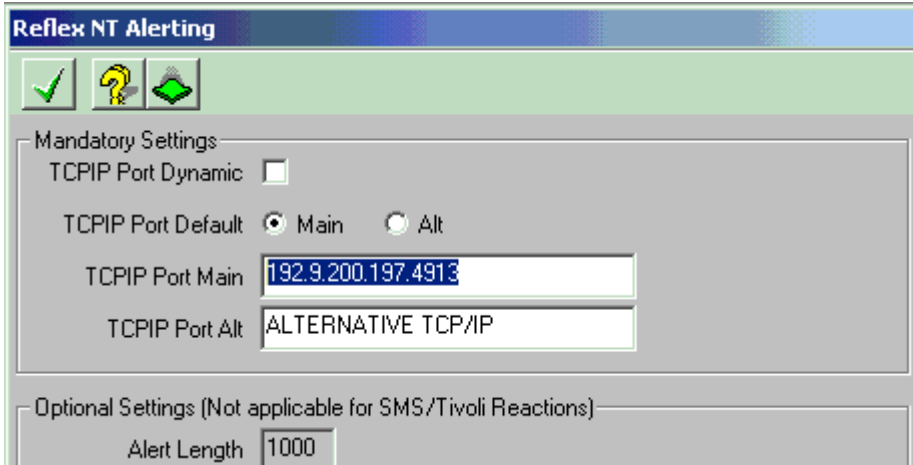
15. Exit from the Administration module by clicking on the following button on the Administration toolbar:



16. Click on the 'Configuration' menu option on the top most toolbar of the GUI client followed by Specify Remote Platforms -> Reflex NT Alerting as shown in the bitmap below:



17. Having clicked on 'Reflex NT Alerting' as shown above, the following alerting dialog should be visible:



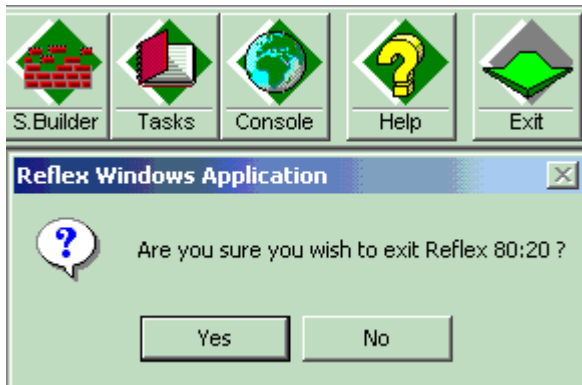
18. Amend the 'TCPIP Port Main' setting to the WIN32 platform that the 'ReflexNTServSvc' OCMSG service is installed on (this may or may not be the same as the hp OVO/W Server). Suffix your nominated TCP/IP address with 4913 as shown above. The 'TCPIP Port Alt' offers an alternative TCP/IP address to relay to. Leave this blank for a single OCMSG service configuration. Click Amend:



19. Exit from this Alerting dialog by clicking on the exit button:



20. Exit from the Reflex GUI client session by clicking the 'EXIT' button on the far right of the main Reflex toolbar.



21. Click 'Yes' to confirm the logoff.

22. Go back to the TAACL session from the previous section and (in the executable subvolume, e.g. RFLXOBJ) stop Reflex by typing:

> obey STOPRFLX [return]

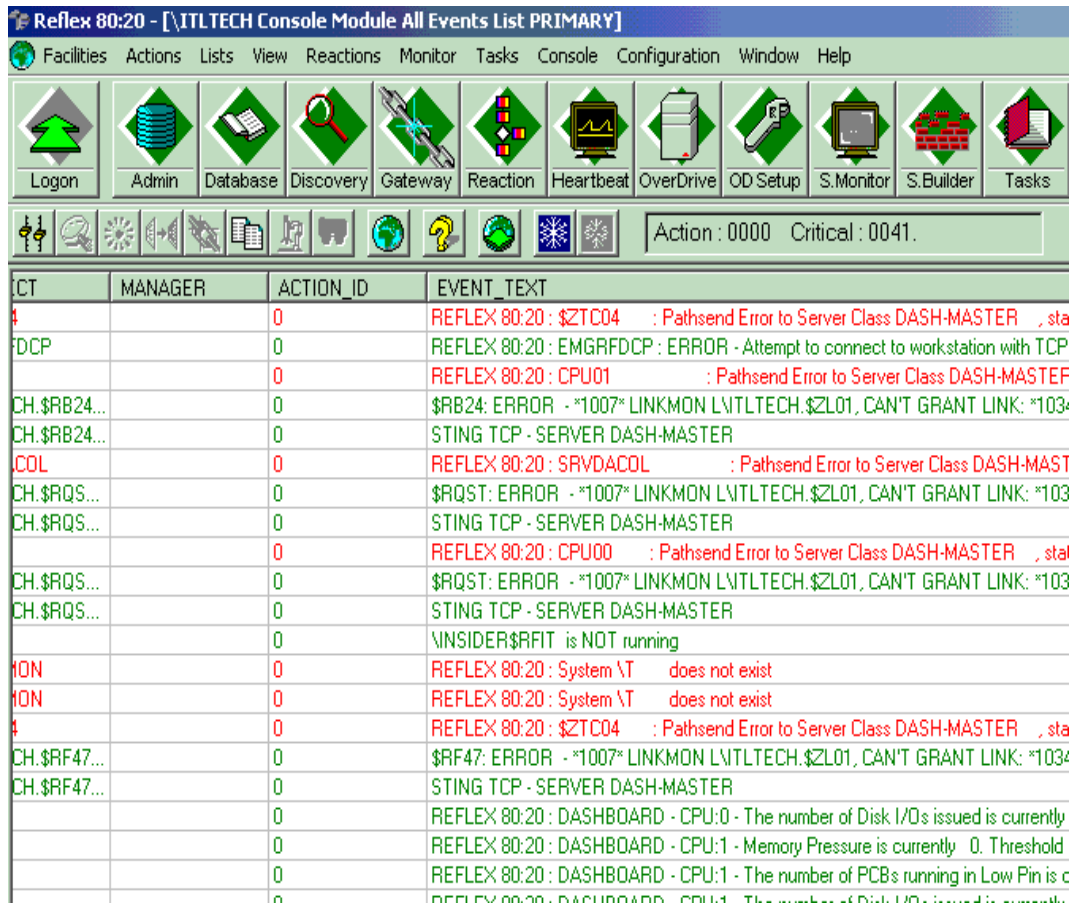
23. Subsequently restart Reflex from the same subvolume by typing:

> obey RUNRFLX [return]

24. Repeat steps 1-4 above in order to activate the Reflex GUI Client and subsequently click on the CONSOLE module on the main toolbar:



25. This module is used to view EMS events on the local NSK platform. The event view that is invoked is the primary view that is used to view all EMS events (as opposed to selected EMS events). Maximise the 'Console Module All Events List Primary' view window as shown:



| CT | MANAGER | ACTION_ID | EVENT_TEXT |
|----|--------------|-----------|--|
| | | 0 | REFLEX 80:20 : \$ZTC04 : Pathsend Error to Server Class DASH-MASTER , sta |
| | DCP | 0 | REFLEX 80:20 : EMGRFDCP : ERROR - Attempt to connect to workstation with TCP |
| | | 0 | REFLEX 80:20 : CPU01 : Pathsend Error to Server Class DASH-MASTEF |
| | CH.\$RB24... | 0 | \$RB24: ERROR - *1007* LINKMON L\\ITLTECH.\$ZL01, CAN'T GRANT LINK: *103* |
| | CH.\$RB24... | 0 | STING TCP - SERVER DASH-MASTER |
| | COL | 0 | REFLEX 80:20 : SRVDACOL : Pathsend Error to Server Class DASH-MAST |
| | CH.\$RQS... | 0 | \$RQST: ERROR - *1007* LINKMON L\\ITLTECH.\$ZL01, CAN'T GRANT LINK: *103* |
| | CH.\$RQS... | 0 | STING TCP - SERVER DASH-MASTER |
| | | 0 | REFLEX 80:20 : CPU00 : Pathsend Error to Server Class DASH-MASTER , stal |
| | CH.\$RQS... | 0 | \$RQST: ERROR - *1007* LINKMON L\\ITLTECH.\$ZL01, CAN'T GRANT LINK: *103* |
| | CH.\$RQS... | 0 | STING TCP - SERVER DASH-MASTER |
| | | 0 | \\INSIDER\$RFFIT is NOT running |
| | ION | 0 | REFLEX 80:20 : System \\T does not exist |
| | ION | 0 | REFLEX 80:20 : System \\T does not exist |
| | | 0 | REFLEX 80:20 : \$ZTC04 : Pathsend Error to Server Class DASH-MASTER , sta |
| | CH.\$RF47... | 0 | \$RF47: ERROR - *1007* LINKMON L\\ITLTECH.\$ZL01, CAN'T GRANT LINK: *103* |
| | CH.\$RF47... | 0 | STING TCP - SERVER DASH-MASTER |
| | | 0 | REFLEX 80:20 : DASHBOARD - CPU:0 - The number of Disk I/Os issued is currently |
| | | 0 | REFLEX 80:20 : DASHBOARD - CPU:1 - Memory Pressure is currently 0. Threshold |
| | | 0 | REFLEX 80:20 : DASHBOARD - CPU:1 - The number of PCBs running in Low Pin is c |
| | | 0 | REFLEX 80:20 : DASHBOARD - CPU:1 - The number of Disk I/Os issued is currently |

26. As part of re-starting Reflex at the TACL prompt, the product will now attempt to connect to the nominated TCP/IP address specified in step 18. The connection will require the 'ReflexNTServSvc' service to be running on the WIN32 platform. This contains the OCMMSG function to relay alerts to the hp OVO/W Console.

NOTE:

The managed node will host the WIN32 service "ReflexNTServSvc" which is used to relay NSK NonStop server events to the hp OVO/W Server via the OpenMessageInterface API.

IMPORTANT: It is recommended that the above service be installed and started on the nominated WIN32 platform before configuring the NSK based Reflex product to relay alerts to it.

27. The following event messages can be raised by the Reflex NSK Enterprise Manager feeder function:

Event Number 2900 - REFLEX 80:20 : EMGRFDPCP : INFO - Attempting to connect to workstation with TCPIP Address : [<1>], Port Number : [<2>].

Event Number 2901 - REFLEX 80:20 : EMGRFDPCP : ERROR - Attempt to connect to workstation with TCPIP Address : [<1>], Port Number : [<2>], has failed. Retrying connection.

Event Number 2902 - REFLEX 80:20 : EMGRFDPCP : ERROR - Attempt to connect to workstation with TCPIP Address : [<1>], Port Number : [<2>], has failed. Incoming alert messages will be ignored.

Event Number 2903 - REFLEX 80:20 : EMGRFDPCP : INFO - Attempt to connect to workstation with TCPIP Address : [<1>], Port Number : [<2>], was successful.

Event Number 2904 - REFLEX 80:20 : EMGRFDPCP : ERROR - There was no TCPIP Address specified in the message for the Enterprise Manager feeder process, incoming alert messages will be ignored.

Event Number 2905 - REFLEX 80:20 : EMGRFDPCP : ERROR - There was no TCPIP port number specified in the message for the Enterprise Manager feeder process. Alert messages will be ignored.

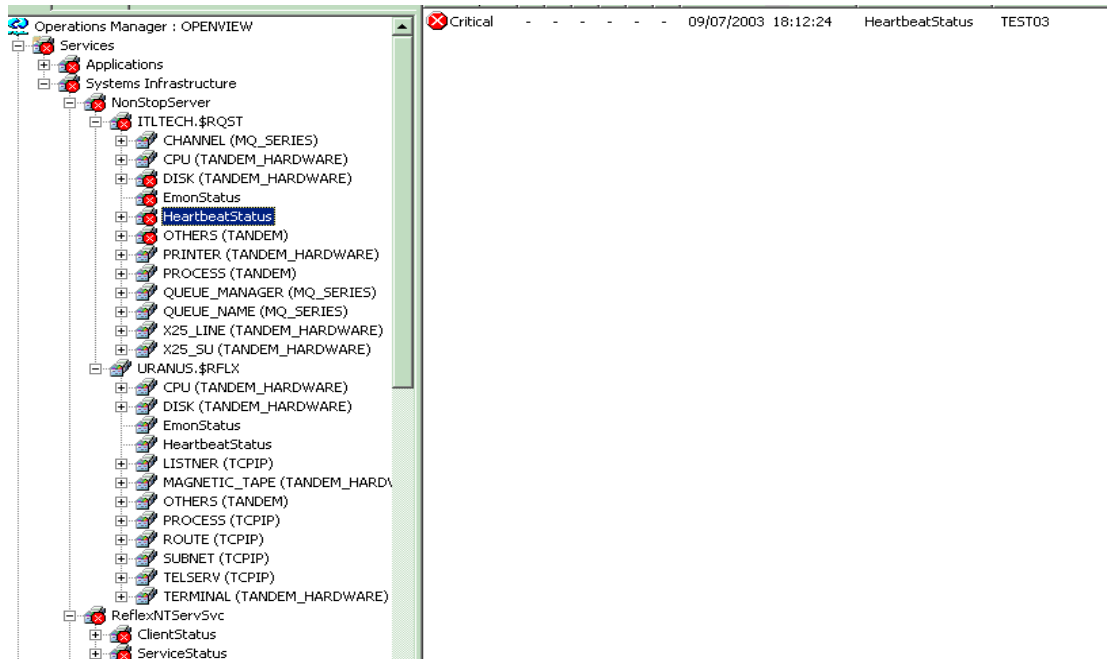
Event Number 2906 - REFLEX 80:20 : EMGRFDPCP : INFO - The Enterprise Manager feeder process has been disarmed. Enterprise Manager alert messages ignored.

Event Number 2907 - REFLEX 80:20 : EMGRFDPCP : ERROR - Attempt to connect to workstation with TCPIP Address : [<1>], Port Number : [<2>], has failed.

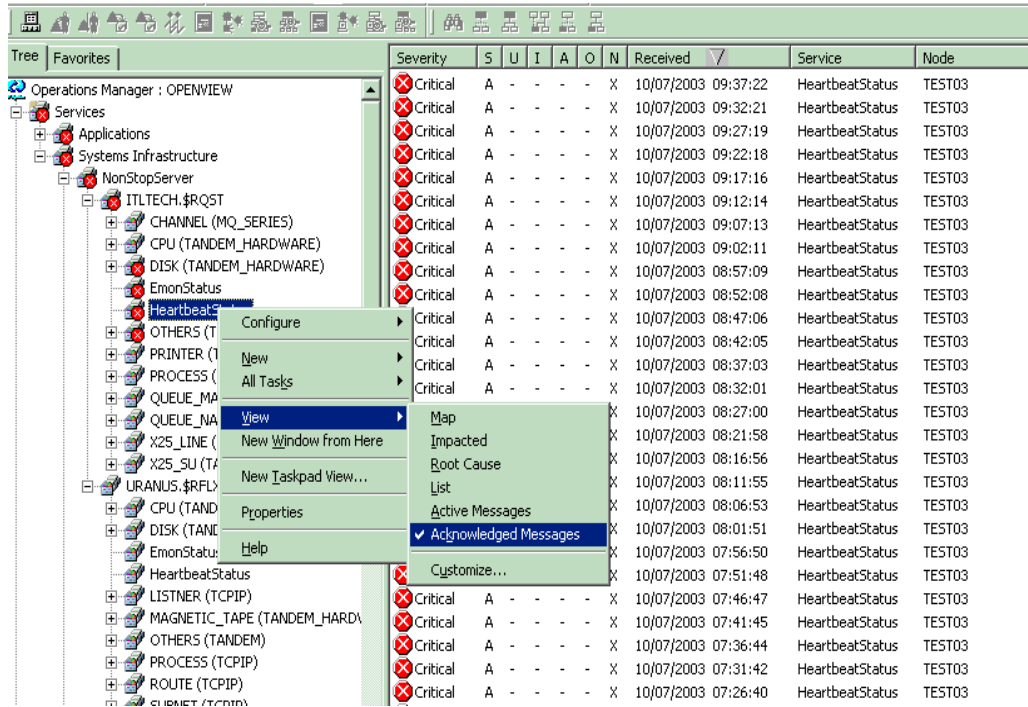
Those in bold should be seen in the Console Window view if a successful connection is made to the WIN32 'ReflexNTServSvc' service. If any of the others are generated then re-check the Reflex TCP/IP configuration and the Enterprise Manager parameter settings and any network security issues.

