Configuring Netcool For Cisco AMS 2.0

For Use by

Douglas Johnson

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DOCUMENT RELEASE HISTORY

"Configuring Netcool for AMS 2.0" By Douglas Johnson

Version	Date	Author	Comment
1.0	9/22/2007	Douglas Johnson	Initial Release – 1.0
1.1	10/25/2007	Douglas Johnson	Add alerts.status field changes Add NcKL rules file section Add ams_show_symptom_event.cgi section
1.2	11/28/2007	Douglas Johnson	Removed map section Added rules file text Added tool text Added section on creating trigger

DOCUMENT APPROVAL

This document and its content have been reviewed, and approved in its 1.0 version, by:

Name	Title	Comments

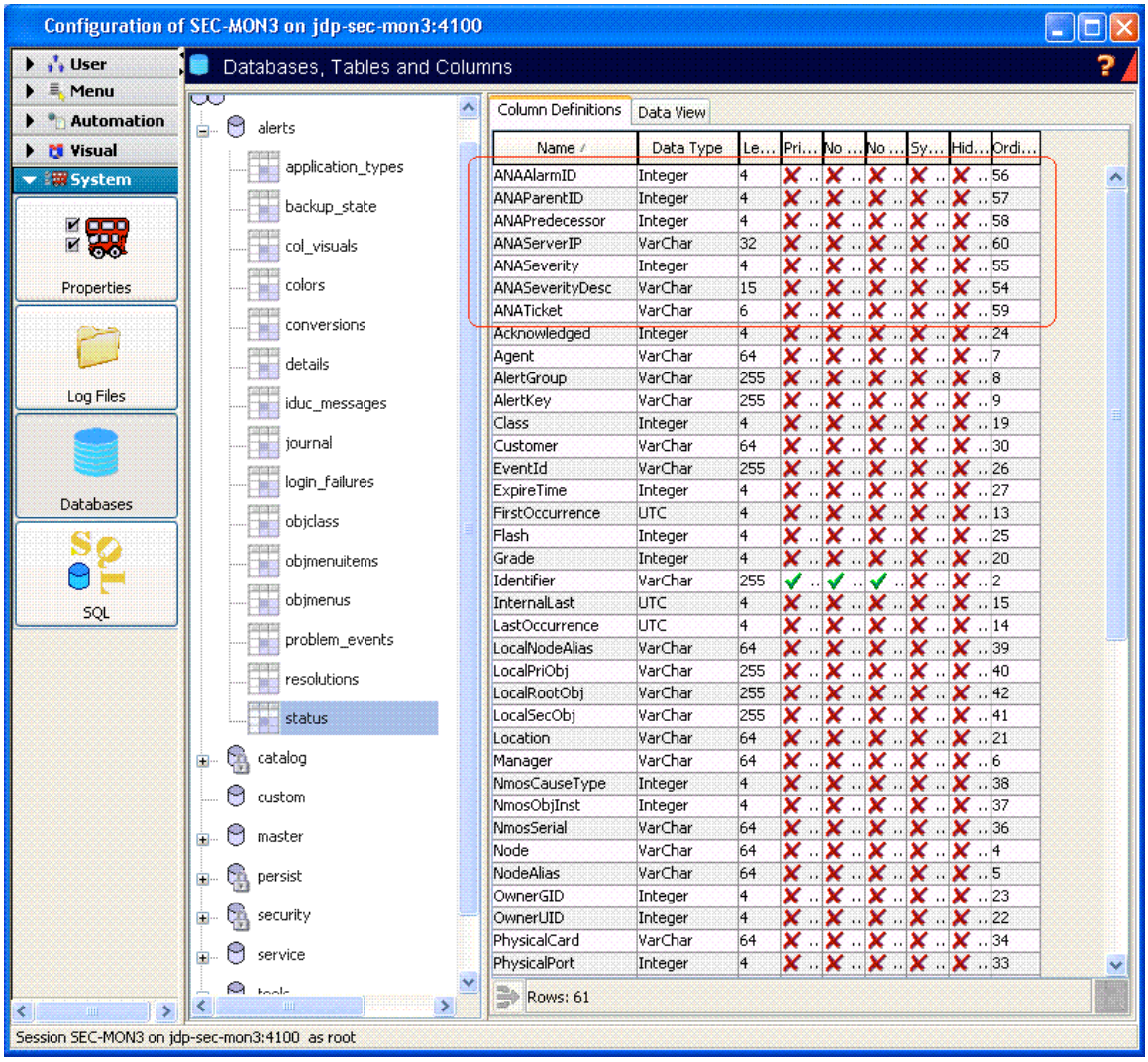
DOCUMENT OBJECTIVES

This document is intended to explain how to manually create the content that is present in the Netcool part of the Cisco AMS 2.0 solution. It does not address installation of the various components, nor does it touch any of the configurations required on the ANA part of the solution.

This document is a fairly long document. To save time it skips over explicitly telling the reader to "Save" or "Save and Apply". It is assumed that the user will save their work as they progress.

UPDATING THE OBJECT SERVER ALERTS.STATUS SCHEMA

Launch nco_config and connect to the Object Server. Select the System tab -> Databases button -> alerts database -> status table. Add 5 ANA fields as described in the following picture.



SETTING UP THE NCKL RULES FILES

Setting $NC_RULES_HOME

By convention the NcKL is installed into $NCHOME/probes/solaris2/rules. You do not have to use this path, but wherever you choose to install the rules you must point the $NC_RULES_HOME environment variable to it.

```
[root@jdp-sec-mon3]C:\ echo $NC_RULES_HOME
/opt/ams2/omnibus/probes/solaris2/rules
[root@jdp-sec-mon3]C:\
```

Updating snmptrap.rules

The SNMP EMS probe uses the mttrapd_ems.rules file by default. In order to use the NcKL you need to configure the probe to use the $NC_RULES_HOME/snmptrap.rules file. This will pick up all the standard MIB support that the NcKL offers.

It will not pick up the ANA specific trap logic. In order to do this you need to add the following lines to the relevant sections in the snmptrap.rules file:

include "$NC_RULES_HOME/include-snmptrap/cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.lookup"

include "$NC_RULES_HOME/include-snmptrap/cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.rules"

Adding the CISCO-EPM-NOTIFICATION files

Place the updated cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.lookup and cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.rules in the $NC_RULES_HOME/include-snmptrap directory.

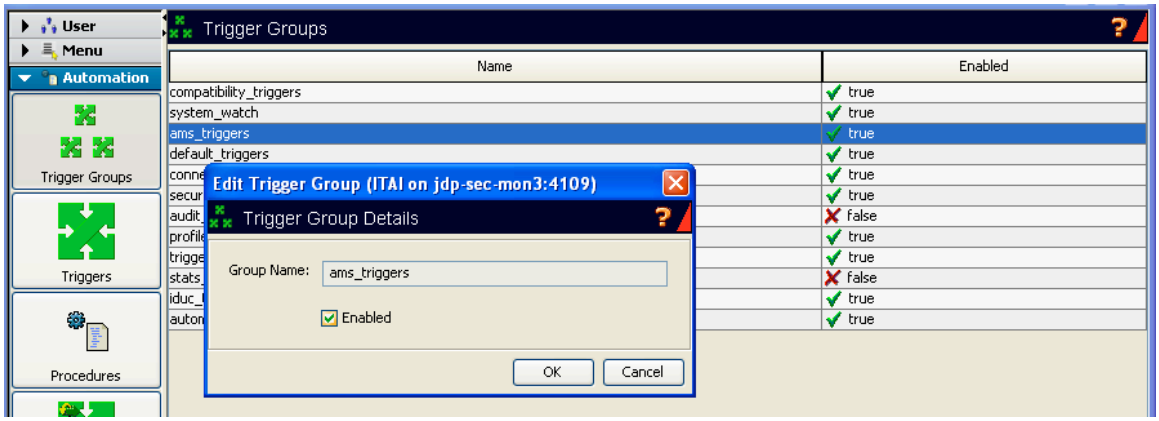
```
[root@jdp-sec-mon3]C:\ pwd
/opt/ams2/omnibus/probes/solaris2/rules/include-snmptrap
[root@jdp-sec-mon3]C:\ ls cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.*
cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.lookup
cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.rules
[root@jdp-sec-mon3]C:\
```

SETTING UP THE OBJECT SERVER TRIGGERS

ANA's fault management technology is built on the notion of a predecessor event. Netcool does not share this architecture. The cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.rules has been modified to allow the Generic Clear trigger to manage ANA events, but a new trigger is required to deal with the predecessor relationships.

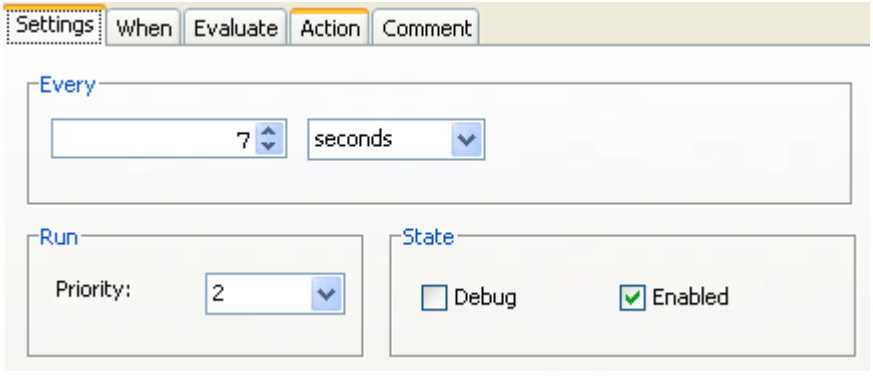
Create the Trigger Group

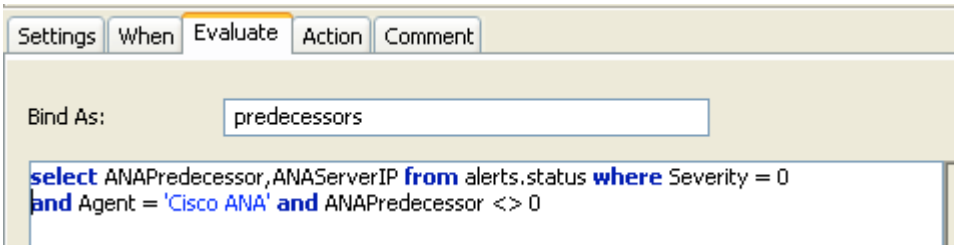
Create a trigger group called "ams_triggers". This will allow you to control all the AMS triggers at once.

