AppMetrics for Transactions – SCOM Management Pack Users Guide

Introduction

SCOM Overview

System Center Operations Manager enables data center operations personnel to monitor state, performance, and health information across multiple platforms in an enterprise environment.

By importing SCOM management packs from Microsoft or other vendors, SCOM can be configured to monitor a wide variety of configurations and aspects of an IT center's daily operations and workloads.

AppMetrics Management Pack

The AppMetrics management pack allows data center staff to monitor the health and availability of their COM+ applications. By configuring the available threshold settings in AppMetrics, various performance thresholds can be monitored though SCOM, alerting staff to problems as soon as they occur.

Features

The following features are incorporated into the AppMetrics management pack:

- COM+ application performance monitoring
- AppMetrics status monitoring
- Auto discovery of AppMetrics managers, agents, and production monitors
- Configurable discovery interval, and the ability to enable or disable various monitors and alerts globally or individually
- Product knowledge which informs the user of the purpose of the monitor or alert, and provides resolution info when applicable

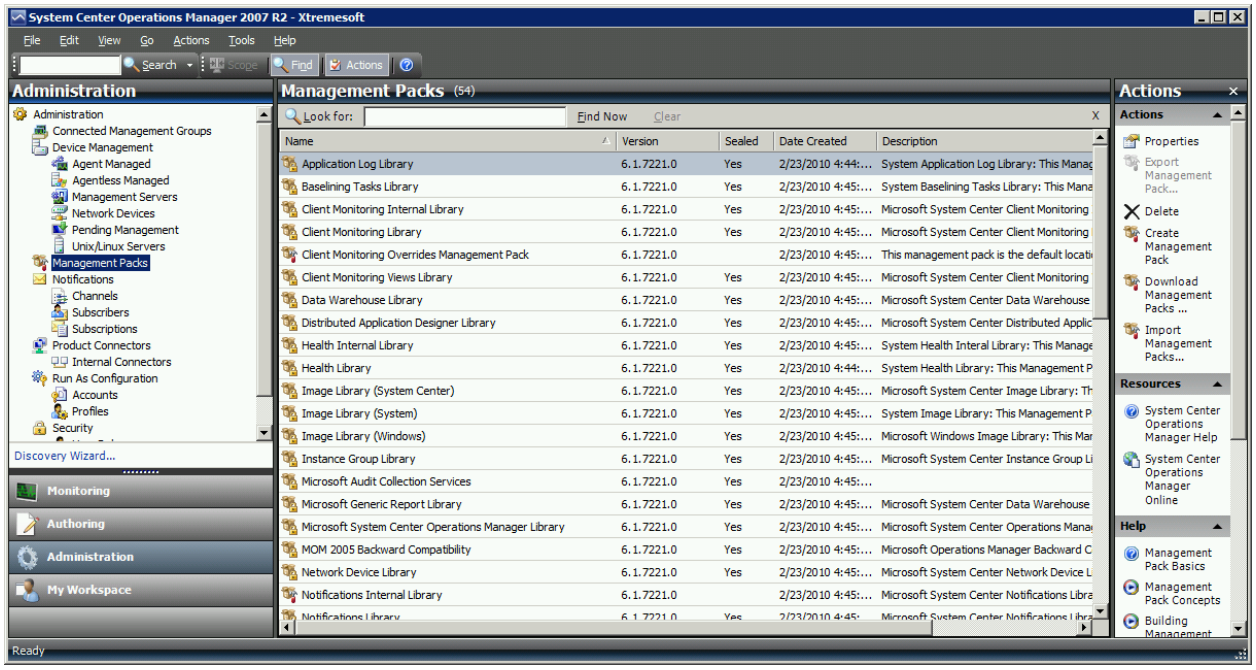
Installation

Importing the AppMetrics Management Pack

The AppMetrics Management pack is imported into SCOM as follows:

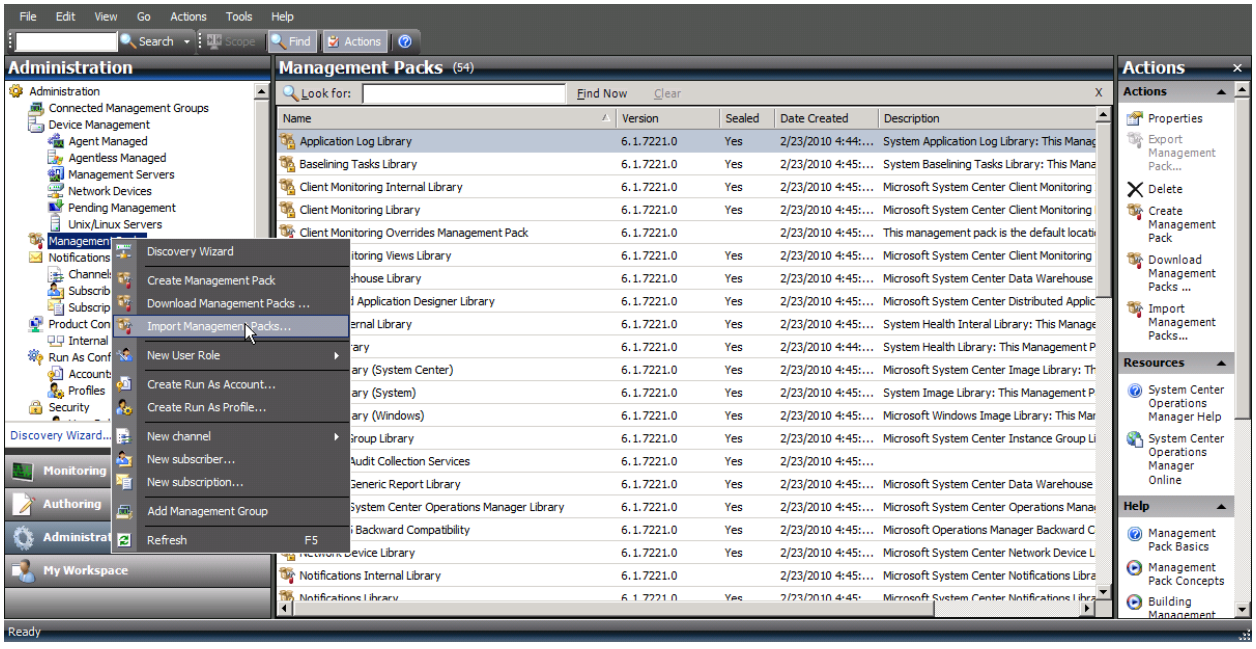
1. Navigate to the SCOM **Administration** console, and select the **Management Packs** view.

Figure 1 - Management Packs View



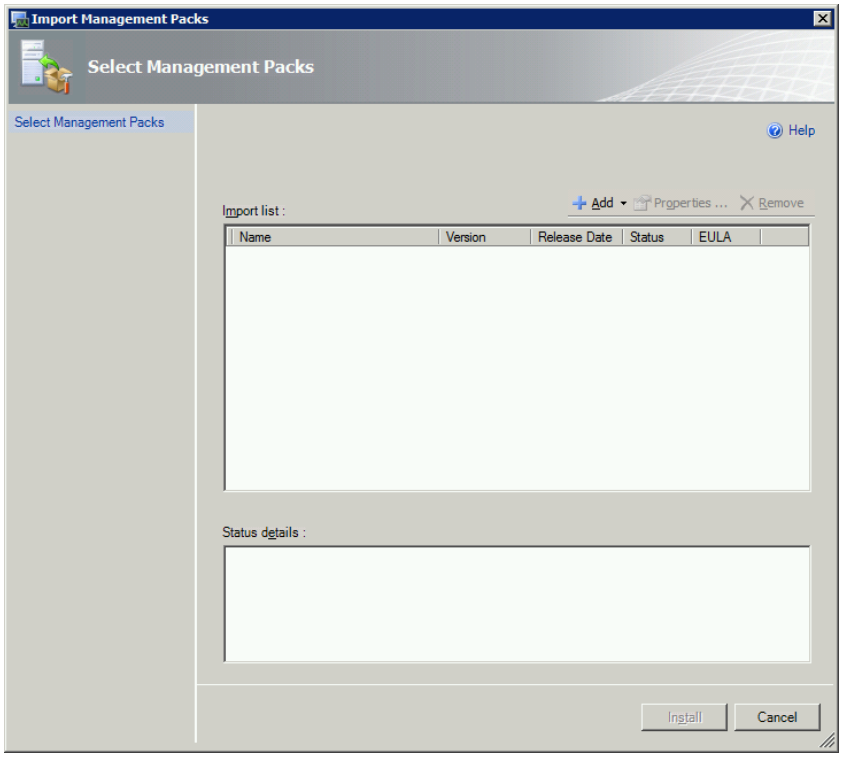
2. Right click on the Management Packs item, and select ***Import Management Packs*** from the menu.

Figure 2 - Import Management Packs



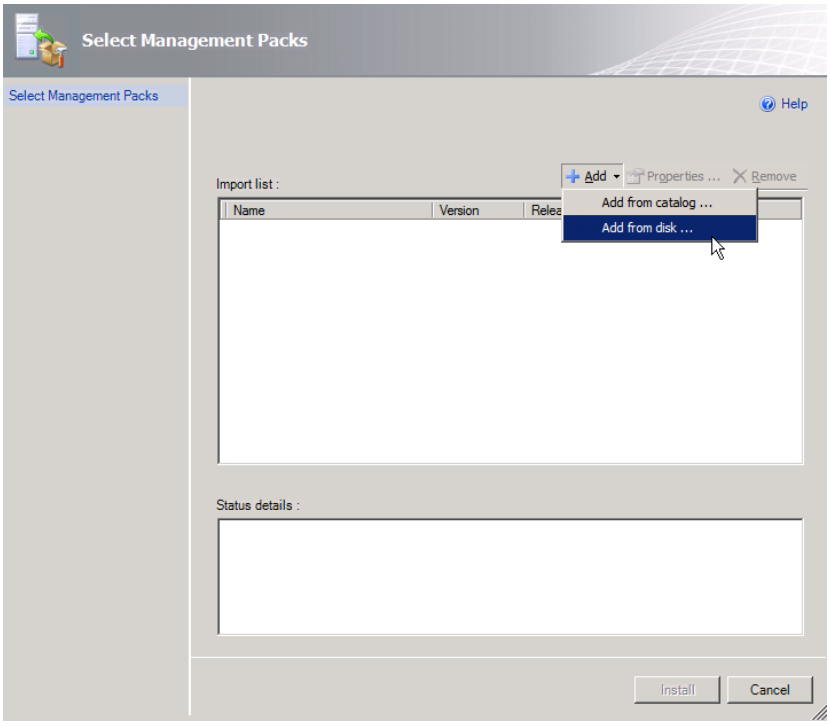
3. The **Import Management Packs** dialog will now appear.