28. Checking the 'HeartbeatStatus' and 'ReflexNTServSvc' (entry at the bottom of the bitmap) tree items as shown below, will allow the checking of successful connectivity and that heartbeat events are being received from the NSK node.

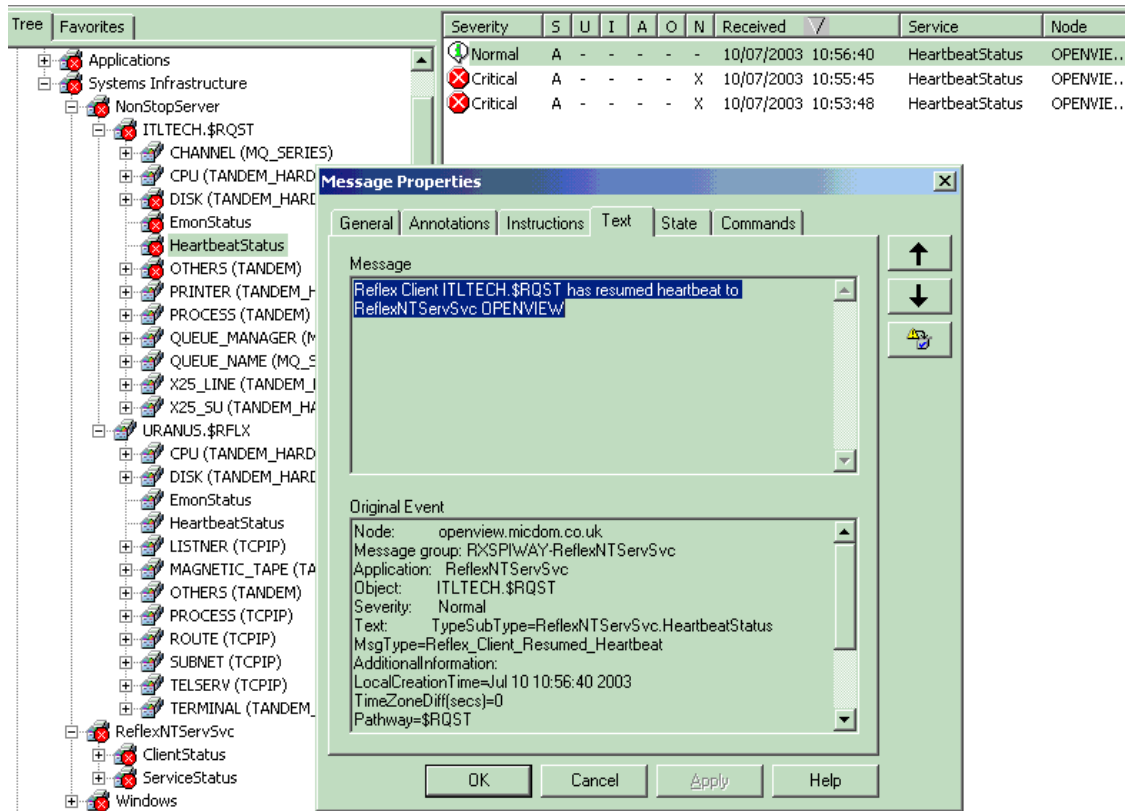
NOTE: Messages will disappear from the 'Active Messages' view into the 'Acknowledged Messages' view as new Heartbeats are posted and successful Heartbeats are acknowledged.



29. Heartbeat messages in the Heartbeat view will be acknowledged by duplicate messages. The acknowledged messages can be seen by right clicking on the Heartbeat tree entry in the hp OVO/W Console and selecting 'Acknowledged Messages' as shown below. The first bitmap shows unsuccessful heartbeat messages:



The second bitmap below shows the successful heartbeat message(s) that should be seen if the NSK platform is talking to the 'ReflexNTServSvc' service as depicted by the green 'NORMAL' icon on the left of the message window (right-click to see properties):



This completes the configuration requirements for connecting the Reflex licensed NSK platform(s) to the 'ReflexNTServSvc' OCMMSG SPI enabled WIN32 platform.

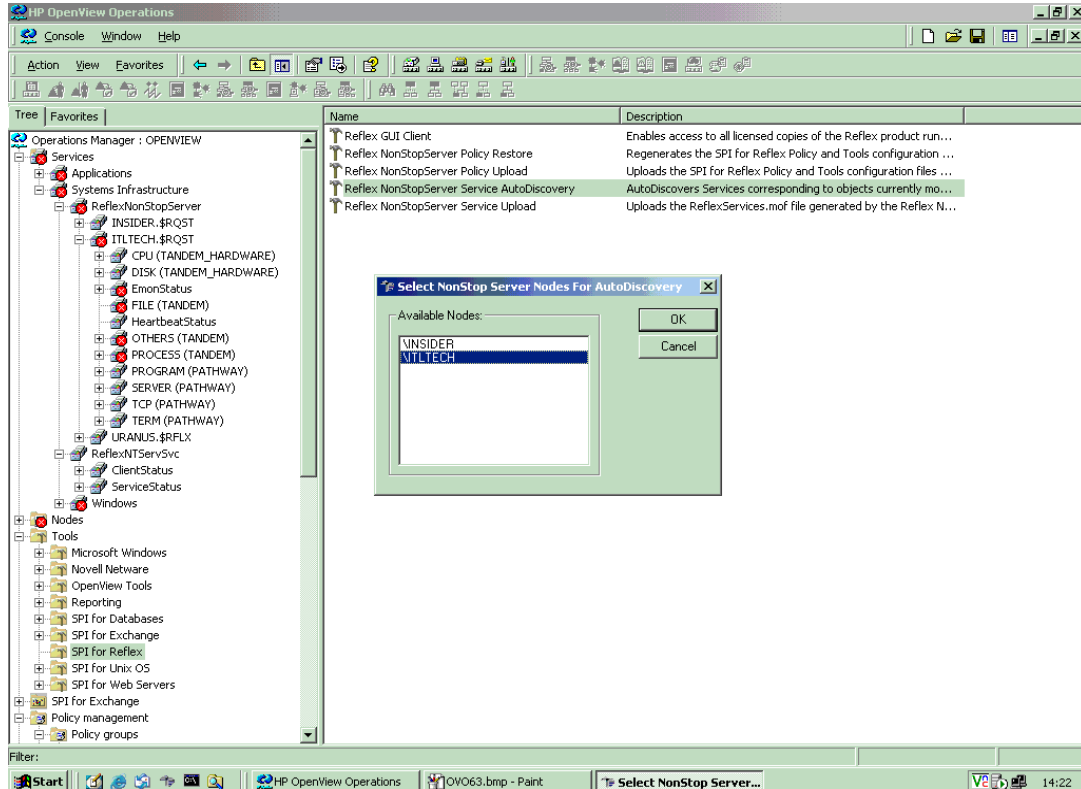
7. Auto-Detecting Reflex NSK Object Types into hp OVO/W

7.1. Using the hp OVO/W Console GUI Tool to Upload New Reflex Types & Subtypes

The SPI for Reflex -> Tools options allow for the redetection and population of the hp OVO/W Server database with the Reflex types and subtypes. These are used to build the service tree and topology views in the hp OVO/W Console.

7.1.1 Reflex NonStopServer Service Autodiscovery

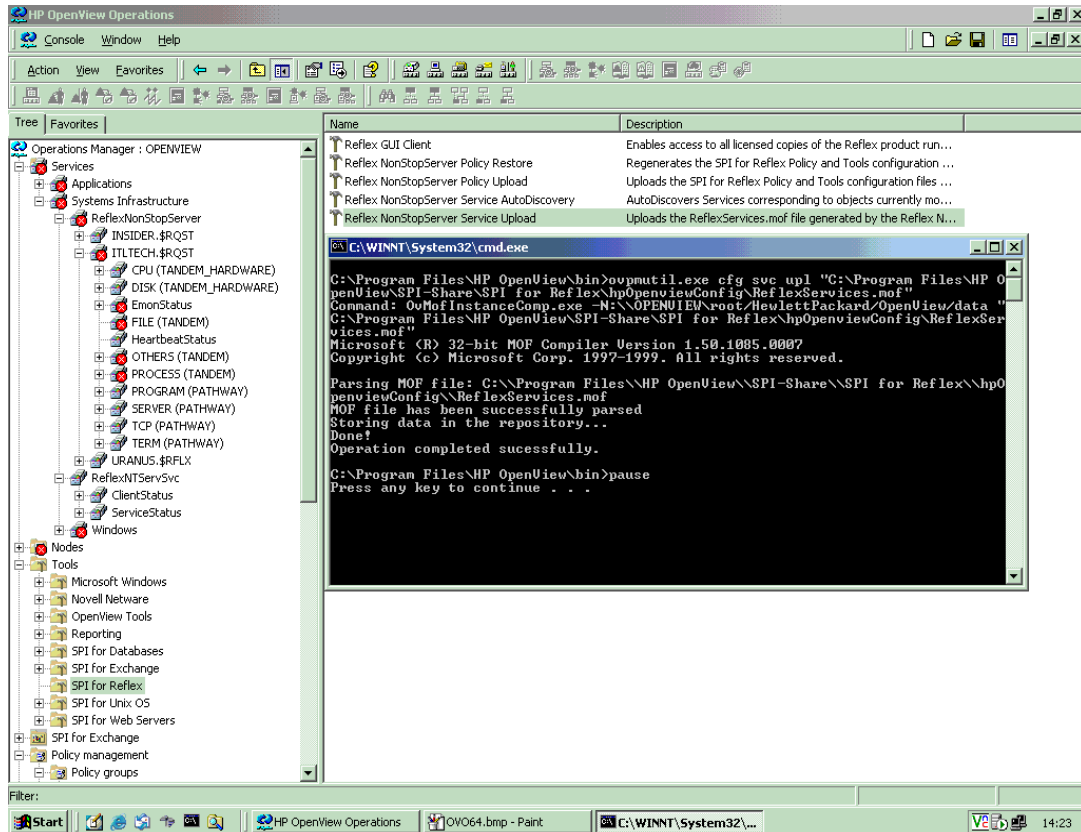
Uploads the 'ReflexServices.mof' file generated by the Reflex NonStopServer Service Autodiscovery tool. Click the tool and select NSK node:



This will subsequently generate the "ReflexServices.MOF" file for the next Tool to upload.

7.1.2 Reflex NonStopServer Service Upload

Uploads the 'ReflexServices.mof' file generated by the Reflex NonStopServer Service Autodiscovery tool.



7.2. Using the Reflex Client GUI to Upload New Types & Subtypes

It is recommended that the Reflex GUI Client be installed on the hp OpenView Operations Server in order to allow automatic detection of NSK types and subtypes to occur. This should be done using the MSI file 'SPI for Reflex'. This will speed up the administration and re-running of the automatic detection agents when new NSK types and subtypes are added later in Reflex.

NOTE:

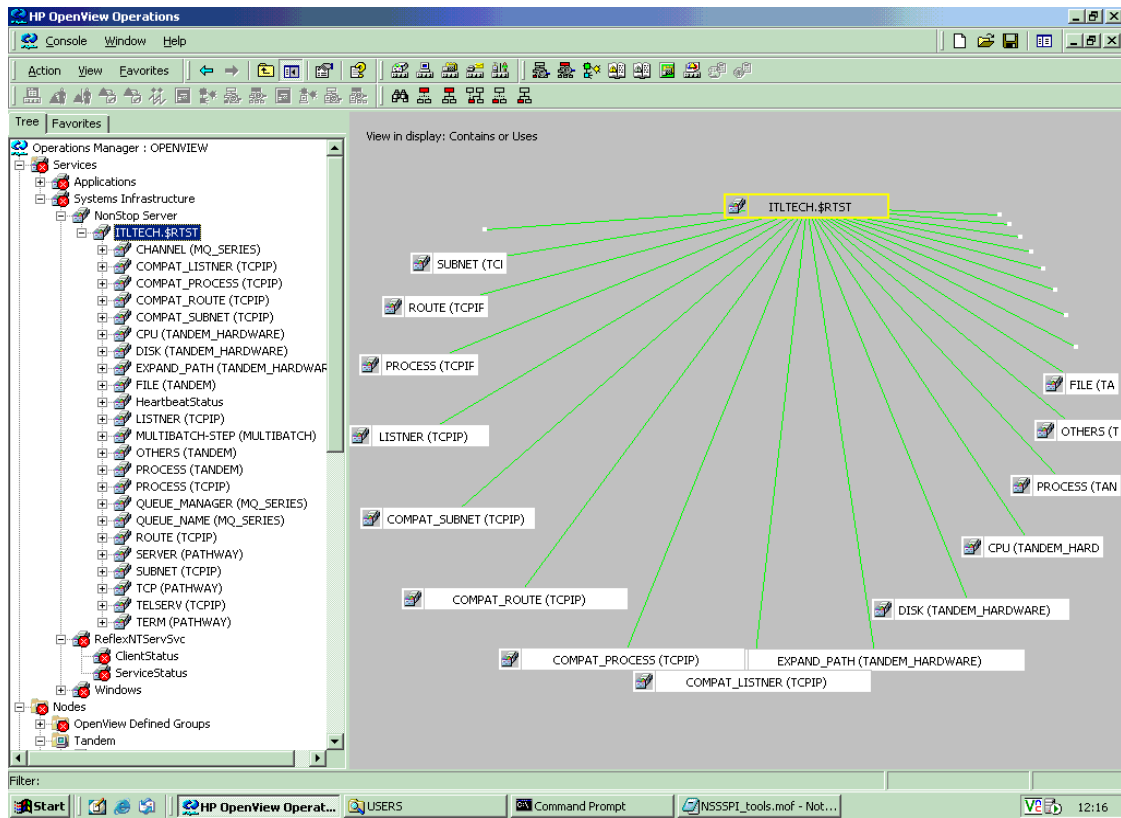
Installing the XFP<>.exe Reflex GUI client on the hp OVO/W Server does not enable it to carry out full NSK object automatic detection. The 'SPI for Reflex.msi' file should be used on this WIN32 server.

If the Reflex GUI Client is not installed using the MSI file above, then the MOF file produced by the Reflex GUI installed somewhere other than the hp OpenView Operations Server, will need to be copied directly to the hp OVO/W Server as described in the next section.

It should also be noted that the 'SPI for Reflex.MSI' file, when run on the hp OVO/W Server, will carry out an initial automatic detection of NSK object types and subtypes and populate the hp OVO/W Console. It can be re-run in the fashion described in this section, if new NSK object types and subtypes are added later.

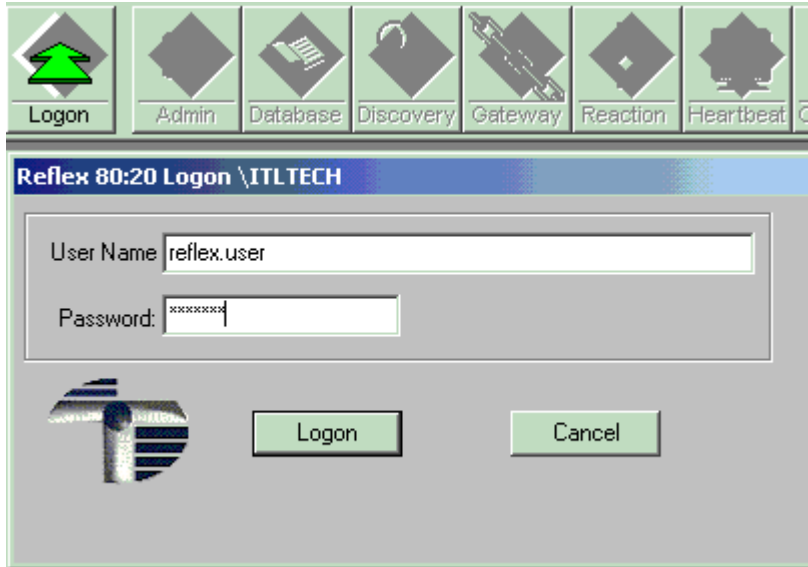
It is not necessary to carry out this section if all existing NSK types and subtypes have been set-up in the hp OVO/W Console.

