



peak xv networks

# Peak XV Networks

Network Management Center

*Installation Methodology*

## **OPERATIONAL METHODS & PROCEDURES**

### **Installation Methodology**

Revision 2.0

## Introduction

This document, referred to as the Installation Methodology, describes the process of establishing a new customer account. This step-by-step set of instructions is divided into five phases:

- Post Sales Discovery Process
- Infrastructure Evaluation Criteria for Adding New Customers
- Engineering Installation Process
- NetCool Installation Process
- Web Portal Installation Process

## Post Sales Discovery Process

The Post Sales Discovery process involves gathering preliminary customer information that will be used for billing and identifying single points of contact for the account. In this phase, a Peak XV Sales Engineer will be assigned to the customer to act as a liaison between the customer and the Install Coordinator. Initially, a meeting should be set with the customer to establish the required device information, the device discovery options and to define the expected timelines. After the preliminary information has been gathered by the sales engineer, it will be submitted to the Install Coordinator via Remedy's New Customer Contact form. An example is shown below:

The screenshot displays a web browser window titled "Remedy User - [NMC: New Customer Contact Form (New)]". The browser's address bar shows the URL "http://www.peakxv.com/RemedyUser/Forms/NewCustomerContactForm.aspx". The form itself is titled "New NMC: New Customer Contact Form" and contains the following fields:

Customer Contact Information			
Customer Name	Peak XV Networks		
Customer Billing Code	Free-01		
Customer Billing Address 1	2527 Camino Ramon		
Customer Billing Address 2	Suite 340		
City	San Ramon	State	CA
Zip Code	94583		
Customer Billing Contact	Michael Svirha		
Billing Contact Phone	703-575-1776		
Billing Contact Fax	703-575-1801		
Billing Contact Email	msvirha@peakxv.net		
Customer Tech Contact	Phil Marasco		
Tech Contact Phone	703-575-1777		
Tech Contact Fax	703-575-1801		
Tech Contact Email	pmarasco@peakxv.net		
Peak XV Account Executive		Peak XV Sales Engineer	
Account Executive	Patrick Kain	Sales Engineer	Reggie Burris
Account Executive Email	pkain@peakxv.net	Sales Engineer Email	pkain@peakxv.net

At the bottom of the form is a "Submit" button. The browser's taskbar at the bottom shows the Windows Start button, several open applications including "Microsoft Visio - [Inst...", and the system tray with the time "7:10 PM".

The submission of this form generates a customer install ticket which includes the customer's unique ID number. Generation of this ticket will send an automated alert via Remedy Alerts to the Install Coordinator and the Install Manager to inform them that we have a new customer. The Install Coordinator will verify that all customer information is complete and set the ticket status to "Assigned". This triggers an automatic Peak XV Networks Welcome e-mail to be sent to the customer contact(s), Peak XV Networks assigned Account Executive and the Sales Engineer. An example of the Welcome e-mail is shown below:

Michael Svihra  
Phil Marasco

Peak XV Networks  
Customer Number: Peak-Cus-000002

Thank you for choosing Peak XV Networks. Our goal is to make your Installation Process as quick and easy as possible. We have assigned Reggie Burris , Sales Engineer to assist you in gathering the information we require to install your devices on our systems. He will be available to answer any questions.

Thank you,  
Peak XV Networks  
1-866-PeakNow  
Reggie Burris  
[rburris@peakxv.net](mailto:rburris@peakxv.net)

The last step is to identify the discovery option that the customer has chosen and allocate resources to complete the installation in the pre-determined timeline.

The assigned Sales Engineer will provide the Install Coordinator with a device discovery action plan. This plan will outline how Peak XV will obtain the information required to install the devices in our monitoring and management systems. Plan options are:

- On-site discovery of devices and relevant information through the use of Peak XV engineers.
- Remote access of devices. This is used when the customer doesn't have the resources to make the configuration changes necessary to install devices.
- Customer provides all requested device and site information via Excel templates provided by Peak XV.

## Infrastructure Evaluation When Adding New Customers

The addition of new customers to the Peak XV monitoring and management environment may require enhancement to the systems and/or architecture used for these purposes. Ongoing evaluation of these systems is a vital part of ensuring the best possible service to our customers. There are three primary criteria for evaluation:

- Bandwidth Requirements
- Processing Power
- Data Storage Capacity

These criteria are monitored and analyzed continuously. The data provides trending information that allows Peak XV to predict shortfalls and take evasive action to ensure that thresholds are not exceeded.

### Bandwidth Requirements

- Up to 7,500 Monitored values per T1 connection. (Syslog will be reviewed on a case by case basis.)
- Up to 21,000 Monitored values per T3 connection. (Syslog monitoring will be reviewed on a case by case basis.)

\* Redundant connections must be in place to our backup facility in San Ramon.