Figure 3 - Select Management Packs



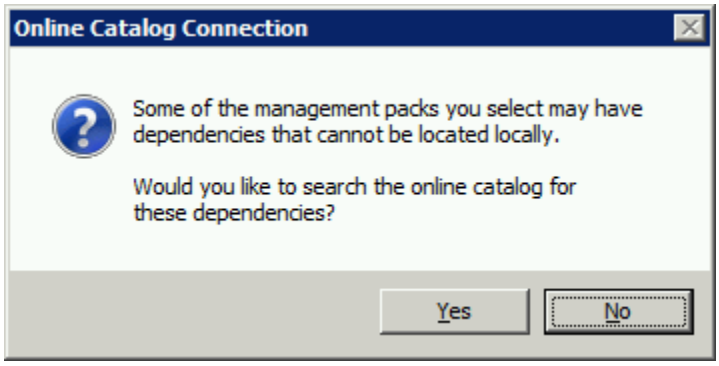
4. Select the **Add** button, and then select the ***Add from disk*** menu item.

Figure 4 - Add From Disk



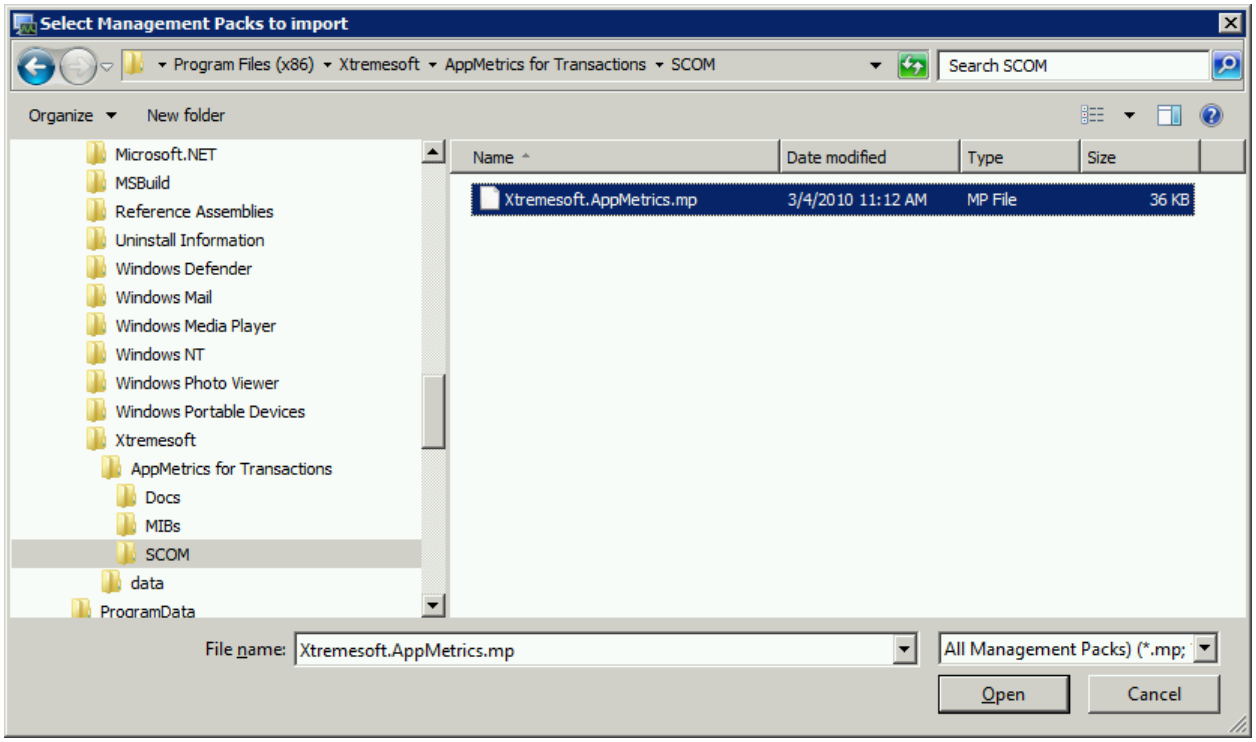
5. A message popup may appear asking whether to search online for dependent management packs. It is recommended that you answer yes in order to obtain the latest MPs from Microsoft which the AppMetrics MP depends on.

Figure 5 - Online Catalog Connection



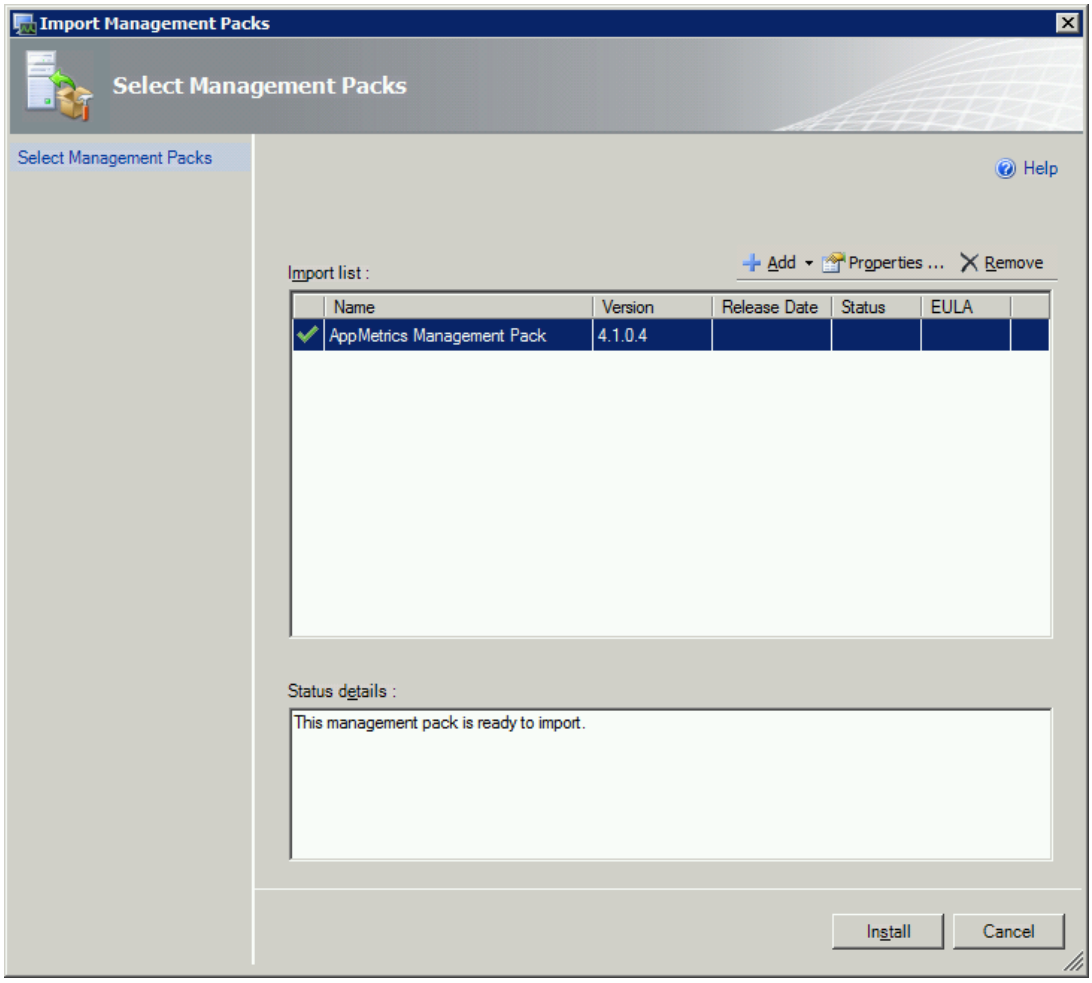
6. The **Select Management Packs to Import** dialog will appear. Navigate to the location of the AppMetrics management pack and select it. This would normally be located under Program Files\Xtremesoft\AppMetrics for Transactions\SCOM.

Figure 6 - Select Management Packs to Import



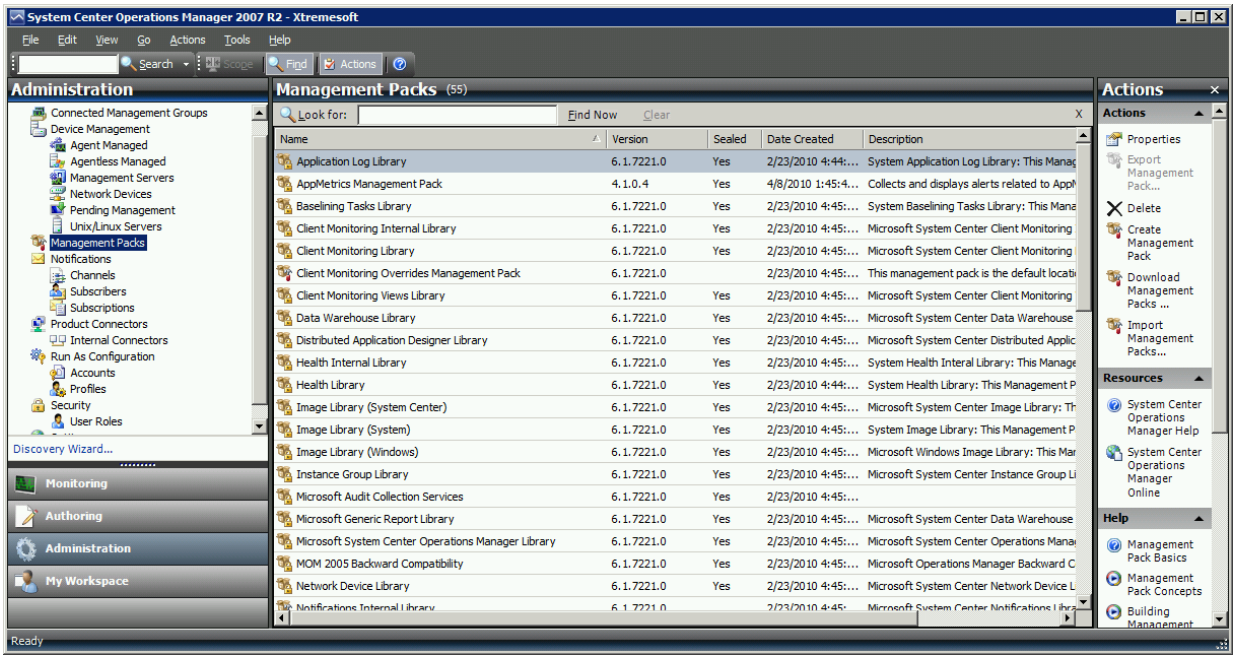
7. Select **Open**. The **Import Management Packs** dialog will now list the AppMetrics management pack in its **Select Management Pack** list.