When the MSI file is installed correctly on the hp OVO/W Server, the resulting view should look similar to that displayed below (*NOTE: it may be necessary to close and re-open the service tree in the hp OVO/W Console*):



In order to perform the same steps by way of the Reflex GUI client at a later date, carry out the following steps:

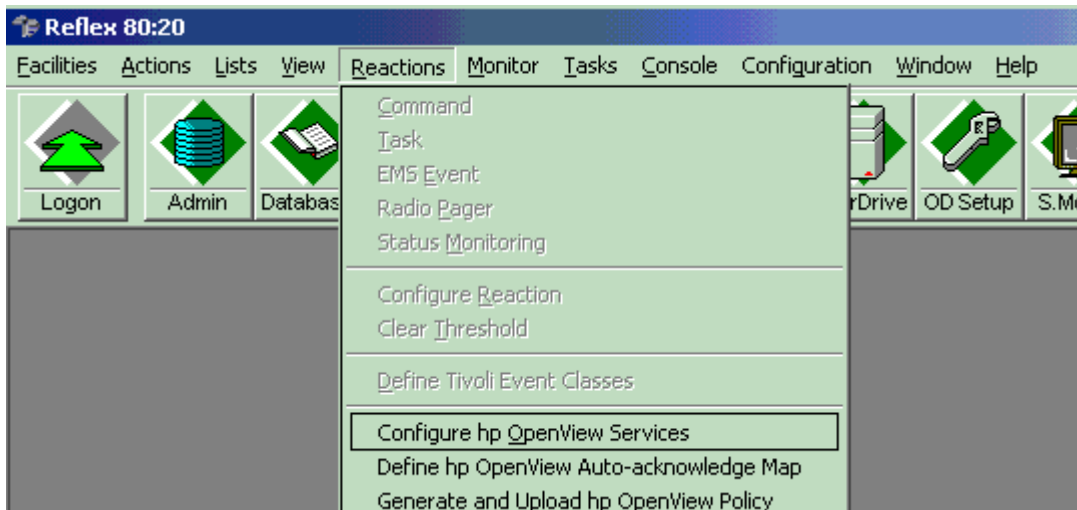
1. Double-click the Reflex executable 'Reflex.exe' to invoke the Reflex GUI Client software. This can be done inside the 'Tools' option of hp OpenView Operations Console.
2. Click on the LOGON button in the top left-hand corner of the GUI to invoke the logon dialog box.
3. Logon using an assigned Reflex Guardian User ID as shown below and then click the logon button (*NOTE: Contact the Reflex Administrator if an appropriate Logon ID has not been assigned*):



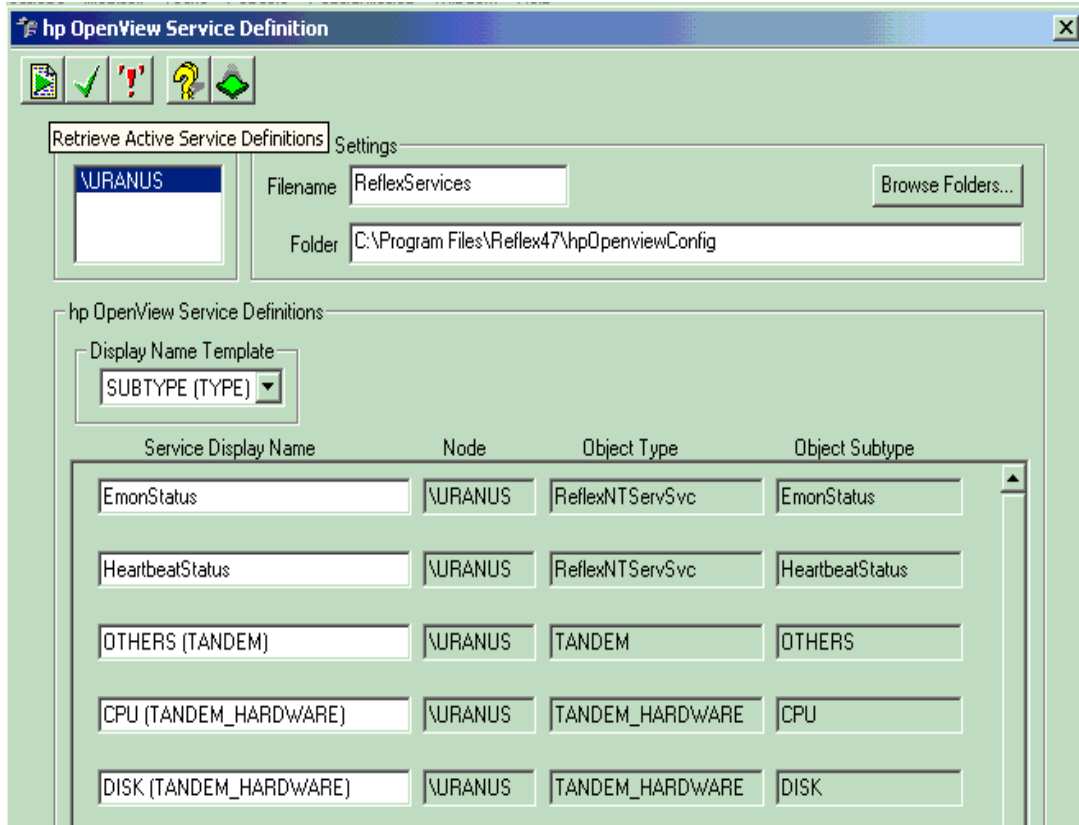
4. Once logged on the entire main toolbar should appear fully coloured as shown below:



5. Click on the 'Reactions' option on the top-most toolbar menu options as shown below and subsequently click on the 'Configure hp OpenView Services' option (the first of the four hp OVO/W related options):



6. In the 'hp OpenView Service Definition' GUI dialog window invoked from this option, click on the forward arrow in the top left to retrieve the Reflex NSK types and subtypes as shown below:



NOTE:

Clicking on the 'Amend' icon creates the 'ReflexServices.MOF' file.

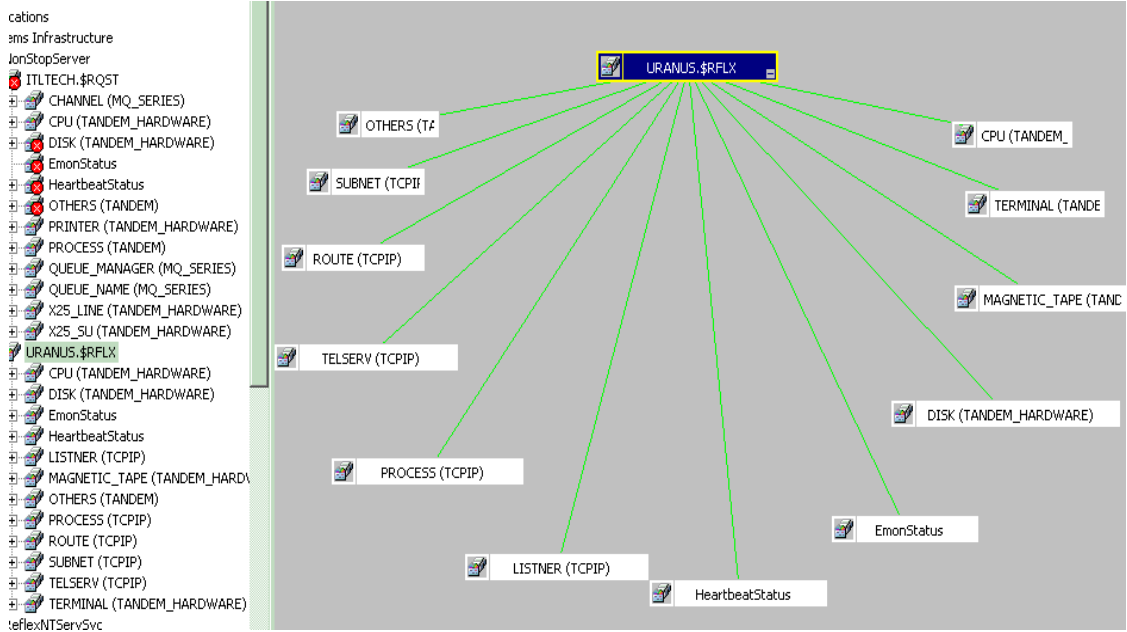


The Amend icon only creates the 'ReflexServices.MOF' file. This may be useful if running the Reflex GUI Client from another location. The file may subsequently be uploaded via the hp OVOW Console Tool "ReflexNonStopServer Services Upload". See next sub-section.

7. Click on the exclamation mark icon to *create and upload* the NSK object types and subtypes file 'ReflexServices.MOF' to the hp OpenView Operations Server (*Note: this Reflex GUI Client needs to be running on the hp OVOW Server to enable this to occur*):



8. The resulting view within the hp OpenView Operations services tree will be similar to the following screenshot if all steps have been successful (NOTE. You may need to close and re-open the hp OVO/W Console view):



7.3. Manual Upload of the 'ReflexServices.MOF' file to the hp OVO/W Service Tree

If not running the Reflex GUI Client on the hp OVO/W Server then the 'ReflexServices.MOF' file can be created on a remote WIN32 platform using the Reflex GUI, and then copied to the hp OVO/W Server. The remote WIN32 platform needs to be a managed node with a Reflex GUI configured against the appropriate NSK node.

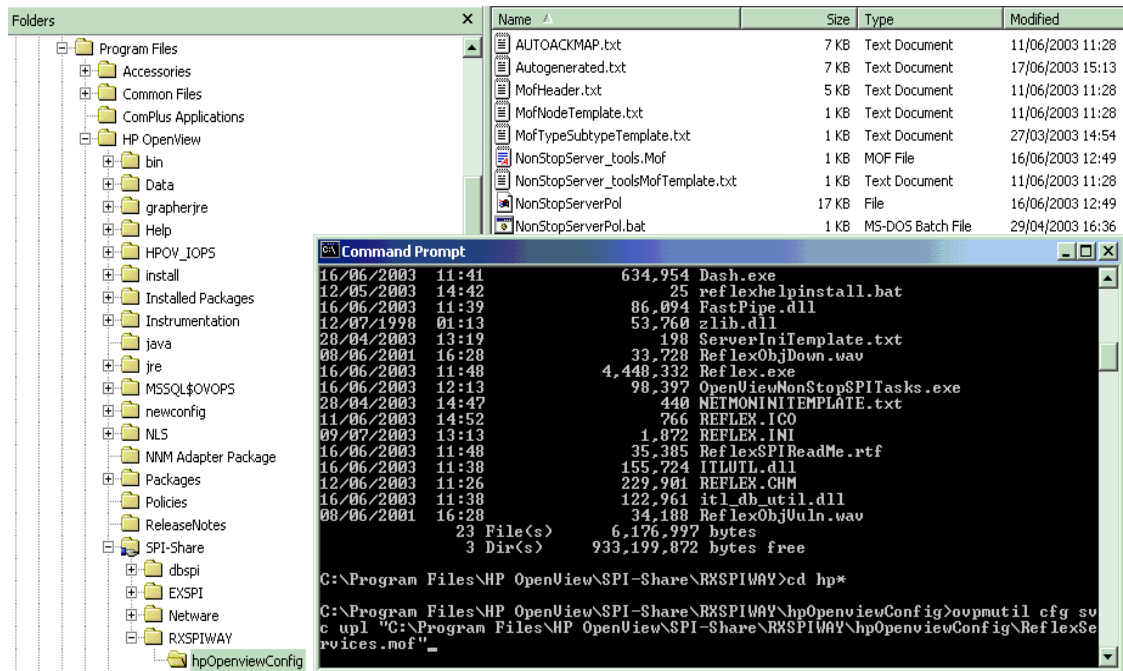
Follow steps 1 through 7 of Section 7.2. This will produce the 'ReflexServices.MOF' file that can then be copied to the hp OVO/W Server to the appropriate directory.

Once the file is generated, carry out the following steps:

1. Copy the file to the appropriate directory on the hp OVO/W Server, typically:

C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig

As shown below:



The screenshot shows a Windows Explorer window displaying the directory structure of 'Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig'. The right pane shows a list of files with columns for Name, Size, Type, and Modified. A Command Prompt window is overlaid on the Explorer, showing the output of a 'dir' command and the execution of a script to upload the 'ReflexServices.mof' file.

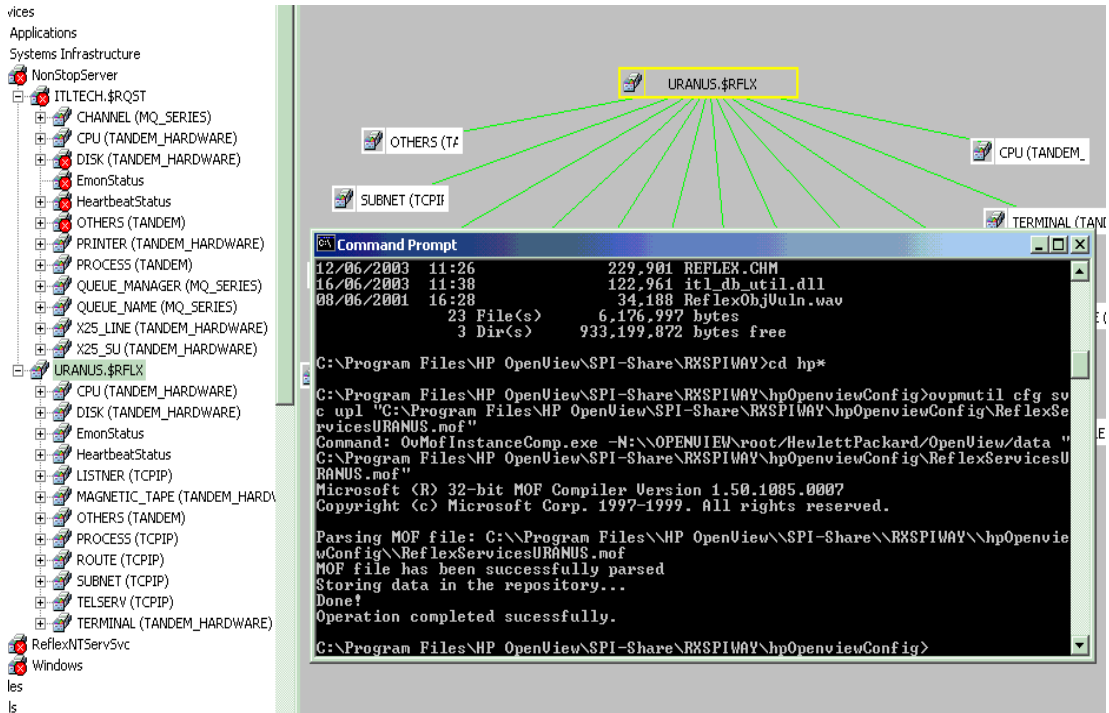
| Name | Size | Type | Modified |
|------------------------------------|-------|-------------------|------------------|
| AUTOACKMAP.txt | 7 KB | Text Document | 11/06/2003 11:28 |
| Autogenerated.txt | 7 KB | Text Document | 17/06/2003 15:13 |
| MofHeader.txt | 5 KB | Text Document | 11/06/2003 11:28 |
| MofNodeTemplate.txt | 1 KB | Text Document | 11/06/2003 11:28 |
| MofTypeSubtypeTemplate.txt | 1 KB | Text Document | 27/03/2003 14:54 |
| NonStopServer_tools.Mof | 1 KB | MOF File | 16/06/2003 12:49 |
| NonStopServer_toolsMofTemplate.txt | 1 KB | Text Document | 11/06/2003 11:28 |
| NonStopServerPol | 17 KB | File | 16/06/2003 12:49 |
| NonStopServerPol.bat | 1 KB | MS-DOS Batch File | 29/04/2003 16:36 |

```

C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig>dir
23 File(s)      6,176,997 bytes
 3 Dir(s)       933,199,872 bytes free

C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig>cmd /c
cmd /c "C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig\ovpmputil cfg sv
c upl "C:\Program Files\HP OpenView\SPI-Share\SPI for Reflex\hpOpenviewConfig\ReflexSe
rvices.mof"
    
```