### Processing Power / Data Storage Capacity

#### Database:

Minimum server requirements based on providing service on 3 levels:

#### A. 50,000 devices polling 25 events per hour:

**Server:** Sun Fire V880, 4 x 750MHz cpu, 8 GB mem, 6 x 36.4 GB 1.0” 10,000 RPM drives, 3 redundant power supplies, Quad FastEthernet PCI Card, PCI Single GC NA with optical interface

**Storage:** Sun StorEdge T3BES cabinet with 2 T3 arrays, 18 x 73.4 GB 10,000 RPM drives with fibre optic cables, (2) 1 GB controllers, configured 0 + 1 at 660.6 GB capacity (or 1321 GB at raid 5)

#### B. 200,000 devices polling 25 events per hour:

**Server:** Sun Fire F6800, 1 CPU/MEM bundle with 4 x 900 MHz cpu with 8 MB ecache – 4 GB mem, 1 CPU/MEM bundle with 2 x 900 MHz cpu with 8 MB ecache – 2 GB mem, Quad FastEthernet PCI Card, PCI Single GC NA with optical interface

**Storage:** Sun StorEdge T3BES cabinet with 3 T3 arrays, 27 x 73.4 GB 10,000 RPM drives with fibre optic cables, (3) 1 GB controllers, configured 0 + 1 at 990.9 GB capacity (or 1984 GB at raid 5)

#### C. 5,000 devices polling 25 events per hour:

**Server:** Sun Fire V880, 2 x 750MHz cpu, 4 GB mem, 6 x 36.4 GB 1.0”  
10,000 RPM drives, 3 redundant power supplies, Quad FastEthernet PCI  
Card, PCI Single GC NA with optical interface

**Storage:** Sun StorEdge T3BES cabinet with 1 T3 arrays, 9 x 73.4 GB  
10,000 RPM drives with fibre optic cables, (1) 1 GB controllers,  
configured 0 + 1 at 330.3 GB capacity (or 663 GB at raid 5)

Once the information is gathered from the Post Sales Discovery Process and the  
Infrastructure Evaluation, the Engineering Installation Process can begin.

## Engineering Installation Process

The Engineering Install process is the actual execution of the chosen discovery option plan. It is normally the customer's responsibility to complete the customer templates. However, in the case where the customer has chosen either on-site assistance from Peak XV engineers, or has chosen a dedicated team of Peak XV engineers to assist remotely, the Peak XV engineers will be responsible for the completion of the information templates. Therefore the process of submission and verification of the templates is the same. In these cases the Peak XV engineers will be acting as "the customer" and they will be held responsible for the timely submission of the completed templates.

Peak XV will provide the customer pre-formatted Excel templates for obtaining the required information for customer sites and devices to be monitored and/or managed. The link below details the required Excel templates.

[Customer Contact Information Worksheet](#)  
[Customer Site and Node Worksheet](#)

Once the templates have been e-mailed to the customer, the Install Coordinator changes the status of the ticket to "Hold-Template", activating a Remedy timer to prompt the Install Coordinator and Sales Engineer to follow-up with the customer if the templates are not returned within 3 days.

Once the templates are returned via a secure method, such as a FedEx floppy, or encrypted email, the Install Coordinator will verify that the templates have been completed correctly (i.e. all essential fields have been populated with relevant information.) At this point the Install Coordinator changes the status of the Customer Install Ticket in Remedy to "In-Progress". This is the point where the installation timer starts. Based on the predetermined timeline for installation of this customer, Remedy will automatically notify the install coordinator and the install manager at five day intervals to check the progress of the customer installation, assuring that the timelines will be met.

With the template information in Excel format, the Install Coordinator converts the file into CSV format and then imports the information into Remedy. Remedy then takes the information and creates the required Site Install tickets.

The next page shows a screen shot of the ticket created:

## Site Install Ticket

Remedy User - [NMC:Site Install Form (Modify)]

File Edit View Tools Actions Window Help

NMC:Site Install Form (Modify)

Modify NMC:Site Install Form Site-0000000002 Save

Site ID: Site-0000000002 Status: In Progress Assigned To: mlfavors

Customer Name: Peak XV Networks Tier: Install Diary: [Empty]

Customer ID: Peak-Cus-000002

Node Install Summary | Site Info | Site Contact | Carrier Contact

Node Name: [Empty]

Node ID	Node	Assigned To	Status
Node-0000000011	laksw01_peakxv.net	mlfavors	New
Node-0000000012	jpxv20	mlfavors	New

Install Node

Use the above button to install node for this site.