Figure 7 - Ready to Import



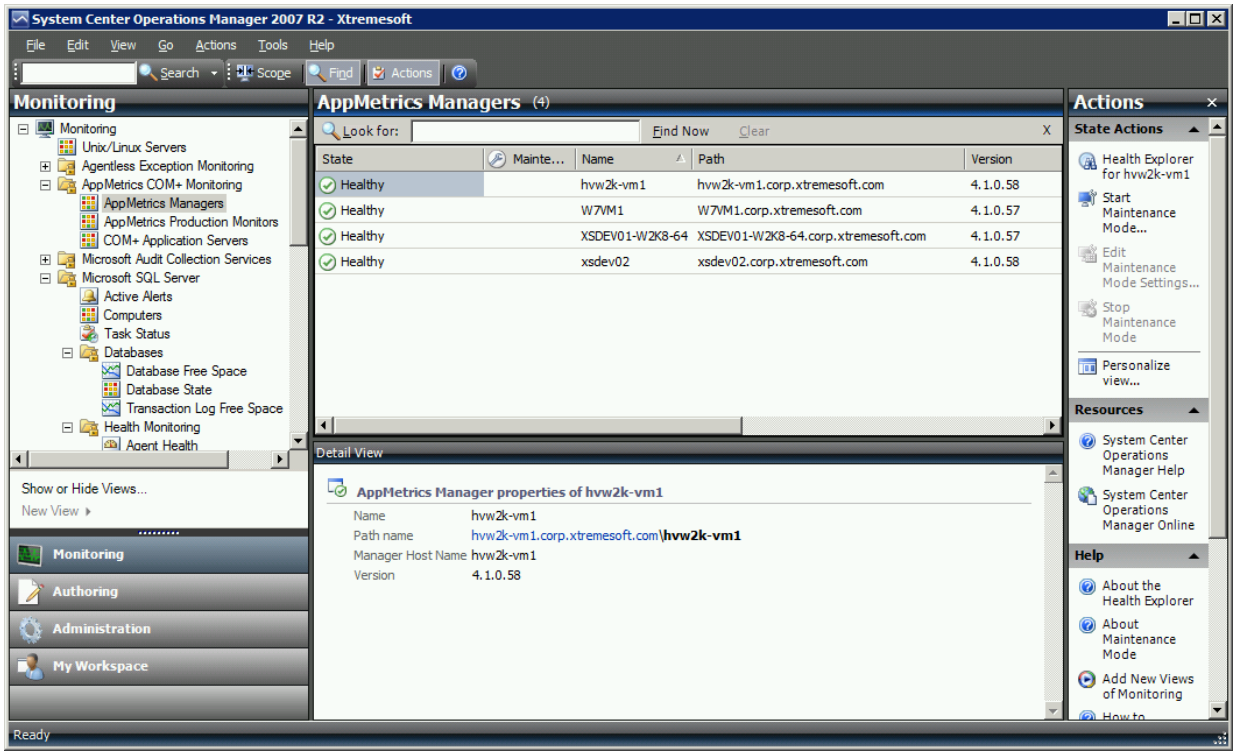
8. Select **Install**. When the MP is imported, select **Close**. The Management Packs view should now list the AppMetrics management pack. It might take several minutes for SCOM to refresh the view before the management pack is listed.

Figure 8 - Management Pack Imported



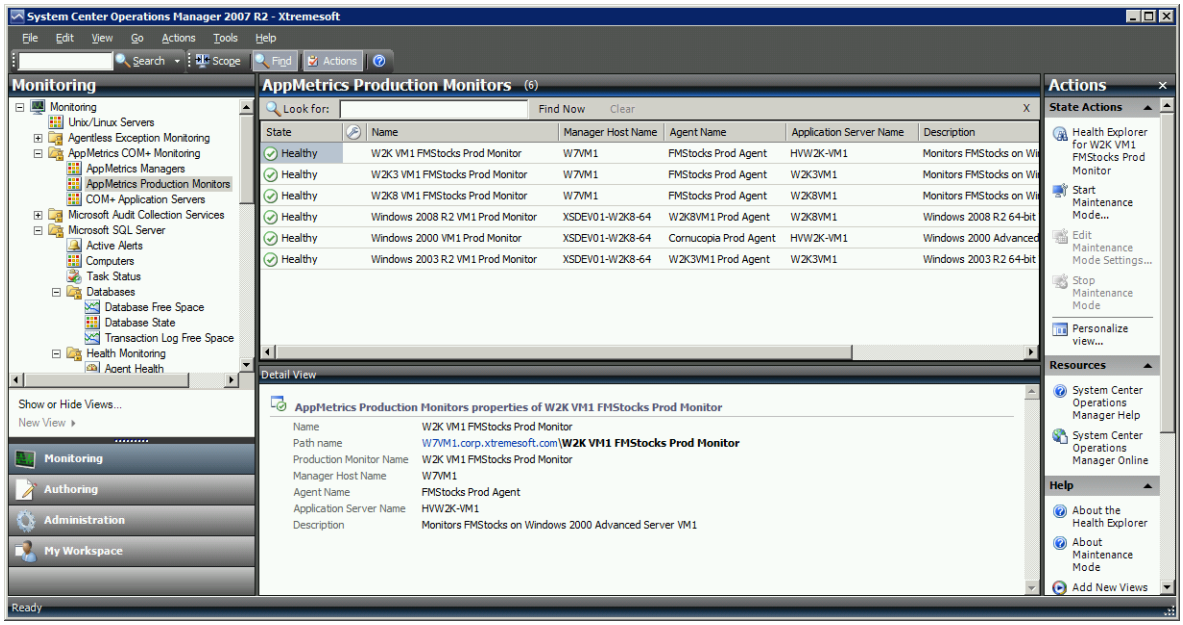
9. You can now navigate to the **Monitoring** console, and click on the AppMetrics Managers view under **AppMetrics COM+ Monitoring**. Discovery may take several minutes, depending on your environment.

Figure 9 - AppMetrics Managers Discovered



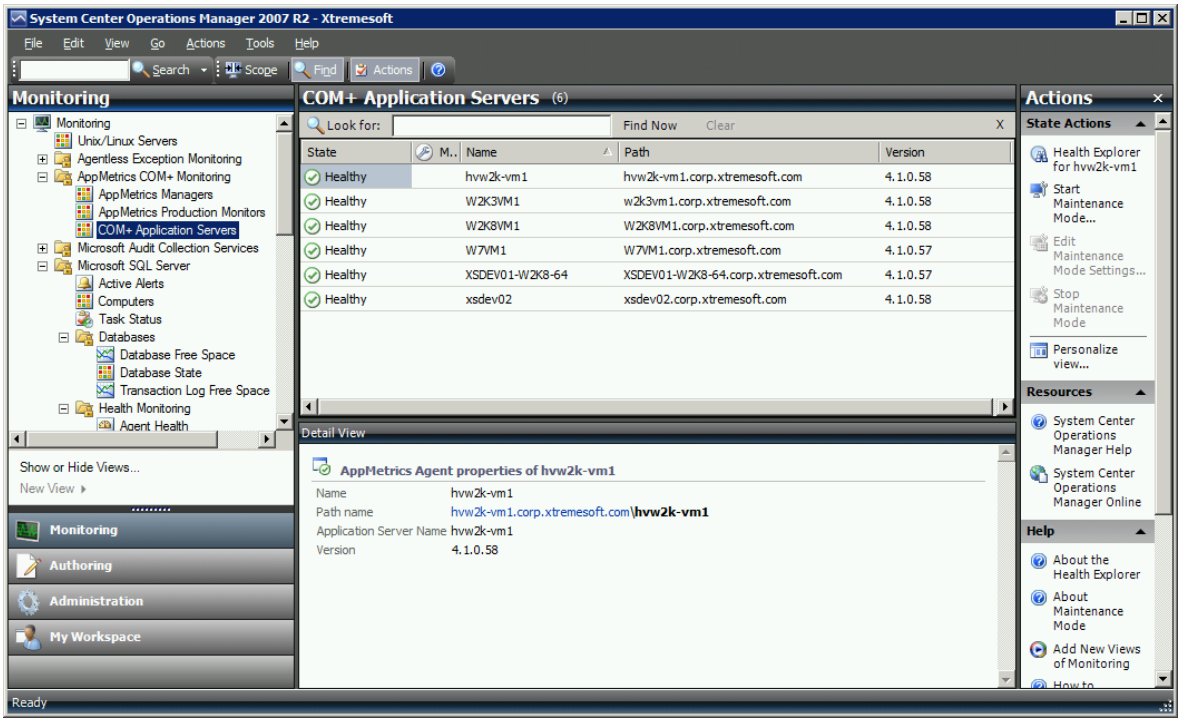
10. You can navigate to the **AppMetrics Production Monitor** view to verify that any AppMetrics production monitors currently defined have been discovered.

Figure 10 - AppMetrics Production Monitors Discovered



11. You can also navigate to the COM+ Application Servers view to verify that the AppMetrics agents have been discovered.

Figure 11 - COM+ Application Servers Discovered

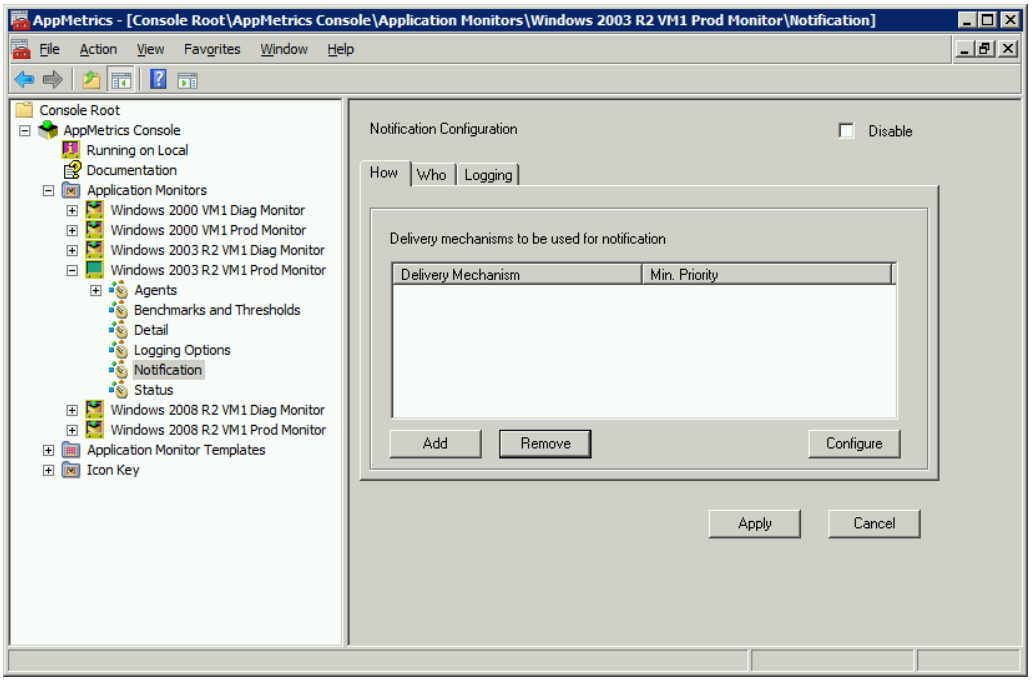


Configuring AppMetrics

In order to enable COM+ monitoring for SCOM, the production monitor's Notification setting must have Windows Event log notifications enabled.