- Run this file using the '*ovpmutil cfg svc upl*' command as shown in the following bitmap, specifying the fully qualified location:



The screenshot displays a network management interface. On the left, a tree view shows the following structure:

- vices
 - Applications
 - Systems Infrastructure
 - NonStopServer
 - ITLTECH.\$RQST
 - CHANNEL (MQ_SERIES)
 - CPU (TANDEM_HARDWARE)
 - DISK (TANDEM_HARDWARE)
 - EmonStatus
 - HeartbeatStatus
 - OTHERS (TANDEM)
 - PRINTER (TANDEM_HARDWARE)
 - PROCESS (TANDEM)
 - QUEUE_MANAGER (MQ_SERIES)
 - QUEUE_NAME (MQ_SERIES)
 - X25_LINE (TANDEM_HARDWARE)
 - X25_SU (TANDEM_HARDWARE)
 - URANUS.\$RFLX**
 - CPU (TANDEM_HARDWARE)
 - DISK (TANDEM_HARDWARE)
 - EmonStatus
 - HeartbeatStatus
 - LISTNER (TCPIP)
 - MAGNETIC_TAPE (TANDEM_HARDWARE)
 - OTHERS (TANDEM)
 - PROCESS (TCPIP)
 - ROUTE (TCPIP)
 - SUBNET (TCPIP)
 - TELSERV (TCPIP)
 - TERMINAL (TANDEM_HARDWARE)

On the right, a Command Prompt window shows the following output:

```

12/06/2003 11:26          229,901 REFLEX.CHM
16/06/2003 11:38          122,961 itl_db_util.dll
08/06/2001 16:28          34,188 ReflexObjUuln.wav
                23 File(s)          6,176,997 bytes
                3 Dir(s)          933,199,872 bytes free

C:\Program Files\HP OpenView\SPI-Share\RXSPIWAY>cd hp*

C:\Program Files\HP OpenView\SPI-Share\RXSPIWAY\hpOpenviewConfig>ovpmutil cfg svc
upl "C:\Program Files\HP OpenView\SPI-Share\RXSPIWAY\hpOpenviewConfig\ReflexSe
rvicesURANUS.mof"
Command: OvMofInstanceComp.exe -N:\OPENVIEW\root\HewlettPackard\OpenView\data "
C:\Program Files\HP OpenView\SPI-Share\RXSPIWAY\hpOpenviewConfig\ReflexServicesU
RANUS.mof"
Microsoft (R) 32-bit MOF Compiler Version 1.50.1085.0007
Copyright (c) Microsoft Corp. 1997-1999. All rights reserved.

Parsing MOF file: C:\Program Files\HP OpenView\SPI-Share\RXSPIWAY\hpOpenvie
wConfig\ReflexServicesURANUS.mof
MOF file has been successfully parsed
Storing data in the repository...
Done!
Operation completed successfully.

C:\Program Files\HP OpenView\SPI-Share\RXSPIWAY\hpOpenviewConfig>
    
```

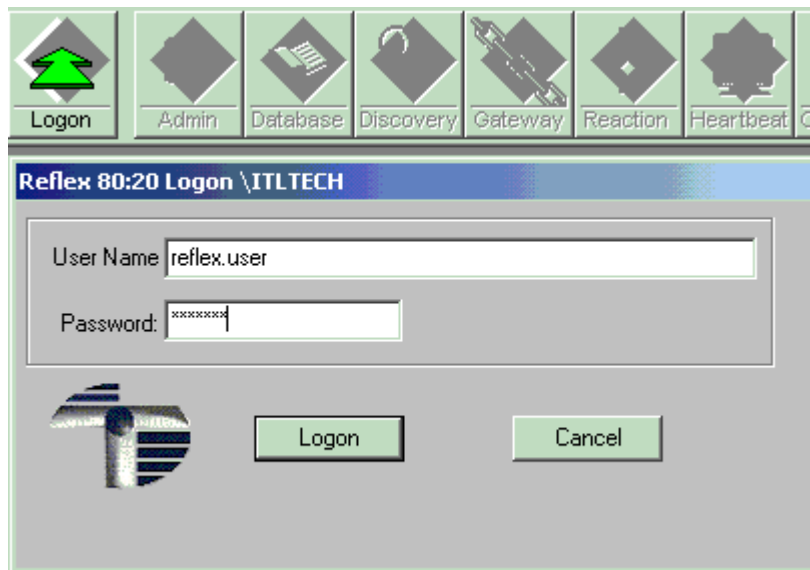
8. Configuring EMS Events to be Relayed to hp OVO/W

8.1. Raising a Simple Test Event from the Reflex GUI Client

This section details the Reflex set-up requirements to fire a test EMS alert at the hp OVO/W Console to check that events can be received against type/subtype TANDEM (OTHERS).

Carry out the following tasks:

1. Double-click the Reflex executable 'Reflex.exe' to invoke the Reflex GUI Client software. This can be done from the Tools option in the hp OVO/W Console as well.
2. Click on the LOGON button in the top left-hand corner of the GUI to invoke the logon dialog box.
3. Logon using an assigned Reflex Guardian User ID as shown below and then click the logon button (NOTE: Contact the Reflex Administrator if an appropriate Guardian User ID has not been assigned):



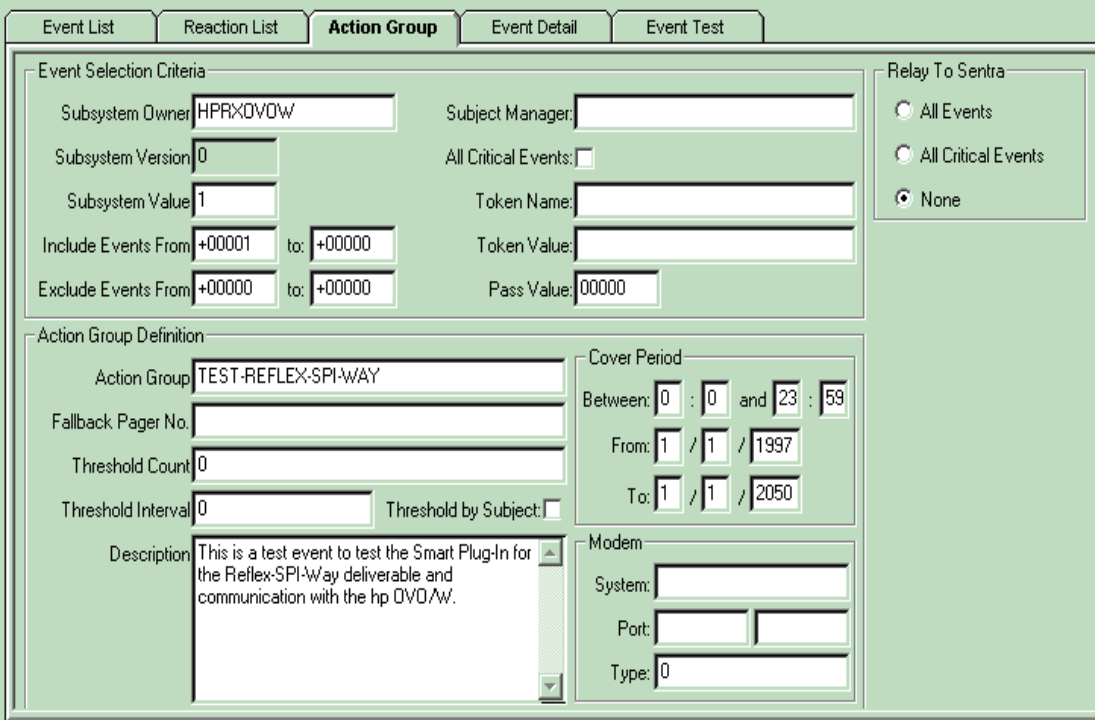
4. Once logged on the entire main toolbar should appear fully coloured as shown below:



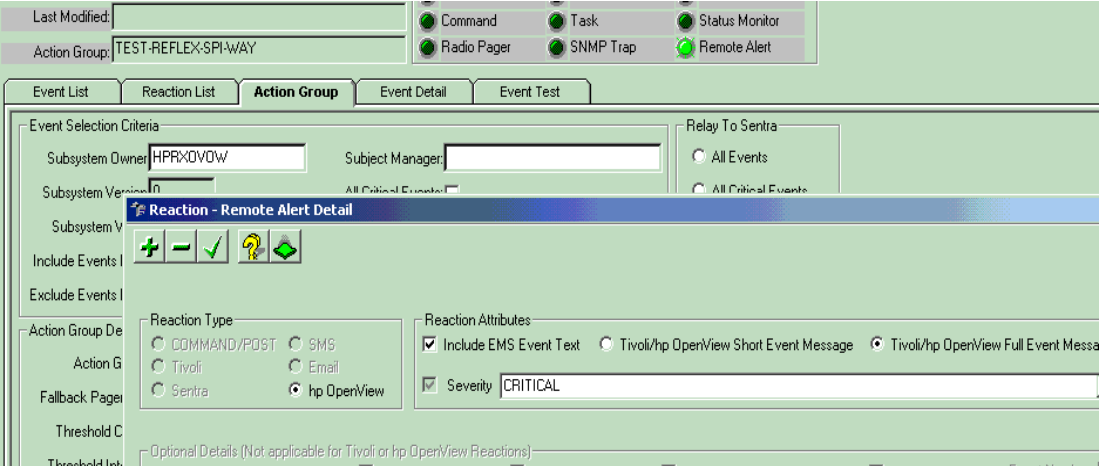
5. Click on the Reaction module on the main toolbar to invoke the Reaction tabs:



- Click the 'Action Group' tab which is the third tab along and enter the details as shown in the following bitmap (*OWNER: HPRXOVO/WW, VALUE: 1, EVENTS FROM: 00001, ACTION-GROUP: TEST-REFLEX-SPI-WAY*):



- Click on the Remote Alert option displayed in light green in the bitmap below, to invoke the remote alert dialog and enter the details exactly as shown below:



- Click the ADD button in the top-left of the 'Reaction – Remote Alert Detail' dialog to add this reaction. Click OK to resulting confirmation box.
- Exit from this dialog using the green arrow on the right of the 'Reaction – Remote Alert Detail' dialog to get back to the Action Group dialog shown in point 6.
- Click 'OK' to the 'Add' rather than 'Amend' information box and subsequently add the record with the '+' button on the main reaction toolbar (top-left).
- Once having added this new hp OVO/W event, the Reflex Event Monitor needs to know about the new event so a number of steps need to be followed.

12. Click on the '!' icon at the top middle of the Reaction window. We now need to re-build the Event Monitor EMS filter which passes configured EMS events to the monitor process. This will take on board the newly added event that you associated with a hp OVOW alert on the NSK node. Carrying out the following steps will allow us to fire a test alert at the hp OVOW Console. The dialog box should look as follows:



13. Click on the 'Generate Filter Source' button to initiate the generation of the Event Monitor filter file. This is a waited operation so wait for the completion message to appear. This will be as follows;

REFLEX 80:20 FILTER SOURCE SUCCESSFULLY GENERATED.

14. Click 'OK' on this message.

15. Subsequently click on the 'Compile Filter Program' button on this dialog. This is a no-waited option so we will need to go to the spooler to check the compilation has worked successfully. The following message will appear;

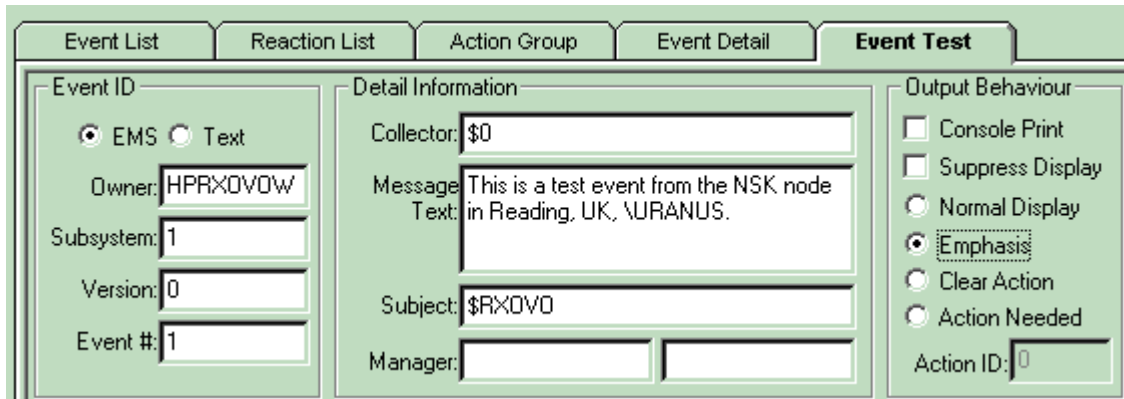
FILTER COMPILATION STARTED. CHECK OUTPUT FILE FOR COMPLETION.

16. Two EMS events are now generated (check Reflex Console – you will have to come out of the Operations Control dialog temporarily to do this). The subject is FILTER COMPILE and text is:

**REFLEX 80:20 : Filter Compilation - Successful and
REFLEX 80:20 : Inverse Filter Compilation - Successful**

17. Go back to the Reflex GUI and carry out the final step in this 3-step sequence which is 'Warm-boot Reaction Servers'. Remember it is under the '!' icon of the Reaction Module.
18. This flushes the Event Monitor of currently configured event ranges causing it to re-read the Reflex database for newly configured events and also to re-hook up to the newly created EMS filter object – ECALFOBJ.
19. Check the success of the warm-boot by clicking on the 'Console' button on the main toolbar of Reflex. This is an EMS event-viewing module. Scroll using the scroll bars to view the warm-boot EMS messages generated by the processes CEGEN, PROCMON, EVNTMON and so on.