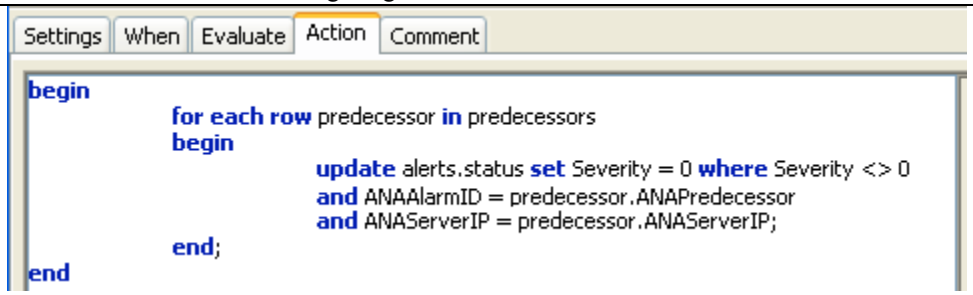


Create the ams_clean_predecessor trigger

The ams_clean_predecessor trigger is defined as follows:



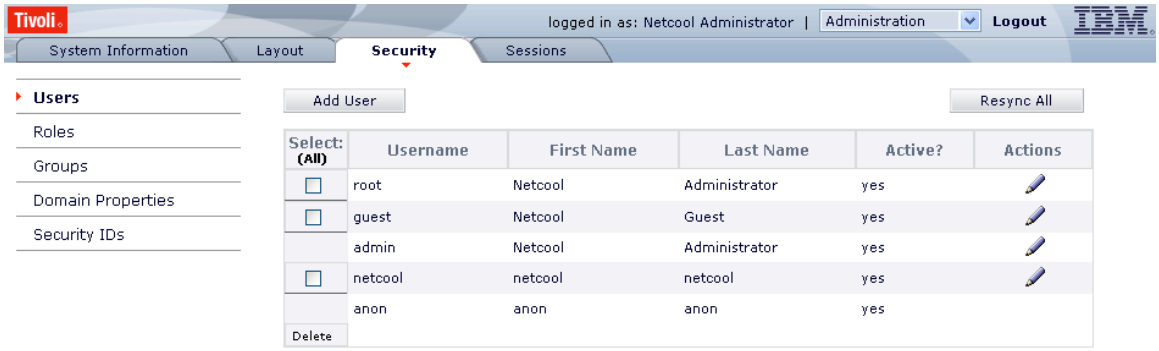




Be sure to add the appropriate comments for your work.

UPDATING THE ADMIN USER ACCOUNT

Once installed the admin user must be given Webtop Admin privileges. From the Administration drop down menu select the Security tab, and then click on the pencil to edit the admin user.



CREATING THE AMS_USER USER ACCOUNT

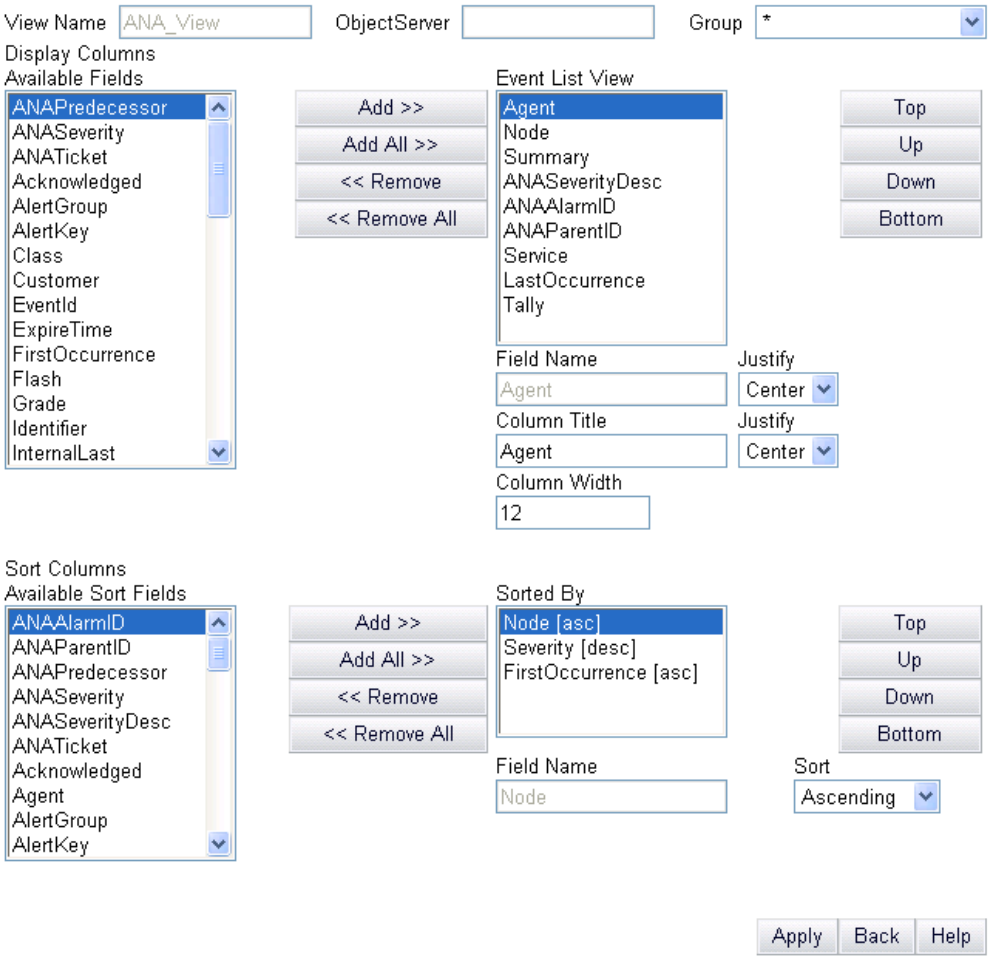
When logged in as admin add the user AMS_User. This user should have Webtop User role and be part of the System, Desktop, and Restricted groups. The password for AMS_User should be "cisco".

CREATING THE ENTITY VIEW

Select Webtop Admin from the drop down menu. Select Entity Views from the left menu. Create a new view named ANA_View as follows:

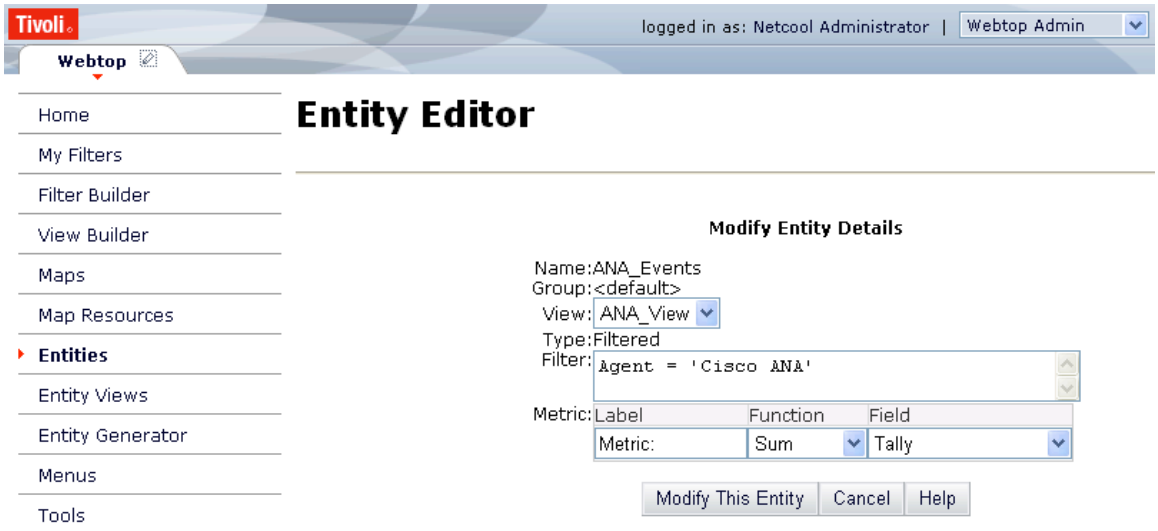
Event List View	Field Name	Justify	Column Title	Justify	Column Width
Agent	Agent	Center	Agent	Center	12
Node	Node	Center	Node	Center	12
AlertGroup	AlertGroup	Center	Alert Group	Center	12
Summary	Summary	Left	Summary	Center	40
ANASeverityDesc	ANASeverityDesc	Center	ANA Severity Desc	Center	12
ANAAlarmID	ANAAlarmID	Center	ANA Alarm ID	Center	12
ANAParentID	ANAParentID	Center	Parent ID	Center	10
LastOccurrence	LastOccurrence	Center	Last Occurrence	Center	12
Tally	Tally	Center	Count	Center	12

Sort by Node [asc] -> Severity [desc] -> FirstOccurrence [asc].

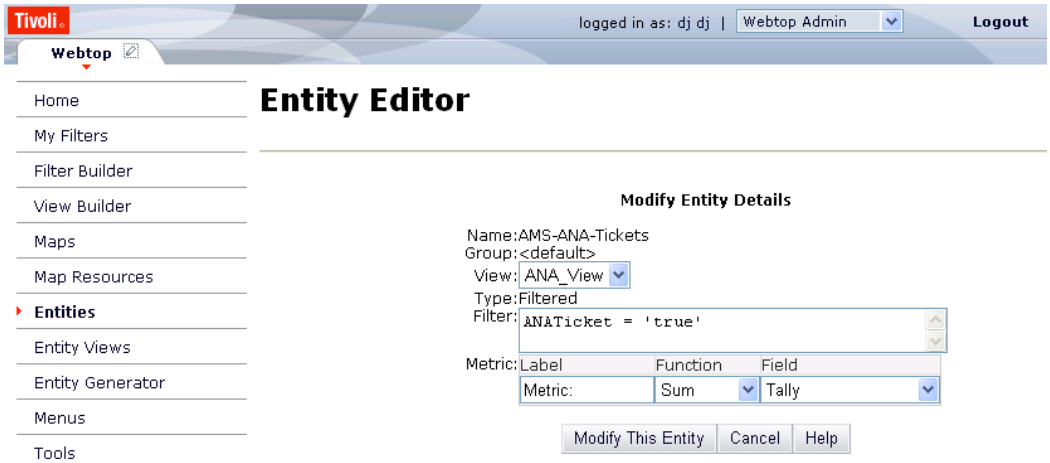


CREATING THE ENTITIES

Select Webtop Admin from the drop down menu. Select Entities from the left menu. Create a new entity named ANA_Events as follows:

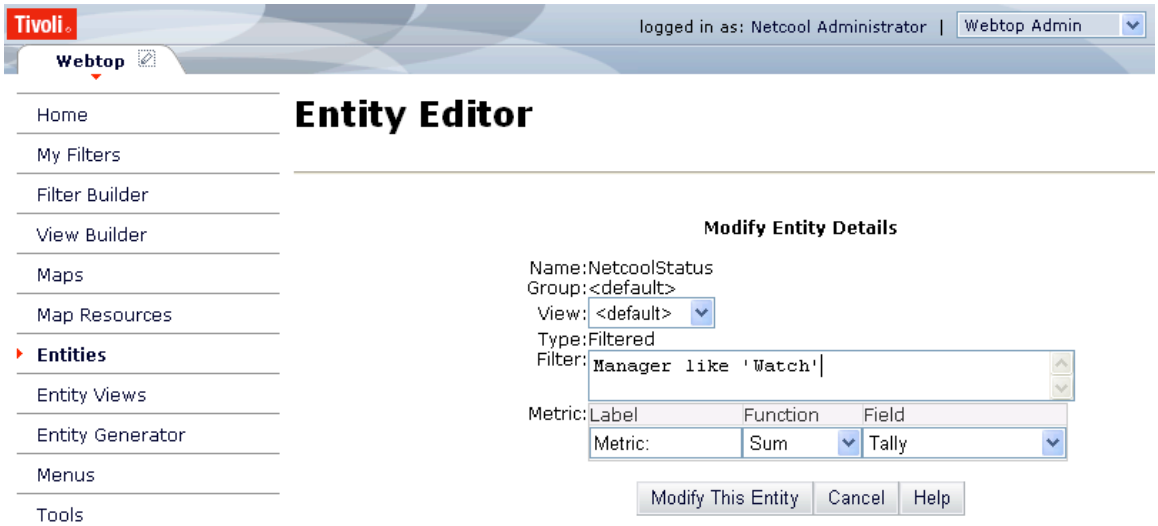


Create a new entity named AMS-ANA-Tickets as follows:



Create a new entity named ANA_Status as follows:

Create a new entity named NetcoolStatus as follows:



CREATING THE AMS-ANA-EVENTS MAP

Select Webtop Admin from the drop down menu. Select Maps from the left menu and create a map named AMS-ANA-Events. The background should be white, the height should be 198 and the width should be 230.

The map consists of a label, a line, and 3 monitor boxes.

The label is created as follows:

Name	Label	X	Y	Size	Bold
Map_Label	ANA Events	71	16	18	checked

The line is created as follows:

Name	X1	Y1	X2	Y2	Thickness
Line	10	18	220	18	2

The 3 monitor boxes are created as follows:

Name	Label	Entity	X	Y
All_ANA_Events	All Events	ANA_Events	10	28
AMS-ANA-Tickets	ANA Tickets	AMS-ANA-Tickets	120	28
ANA_Status_Events	Status Events	ANA_Status_Events	65	113

All have Show Label and Show Total selected on the Properties tab. All have the following configurations as well:

Action	Target	Data Source	Width	Height
Active Event List AEL)	ANA_iframe	NCOMS	100	75

CREATING THE AMS-ALL-EVENTS MAP

Select Webtop Admin from the drop down menu. Select Maps from the left menu and create a map named AMS-All-Events. The background should be white, the height should be 198 and the width should be 230.

The map consists of a label, a line, and 3 monitor boxes.

The label is created as follows:

Name	Label	X	Y	Size	Bold
Map_Label	All Events	71	16	18	checked

The line is created as follows:

Name	X1	Y1	X2	Y2	Thickness
Line	10	18	220	18	2

The 4 monitor boxes are created as follows:

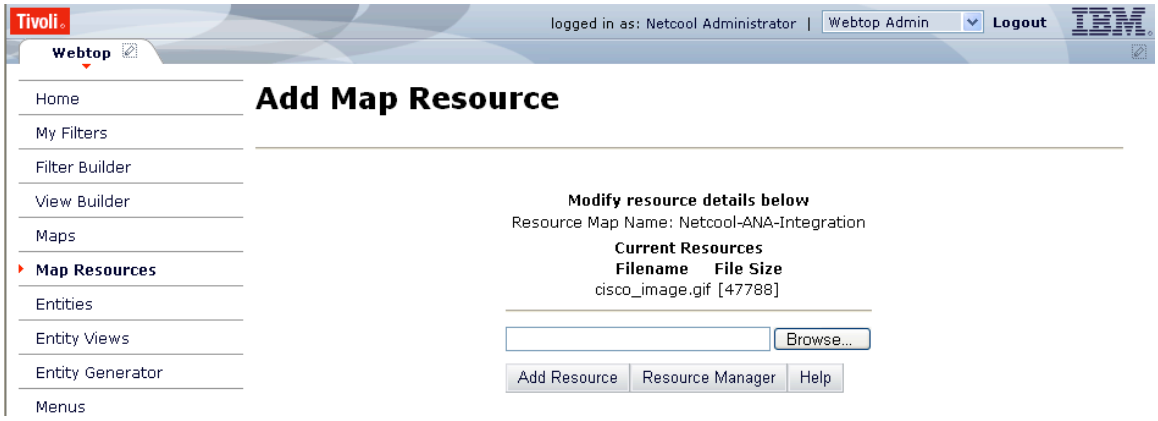
Name	Label	Entity	X	Y
All_Events	All Events	AllEvents	10	28
Critical_Events	Critical Events	Critical	120	28
Last_24_Hours	Last 24 Hours	LastDay	10	113
Netcool_Status_Events	Netcool Status	Netcool_Status	120	113

All have Show Label and Show Total selected on the Properties tab. All have the following configurations as well:

Action	Target	Data Source	Width	Height
Active Event List AEL)	ANA_iframe	NCOMS	100	75

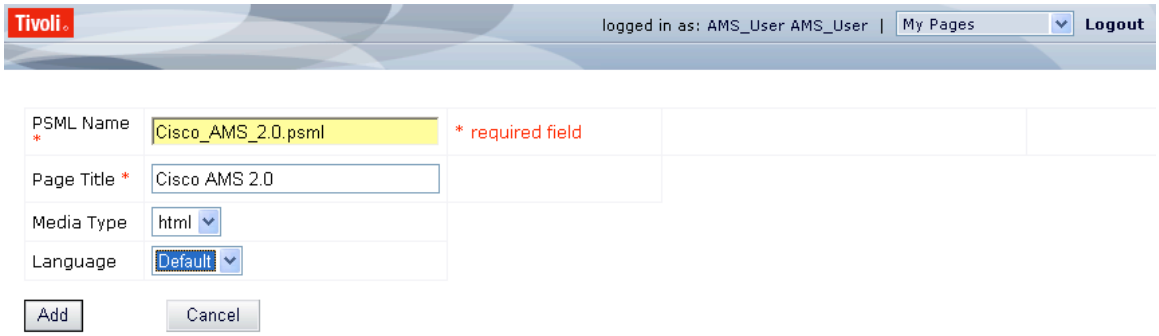
ADDING THE MAP GRAPHICS AS RESOURCES

Select Webtop Admin from the drop down menu. From the left menu select Map Resources, then the relevant map. Click on Add Map Resource, then browse to the location of the relevant graphic.

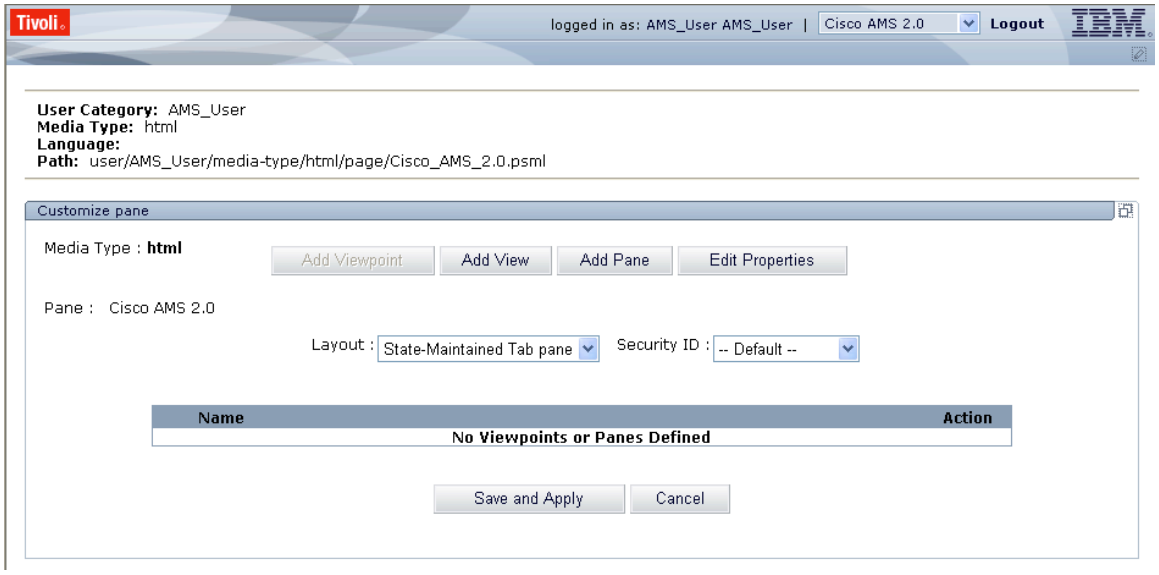


CREATING THE CISCO AMS 2.0 PAGE

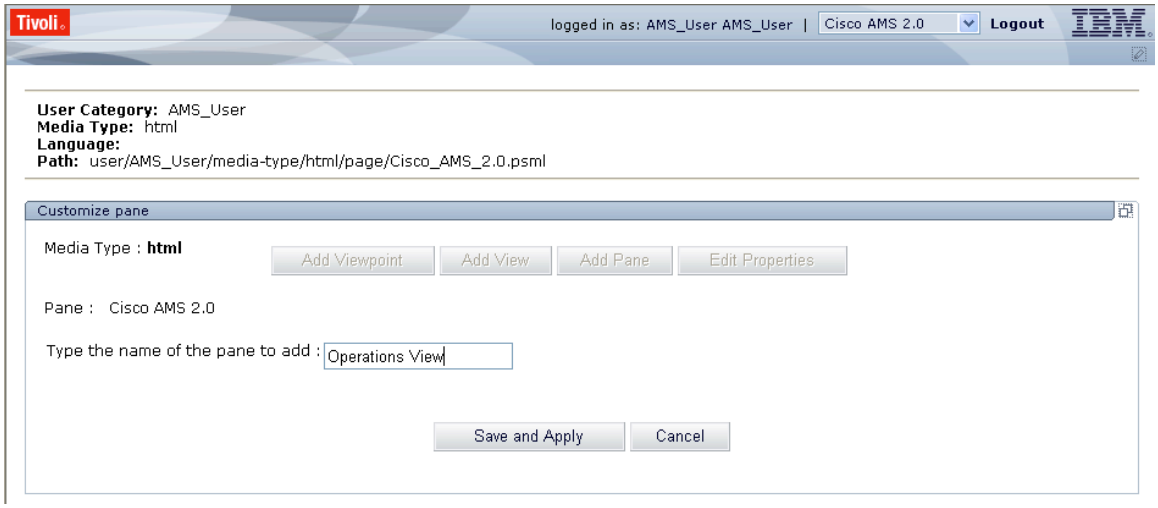
Select My Pages from the drop down menu. Create the Cisco AMS 2.0 page as follows:



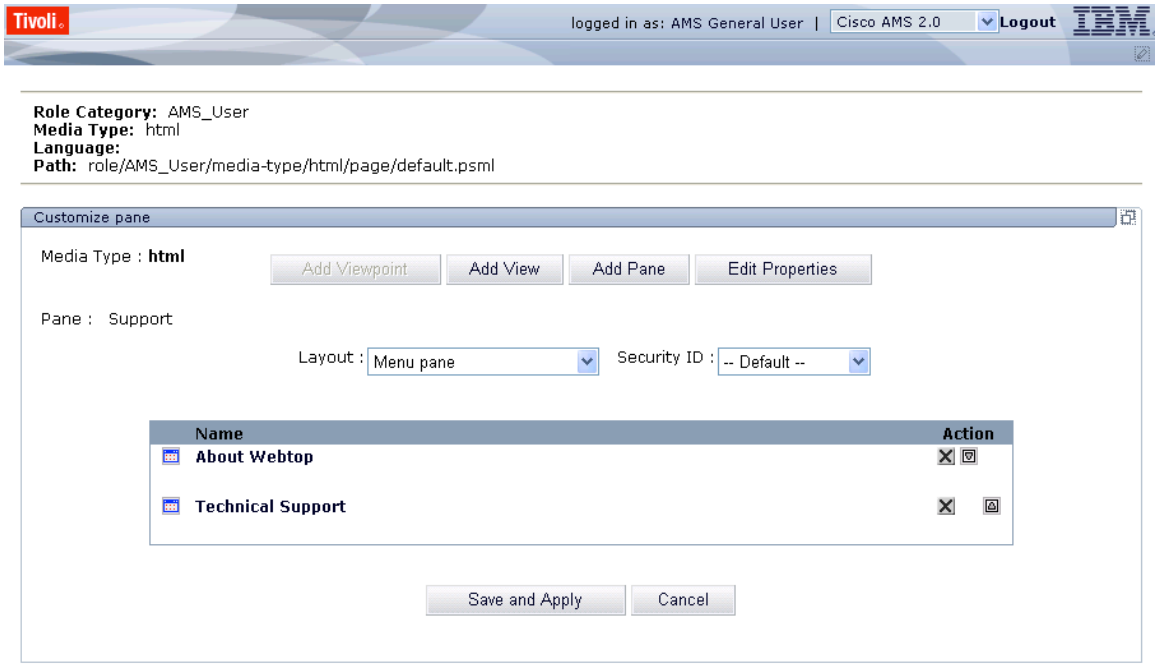
Click on the pencil to modify the page. Select State Maintained Tab Pane. This will keep updating the AEL's even if you navigate away from the current tab.



Click on Add Pane to create the first pane. Create the Operations View pane as follows:

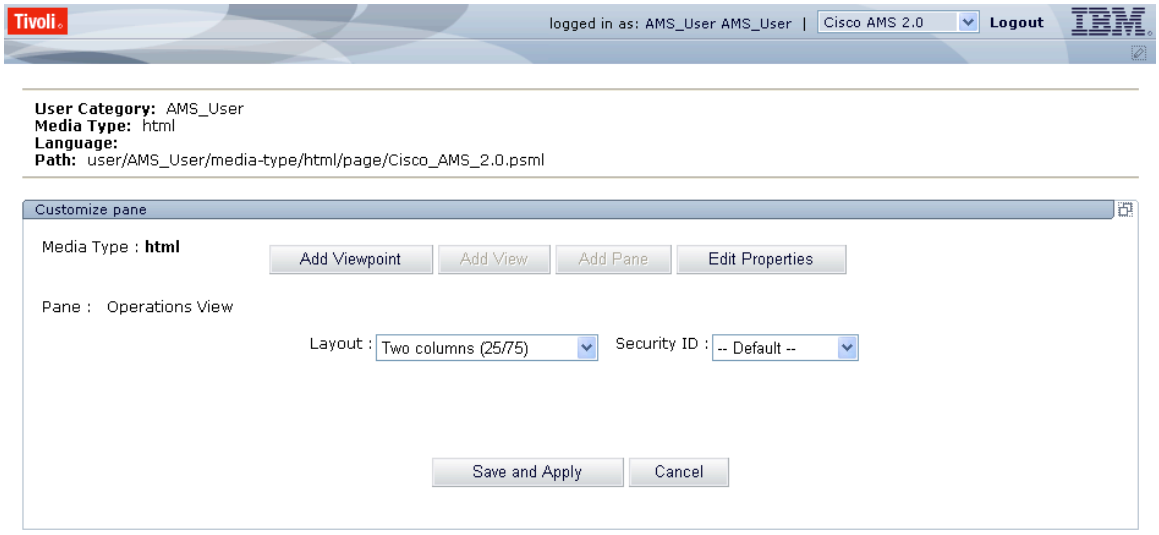


Create the Support pane as follows:

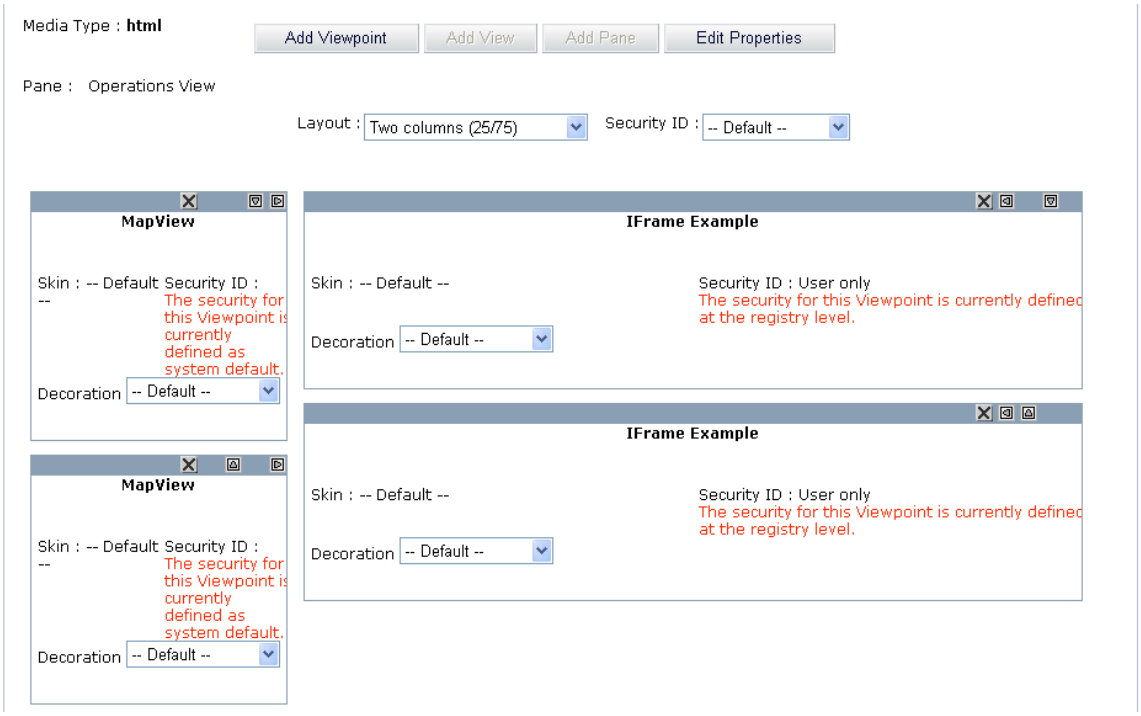


CREATING THE OPERATIONS VIEW PAGE

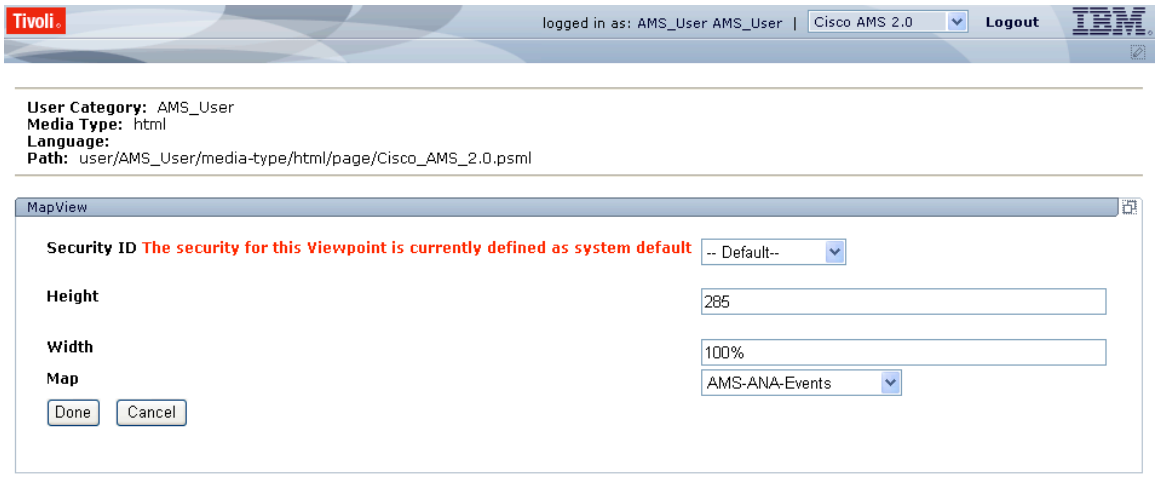
From the Cisco AMS 2.0 page select the Operations View tab. Click on the pencil to modify the page. Add 2 columns as follows:



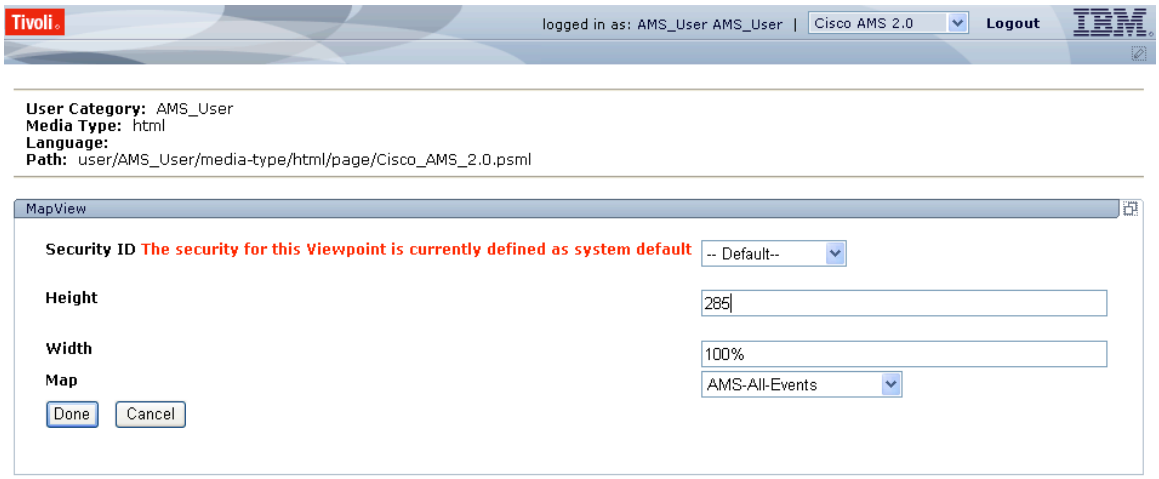
Click on the "Add Viewpoint" button and add a Mapview and iFrame. Do this a second time. You should see a page like:



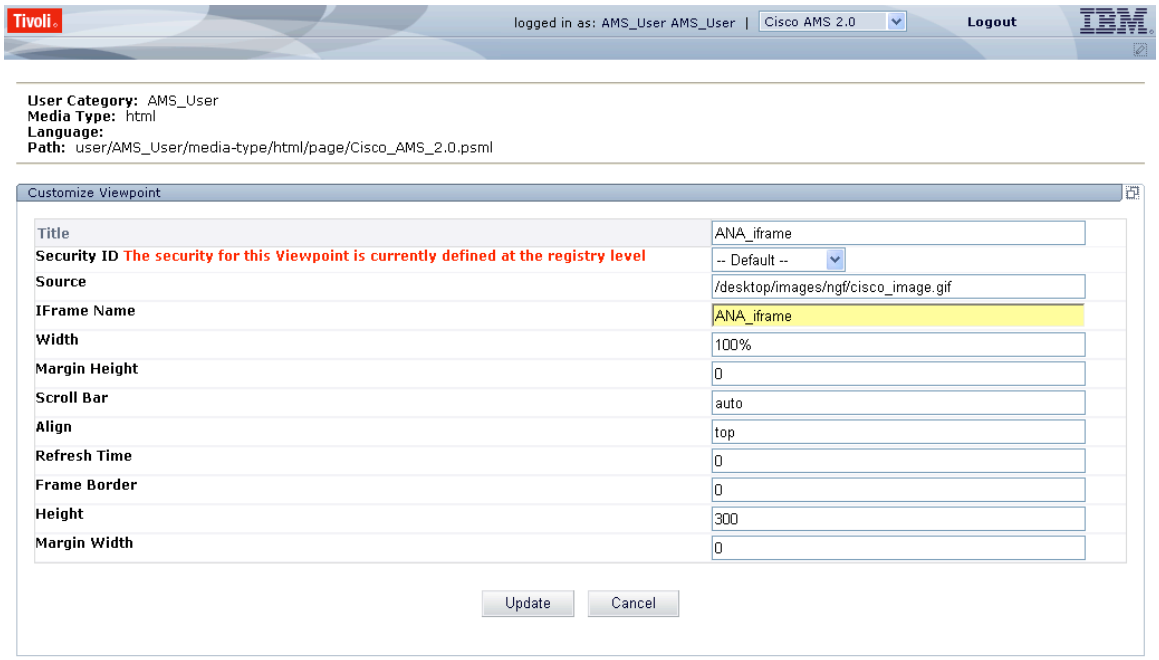
Edit the first MapView as follows:



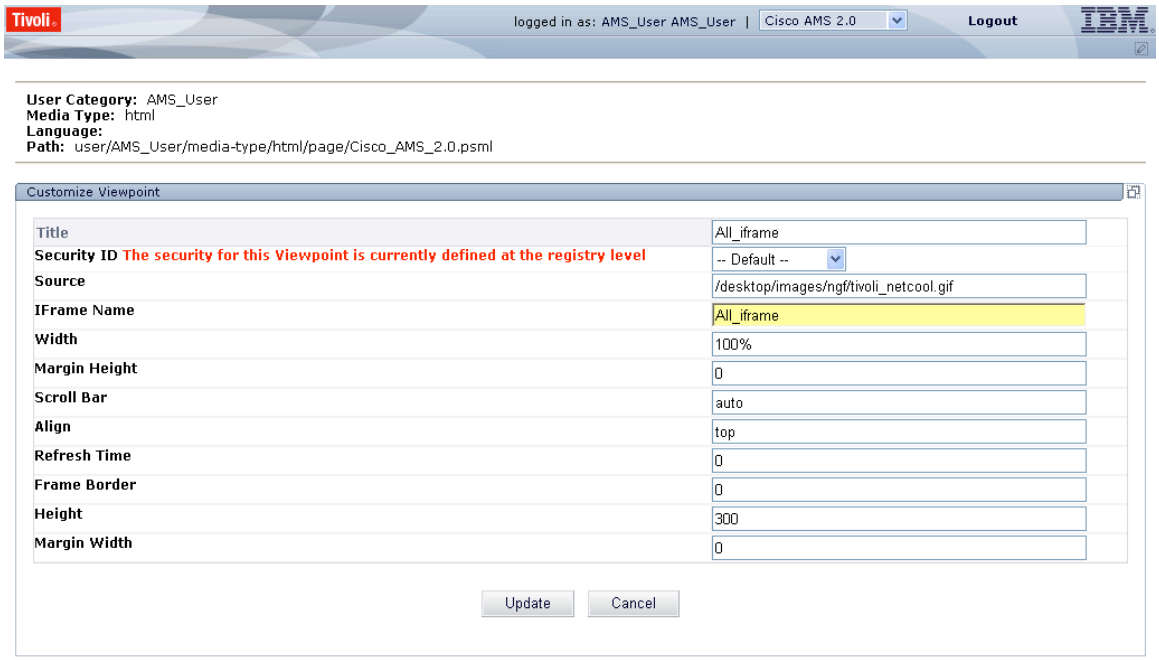
Edit the second MapView as follows:



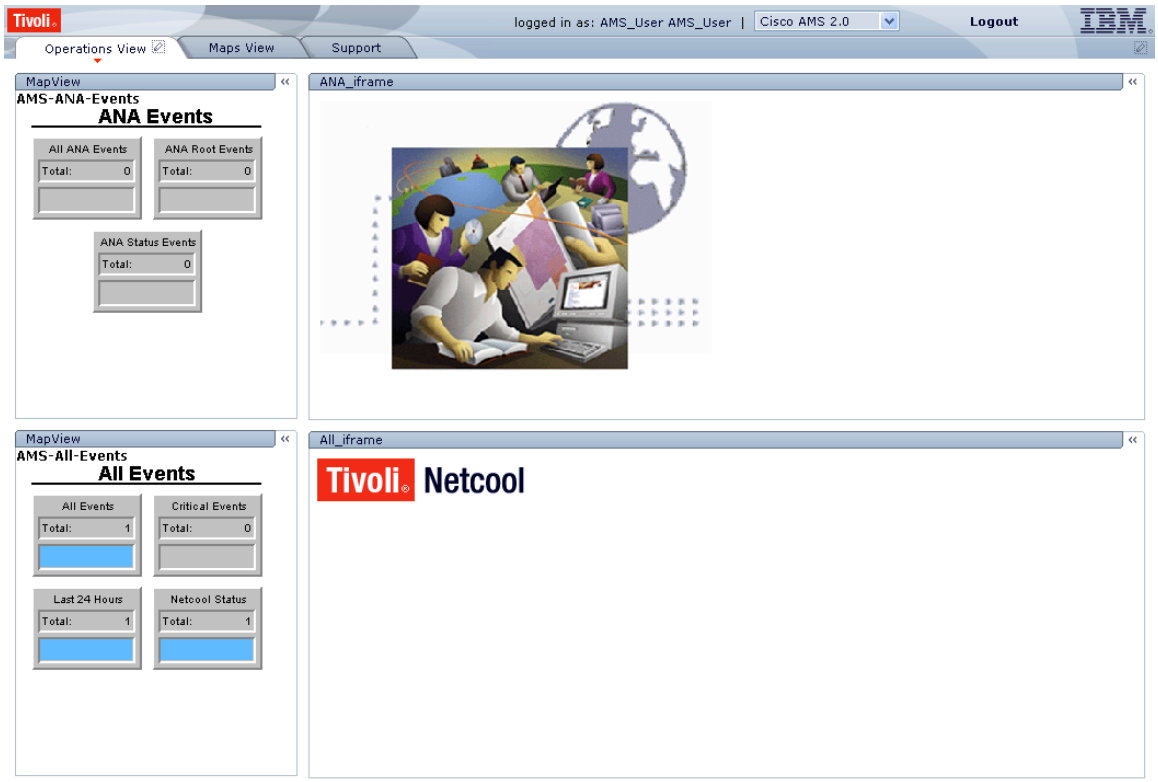
Edit the first iFrame Example as follows:



Edit the second iFrame Example as follows:

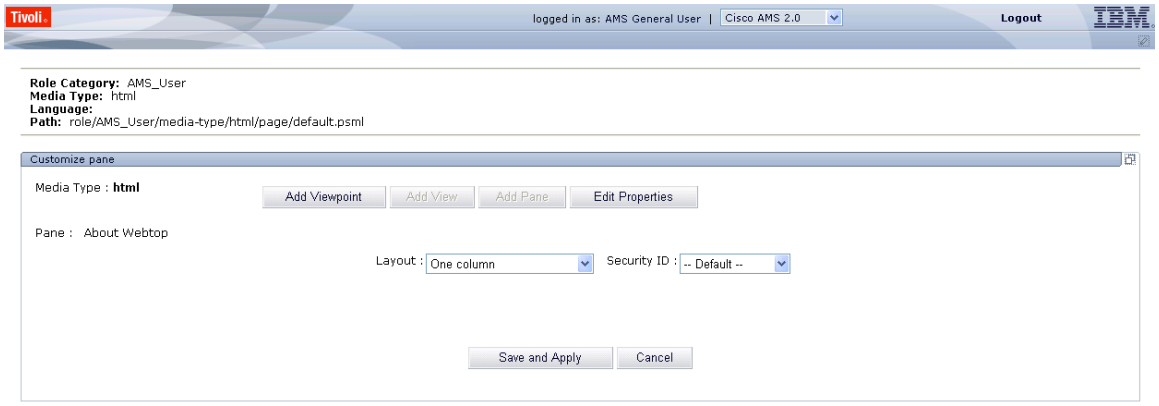


The final page should look like:

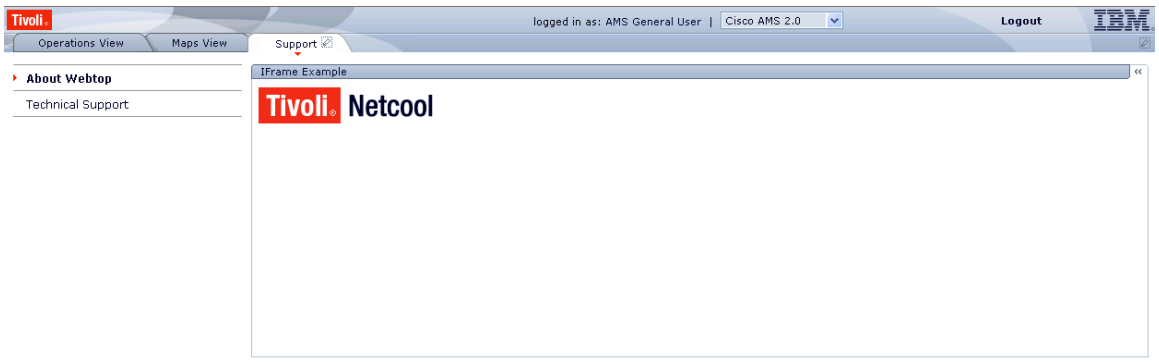


CREATING THE SUPPORT PAGE

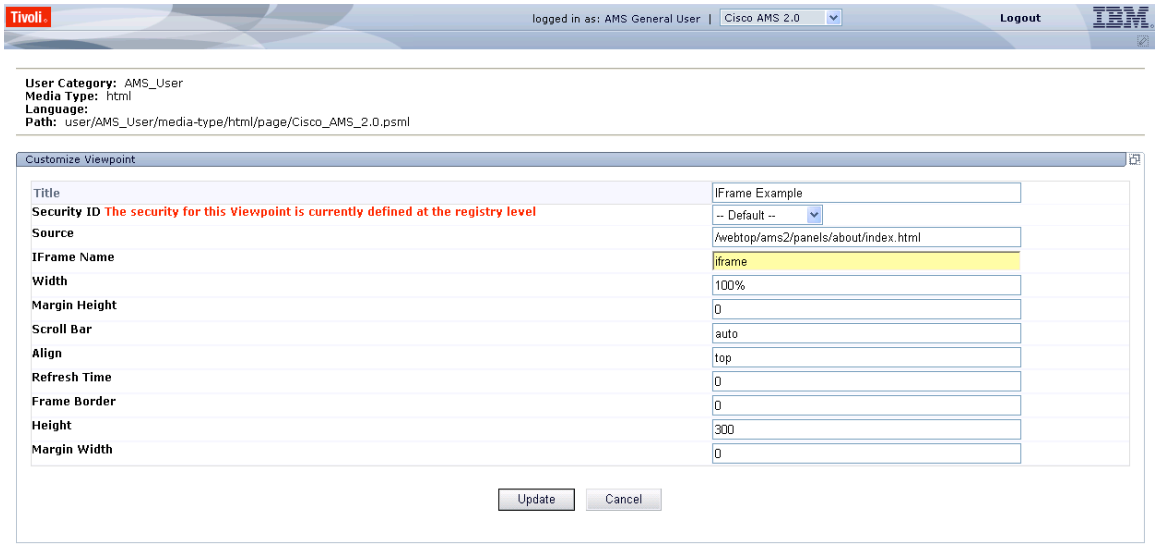
From the Cisco AMS 2.0 page select the Support tab. Click on the pencil to modify the page. Click on the About Webtop link and add a One column layout as follows:



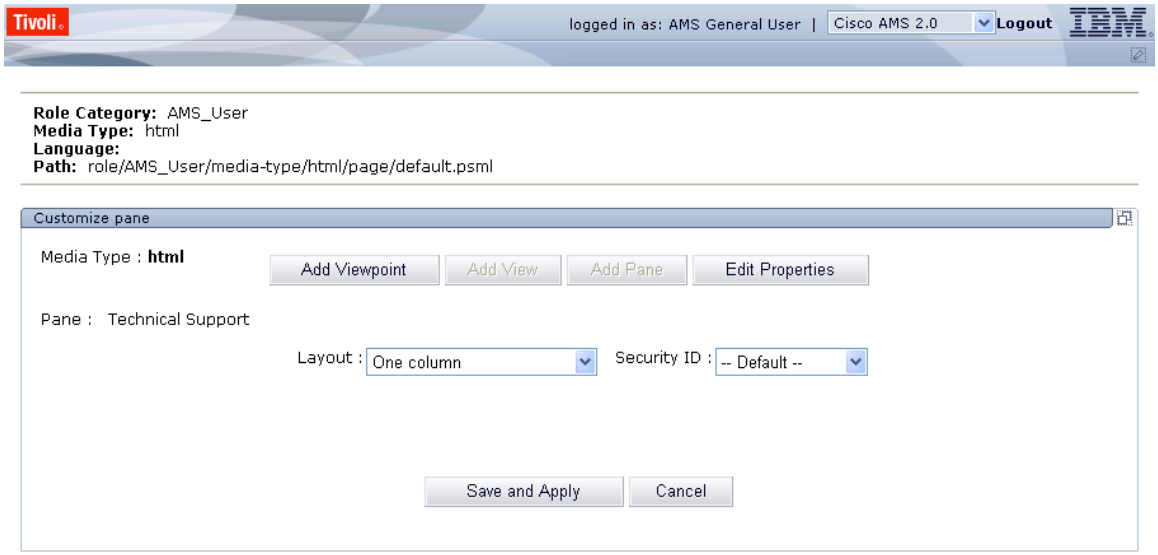
Add a single iFrame to this layout. The main page should now look like:



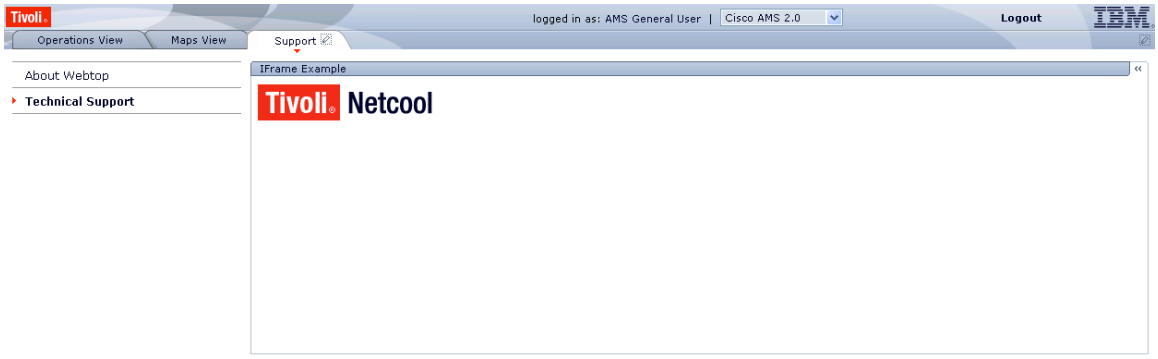
Edit the properties for this iFrame as follows:



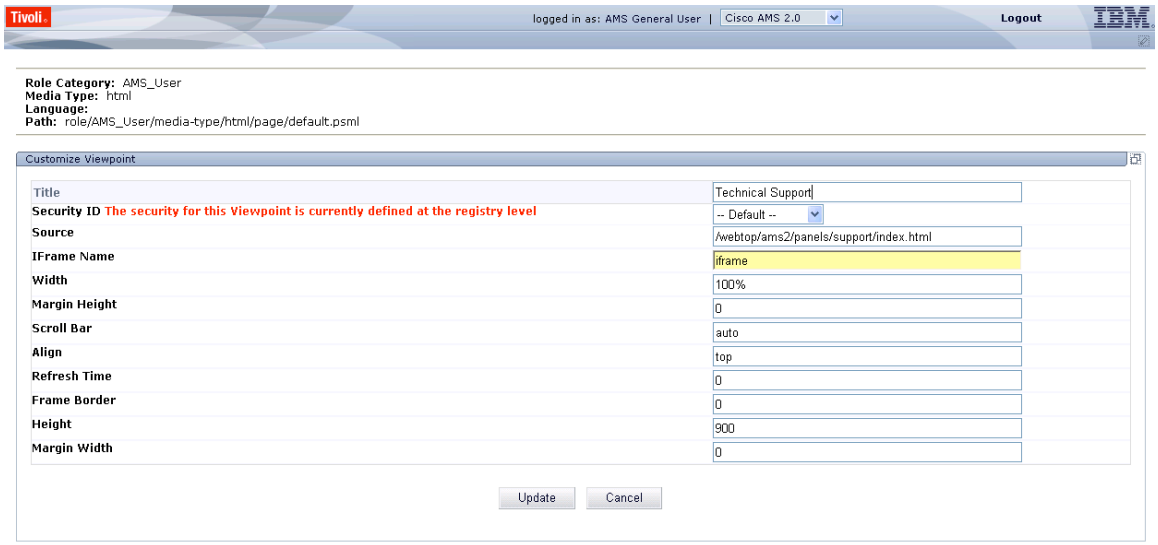
From the Cisco AMS 2.0 page select the Support tab. Click on the pencil to modify the page. Click on the Technical Support tab and add a One column layout as follows:



Add a single iFrame to this layout. The main page should now look like:



Edit the properties for this iFrame as follows:



CONFIGURING THE SHOW SYMPTON EVENTS TOOL

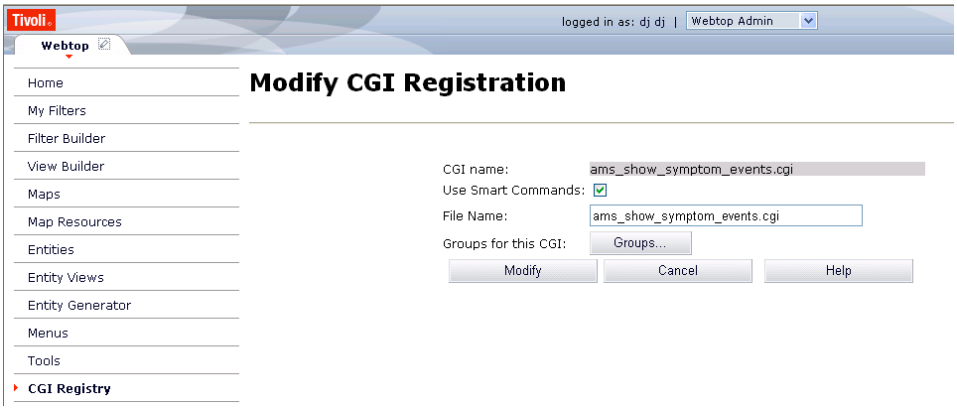
Adding the ams_show_symptom_events.cgi tool

Place the ams_show_symptom_events.cgi script in $NCHOME/etc/webtop/cgi-bin.

```
[root@jdp-sec-mon3]C:\ pwd
/opt/ams2/etc/webtop/cgi-bin
[root@jdp-sec-mon3]C:\ ls ams_show_symptom_events.cgi
ams_show_symptom_events.cgi
[root@jdp-sec-mon3]C:\
```

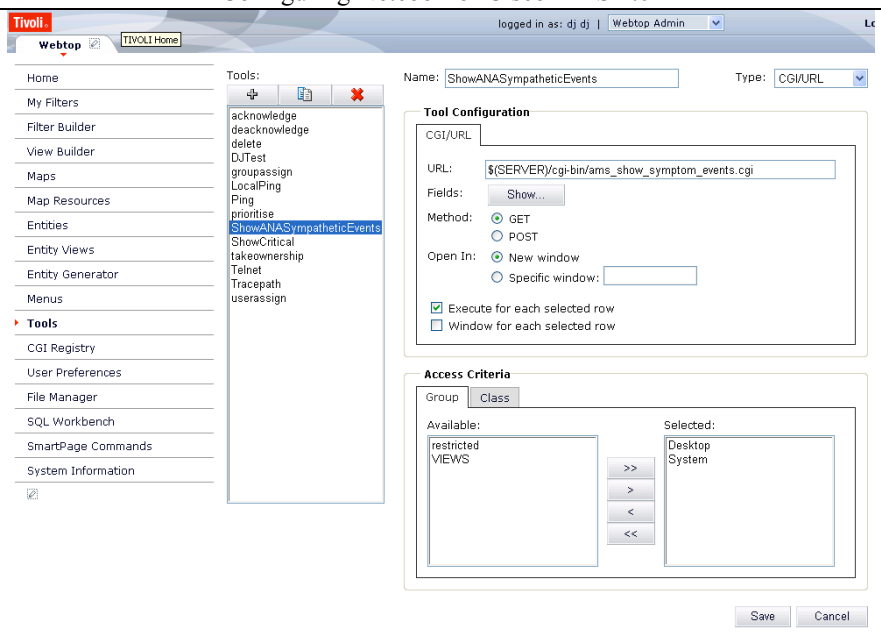
Register the ams_show_symptom_events.cgi tool in Webtop

Register the tool in webtop. Be sure to spell the cgi name and file name EXACTLY the same as the file name on disk. Be sure to check the "Use Smart Commands" box. In the Groups button be sure to add the * and Desktop groups.

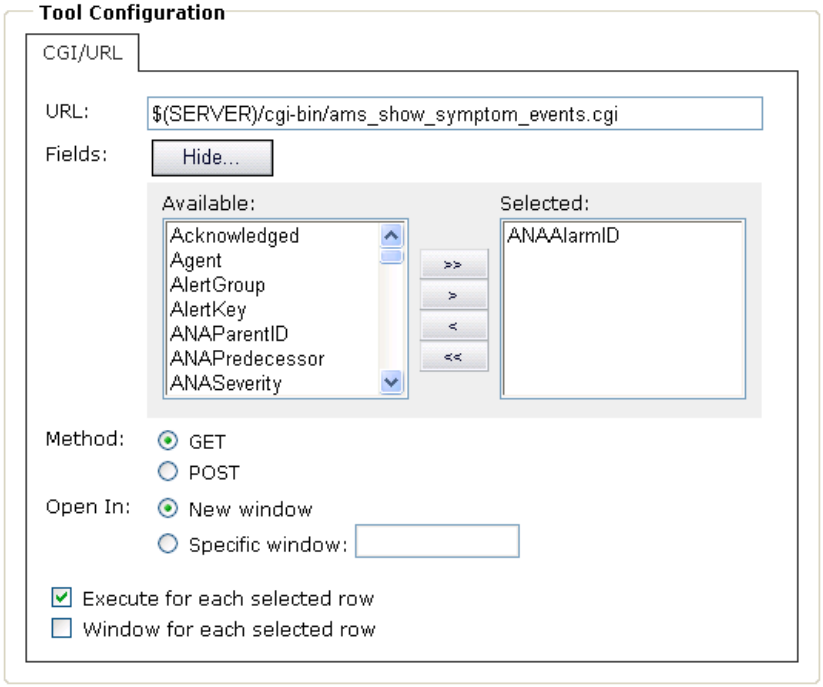


Create the ShowANASympatheticEvents tool

Create a CGI tool in Webtop. The tool should be a GET tool.

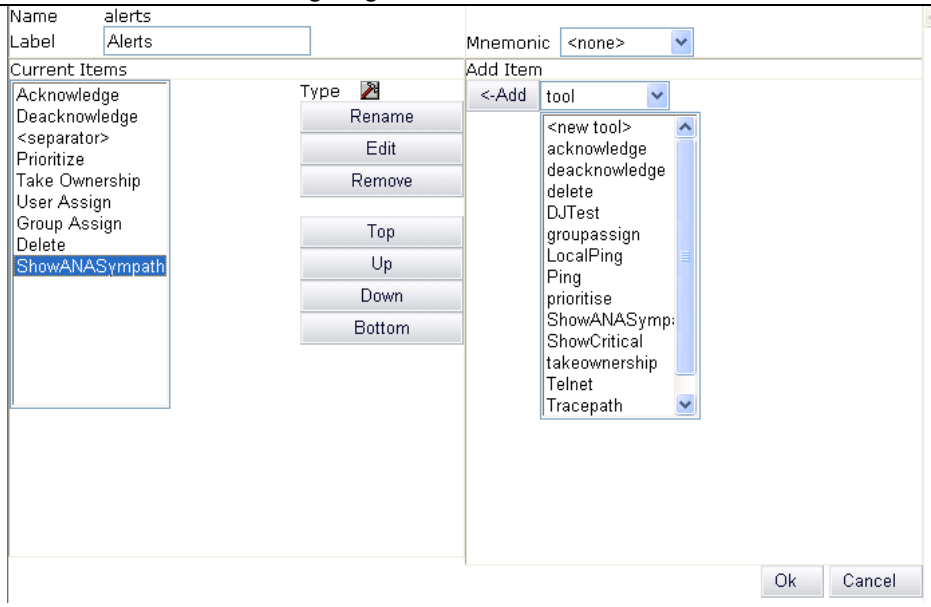


Click on the Show button next to the Fields label. Add the field ANAAlarmID. This will pass the ANAAlarmID field to the cgi script.



Add the ShowANASymptomEvents Tool to the alerts Menu

Simply add the tool to the alerts menu so it will show up in an AEL.


Name alerts
Label Alerts
Mnemonic <none>
Current Items
Acknowledge
Deacknowledge
<separator>
Prioritize
Take Ownership
User Assign
Group Assign
Delete
ShowANASympath
Type
Rename
Edit
Remove
Top
Up
Down
Bottom
Add Item
<-Add
tool
<new tool>
acknowledge
deacknowledge
delete
DJTest
groupassign
LocalPing
Ping
prioritise
ShowANASymp
ShowCritical
takeownership
Telnet
Tracepath
Ok
Cancel