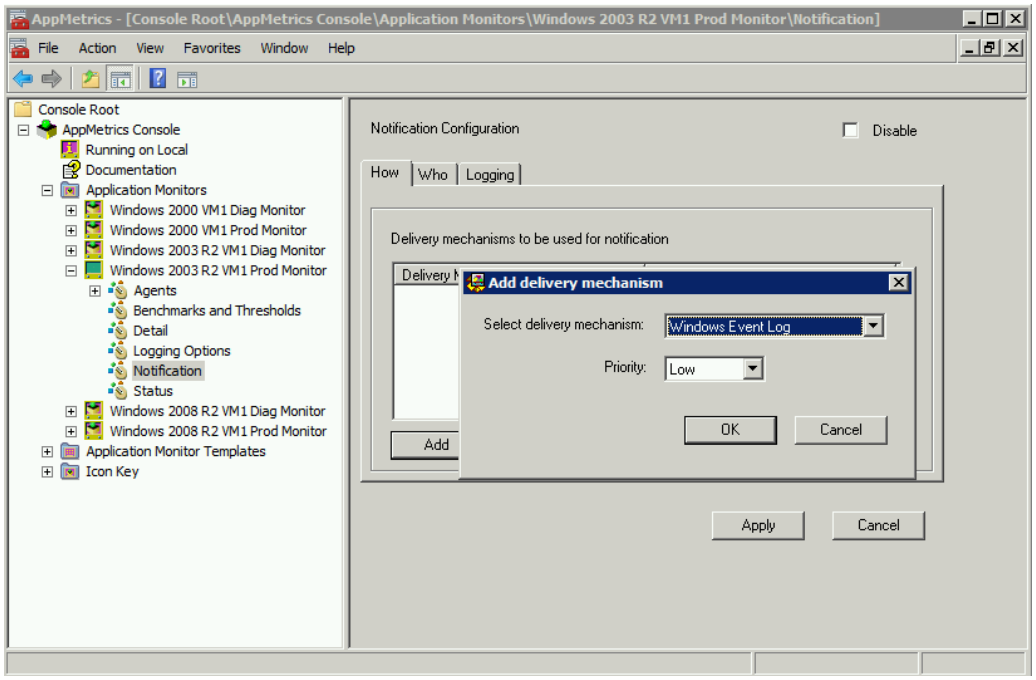
1. Ensure that the AppMetrics production monitor is stopped, and navigate to the **Notification** view.

Figure 12 - AppMetrics Alert Notification Configuration



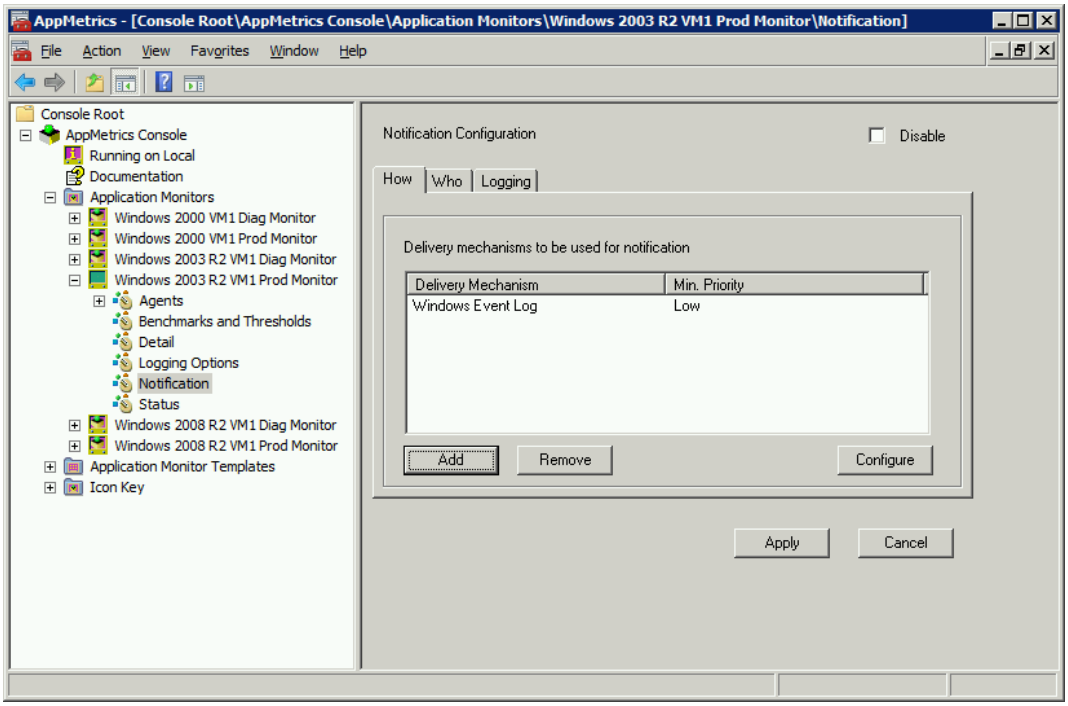
2. Click on the **Add** button. The **Add Delivery Mechanism** dialog box will appear.

Figure 13 - Add Delivery Mechanism



3. Select the ***Windows Event Log*** item from the **Select delivery mechanism** combo box, and then select **OK**. The **Notification Configuration** view will now list **Windows Event Log** under the **Delivery Mechanism** column.

Figure 14 - Notification Delivery Mechanism Added



4. In order to enable threshold alerts, the thresholds must be configured for the desired COM+ applications, components, and transactions. The procedure is described in Chapter 3: AppMetrics Monitors within the AppMetrics documentation. The documentation can be accessed online by clicking the above link, or via the Documentation view in the AppMetrics console.

Management Pack Options

AppMetrics management pack objects, rules, and monitors can be disabled or enabled using SCOM overrides in the event of system maintenance or downtime on computers in the operation, and it is desired to eliminate alerts or state changes due to AppMetrics notifications.

The discovery interval that the AppMetrics management pack uses can also be modified in order to temporarily shorten the interval from the default of 4 hours to a smaller interval when it is necessary to discover new AppMetrics objects quickly.

Additionally, the timer reset interval used to automatically resolve the state of COM+ Application Health Monitors can be overridden to increase or decrease the amount of time it will take for the monitor to automatically reset to a healthy state.

The properties which can be overridden are as follows;

- Enable/Disable
    - AppMetrics Manager Discovery
    - AppMetrics Production Monitor Discovery
    - AppMetrics Agent Discovery
    - AppMetrics Manager Connectivity Monitors
    - AppMetrics Manager Service Monitor
    - AppMetrics Manager Security Events Monitor
    - AppMetrics COM+ Application Health Monitor
    - AppMetrics Production Monitor State Monitor
    - AppMetrics Manager Availability Rollup Monitor
    - AppMetrics Manager Security Rollup Monitor
    - AppMetrics Agent Health Monitor
    - AppMetrics Agent Service Monitor
- Time Interval
    - AppMetrics Discovery Interval
    - AppMetrics COM+ Application Health Monitor Timer Reset Interval

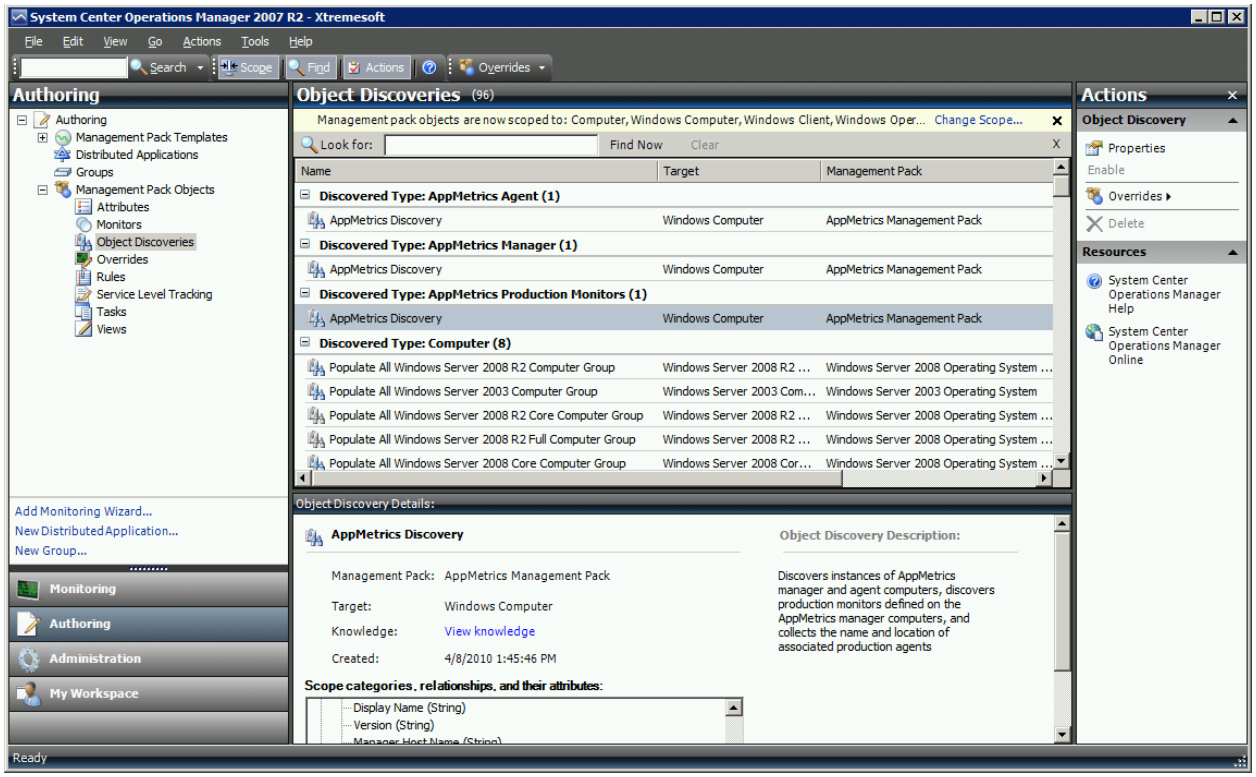
The properties may be overridden for all objects of a particular type, or for individual objects.