Short Description: Site Installation

Submitter: admin

Create Date: 2/28/2002 2:52:35 PM

Last Modified By: admin

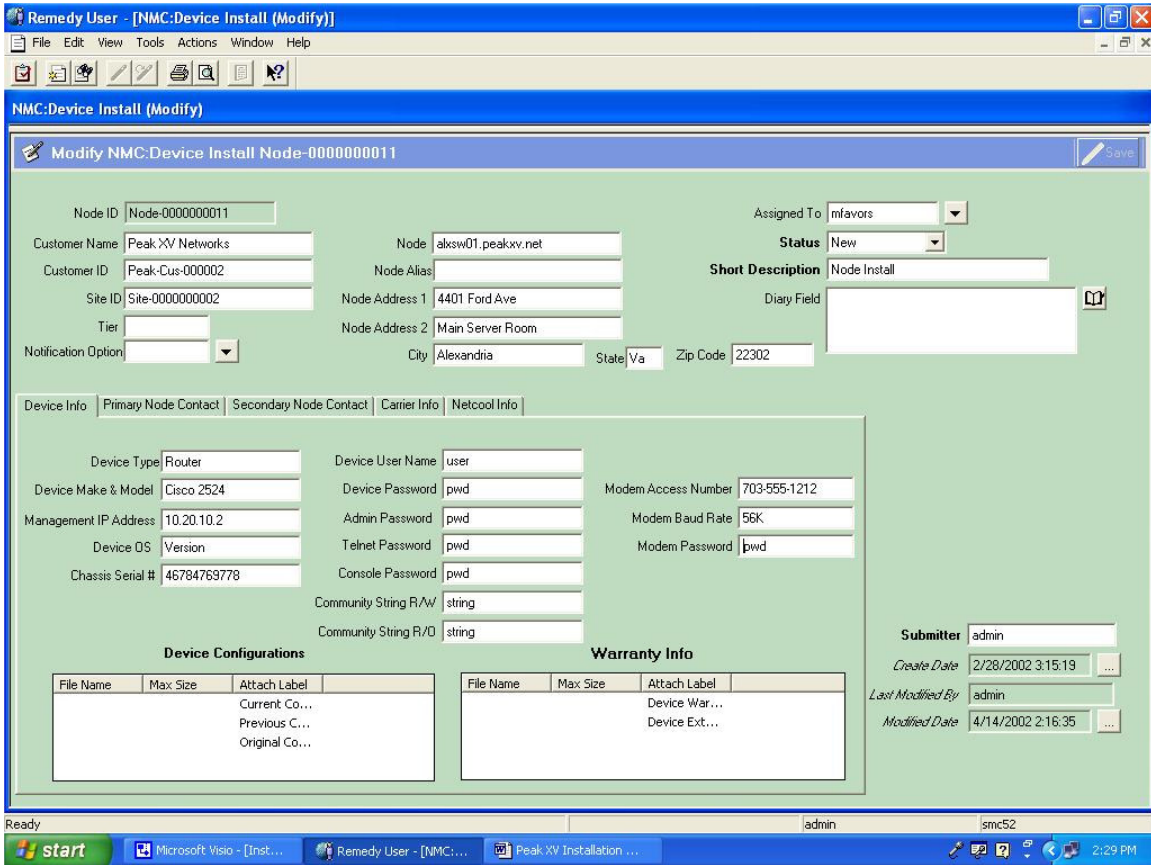
Modified Date: 4/14/2002 11:03:05 AM

Ready admin smc52

start Microsoft Visio - [Inst... Remedy User - [NMC... Peak XV Installation ... 1:29 PM

Remedy also creates the device tickets and associates them to each site ticket. An example can be seen below:

### Device Install Ticket



After the Site Install and Device Install tickets are created, the Install Coordinator distributes and assigns the Site Install tickets to individual Install Engineers. The individual Install engineer's will acknowledge their assigned Site Install tickets, and then assign themselves the individual Device Install tickets that fall under each Site Install ticket. At this point the Install Engineer can begin configuring the device for monitoring and/or management.

If the customer is providing all the information via the templates and they have Cisco expertise on-site to make any configuration changes, then the Install Engineer is responsible for testing remote access and ensuring that all SNMP data is being received by our NMS.



In the scenario where the customer requires us to make configuration changes to their devices remotely, the Install Engineer will be responsible for testing remote access, making configuration changes such as setting community strings, and ensuring that all SNMP data is being received by the NMS.

In the scenario where the customer has absolutely no technical expertise on hand, and requires Peak XV Install engineers to come on-site to gather and configure device information, the On-site Install engineer would be responsible for making the configuration changes such as setting the community strings, testing remote access (this is done in conjunction with an Install engineer that is located in the NMS), and ensuring that all SNMP data is being received by our NMS. In addition, the On-site Install engineer will remain on the customer’s premises to conduct any troubleshooting that may be needed during the Device Install process.

One of the first steps that an Install engineer will conduct when configuring a device will be to save a current copy of the running configuration. This copy will be stored in an attachment within the Remedy ticketing system, and labeled “Original configuration” and will be tied to the corresponding Device Install ticket. After the Install Engineer has made the necessary changes to the device and has verified that this new configuration is working properly and communicating with the NMS, the Install Engineer will save a copy of the new configuration as “Current Configuration” which will be tied to the Device Install ticket using the same attachment process.

Upon completion of all devices and all sites, the status of all tickets will be changed to “Netcool”. This will trigger the creation of the Netcool Installation Report as seen below:

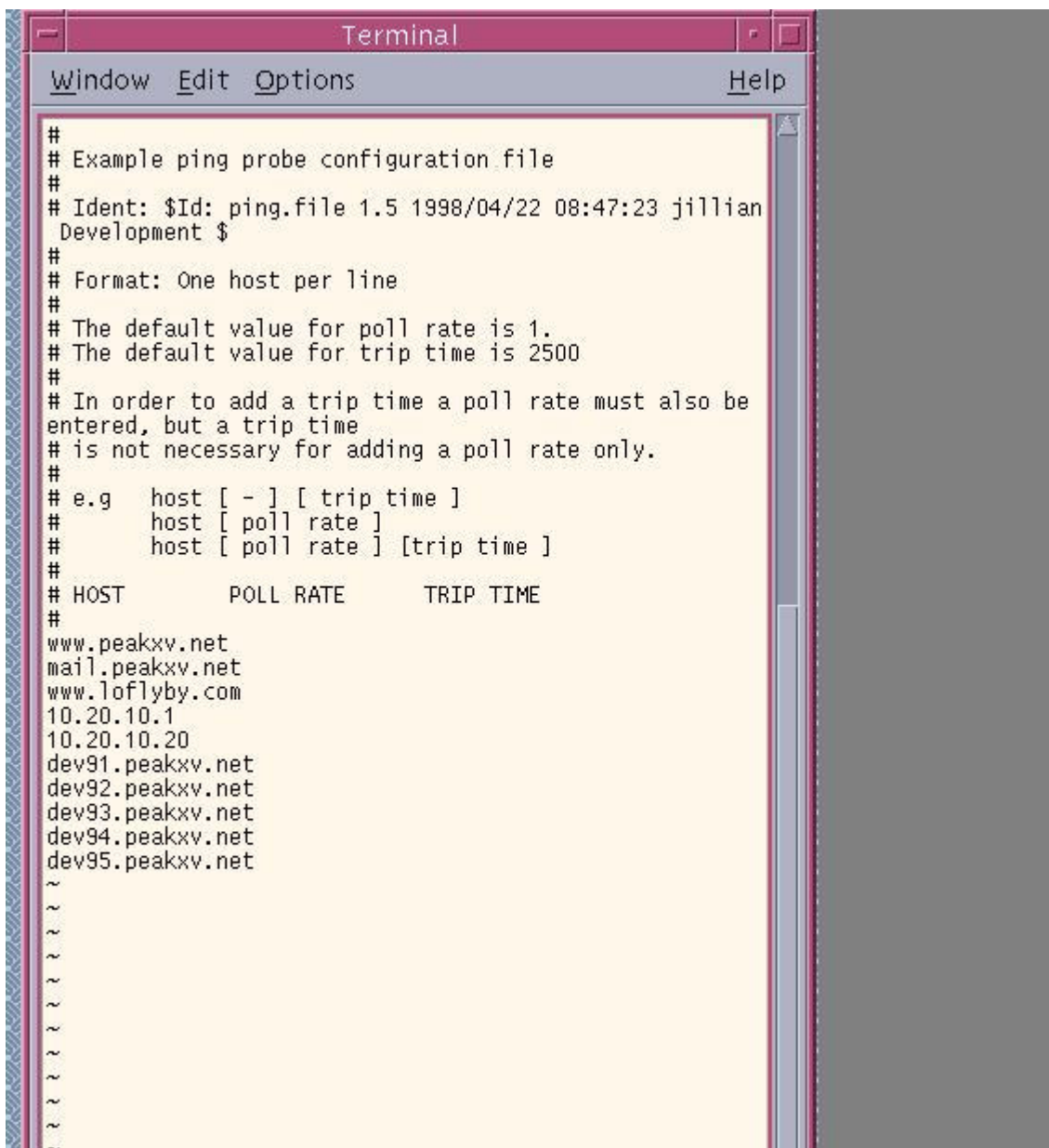
PeakXVNetworks		Netcool Report							
Peak-Cus-000002									
Site ID	Node	Node Alias	Management IP Address	Service Monitored 1	Intervals 1	Service Monitored 2	Intervals 2	Service Monitored 3	Intervals 3
Site-0000000002	alxsv01.peakxv.net		10.20.10.2	ICMP ISM	300 sec	SNMP ISM	300 sec		
Site-0000000002	pxv20		10.20.10.11	ICMP ISM	600 sec				
Site-0000000003	10.20.30.45		10.20.30.45	Ping Probe	300 sec	HTTPS ISM	300 sec		
Site-0000000003	notes01.peakxv.net		10.20.10.20	HTTPS ISM	300 sec	SNMP ISM	300 sec	Ping Probe	300 sec

The creation of the Netcool Report activates the Netcool Installation Process.

## NetCool Installation Process

### Installing a Ping Probe

The Node must be inputted into ping file on the appropriate Netcool Probe Server. An example of this file is below.

A terminal window titled "Terminal" with a menu bar containing "Window", "Edit", "Options", and "Help". The terminal displays a configuration file for a ping probe. The file starts with a comment "# Example ping probe configuration file" and "#". It then shows a header line: "# Ident: \$Id: ping.file 1.5 1998/04/22 08:47:23 jillian Development \$". This is followed by several comments: "# Format: One host per line", "# The default value for poll rate is 1.", "# The default value for trip time is 2500", and "# In order to add a trip time a poll rate must also be entered, but a trip time is not necessary for adding a poll rate only.". Next are examples of host entries: "# e.g host [ - ] [ trip time ]", "# host [ poll rate ]", and "# host [ poll rate ] [trip time ]". A header line follows: "# HOST POLL RATE TRIP TIME". The list of hosts includes: "www.peakxv.net", "mail.peakxv.net", "www.loflyby.com", "10.20.10.1", "10.20.10.20", "dev91.peakxv.net", "dev92.peakxv.net", "dev93.peakxv.net", "dev94.peakxv.net", "dev95.peakxv.net", and several tilde characters (~) representing additional hosts.

```
#
# Example ping probe configuration file
#
# Ident: $Id: ping.file 1.5 1998/04/22 08:47:23 jillian
Development $
#
# Format: One host per line
#
# The default value for poll rate is 1.
# The default value for trip time is 2500
#
# In order to add a trip time a poll rate must also be
entered, but a trip time
# is not necessary for adding a poll rate only.
#
# e.g host [ - ] [ trip time ]
# host [ poll rate ]
# host [ poll rate ] [trip time ]
#
# HOST POLL RATE TRIP TIME
#
www.peakxv.net
mail.peakxv.net
www.loflyby.com
10.20.10.1
10.20.10.20
dev91.peakxv.net
dev92.peakxv.net
dev93.peakxv.net
dev94.peakxv.net
dev95.peakxv.net
~
~
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~
~
```

The above file must be edited by adding the Host, Polling Rate, and Trip Time. If only the host is added, default poll rates and trip times are 1 and 2500 respectively. This probe does not need to be restarted for the new hosts to begin receiving pings.