APPENDIX A – RULES FILE

```
##############################################################################
# cisco-CISCO-EPM-NOTIFICATION-MIB
# Automatically created by mib2rules (http://gat.micromuse.com)
# Mon Feb 26 14:39:40 2007
#
# Customized by Netcool OEM Engineering Team for AMS 2.0
# Tue Nov 27 15:10:13 2007
# Contact - D. Johnson (johnsond@us.ibm.com)
##############################################################################
case ".1.3.6.1.4.1.9.9.311":  ### - ciscoEpmNotificationMIB (from CISCO-EPM-NOTIFICATION-
MIB)

        switch($specific-trap) {
                case "1": ### - ciscoEpmNotificationAlarm
                        ########################
                        # Notification of the status of the managed object as
                        # generated by the management server.
                        #
                        # New attributes are added to the ciscoEpmNotificationAlarmRev1.
                        # Hence this notification is deprecated.
                        ########################
                        $cenAlarmVersion = $1
                        $cenAlarmTimestamp = $2
                        $cenAlarmUpdatedTimestamp = $3
                        $cenAlarmInstanceID = $4
                        $cenAlarmStatus = $5
                        $cenAlarmStatusDefinition = $6
                        $cenAlarmType = lookup($7,cisco-CISCO-EPM-NOTIFICATION-MIB-
cenAlarmType)
                        $cenAlarmCategory = $8
                        $cenAlarmCategoryDefinition = $9
                        $cenAlarmServerAddressType = $10
                        $cenAlarmServerAddress = $11
                        $cenAlarmManagedObjectClass = $12
                        $cenAlarmManagedObjectAddressType = $13
                        $cenAlarmManagedObjectAddress = $14
                        $cenAlarmDescription = $15
                        $cenAlarmSeverity = $16
                        $cenAlarmSeverityDefinition = $17
                        $cenAlarmTriageValue = $18
                        $cenEventIDList = $19
                        $cenUserMessage1 = $20
                        $cenUserMessage2 = $21
                        $cenUserMessage3 = $22

                        $OS_EventId = "SNMPTRAP-cisco-CISCO-EPM-NOTIFICATION-MIB-
ciscoEpmNotificationAlarm"

                        @Agent = "CISCO-EPM-NOTIFICATION-MIB"
                        @AlertGroup = "ciscoEpmNotificationAlarm"
                        @AlertKey =
$cenAlarmVersion+$cenAlarmTimestamp+$cenAlarmUpdatedTimestamp+$cenAlarmInstanceID+$cenAla
rmStatus+$cenAlarmStatusDefinition+$cenAlarmType+$cenAlarmCategory+$cenAlarmCategoryDefin
ition+$cenAlarmServerAddressType+$cenAlarmServerAddress+$cenAlarmManagedObjectClass+$cenA
larmManagedObjectAddressType+$cenAlarmManagedObjectAddress+$cenAlarmDescription+$cenAlarm
Severity+$cenAlarmSeverityDefinition+$cenAlarmTriageValue+$cenEventIDList+$cenUserMessage
1+$cenUserMessage2+$cenUserMessage3
                        @Summary = "ciscoEpmNotificationAlarm: Notification of the status
of the managed object as  generated by the  management server.

New attributes are added to the ciscoEpmNotificationAlarmRev1. Hence this notification is
deprecated."
                        $DEFAULT_Severity = 1
                        $DEFAULT_Type = 0
                        $DEFAULT_ExpireTime = 0
                        @Identifier = @Node + " " + @AlertKey + " " + @AlertGroup + " " +
$DEFAULT_Type + " " + @Agent + " " + @Manager + " " + $specific-trap
```

```
                case "2": ### - ciscoEpmNotificationAlarmRev1
                        ########################
                        # Notification of the status of the managed object as
                        # generated by the  management server.
                        ########################
                        $cenAlarmVersion = $1
                        $cenAlarmTimestamp = $2
                        $cenAlarmUpdatedTimestamp = $3
                        $cenAlarmInstanceID = $4
                        $cenAlarmStatus = $5
                        $cenAlarmStatusDefinition = $6
                        $cenAlarmType = lookup($7,cisco-CISCO-EPM-NOTIFICATION-MIB-
cenAlarmType)
                        $cenAlarmCategory = $8
                        $cenAlarmCategoryDefinition = $9
                        $cenAlarmServerAddressType = $10
                        $cenAlarmServerAddress = $11
                        $cenAlarmManagedObjectClass = $12
                        $cenAlarmManagedObjectAddressType = $13
                        $cenAlarmManagedObjectAddress = $14
                        $cenAlarmDescription = $15
                        $cenAlarmSeverity = $16
                        $cenAlarmSeverityDefinition = $17
                        $cenAlarmTriageValue = $18
                        $cenEventIDList = $19
                        $cenUserMessage1 = $20
                        $cenUserMessage2 = $21
                        $cenUserMessage3 = $22
                        $cenAlarmMode = lookup($23,cisco-CISCO-EPM-NOTIFICATION-MIB-
cenAlarmMode)
                        $cenPartitionNumber = $24
                        $cenPartitionName = $25
                        $cenCustomerIdentification = $26
                        $cenCustomerRevision = $27
                        $cenAlertID = $28

                        $OS_EventId = "SNMPTRAP-cisco-CISCO-EPM-NOTIFICATION-MIB-
ciscoEpmNotificationAlarmRev1"

                        @Agent = "CISCO-EPM-NOTIFICATION-MIB"
                        @AlertGroup = "ciscoEpmNotificationAlarmRev1"
                        @AlertKey =
$cenAlarmVersion+$cenAlarmTimestamp+$cenAlarmUpdatedTimestamp+$cenAlarmInstanceID+$cenAla
rmStatus+$cenAlarmStatusDefinition+$cenAlarmType+$cenAlarmCategory+$cenAlarmCategoryDefin
ition+$cenAlarmServerAddressType+$cenAlarmServerAddress+$cenAlarmManagedObjectClass+$cenA
larmManagedObjectAddressType+$cenAlarmManagedObjectAddress+$cenAlarmDescription+$cenAlarm
Severity+$cenAlarmSeverityDefinition+$cenAlarmTriageValue+$cenEventIDList+$cenUserMessage
1+$cenUserMessage2+$cenUserMessage3+$cenAlarmMode+$cenPartitionNumber+$cenPartitionName+$
cenCustomerIdentification+$cenCustomerRevision+$cenAlertID
                        @Summary = "ciscoEpmNotificationAlarmRev1: Notification of the
status of the managed object as generated by the  management server."
                        $DEFAULT_Severity = 1
                        $DEFAULT_Type = 0
                        $DEFAULT_ExpireTime = 0
                        @Identifier = @Node + " " + @AlertKey + " " + @AlertGroup + " " +
$DEFAULT_Type + " " + @Agent + " " + @Manager + " " + $specific-trap

                default:
                        @Summary = "Unknown Specific Trap Number (" + $specific-trap + ")
Received for Enterprise " + $enterprise
                        @Severity = 1
                        @Identifier = @Node + " " + @Agent + " " + @Manager + " " +
$enterprise + " " + $generic-trap + " " + $specific-trap
                        details($*)
        }

##########
# Handle Severity via Lookup.
##########
```

```
#if(exists($SEV_KEY))
#{
#    [$OS_Severity,$OS_Type,$OS_ExpireTime] = lookup($SEV_KEY, cisco-CISCO-EPM-
NOTIFICATION-MIB_sev)
#}
#else
#{
#    [$OS_Severity,$OS_Type,$OS_ExpireTime] = lookup($OS_EventId, cisco-CISCO-EPM-
NOTIFICATION-MIB_sev)
#}
#include "$OMNIHOME/etc/rules/include-common/AssignSev.include.common.rules"

##########
# End of Severity via Lookup.
##########

##########
# Beginning of ANA specific rules
##########

if (match($cenUserMessage2,"ANA") ) {

        @Agent = "Cisco ANA"
        @Identifier = @Identifier + $cenAlarmServerAddress + $cenAlarmInstanceID

        # Set ANAServerIP to the ANA Gateway
        @ANAServerIP = $cenAlarmServerAddress

        # Set Node the IP Address of the NE being managed
        # NOTE: This will be the gateway (ANA Server) IP Address for ANA events.
        @Node = $cenAlarmManagedObjectAddress

        # If the managed NE comes through as loopback change it to the gateway IP Address
        if (match($cenAlarmManagedObjectAddress,"127.0.0.1"))
        {
                @Node = $cenAlarmServerAddress
        }

        # Set AlertKey to the Source OID
        @AlertKey = $cenAlarmManagedObjectClass

        # Set AlertGroup to the Alarm Status
        @AlertGroup = extract($cenAlarmStatusDefinition,"[0-9]+,(.*)")

        # Set Summary to the alarm short description plus long description
        #  depending on what information is available
        if (!match($cenUserMessage1,"") && !match($cenAlarmDescription,"")){
                @Summary = $cenUserMessage1 + " - " + $cenAlarmDescription
        }
        else if (!match($cenUserMessage1,"") && match($cenAlarmDescription,"")){
                @Summary = $cenUserMessage1
        }
        else if (match($cenUserMessage1,"") && !match($cenAlarmDescription,"")){
                @Summary = $cenAlarmDescription
        }

        # Set ANASeverityDesc to the alarm severity description
        @ANASeverityDesc = extract($cenAlarmSeverityDefinition,"[0-6],([A-Za-z]+)")

        # Set ANASeverity equal to the Alarm severity in ANA
        @ANASeverity = $cenAlarmSeverity

        # Set Service to the Object Identifier in ANA
        @Service = $cenAlarmManagedObjectClass

        # Set ANAAlarmID the alarm id
        @ANAAlarmID = $cenAlarmInstanceID

        # Set ANAParentID the parent alarm id
        @ANAParentID = $cenAlertID
```

```
        # Set ANATicket to true/false depending on whether an event
        # is a ticket
        @ANATicket = extract($22, ".*,([a-z]+),.*")

        # Set ANAPredecessor to the Predecessor Alarm ID
        @ANAPredecessor = extract($22, ".*,[a-z]+,([0-9]+)")


        # Map the ANA severity values to Netcool values
        switch(@ANASeverity) {
                case "0":
                        @Severity = 1
                case "1":
                        @Severity = 2
                case "2":
                        @Severity = 2
                        @Type = 2
                case "3":
                        @Severity = 2
                        @Type = 1
                case "4":
                        @Severity = 3
                        @Type = 1
                case "5":
                        @Severity = 4
                        @Type = 1
                case "6":
                        @Severity = 5
                        @Type = 1
                default:
                        @Severity = 1
        }

        # Set Severity = 1 for events ANA has not seen before
        switch($cenAlarmStatus)
        {
                case "1000" | "1001":
                        @Severity = 1
                default:
        }

}

##########
# End of ANA specific rules
##########

##########
# Enter "Advanced" and "User" includes.
##########

#include "$NC_RULES_HOME/rules/include-snmptrap/cisco-CISCO-EPM-NOTIFICATION-
MIB.adv.include.snmptrap.rules"

#include "$NC_RULES_HOME/rules/include-snmptrap/cisco-CISCO-EPM-NOTIFICATION-
MIB.user.include.snmptrap.rules"

##########
# End of "Advanced" and "User" includes.
##########

log(DEBUG, "<<<<< Leaving... cisco-CISCO-EPM-NOTIFICATION-MIB.include.snmptrap.rules
>>>>>")
```

Appendix B – Tool

```
#!/usr/bin/perl -wT
#######################################################################
##
## Title: show_sympathetic_events.cgi
## Author: Douglas Johnson (johnsond@us.ibm.com)
## Purpose: This utility takes in the ANA Alarm ID as input and
##             displays to the user every event in the system
##             that has this ID as its parent ID.
## Input: @ANA_AlarmID
##
## Assumptions: This tool assumes the Netcool/OMNIbus object server
##             has been modified to include the fields ANA_AlarmID
##             and ANA_ParentID.  These fields are part of the
##             Cisco AMS 2.0 solution offering.
##
#######################################################################

use strict;
use CGI qw/:cgi/;
use CGI::Carp qw( fatalsToBrowser );

## process the parameter sent by Netcool/Webtop
my $AlarmID = param( '$selected_rows.ANA_AlarmID' ) || 0;


## Method #1
## build the smart page that will display the AEL

print <<__HTML__;

<!-- enable:SMARTPAGE -->
<!-- Validate: [*,redirect.html] -->
<html>
<head>
<title>SmartPage FilterPage Command</title>
</head>
<body>
<!--
insert:AEL[filter="ANA_ParentID=$AlarmID",view="basic",height=450,width=100%,showinframe=
"false"] -->
</body>
</html>

__HTML__

## End of method #1

## Method #2
## build the URL that can be used to display the AEL

#my $URL = "http://jdp-sec-mon3:8080/AELView?" # need the IP of the server Netcool/Webtop
is running on
#        . "filter=ANA_ParentID=$AlarmID&"
#        . "view=basic&"
#        . "datasource=";

## construct HTML page to forward to browser

#print qq{content-type: text/html

#<html>
#<head>
#<meta http-equiv="refresh" content="0;url=$URL">
#</head>
#</html>\n};

## End of method #2
```