Overriding the Default Discovery Interval

The AppMetrics discovery interval can be overridden to allow for quicker discovery of AppMetrics manager, agent, and production monitors. The value should be reset once the objects are discovered, as Microsoft recommends a 4 hour discovery interval for discovery, as shorter intervals may impact performance.

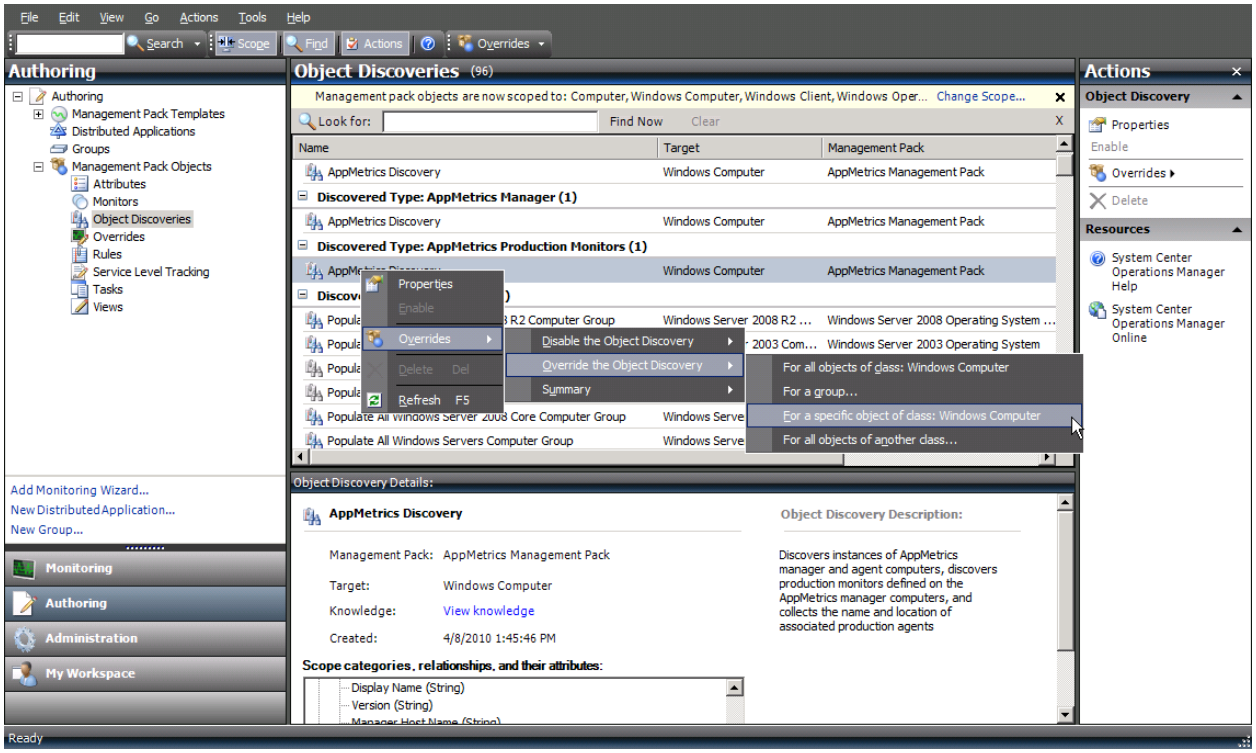
To override the discovery interval for an AppMetrics object, navigate to the SCOM Authoring console, **Object Discoveries** view. Select the object desired, such as AppMetrics Production Monitors.

Figure 15 - Object Discoveries View



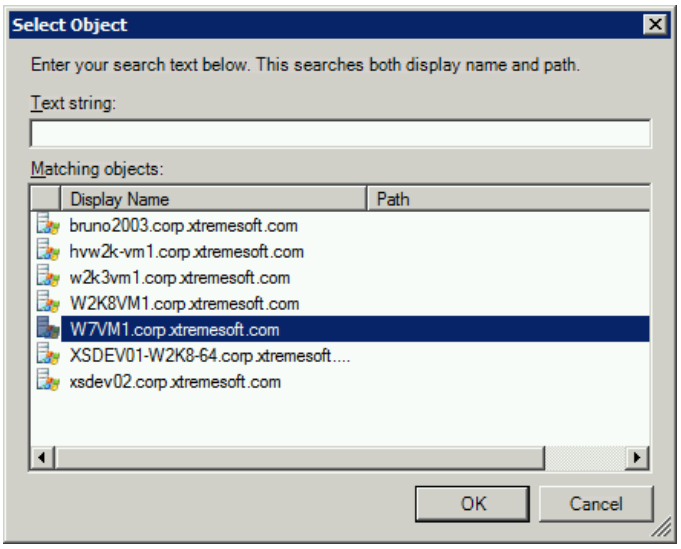
Click the **Overrides** menu, select **Override the Object Discovery**, and either **For all objects of class Windows Computers** (if it is desired to affect the discovery interval of all computers), or **For a specific object of class Windows Computer** (if it is desired to change the interval on only one machine, such as an AppMetrics manager machine where the production monitors are hosted in order to discover new production monitors or to delete ones from SCOM that have been removed).

Figure 16 - Discovery Override Select



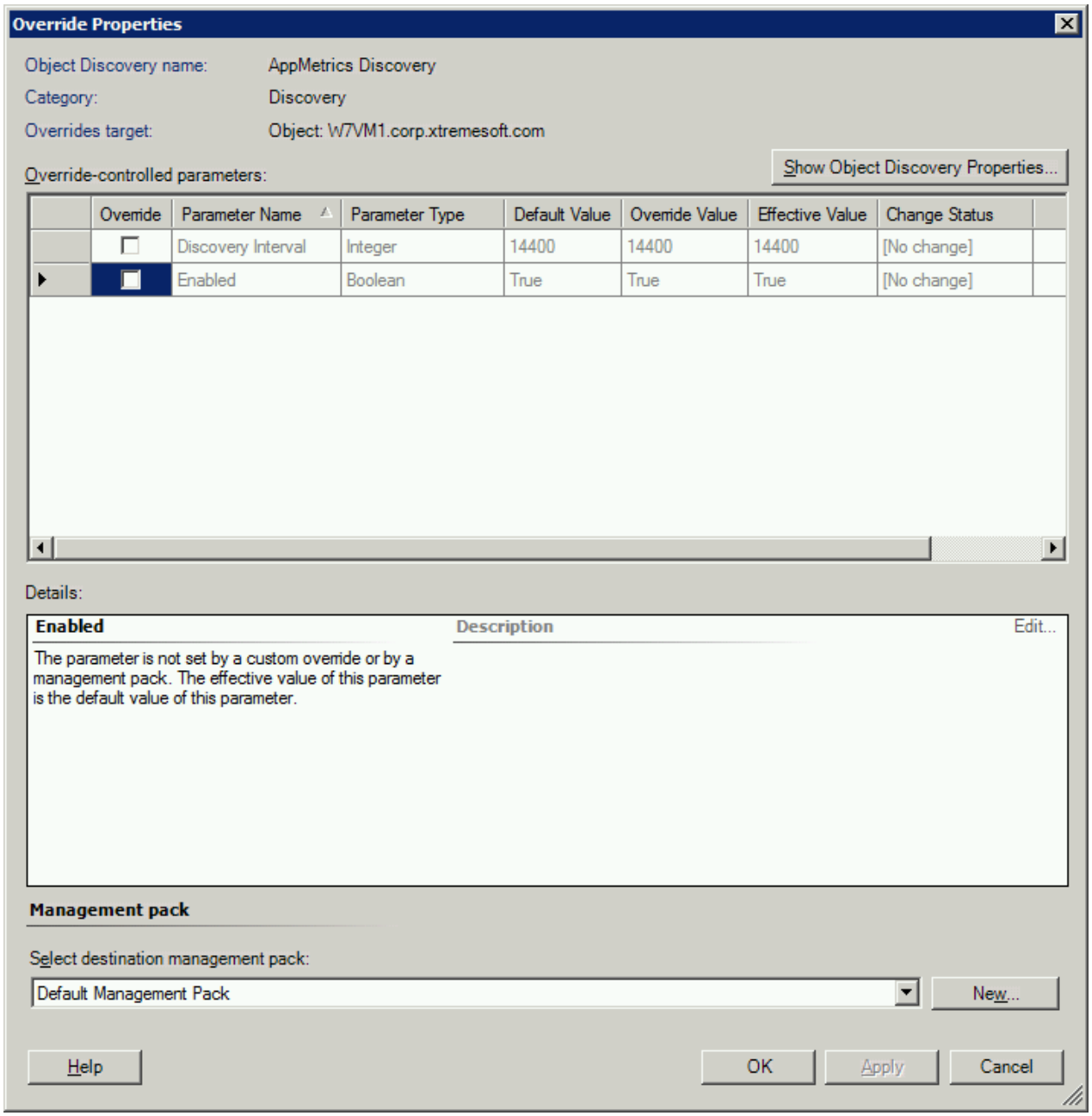
In this example the **For a specific object of class Windows Computer** selection was made. The following dialog box will appear where the specific computer can be selected.