## Internet Service Monitor Install

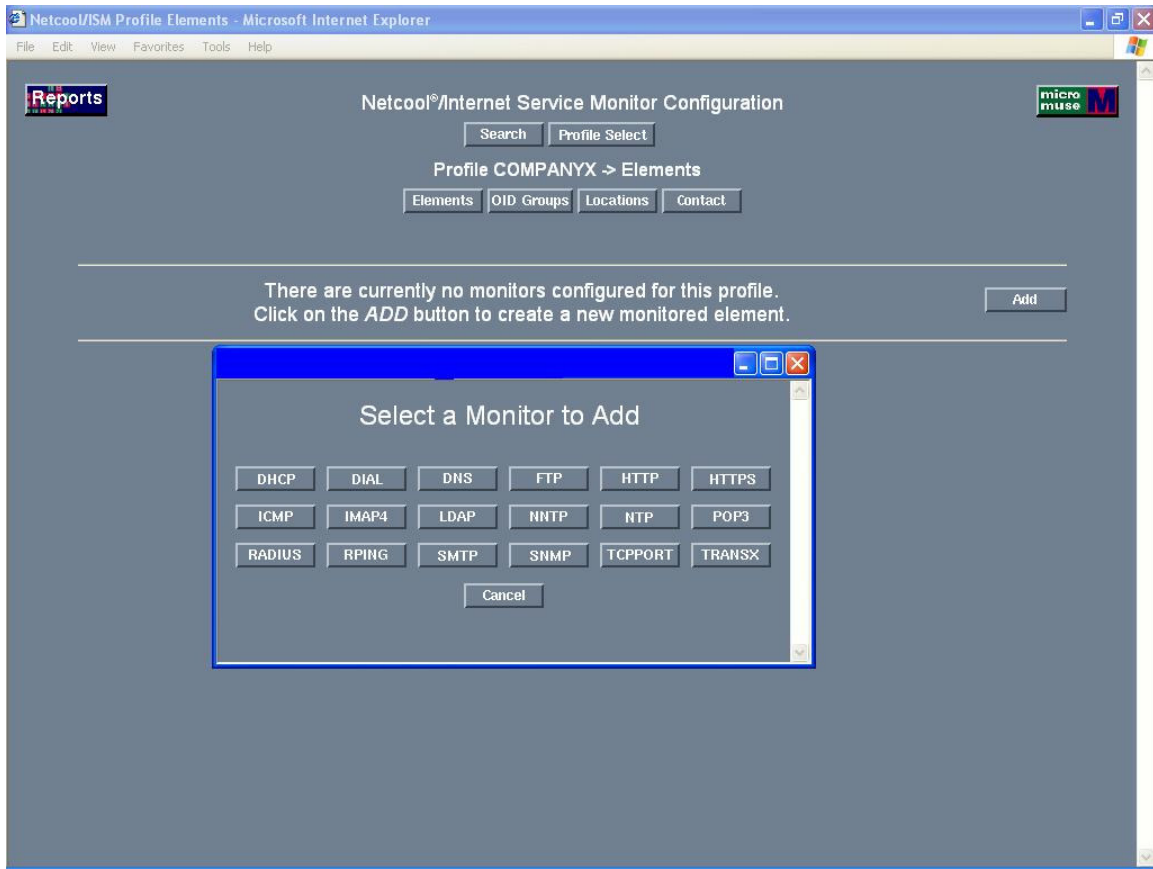
First, a new customer Profile must be created on the appropriate ISM server. Below is an example of that process.



The screenshot shows a web browser window titled "Netcool®/Internet Service Monitor Configuration". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The page has a dark blue header with a "Reports" logo on the left and a "micro muse M" logo on the right. Below the header, there are two buttons: "Search" and "Profile Select". The main content area features a form with the following elements:

- A label "New Profile Name:" followed by a text input field containing the text "COMPANYXX".
- An "Active:" label followed by a checked checkbox.
- At the bottom of the form, there are two buttons: "Submit" and "Cancel".

After creation of the customer profile, the services being monitored must be added to that profile. The following services shown below as “Select a Monitor to Add” are able to be monitored through the ISM server.



For Company X we are installing nodes for ICMP monitoring and HTTP service monitoring. Below are examples of that process.

### **Adding a node for ICMP monitoring**

### Adding an element - ICMP

Hostname:	192.168.0.100
Timeout (s):	10
Number of Packets:	5
Packet Interval (s):	1
Packet Size (bytes):	64
Retries:	0
Poll Interval (s):	600
Description:	

Active

---

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**Adding node for HTTP service monitoring**

Adding an element - HTTP

Server:

Page:

Port:

Timeout (s):

Poll Interval (s):

Command:

Regular Expression:

Username:

Password:

Description:

Use Proxy

Proxy Server:

Proxy Port:

Proxy Username:

Proxy Password:

Active

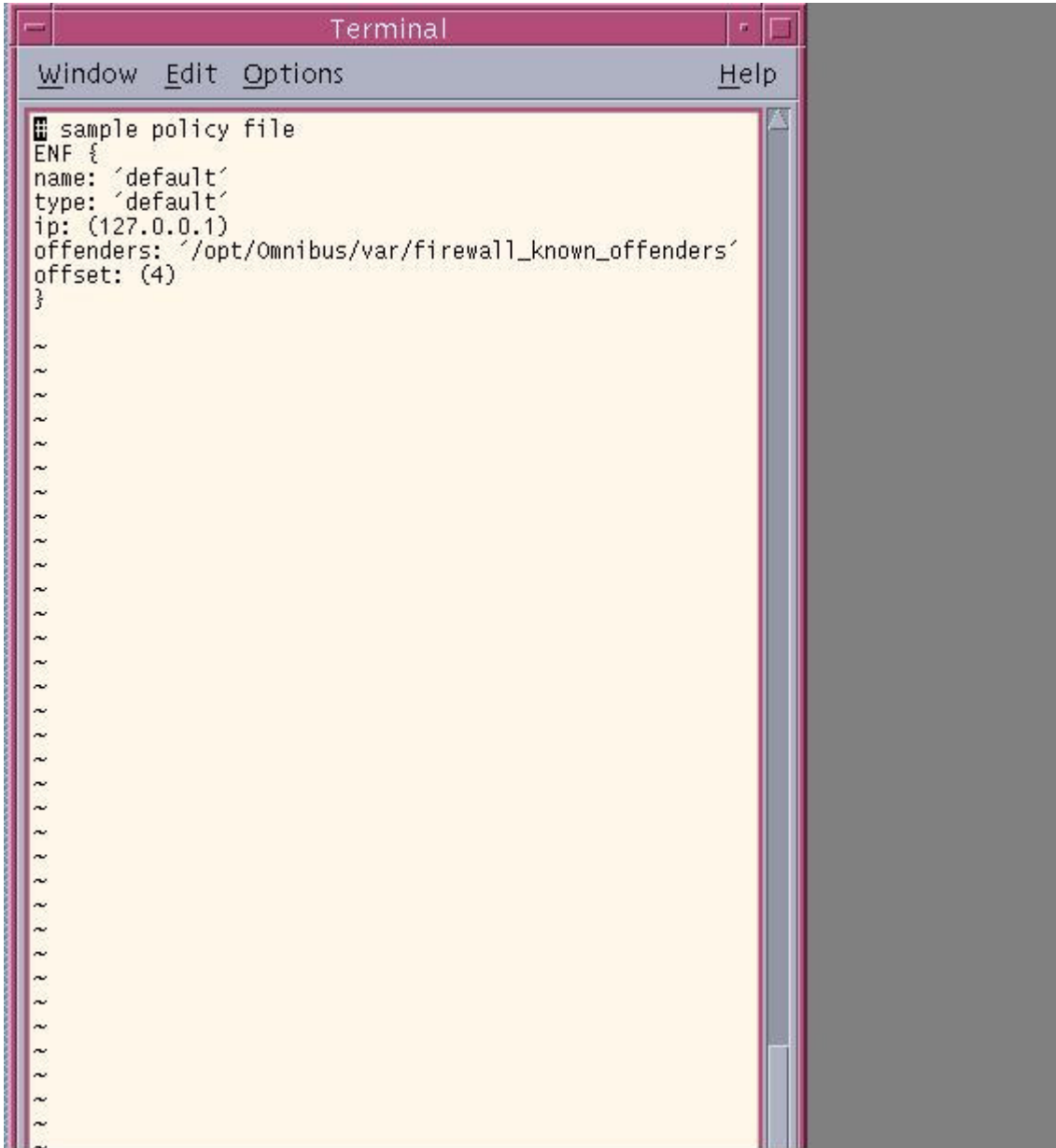
Thresholds for alert notification and ticket generation must be set within the customer profile. These thresholds will vary on a client by client basis.

### **Installing Node for firewall monitoring**

First determine whether the client is using Checkpoint FW1 or Cisco Pix firewall.