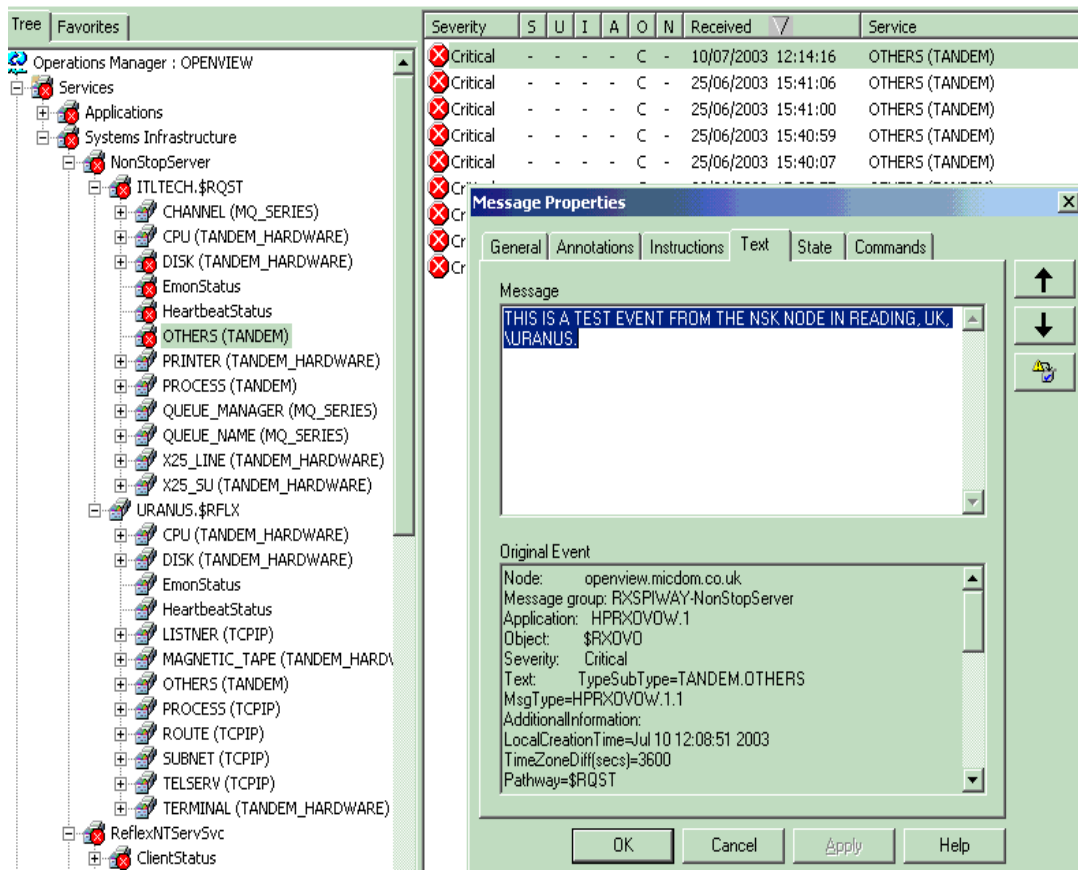
20. Select the 'Event Test' tab which is the last tab in the window and enter the details as shown in the bitmap below (use your own description):



21. Generate the event by clicking on the tick icon:



22. Check the hp OVO/W Console for the incoming event which should appear in the Service Tree and Message Window (OTHERS (TANDEM) as follows:



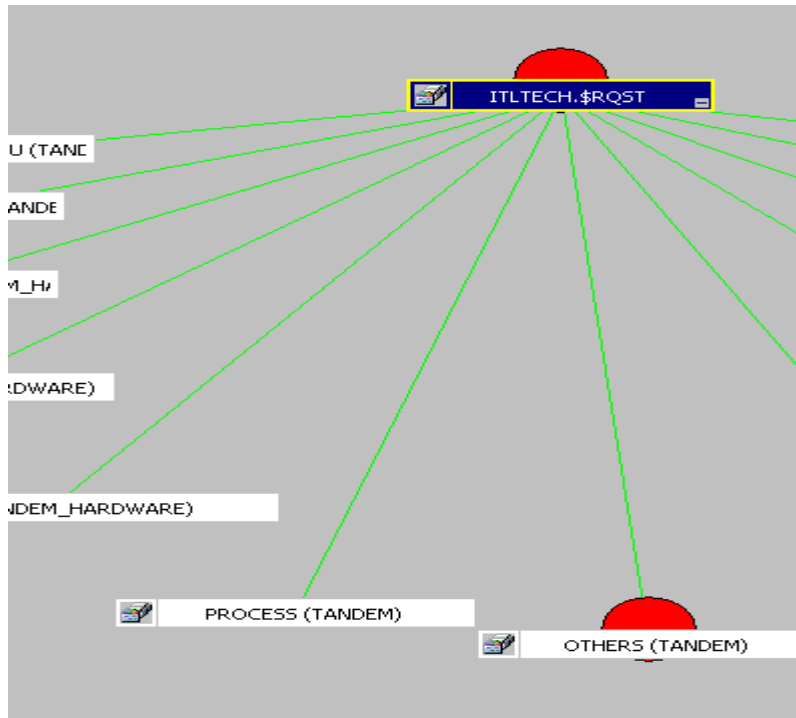
| Severity | S | U | I | A | O | N | Received | Service |
|----------|---|---|---|---|---|---|---------------------|-----------------|
| Critical | - | - | - | - | - | C | 10/07/2003 12:14:16 | OTHERS (TANDEM) |
| Critical | - | - | - | - | - | C | 25/06/2003 15:41:06 | OTHERS (TANDEM) |
| Critical | - | - | - | - | - | C | 25/06/2003 15:41:00 | OTHERS (TANDEM) |
| Critical | - | - | - | - | - | C | 25/06/2003 15:40:59 | OTHERS (TANDEM) |
| Critical | - | - | - | - | - | C | 25/06/2003 15:40:07 | OTHERS (TANDEM) |

Message Properties

Message: THIS IS A TEST EVENT FROM THE NSK NODE IN READING, UK, \URANUS.

Original Event

- Node: openview.micdom.co.uk
- Message group: RXSPIWAY-NonStopServer
- Application: HPRXOVOW.1
- Object: \$RXOVO
- Severity: Critical
- Text: TypeSubType=TANDEM.OTHERS
- MsgType=HPRXOVOW.1.1
- Additional Information:
 - LocalCreationTime=Jul 10 12:08:51 2003
 - TimeZoneDiff(secs)=3600
 - Pathway=\$RQST



8.2. Raising a Test Tandem File Event from the Reflex GUI Client

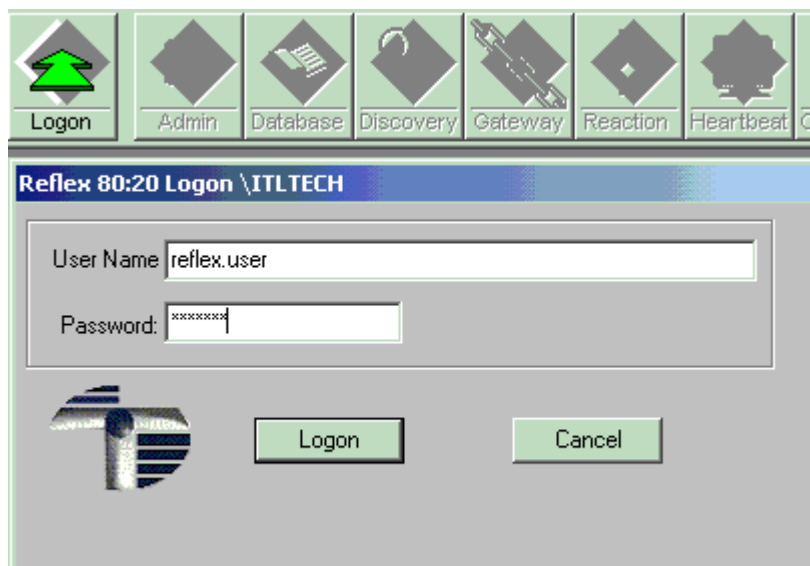
IMPORTANT NOTE:

Ensure that you have tested NSK EMS alerting by carrying out Section 8.1 before proceeding.

This section details the Reflex set-up requirements to fire a test EMS file alert at the hp OVOW Console to check that events can be received against type/subtype TANDEM (FILE).

Carry out the following tasks:

1. Double-click the Reflex executable 'Reflex.exe' to invoke the Reflex GUI Client software. This can be done from the Tools option in the hp OVOW Console as well.
2. Click on the LOGON button in the top left-hand corner of the GUI to invoke the logon dialog box.
3. Logon using an assigned Reflex Guardian User ID as shown below and then click the logon button:



4. Once logged on the entire main toolbar should appear fully coloured as shown below:



5. Click on the 'Heartbeat' module on the main Reflex toolbar
6. You will be presented with the 'Process Existence' window. Click on the last tab entitled 'File Metrics'. If there are no records currently registered then the following message will be displayed.

! There are no file metrics entries currently registered

Click 'OK' if this message appears.

On the right-hand side of the 'File Metrics' window is the detail aspect. On this side, details of Tandem files can be entered for monitoring.

NOTE:

Although a system node value can be included as part of entering the file name details, Reflex does not monitor NonStop files on remote systems. This is purely strategic, since Reflex can be networked with other Reflex applications, which will perform this task of file monitoring on the appropriate NSK node. This will also serve to cut down on network traffic across EXPAND. The node name will be stripped as part of inserting it into the Reflex database. Each licensed Reflex application on each NSK platform can be configured to relay alerts to the hp OVO/W Server.

7. Type the name of the Reflex OBJECT configuration file (OBJECTQ) with the appropriate volume and subvolume references e.g. \$DATA7.RFLXDAT.OBJECTQ.
8. The next part of the detail window allows the entering of the subsystem identification (SSID) and event numbers to reflect the present, not present and vulnerable states of the given file. Enter the owner field (if you wish it to be different to the default – INSIDER), a value field and unique present, not present and vulnerable event numbers for the associated owner field. NOTE: write down the details you use for the *vulnerable* alert, e.g. OWNER.VALUE.EVENT_NUMER.
9. Check both the 'Status Monitor Object' and 'Configure Action Groups' fields in the 'Monitoring' aspect of the detail window.

NOTE:

The purpose of the 'Status Monitor Object' field is to place an object component entry in the Reflex object tree database for looking up the type and subtype of the object. This is used later when relaying the file EMS alert to the hp OVO/W Server. The event will be tagged with the type and subtype for the purposes of allowing hp OVO/W Console task initiation and retrieval of detailed information and real-time status.

10. When the file you have entered is being monitored by the NonStop file monitor, the subject token of any event raised is the name of the file, e.g. \$DATA7.RFLXDAT.OBJECTQ. This will be used in the remote alert along with the type and subtype fields (TANDEM.FILE) for mapping to the appropriate branch in both the Service Tree and topology views of the hp OVO/W Console.
11. Enter the description field to describe the file that is being monitored, e.g. Application, Tandem, ENSCRIBE, SQL, EDIT. This will aid other Reflex users in the future as well as acting as a reminder for you.
12. Set the security fields to values contrary to those actually set against the OBJECTQ file so that the file monitoring process will generate a vulnerable EMS alert.

13. Click on the '+' button at the top of the window to enter this file record into the Reflex database. You will be presented with the following message (*example file*):

! \$DATA07.RFLXDAT.OBJECTQ has been added successfully.

Click 'OK' to clear the message.

NOTE:

The file entry that you have just added will not immediately appear in the list box on the left of the 'File Metrics' window. This is because the window is not immediately refreshed after adding a record to the database. This is a style and convention that is followed throughout the rest of the product to minimise network traffic. In order to see the file item in the list box, exit from the Heartbeat window or simply click between tabs to subsequently see your configured file entry. This causes the Reflex GUI to re-access the NonStop database for records.

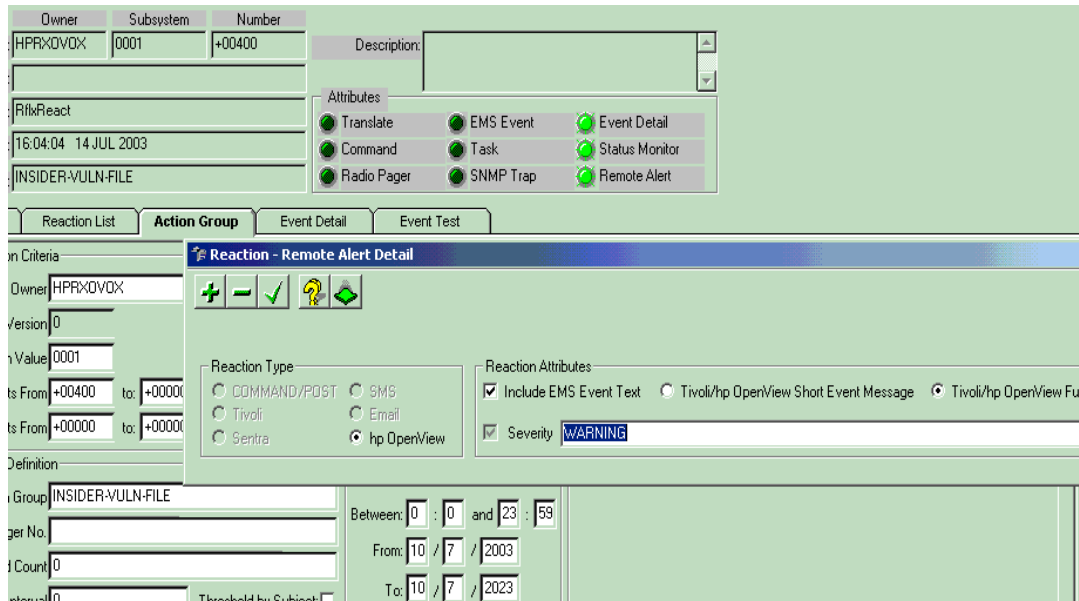
Double clicking on the file entry in the left window will bring that entry into context in the detail aspect of the same window.

14. Exit from the Heartbeat window by clicking on the green arrow to the right of the yellow question mark (?) icon.
15. Click on the Reaction button on the main toolbar of Reflex. Maximise the resulting window.
16. Click on the second tab entitled 'Reaction List'. This will provide a list of currently configured EMS event ranges in the Reflex database. Some of these events have been pre-supplied as part of a full install of the product.
17. Scroll down the list until you see the SSID and event number(s) you specified for your UP, DOWN and VULNERABLE EMS event messages for the Heartbeat file entry you added. You should notice that for you event(s) the column 'Monitor' has an asterisk (*) character specified. This has been done because you asked Reflex to automatically configure (using the 'Configure Action Groups' option) the Reaction engine with your chosen EMS events. The 'Monitor' column is short for 'Graphical Monitoring in Status Monitor'.
18. Double-click on the 'INSIDER-VULN-FILE' SSID you added earlier (this is the one you made a note of) in Heartbeat and click on the third tab in the reaction window 'Action Group'. You should notice that the green attribute 'Status Monitor' turns to light green to denote graphical alerting for this EMS event.
19. All of this has been set-up automatically for you as a result of ticking the 'Configure Action Groups' option in Heartbeat File Metrics.
20. A default action group has been assigned to this EMS event (INSIDER-VULN-FILE). The cover period specifies a date that allows you to only monitor these EMS events for hp OVO/W alerting between to date and time periods.

NOTE:

The time range should be the same as the times specified in the Heartbeat window otherwise Heartbeat events may be raised to the EMS log and not reacted to by the Reaction engine (in this case for graphical alerting) since the time periods are not complementary. This would be the usual configuration unless you are purposely configuring a different behaviour.

21. Click on the 'Remote Alert' option on the Reaction screen and add the details as shown in the following window for your vulnerable event:



22. Add the remote alert reaction by clicking the '+' icon in the top-left corner of the Remote Alert Detail dialog.

23. Exit from the Remote Alert Detail dialog using the right-most green arrow icon:



24. Click on the amend button on the main Reaction toolbar:



25. Click on the '!' icon at the top middle of the resulting window. We now need to re-build the Event Monitor EMS filter which passes configured EMS events to the monitor process. This will take on board the newly added events that you associated with a file present, not present and vulnerable on the Tandem node. Carrying out the following steps will allow us to set-up graphical monitoring discussed in the next sub-section.

26. Click on the 'Generate Filter Source' button to initiate the generation of the Event Monitor filter file. This is a waited operation so wait for the completion message to appear. This will be as follows;

REFLEX 80:20 FILTER SOURCE SUCCESSFULLY GENERATED.

27. Click 'OK' on this message.

28. Subsequently click on the 'Compile Filter Program' button on this dialog. This is a no-waited option so we will need to go to the spooler to check the compilation has worked successfully. The following message will appear;

FILTER COMPILATION STARTED. CHECK OUTPUT FILE FOR COMPLETION.

29. Two EMS events are now generated (check Reflex Console). The subject is FILTER COMPILE and text is:

REFLEX 80:20 : Filter Compilation - Successful and
REFLEX 80:20 : Inverse Filter Compilation - Successful

30. Logon to the NonStop platform as the owner of the Reflex Pathway and go into PERUSE or SPOOLCOM to check the output from this filter compilation stage. The report output will be entitled '#REFLEX'. Two outputs will be produced. One is the Reflex Event Monitor filter file and the other is the inverse filter. If you search through the outputs, you will see the event numbers you allocated for the monitoring of your Heartbeat file.