Figure 17 - Select Discovery Object



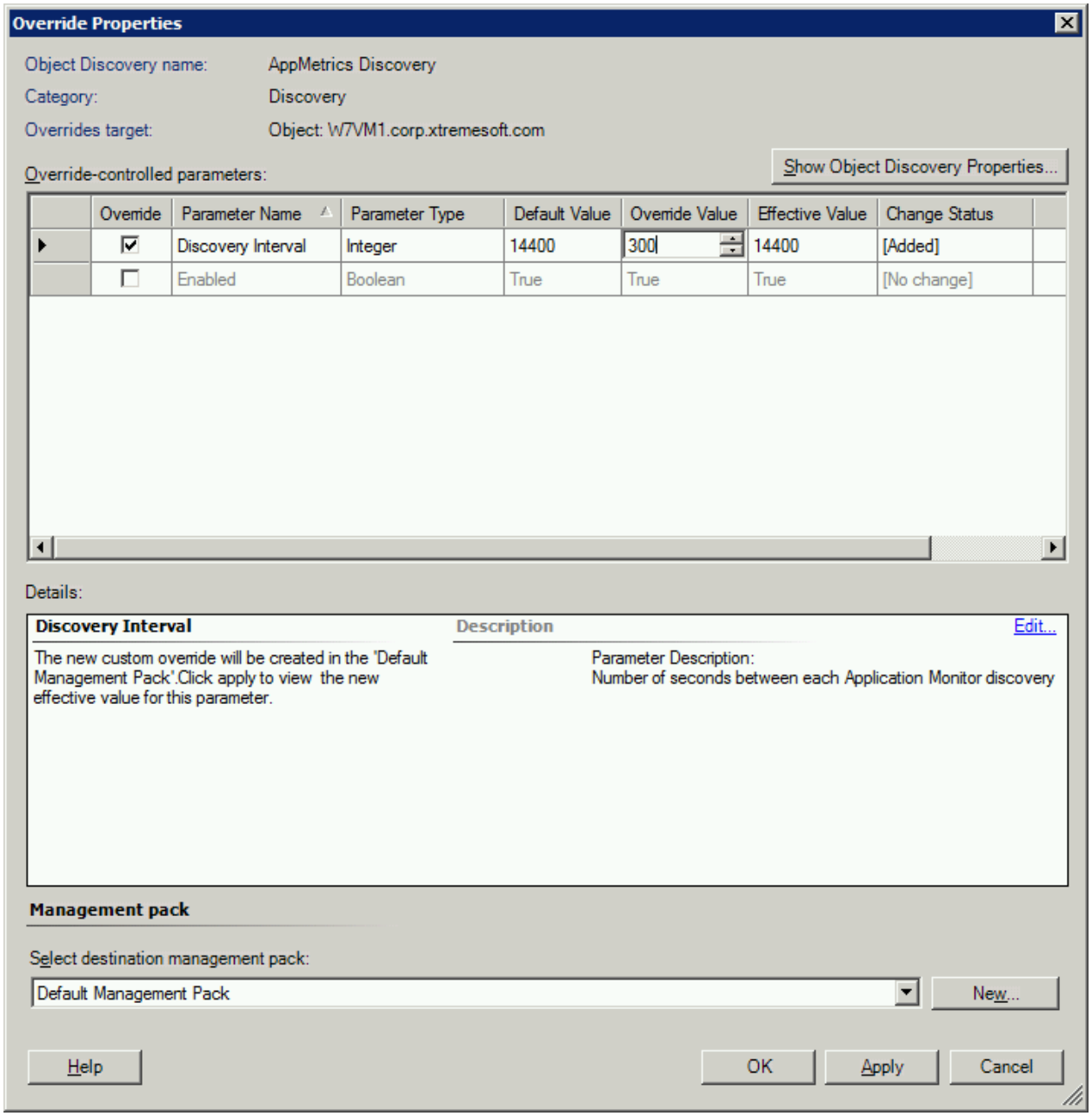
Once the selection is made, the Override Properties view will appear, as shown below.

Figure 18 - Discovery Override Properties



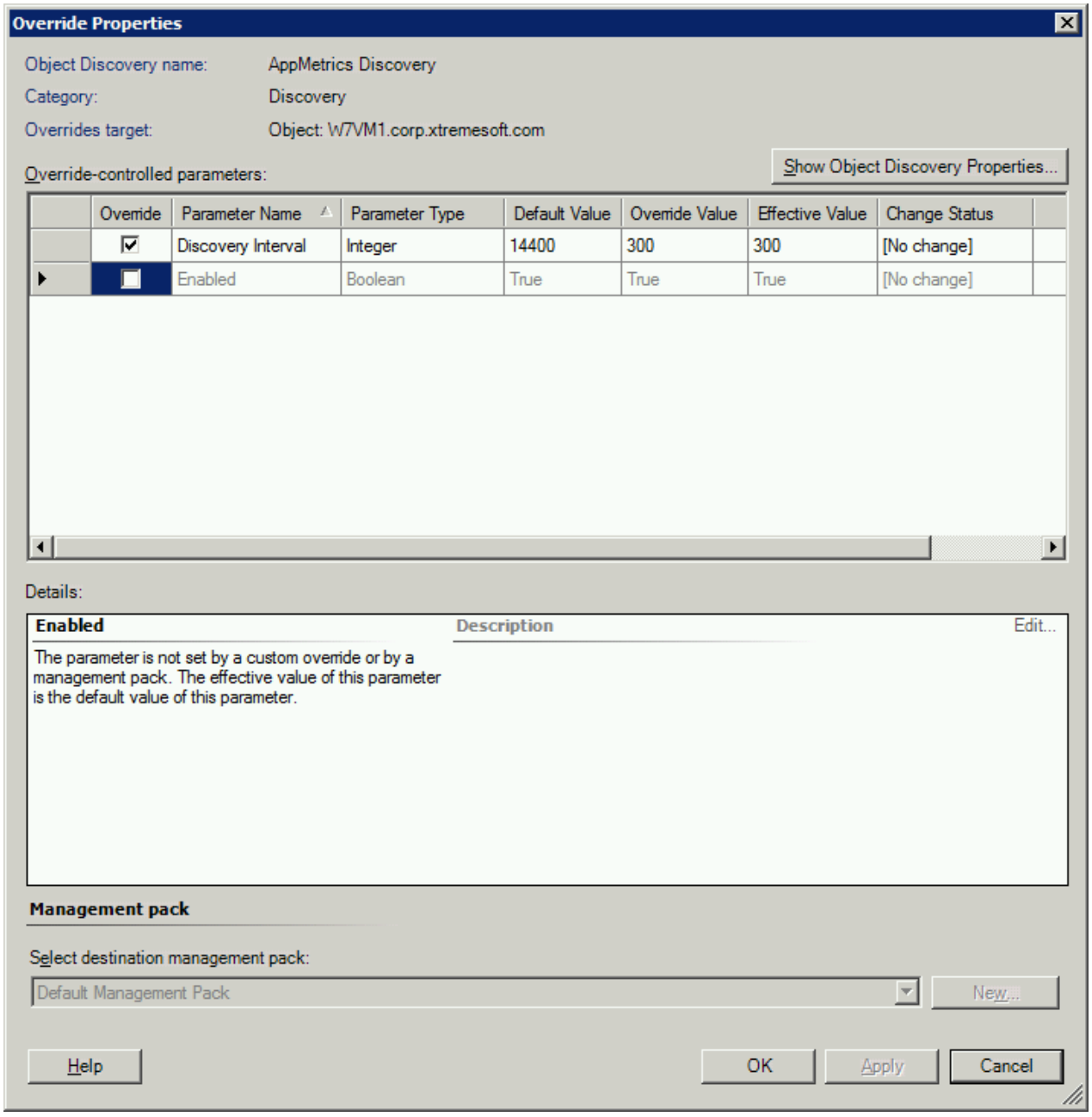
Check the Override checkbox, and enter the desired discovery interval in seconds. Here we are overriding the default interval of 4 hours (14400 seconds) to 5 minutes (300 seconds).

Figure 19 - Override Default Discovery Interval Value



Select the **Apply** button to verify that the Effective Value changes from 14400 to 300. You can then select OK to dismiss the view.

Figure 20 - Discovery Interval Updated



You can find a list of overridden computers by selecting the **Overrides->Summary->For the Object Discovery** menu item.

Figure 21 - Select Discovery Override Summary

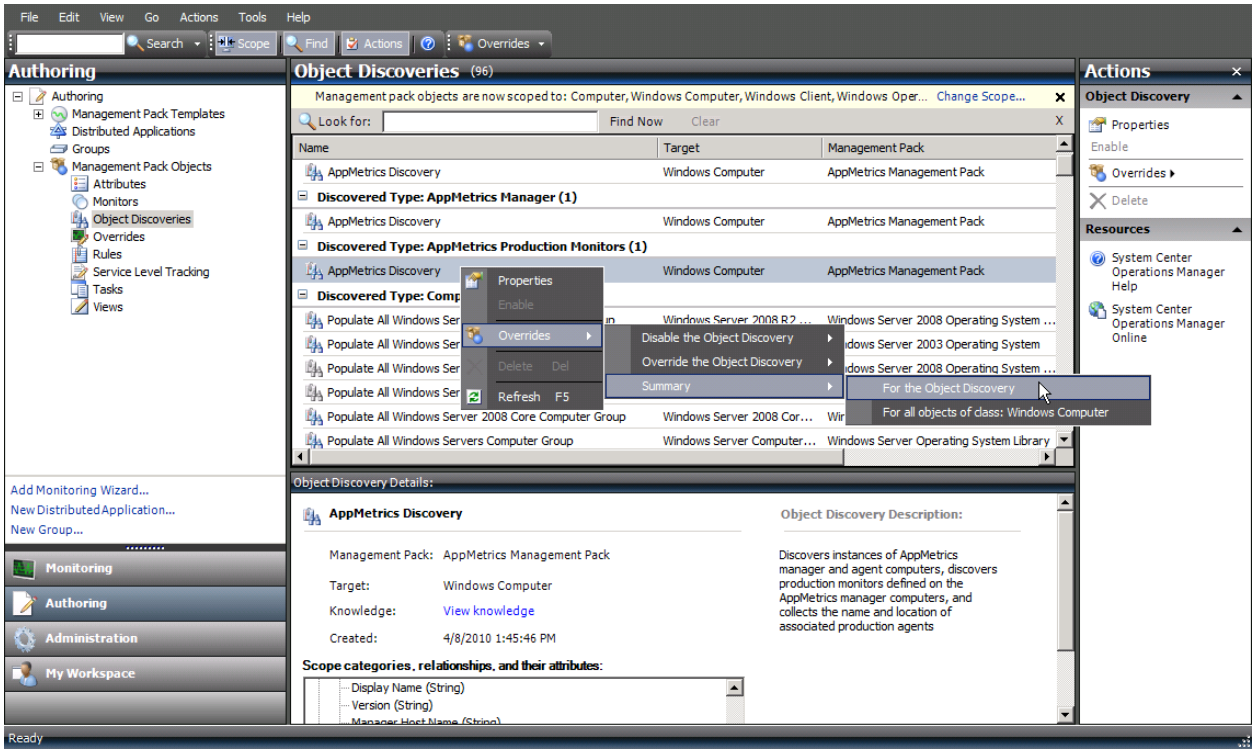
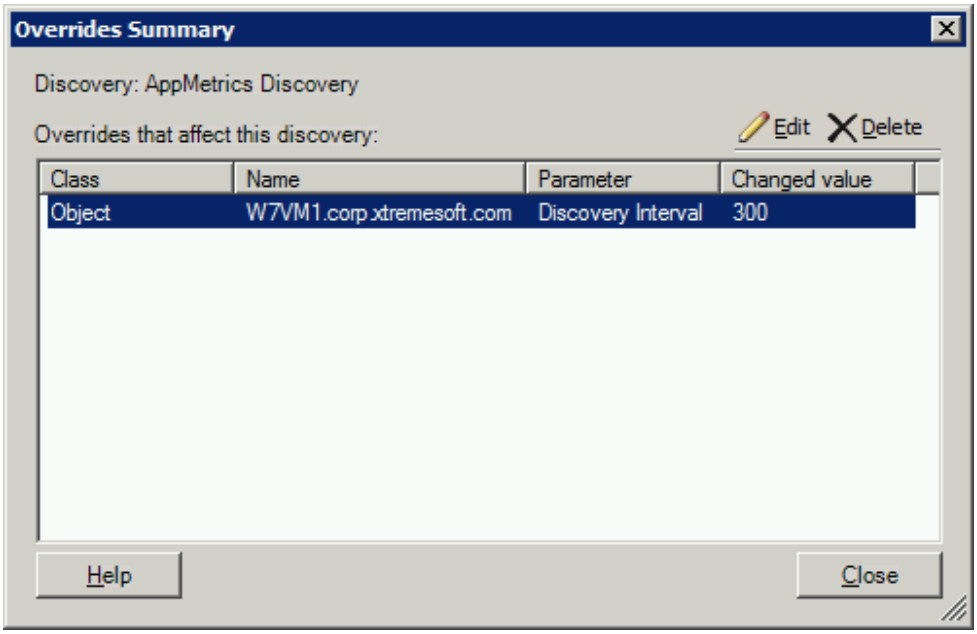


Figure 22 - Overrides Summary



From the Overrides Summary view, a user may select **Edit** to bring up the Override Properties view in order to change the values, or **Delete** to delete the selected override.