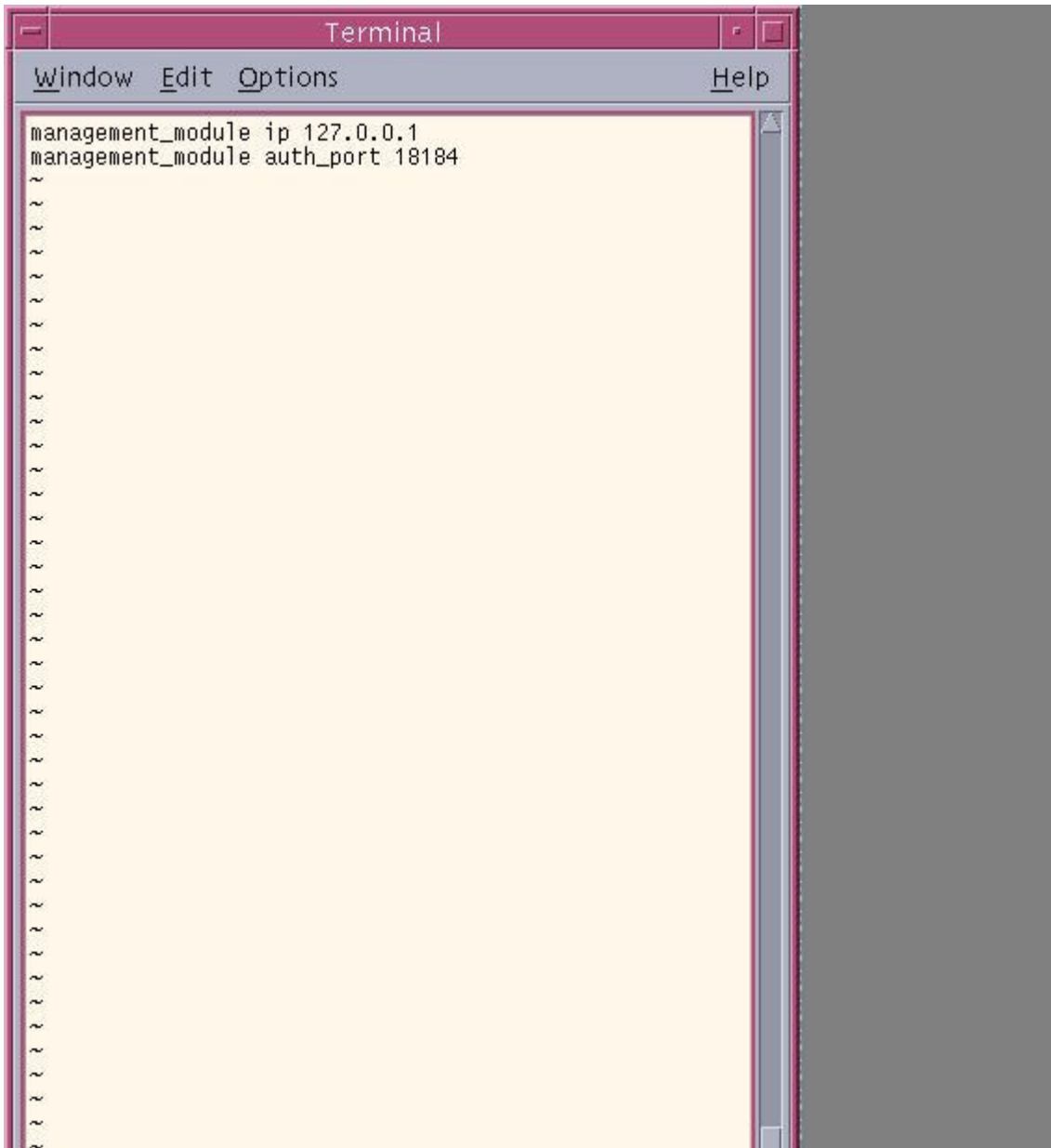
(1) Installing a Pix firewall for monitoring:

The file `pix_policy.fw` must be edited to accept traffic from the client firewall. Below is a sample file showing the format and information needed.



(2) Installing a Checkpoint FW1 node for monitoring:

The file `firewall1_lea.conf` must be edited on the appropriate FW server to accept traffic from that client device. Below is an example of the information needed to complete this task.

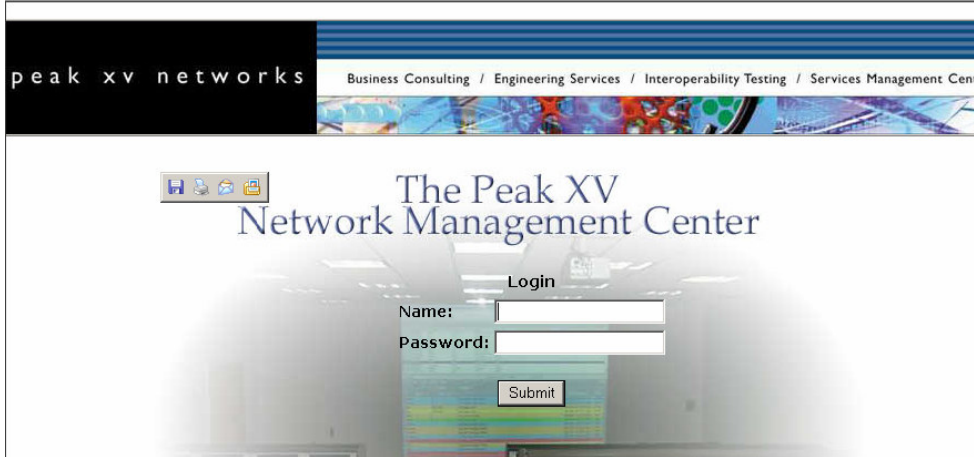


The next step is the Web Portal Installation Process.

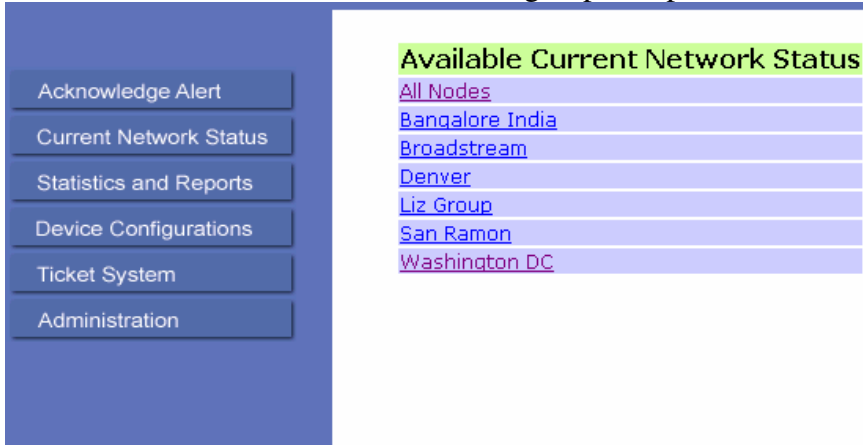


# Web Portal Installation Process

1. Log into the web portal using your administrative login.



2. Make sure that the customer and initial groups are present



3. Verify current network status has all customer nodes listed

The screenshot shows a network management interface with a sidebar on the left containing navigation buttons: Acknowledge Alert, Current Network Status, Statistics and Reports, Device Configurations, Ticket System, and Administration. A Home button is located at the bottom of the sidebar. The main content area is titled 'All Nodes' and displays a list of 14 network devices, each with a blue link:

- San Ramon Firewall
- San Ramon VPN Concentrator
- San Ramon Switch
- Washington DC Firewall
- Washington DC Switch
- Washington DC Mail Server
- Washington DC TestNode
- Denver Router
- San Ramon Router
- Washington DC Router
- alxpix01.peakxv.net
- mail.peakxv.net
- notes01.peakxv.net
- notes02
- www.peakxv.net

4. Verify report functions

The screenshot shows the same network management interface as above, but with the 'Statistics and Reports' button selected in the sidebar. The main content area is titled 'Top 5 Trouble Devices' and features a table and a bar chart.

Node	# of Alarms
<a href="#">San Ramon Router</a>	10
<a href="#">San Ramon Switch</a>	9
<a href="#">Denver Router</a>	5
<a href="#">Washington DC Router</a>	5
<a href="#">mail.peakxv.net</a>	3

The bar chart, titled 'Top 5 Trouble Nodes', visualizes the data from the table. The y-axis represents the number of alarms, ranging from 0 to 10. The x-axis lists the nodes. The bars are color-coded according to the legend:

- Denver Router (Red): 5.0
- San Ramon Router (Yellow): 10.0
- San Ramon Switch (Blue): 9.0
- Washington DC Router (Pink): 5.0
- mail.peakxv.net (Light Yellow): 3.0

**Total outage information across all nodes ranked by frequency**

5. Log into the site with the customer's administrative login and password.

6. Verify that customer has access to their nodes and reports.

Acknowledge Alert

Current Network Status

Statistics and Reports

Device Configurations

Ticket System

Administration

**Available Current Network Status**

[All Nodes](#)

[Bangalore India](#)

[Broadstream](#)

[Denver](#)

[Liz Group](#)

[San Ramon](#)

[Washington DC](#)

Acknowledge Alert

Current Network Status

Statistics and Reports

Device Configurations

Ticket System

Administration

Home

**Top 5 Trouble Devices**

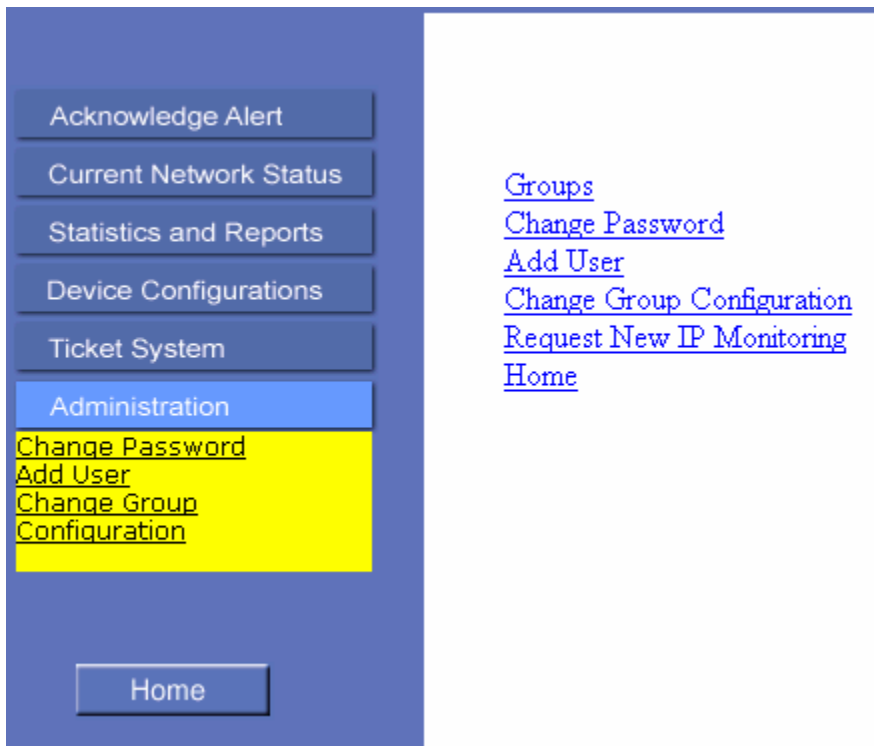
Node	# of Alarms
<a href="#">San Ramon Router</a>	10
<a href="#">San Ramon Switch</a>	9
<a href="#">Denver Router</a>	5
<a href="#">Washington DC Router</a>	5
<a href="#">mail.peakxv.net</a>	3

**Legend:**

- Denver Router (Red)
- San Ramon Router (Yellow)
- San Ramon Switch (Blue)
- Washington DC Router (Magenta)
- mail.peakxv.net (Light Yellow)

**Total outage information across all nodes ranked by frequency**

7. Verify that customer's administrative login has access to all administrative functions.



8. Logout and enter all results into customer install log.

9. Web Portal Installation Process Complete