31. If the outputs show 'no errors' on the last page, go back to the Reflex GUI and carry out the final step in this 3-step sequence which is 'Warm-boot Reaction Servers'.
32. This flushes the Event Monitor of currently configured event ranges causing it to re-read the Reflex database for newly configured events and also to re-hook up to the newly created EMS filter object – ECALFOBJ.
33. Check the success of the warm-boot by clicking on the 'Console' button on the main toolbar of Reflex. This is an EMS event-viewing module. Scroll using the scroll bars to view the warm-boot EMS messages generated by the processes CEGEN, PROCMON, EVNTMON and so on.
34. Exit from all of the displayed windows leaving only the Reflex main toolbar on display.
35. Watch for the TEST OBJECTQ security alerts for the NSK OBJECTQ file mapped to the Service Tree view - FILE (TANDEM) - in hp OVO/W Console and the topology view.

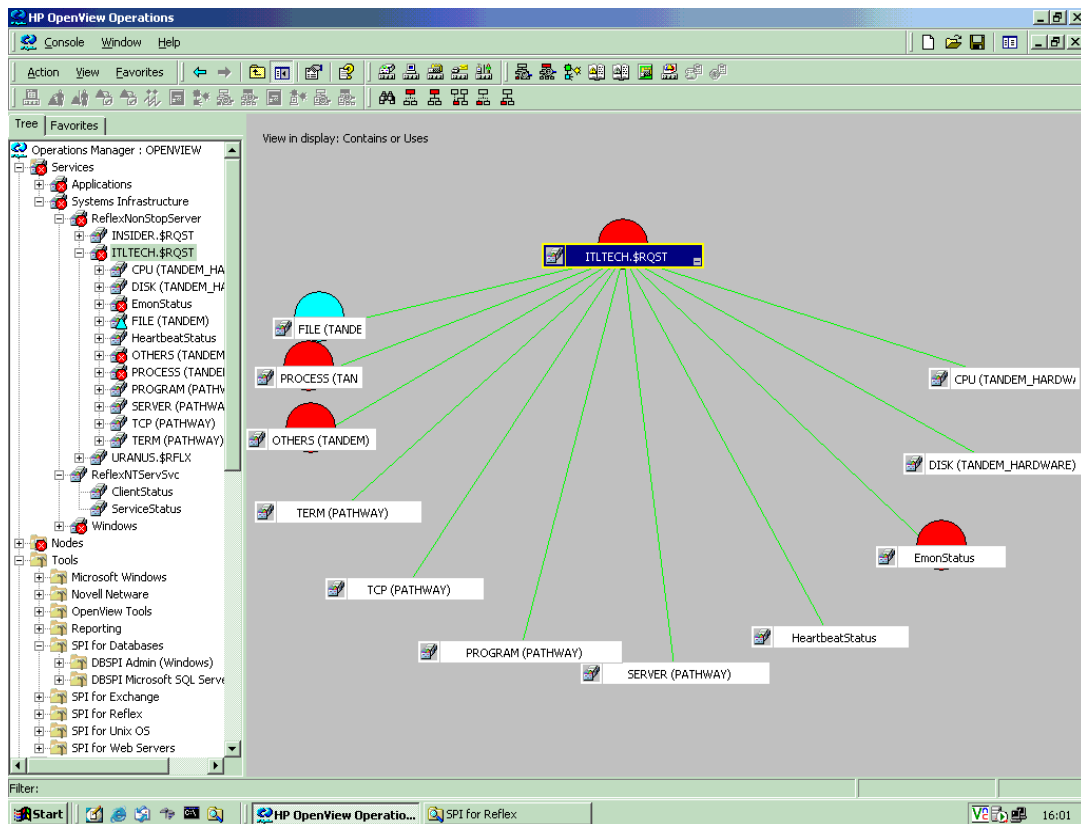
9. Using the SPI for Reflex Features

9.1. Overview

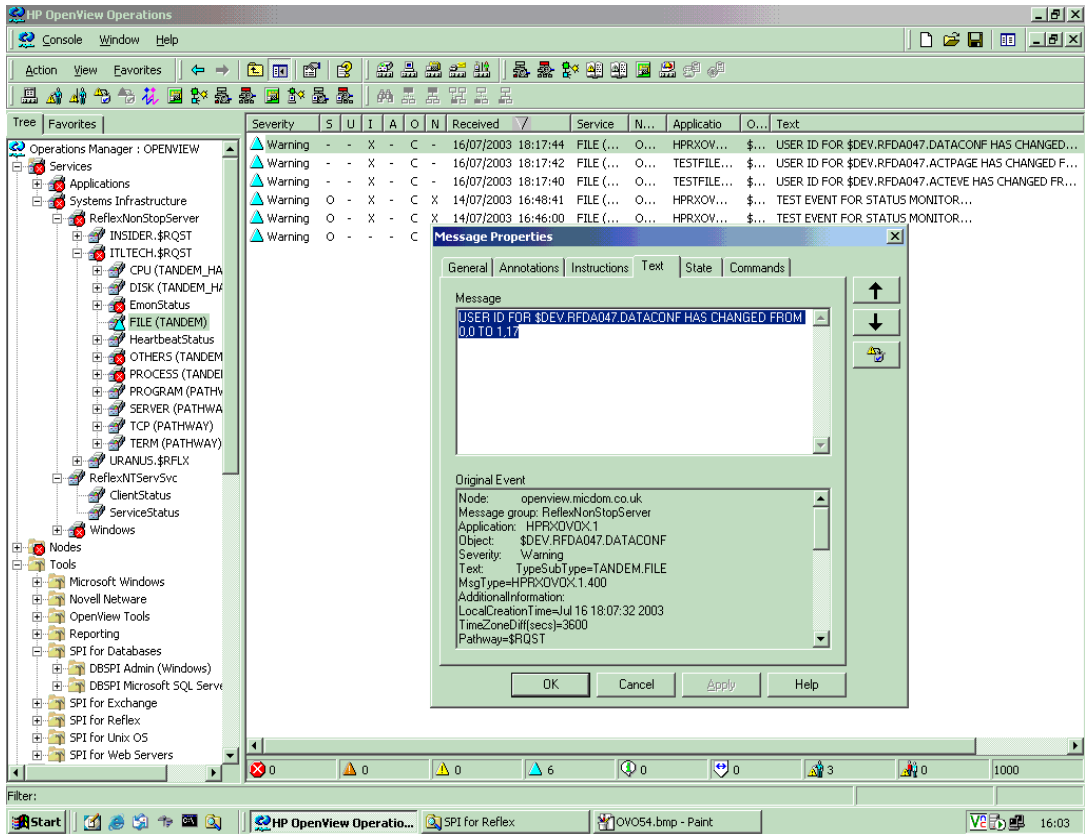
This section follows on from Section 8 and provides instructions on how to use the SPI for Reflex features in troubleshooting an NSK event issued to the hp OVO/W Console. Ensure that Section 8 has been tried and tested and that a file alert is being issued to the hp OVO/W Console before continuing.

9.2. Dealing with an NSK EMS Alert in hp OVO

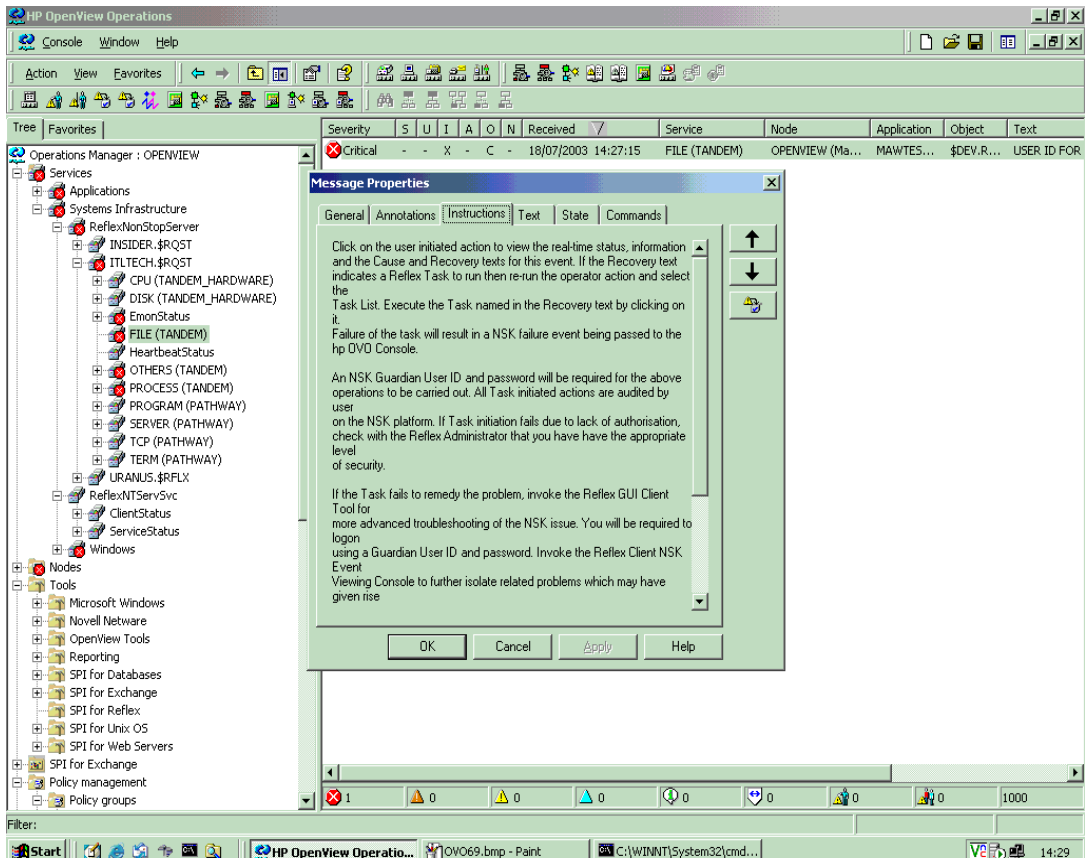
The NSK file events will be mapped against the current 'FILE (TANDEM)' icon in the hp OVO/W Console (top left) as well as the Service Tree on the left of the Window. The severity assigned to the NSK event at configuration time will dictate the colour coding representation in the hp OVO/W Console.



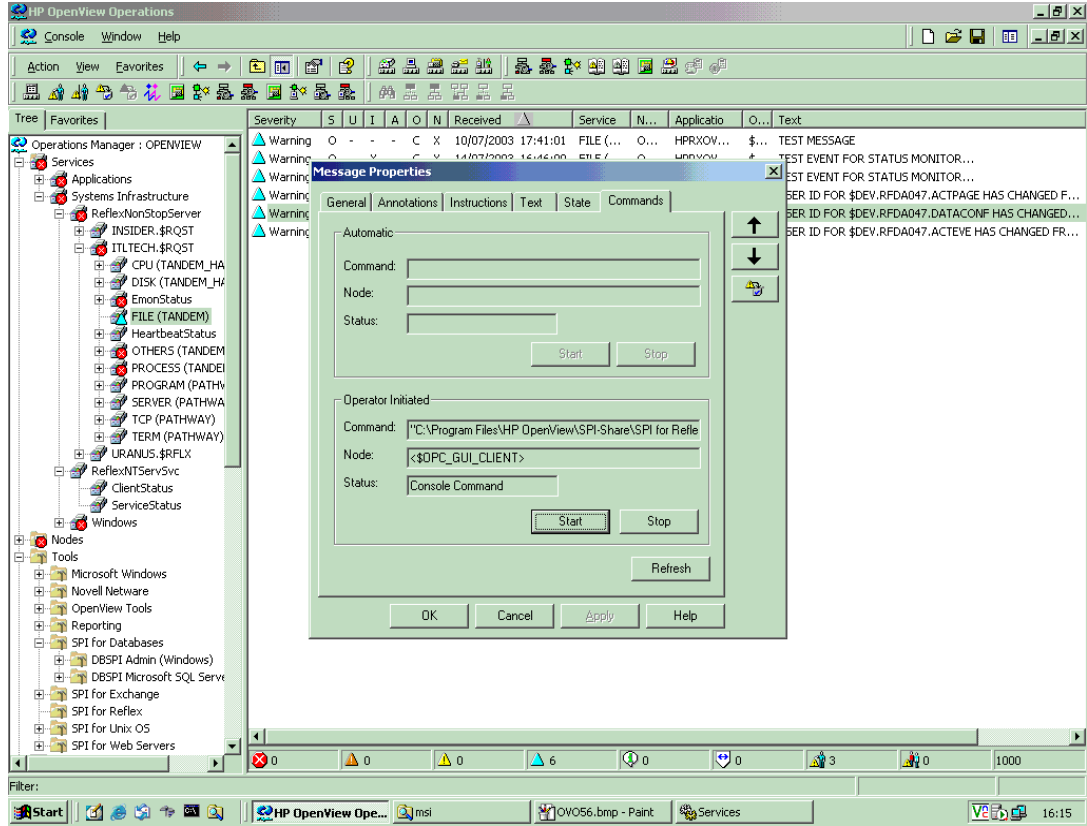
Right click on the FILE (TANDEM) branch in the Service tree view (leftmost) and select 'Active Messages' to view the currently available file alerts. Look for the configured file security alert entered in the previous section. When located, double-click on the event:



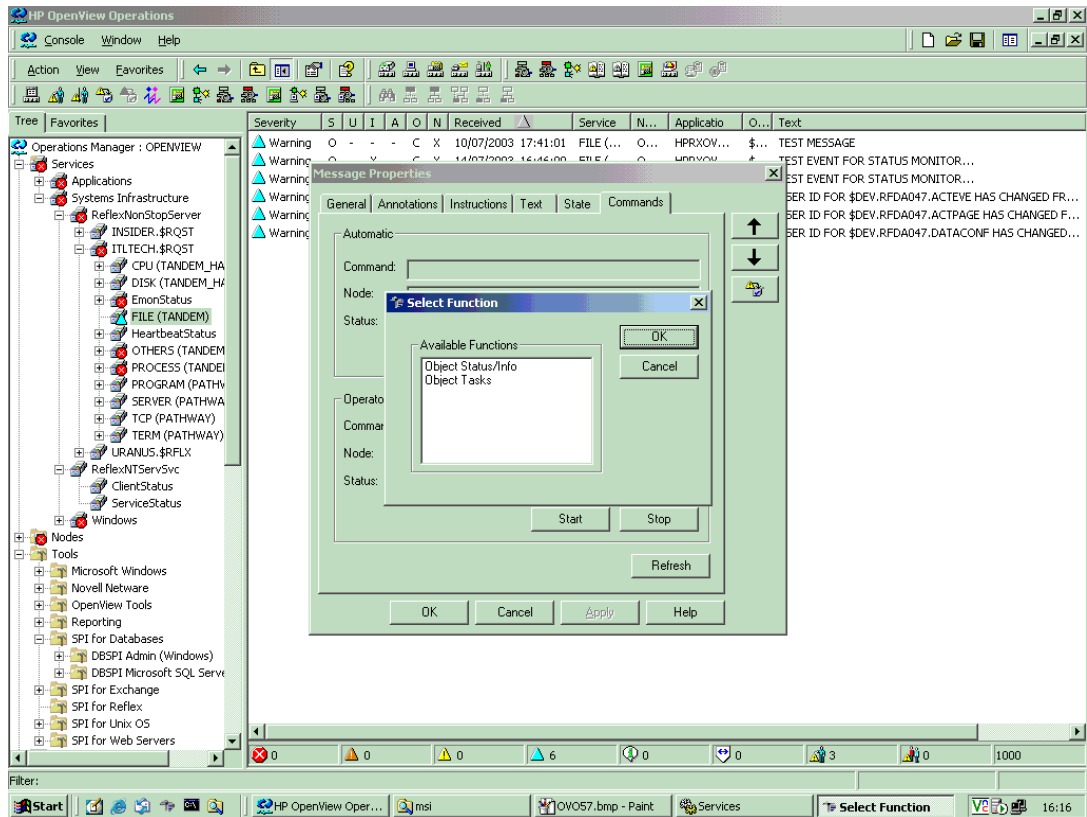
Click on the Instruction tab (third along) to see the procedures to follow for this NSK event alert (NOTE: Probable Cause & Recommended Action will be accessed shortly):