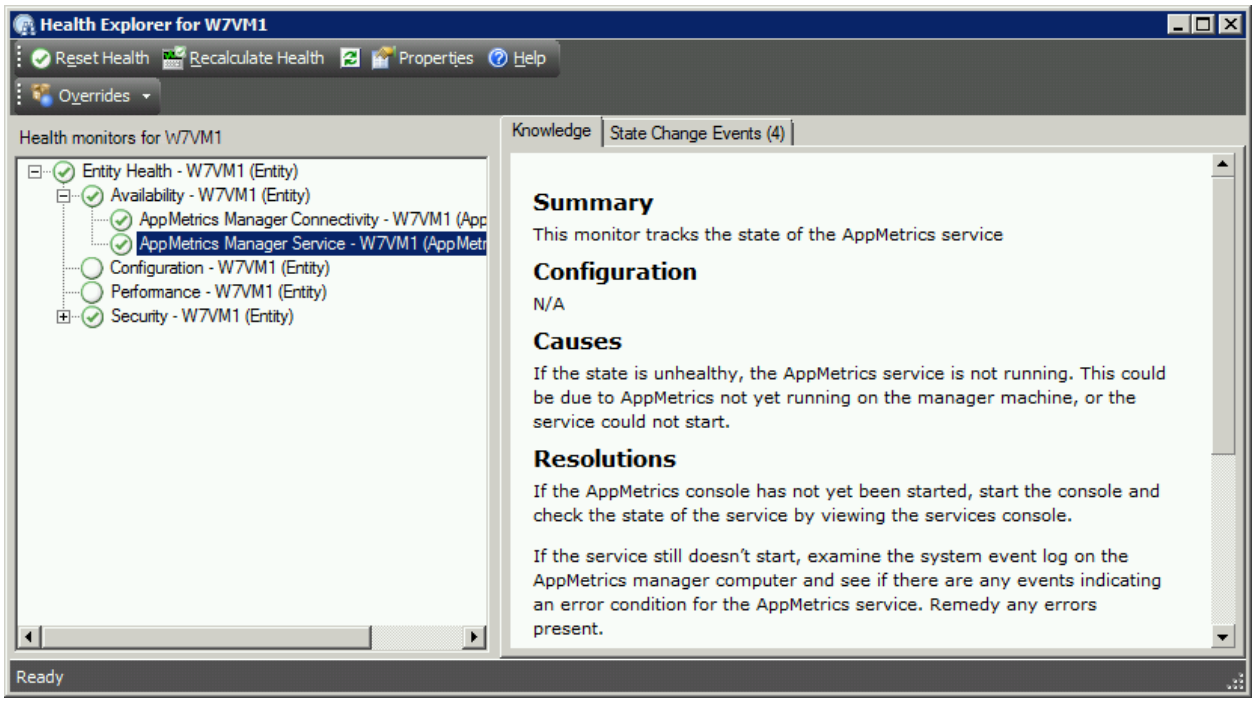
It is recommended that the override be deleted once the desired objects have been discovered.

Disabling and Enabling Monitors

It may be desired to disable monitors for systems undergoing maintenance in order to avoid generating alerts for those machines. To disable a certain monitor, such as the AppMetrics Manager Service Monitor, the monitor can be disabled or enabled from either the Authoring console **Monitors** view, or from a Monitoring console **Health Explorer** view for a specific monitor object.

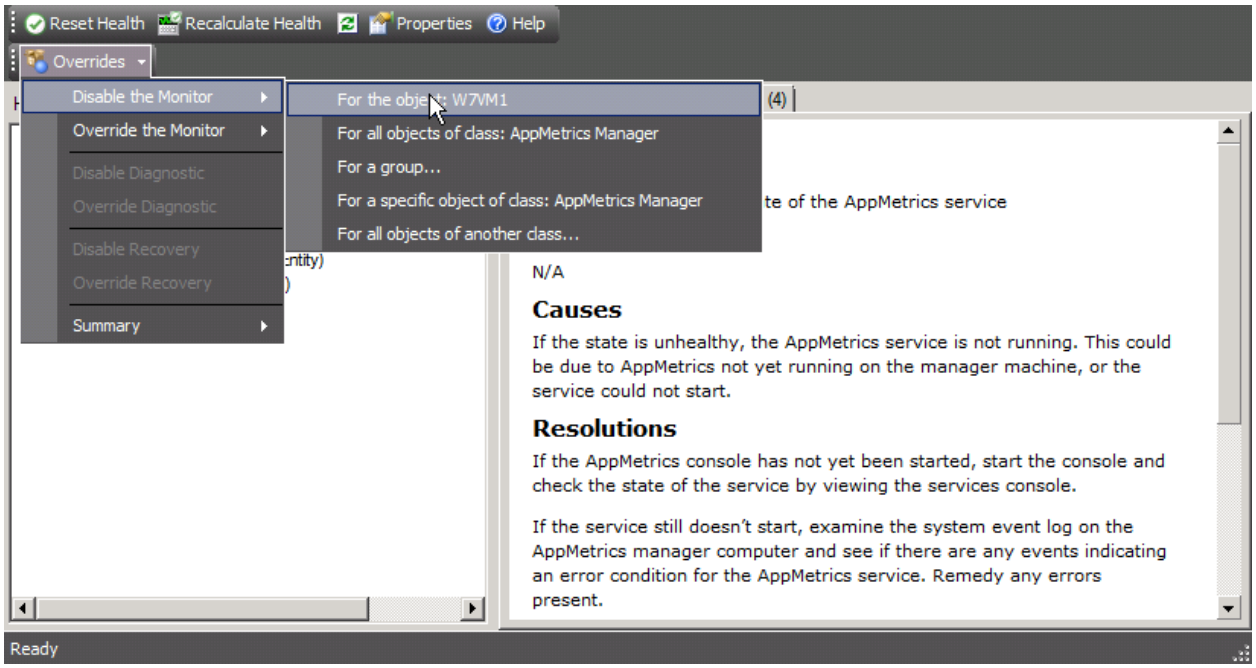
In the example below, a specific AppMetrics Manager object was selected from the AppMetrics Manager View, and the Health Explorer opened for that object. We will look at how to disable the AppMetrics Manager Service monitor for the specific AppMetrics Manager computer.

Figure 23 - AppMetrics Manager Health Explorer



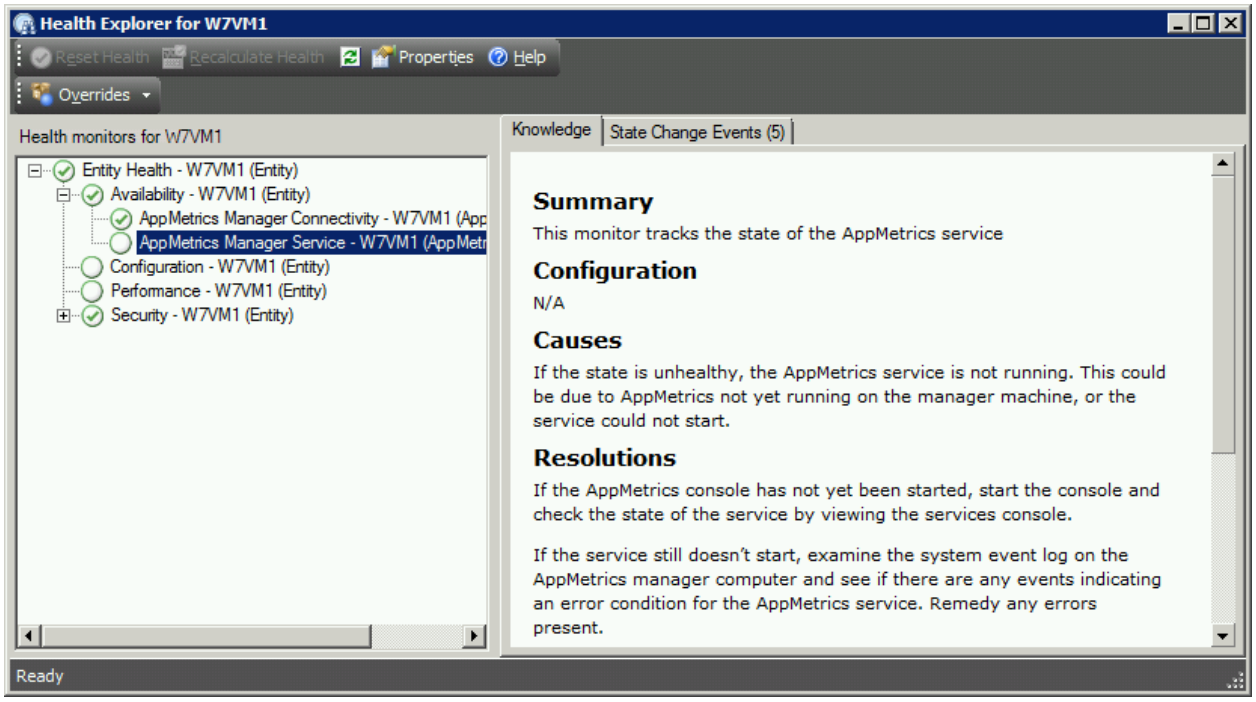
Select the **Overrides->Disable the Monitor->For the object {*object name*}** menu item. Here the object name is W7VM1.