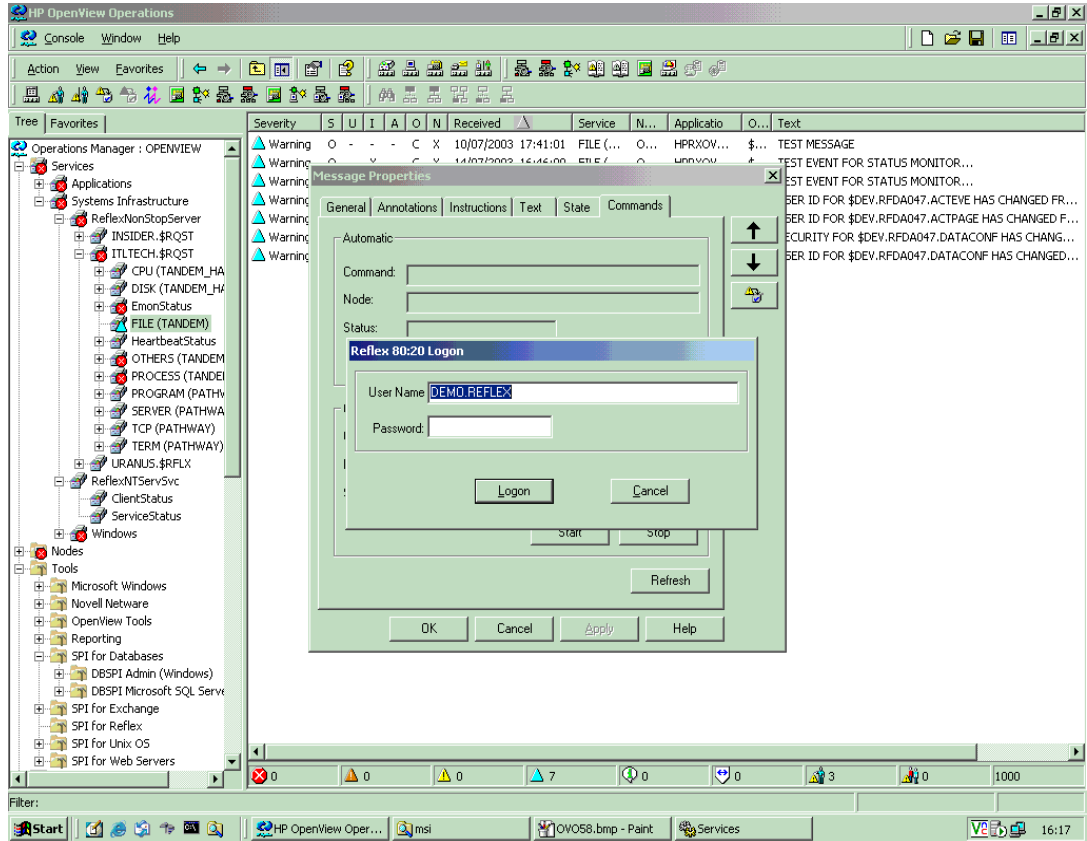
Click on the Command Tab (last tab) and then 'START' the operator initiated action for this NSK alert:



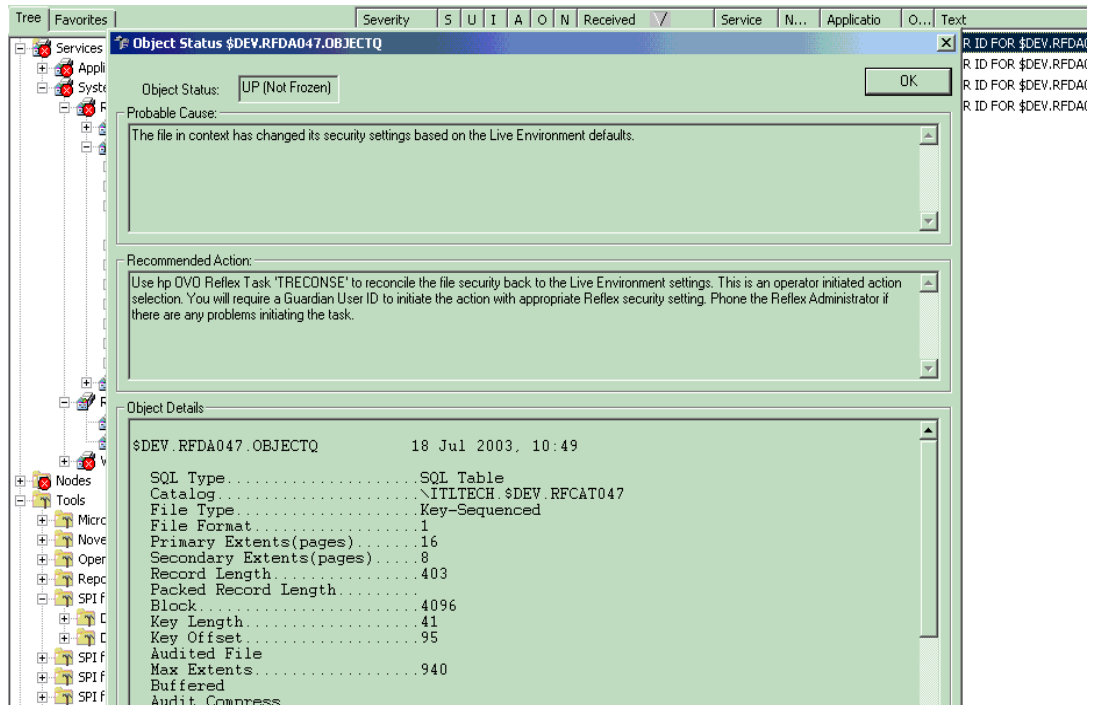
Clicking the START button will retrieve the Reflex SPI menu options for this event, 'Object Status / Info' and 'Object Tasks'. NOTE. If only real-time status and information is available, the NSK logon dialog will be displayed (see following bitmap).



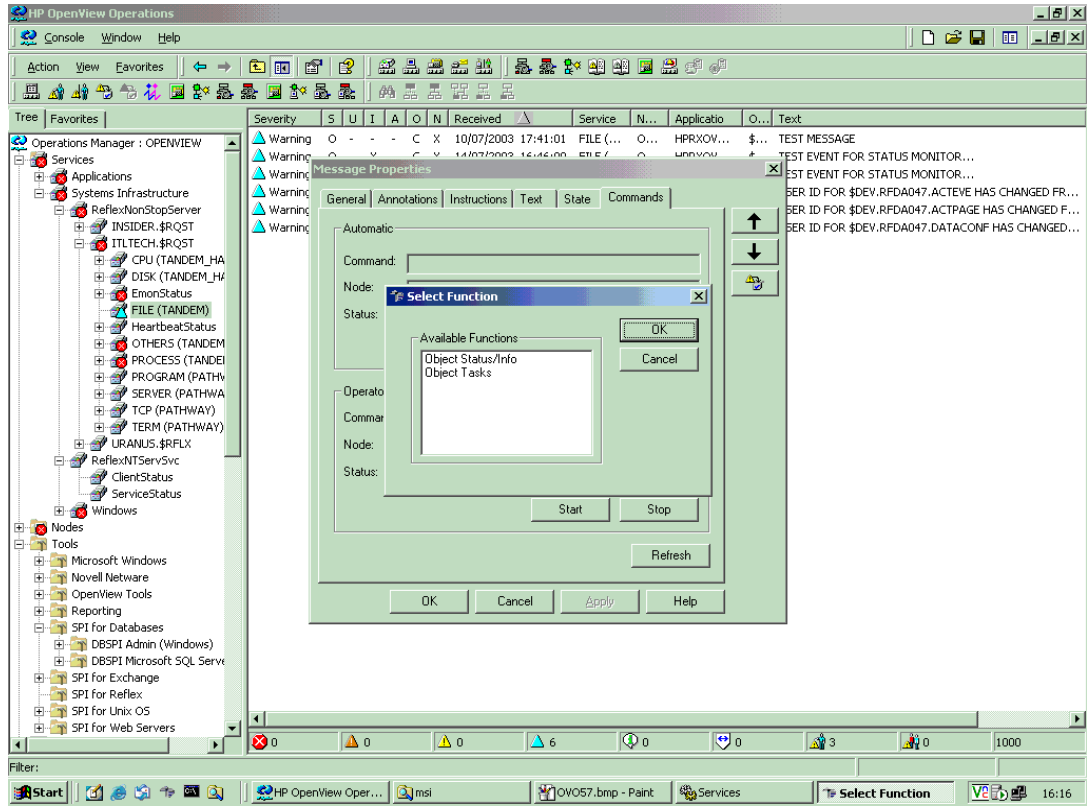
Select the 'Object Status / Info' option from the menu. You will then be required to enter an appropriate NSK Guardian User ID and password. Contact the Reflex Administrator if this has not been assigned:



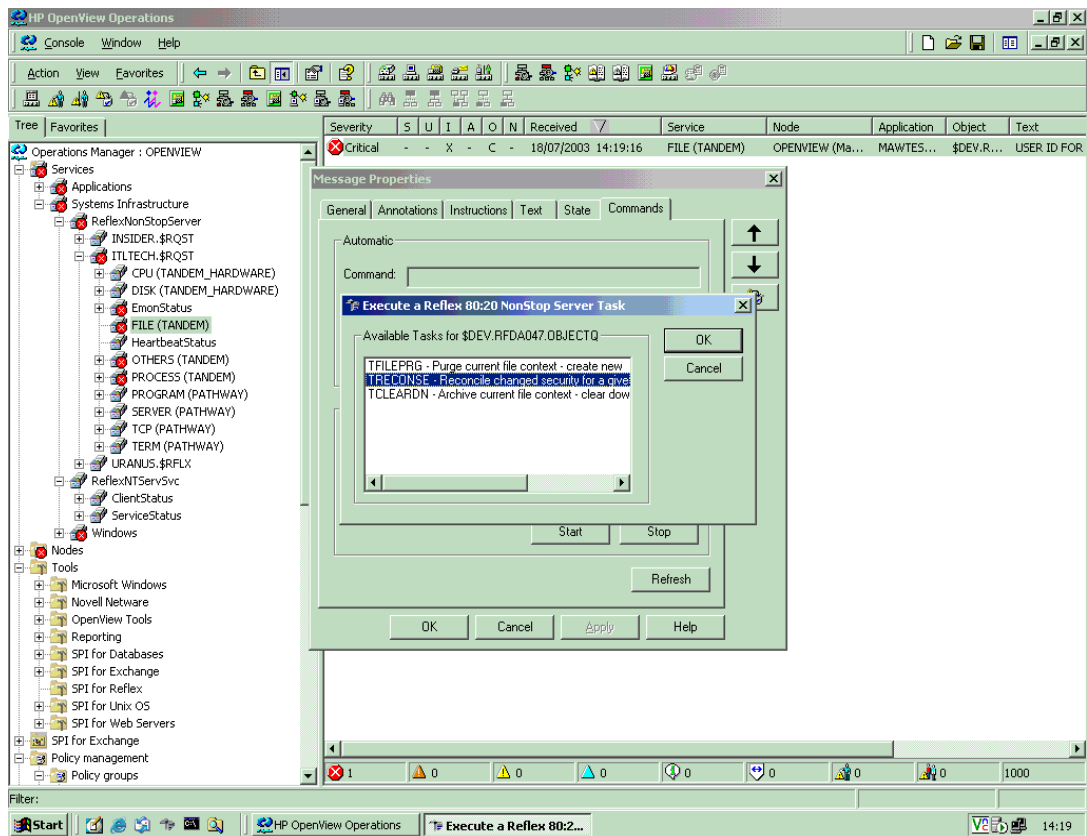
You should now be presented with the NSK Object Status, Probable Cause/Recommended Action and Object Details for the file:



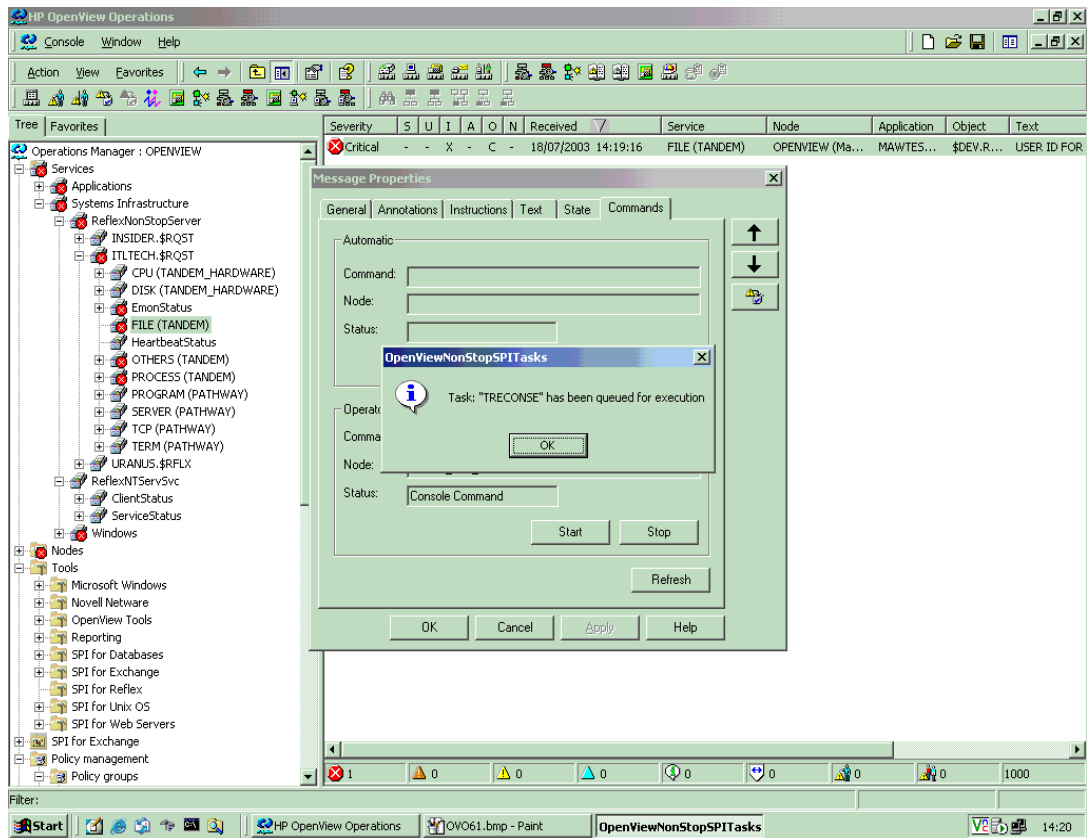
In order to initiate a task named in the Recommended action aspect of the information window, double-click on the NSK alert and click the 'START' button once again under the Command tab:



This will retrieve the Reflex menu options once again. Click on the 'Object Tasks' option and click 'OK'. NOTE: Tasks may not be available if they have not been set-up by the Reflex Administrator.



Click on the appropriate task as named in the Recommended Action window earlier to initiate the task. A 'Task <TASKNAME> has been queued for execution' message will appear. Click 'OK' to resume.



NOTE:

EMS Events "INSIDER.50 2353 through INSIDER.50 2371" should be configured to be relayed to hp OVO/W. These represent the Reflex Task success and failure alerts. These will be mapped to the TANDEM (OTHER) branch of the Service Tree to allow OVO users to check the status of an initiated task. This in conjunction with the real time status of the NSK object and its detailed information will provide good verification that the reported issue has been resolved.

9.3. Other SPI for Reflex Tools Available

Click on “Tools -> SPI for Reflex” to access the Reflex tool set. These tools are described below.

| Tree | Name | Description |
|-------------------------------|--|---|
| Operations Manager : OPENVIEW | Reflex GUI Client | Enables access to all licensed copies of the Reflex product run... |
| Services | Reflex NonStopServer Policy Restore | Regenerates the SPI for Reflex Policy and Tools configuration ... |
| Applications | Reflex NonStopServer Policy Upload | Uploads the SPI for Reflex Policy and Tools configuration files ... |
| Systems Infrastructure | Reflex NonStopServer Service AutoDiscovery | AutoDiscovers Services corresponding to objects currently mo... |
| ReflexNonStopServer | Reflex NonStopServer Service Upload | Uploads the ReflexServices.mof file generated by the Reflex N... |
| INSIDER.\$RQST | | |
| ITLTECH.\$RQST | | |
| CPU (TANDEM_HARDWARE) | | |
| DISK (TANDEM_HARDWARE) | | |
| EmonStatus | | |
| FILE (TANDEM) | | |
| HeartbeatStatus | | |
| OTHERS (TANDEM) | | |
| PROCESS (TANDEM) | | |
| PROGRAM (PATHWAY) | | |
| SERVER (PATHWAY) | | |
| TCP (PATHWAY) | | |
| TERM (PATHWAY) | | |
| URANUS.\$RFLX | | |
| ReflexNTServSvc | | |
| ClientStatus | | |
| ServiceStatus | | |
| Windows | | |
| Nodes | | |
| Tools | | |
| Microsoft Windows | | |
| Novell Network | | |
| OpenView Tools | | |
| Reporting | | |
| SPI for Databases | | |
| SPI for Exchange | | |
| SPI for Reflex | | |
| SPI for Unix OS | | |

9.3.1 Reflex GUI Client

The "Reflex GUI Client" hp OVO/W Tool enables access to all licensed copies of the Reflex product running across the NSK NonStop network. A Guardian User ID and password will be required to logon. This GUI will provide access to view all monitored Reflex NonStop objects and the event ranges currently configured to be relayed to the hp OVO/W Console. Access also allows the NSK Service Tree presentation and Automatic Event Acknowledgement configuration to be edited. More advanced troubleshooting functions are available to view the system metrics for NonStop CPUS, Processes and Disks as well as view the NSK event logs for earlier time periods.

9.3.2 Reflex NonStopServer Policy Restore

Regenerate the SPI for Reflex policy and tools configuration files. Caution: user customisations will be lost.

9.3.3 Reflex NonStopServer Policy Upload

Uploads the SPI for Reflex Policy and Tools configuration files generated by the Reflex NonStopServer Policy Restore tool. Note: The Reflex-opcmmsg policy must be re-deployed on the managed node hosting the ReflexNTServSvc.

9.3.4 Reflex NonStopServer Service Autodiscovery

Uploads the ReflexServices.mof file generated by the Reflex NonStopServer Service Autodiscovery tool. Click the tool and select NSK node:

10. Installing the Reflex Product

10.1. Installing the Reflex NSK Based Software

Refer to the PDF documents 'Reflex Install Macro Vnn' and 'Reflex Installation Guide Vnn' on the supplied CD-ROM. These documents supply both an 'automatic' and 'manual' approach to installing the NSK based software respectively. The NSK based installation may have already been carried out on your site.

10.2. Installing the Reflex GUI Client Software

This section provides a guide to installing the Reflex GUI client software on a nominated PC purely for the purposes of configuring EMS event feeds to hp OVO/W.

It should be noted that the '**ReflexSPISetup.msi**' file will also install the Reflex GUI Client. This is the file that should be used when installing on the hp OpenView Operations™ (OVO/W) Console PC (see Section 5).

This section is included for completeness to allow a stand-alone installation of the Reflex GUI client. This is for the purposes of viewing and potentially modifying or adding Reflex OpenView reaction configuration for new EMS alerts on a different PC. If the GUI is installed on an hp OVO/W 'managed node' then a 'ReflexServices.MOF' services file scan be produced and installed by copying it to the hp OVO/W Server and uploading it using 'OVPMUTIL.'

10.2.1 PC Requirements - Hardware

The Reflex client GUI software has been developed on an IBM-compatible PC. For optimum performance, it is recommended that the minimum specification of your target machine be as follows:

- A Pentium II Processor
- 32Mb On-Board Ram
- At least 20Mb free hard disk space
- Graphics resolution minimum 1024 x 768 x 16 preferably
- A 17" or larger colour monitor is also recommended.

10.2.2 PC Requirements - Software

The PC software requirements to run the Reflex GUI client are as follows:

- Microsoft Windows NT workstation 4.0 or Microsoft Windows 95/98/2000/XP
- TCP/IP connectivity
- Preferably Service Pack 5 or better (check with ITL if this is an issue)

NOTE:

The Reflex GUI client makes use of Fastpipe™. This is a standard TCP/IP socket protocol produced by Insider Technologies Limited. It is a standard delivery communication layer in all Reflex deliveries. It provides for fast, non-stop data transfer between the Reflex GUI client and the Reflex PATHWAY running on the Tandem. No other third party communication layers are supported as of release 4.0 of Reflex.

10.2.3 Reflex GUI Client Software

The PC Reflex GUI client software is provided along with the Reflex Tandem software, on a CD-ROM. The naming convention for the GUI client '.EXE' file is as follows:

XFP<DD><MM>.exe

where <DD><MM> is the day and month the GUI client software was generated by ITL.

XFP stands for Executable for Fastpipe™.

Fastpipe™ is the standard proprietary TCP/IP socket protocol used as the communication layer between the Reflex PATHWAY on the Tandem and the PC Reflex GUI client. It is delivered as standard in all Reflex deliveries.

The Reflex GUI client is written in Visual C++.

10.2.4 Reflex GUI Client Software Installation

There now follows a step by step guide to installing the Reflex GUI client on a nominated PC.

NOTE:

Logon to the PC as the 'Administrator' (or a PC user with Administrator privileges) prior to installing the Reflex GUI client.

It is recommended that all other applications are shutdown before installing the Reflex GUI client software, and that a re-boot is carried out after the client installation process.

The Reflex GUI client can be installed on more than one PC as access to the Reflex PATHWAY is concurrent for any number of users.

1. Insert the supplied ITL Reflex CD-ROM into the appropriate PC drive.
2. Navigate to the Reflex CD by use of Windows Explorer or Desktop/My Computer.
3. Locate the 'XFP<DD><MM>.exe' contained on the Reflex CD.
4. Double-click on the 'XFP<MM><DD>.exe' file to initiate the Reflex GUI client installation process.

NOTE:

The installation process may present you with a message as follows:

'Version Latest_Sources of Reflex is already installed. Do you wish to overwrite this version?'

This is a legacy issue based on registry settings. If you are confident you are upgrading with the latest delivered 'XFP' installation script or you are installing for the first time, click 'OK' and proceed to the next step.

5. Click 'Next>' on the 'Welcome!' message screen.
6. You will be presented with the 'Select Destination Directory' screen. Nominate where you would like to install the Reflex GUI client. The default is 'C:\Program Files\Reflex'.
7. Click 'Next>' after you have entered your preferred directory.
8. You will be presented with the 'Select Components' screen. The 'Reflex Client GUI (Fastpipe)' option is selected by default. This is all that is required. Click 'Next>' on this screen.
9. Click 'Next>' on the 'Ready to Install!' screen to initiate the installation of the Reflex GUI client.
10. When the installation has finished, the 'Installation Completed!' message screen will be displayed. Click on 'Finish' and subsequently click 'OK' and re-start the PC.



11. The Reflex GUI client files should be resident in your selected PC directory. This directory will include a number of help files, WAV files, 3 executables (including an UNINSTALL program) and a number of configuration files.
12. If any problems are reported by this set-up program as part of the installation process then contact Insider Technologies Limited.

10.2.5 Configuring Fastpipe for Reflex on the PC

This sub-section will provide instructions on configuring the Reflex GUI client to point at the appropriate Reflex 80:20 PATHWAY to enable connectivity.

Carry out the following sequence of steps:

1. Using Windows Explorer or Desktop/My Computer, go to your Reflex GUI client PC directory.
2. Double-click on the file 'SERVER.ini' in this directory.
3. You will be presented with the contents of this file. An example of this file is shown below:

```
[REFLEX]
PortNo=5601
IPAddress=192.9.200.150
Logging_Options=2
Debug_Level=2
HandlerID=49

[PATHMON_NAME]
PathmonName=$RFLX

[TERM_NAME]
TermName=OPRTERM
```

4. The '**PortNo**' should be set to your nominated port number as assigned as part of installing the NSK based software.
5. The '**IPAddress**' should be set to the TCP/IP address of the Tandem node on which you installed Reflex.
6. The '**PathmonName**' should be set to the Reflex PATHWAY process, e.g. \$RFLX.
7. The '**TermName**' should be given a unique identifier (up to 16 characters in total), to identify the workstation uniquely, e.g. DEMO_PC, USER1, JOHN_SMITH, EAST_LONDON. This unique identifier (along with the logged on Guardian user ID will help identify who is doing what in the Reflex application).
8. Make all of the edits and exit having saved the file changes.
9. Double-click on the 'REFLEX.EXE' file in the same directory. The following message will appear:

```
Information - Listener Node names not specified
Unspecified Listener Nodes will be referred to as '\UNKNOWN'
Use the Configure Communications (Fastpipe) option under the Configuration Menu on the main
toolbar to specify Listener Node names
```

If this dialog does not appear, move on to step [11] below.

10. Click 'OK' and you will be presented with the Reflex main GUI client screen.
11. Click on the 'Configuration' menu on the main toolbar of the Reflex GUI.

- Click on the 'Configure Communications (Fastpipe)' option under this menu to bring up the 'Comms Configuration' dialog.

NOTE:

This is the GUI dialog used to specify the primary access node (and TCP/IP address) to talk to the Reflex PATHWAY on the Tandem.

- Single-click on the first row specified in the 'Listeners in Order of Precedence' part of this dialog.
- Modify the reference to 'UNKNOWN' in the 'Selected Listener' part of this dialog, to the Tandem node Reflex has been installed on, e.g. \LIVE, \LONDON.
- After modifying this reference, click on the AMEND button (tick icon) to amend the record on screen.
- Click on the ACTIVATE button to write these settings to the 'SERVER.ini' file.
- Exit from this dialog by clicking on the green arrow button to the right of the ACTIVATE button.
- In the Reflex directory on your PC, double-click on the 'NETMON.ini' file. You will be presented with the contents of this file as shown below:

```
[NETWORK MONITOR]
Displayed Lines=1
Displayed Nodes=2
Poll Rate=15
AutoArrangeNodes=N
AutoGenerateNodes=N
ClusterFraming=N

[LINE 1]
Direction=Horiz
From=\ITLTECH
To=\INSIDER
Line Thickness=2

[NODE 1]
X=40
Y=40
Name=\ITLTECH

[NODE 2]
X=194
Y=40
Name=\INSIDER
```

- Edit the '**Displayed Nodes**' line to a value of '1'.
- Under the '**[NODE 1]**' heading, change the name of the node name from '\ITLTECH' to your own Tandem node being used for this installation, e.g. \LIVE, \TEST. Using multiple nodes will be discussed later in this document.
- Make all of the edits and exit having saved the file changes.

10.3. Logon to the Reflex GUI Client

Having followed the previous sections in sequence, it is now time to logon to the Reflex GUI client.

Carry out the following sequence of steps:

1. Using Windows Explorer or Desktop/My Computer, go to your Reflex GUI client PC directory.

TIP:

It would be useful having located the Reflex directory on your PC to create a shortcut on your desktop, for the REFLEX.EXE file. A shortcut will have already been inserted into your start-bar menu which includes the Reflex application, a version icon and an uninstall program.

2. Double-click on the file 'REFLEX.EXE' in this directory.
3. All being well, you will be presented with the Reflex GUI screen. This will have all the toolbar icons greyed out but the LOGON, HELP and EXIT buttons will appear in coloured mode respectively.

If you are presented with this display then the GUI will have already done a fetch to the Tandem through Fastpipe™ TCP/IP to assess whether an automatic logon has been enabled.

CONGRATULATIONS!!!, you have successfully installed Reflex on the nominated Tandem node and configured the GUI client correctly. Now we can proceed to logging on to the Reflex application using the GUI client.

If you received a message of failure, for example:

```
Unable to connect to the Reflex Fastpipe server
This maybe due to faults in the following areas:
Reflex Server
Network Hardware
Comms Configuration Settings
```

Review section [5] to make sure that your TCP/IP configuration is correct.

4. Click on the green log-on arrow button on the top left of the Reflex GUI client. You will be presented with a log-on dialog. Log on to the Reflex GUI client using SUPER.SUPER. Initially, SUPER.SUPER Guardian access will be required to set-up other Guardian users to log on to the Reflex GUI. Type in 'SUPER.SUPER' followed by a password that is the same as the Guardian level password for this super user.
5. Click the 'Logon' button to initiate the log on process. The GUI will access your on-site licences (a message will appear in the bottom left hand corner of the Reflex GUI screen, '**Attempting Logon.....Retrieving Licensing information.....**').

You should now be presented with all the icons on the main toolbar of the Reflex GUI client, having turned from grey to coloured.

NOTE:

If your Tandem system node is running slowly then the log on process may take a few seconds.

After logon, the bottom of the Reflex GUI client will display which Tandem node you are logged onto, the Guardian user ID you are logged on with and the current PC time.

The Reflex modules can be purchased as separate modules. The modules that become active following successful logon are dependent on the modules you have purchased and are licensed to use.

11. Preliminary GUI Configuration after Reflex Start-up

11.1. Setting up a Reflex Administrator

Having logged onto the Reflex application via the GUI client using SUPER.SUPER, the next logical step is to set-up one or more Reflex users. The SUPER.SUPER user has access to the whole of the Reflex product and can perform any of the tasks and functions within it. This user has global database update access capability.

Each company has its own site-specific hierarchy of security for the Reflex product. These range from a single configured Reflex administrator logon to an administrator plus a single logon ID per operator assigned to handle the product.

TIP:

It is recommended that each user of the Reflex product have his/her own logon ID so that their updates are electronically captured in the Reflex audit trail. This can be useful for troubleshooting purposes and to keep a strict record of who is changing the Reflex database, when it occurred and what took place.

Reflex has a one-to-one relationship between 'logon ID' and 'Guardian user ID'. As can be seen with SUPER.SUPER, the user will be required to type his/her own assigned Guardian user ID in at the Reflex logon dialog, and their associated password.

NOTE:

Guardian user IDs are required to exist at the Guardian level as set-up by an appropriate Tandem administrator before they can be assigned an appropriate level of access in the Reflex product.

For this reason, it would be useful to set-up a range of Reflex Guardian user IDs for operators, e.g. REFLEX.MARKW, REFLEX.JOHNS and then within Reflex, assign them a level of access to the product. Each operator or user of Reflex may already have their own Guardian user ID which can be used within the Reflex product.

Carry out the following steps to assign a Guardian user ID to use the Reflex product:

TIP:

At this stage, it would be useful to add an administrator user into Reflex that has access to the entire Reflex product. This would mean that you would no longer require the SUPER.SUPER user. Follow the steps below to achieve this.

1. Logon to the Reflex GUI using the SUPER.SUPER Guardian user ID, maximise this screen if not already.
2. Click on the **Admin** button of the main toolbar of the Reflex GUI, maximise this screen if not already.
3. Click on the **'Security Profiles'** tab of the GUI client.
4. Type a Guardian user ID into the space provided at the top of the dialog, group and name respectively, e.g. REFLEX.ADMIN, REFLEX.USER or your own if you are sanctioned with looking after the administration of the product.
5. Double-click on the **'ALLFACIL'** security class, which will change the flag setting from 'N' to 'Y'. Click on the **AMEND** button on this dialog (the tick icon) to provide the given user with access to the entire product.
6. A message, **'User ID Security Profile Amended'** will appear, click 'OK' to proceed.
7. Click the **'Logon'** button on the main toolbar of Reflex at the top left of the GUI client.
8. Type the Guardian user ID you have just added, e.g. REFLEX.ADMIN, REFLEX.USER and his/her associated password and click **'Logon'** on this dialog.

You are now logged on as a Reflex administrator who is now free to add other users to the Reflex product.