Figure 24 - Disable Monitor from Health Explorer



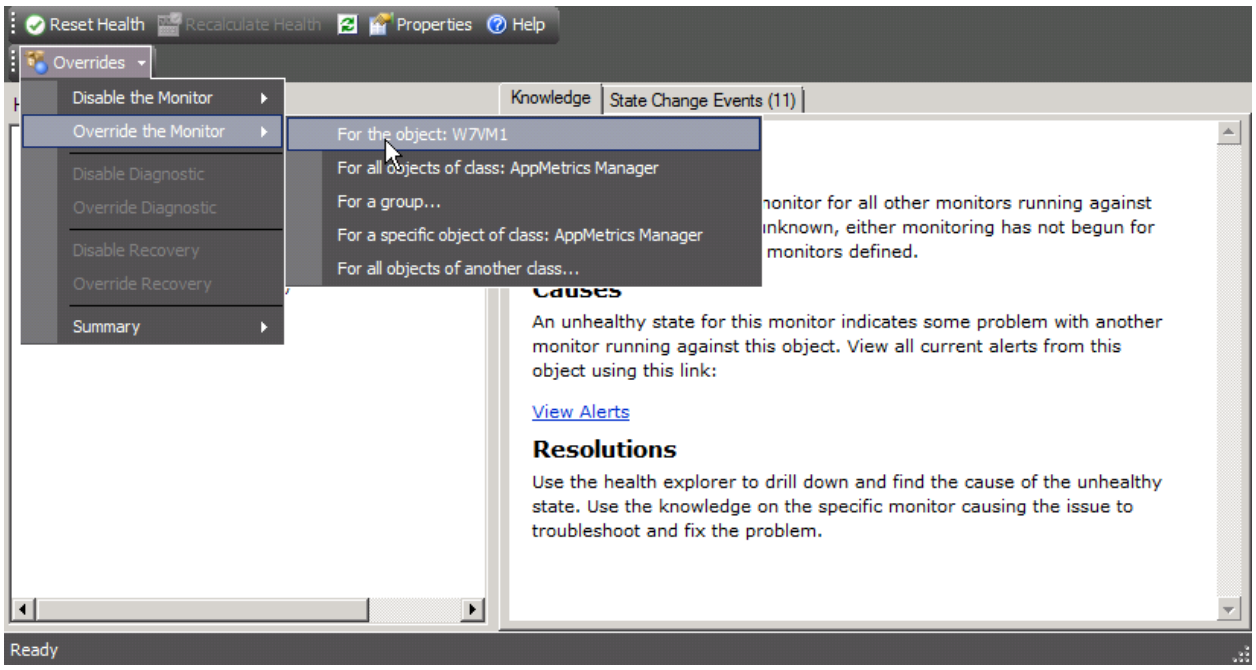
The monitor will change to a disabled state. The disabled state shows an empty green circle instead of a green circle with a check mark. It may take several minutes for the SCOM Health Explorer view to update to a disabled state.

Figure 25 - AppMetrics Manger Service Monitor Disabled



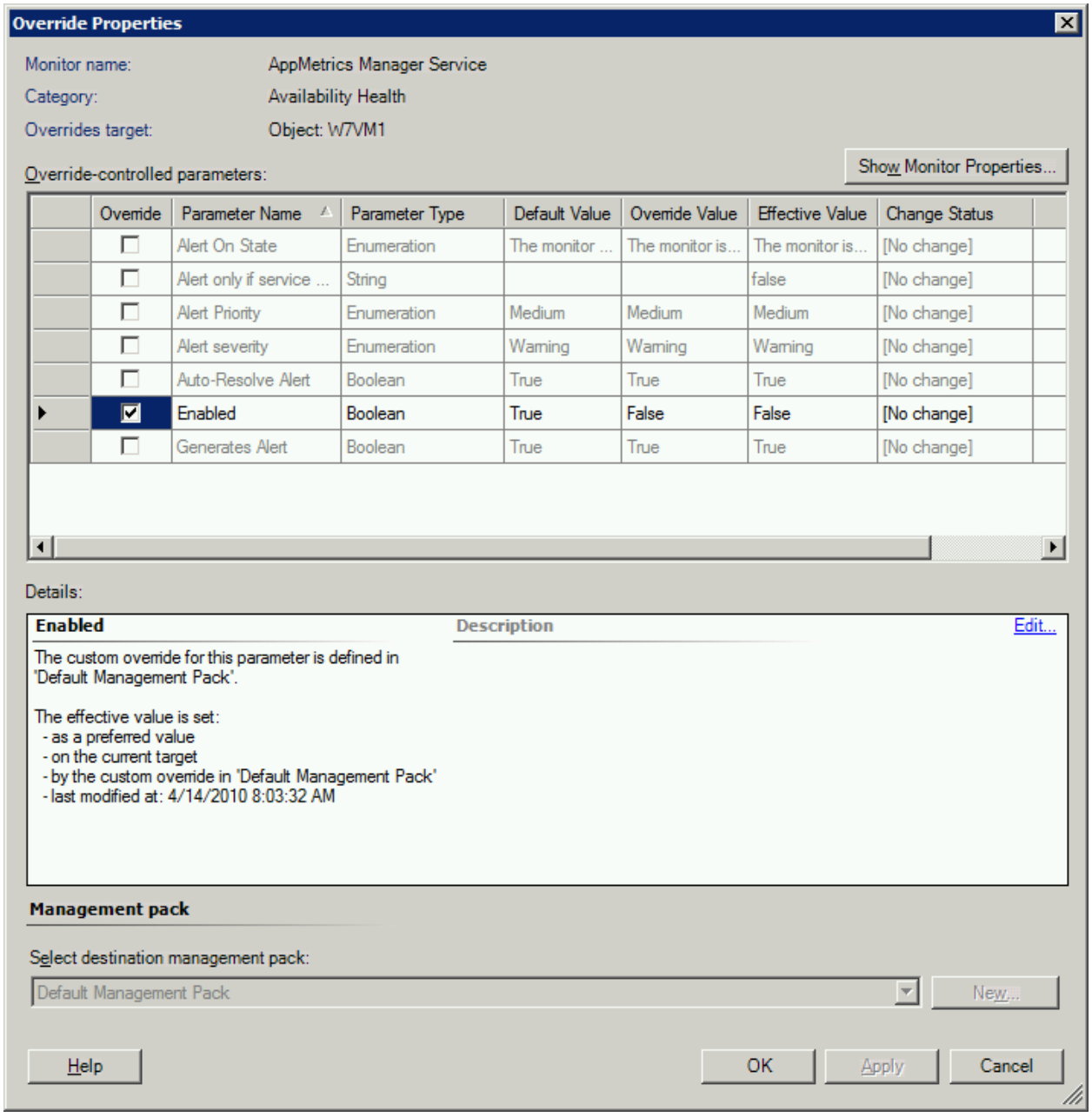
In order to enable the monitor, select **Overrides->Override the Monitor->For the object {*object name*}**, where here the object name is W7VM1.

Figure 26 - Enabling a Disabled Monitor



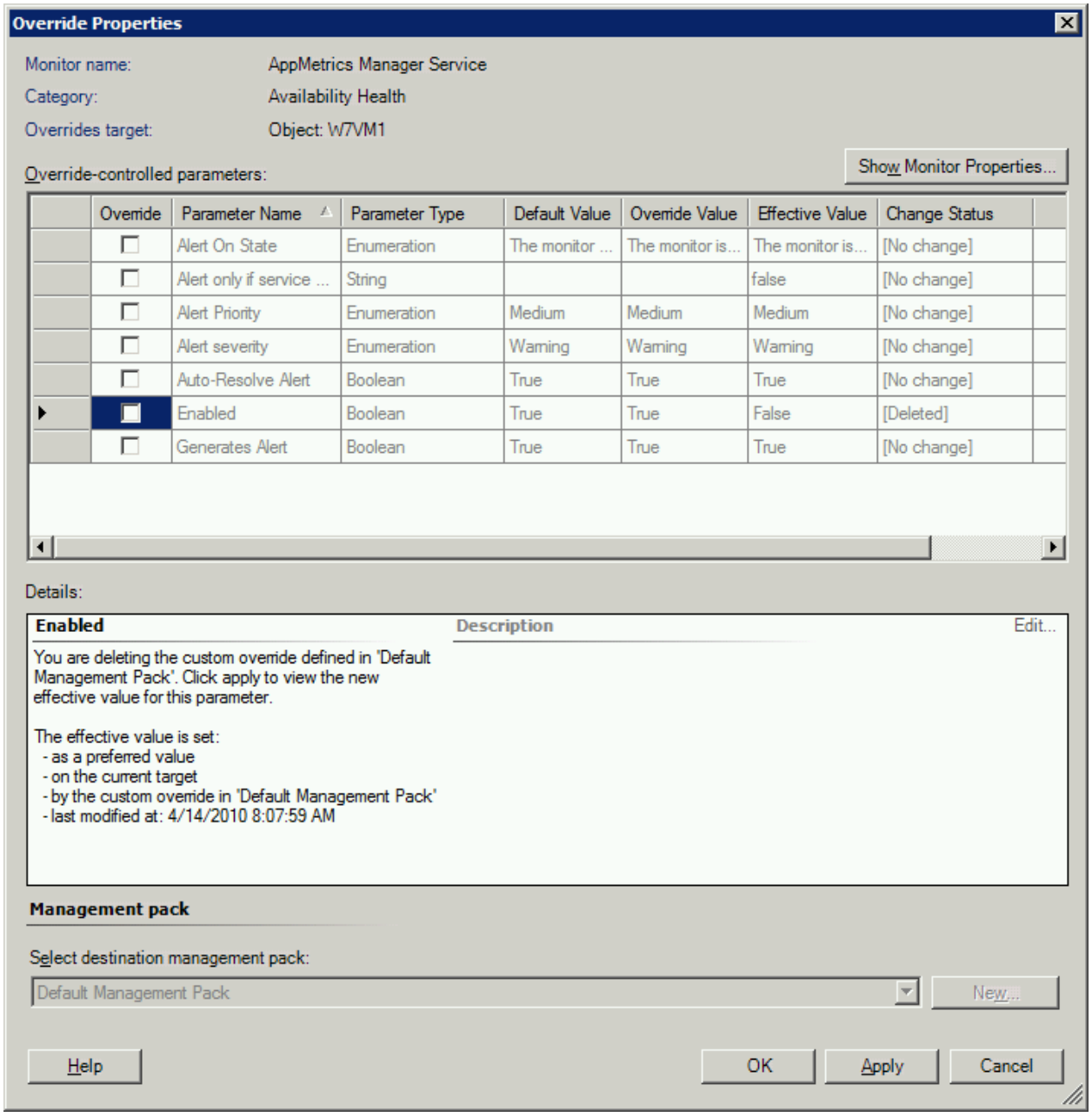
The **Override Properties** view will appear. Uncheck the **Enabled** Override check box. Then either hit **Apply** to verify the **Effective Val**ue for the **Enabled** property changes to True, or simply select **OK**.

Figure 27 - Override Properties Enable Monitor



Below is the **Object Properties** view after selecting **Apply**, where the **Enabled Effective Value** has changed to True.

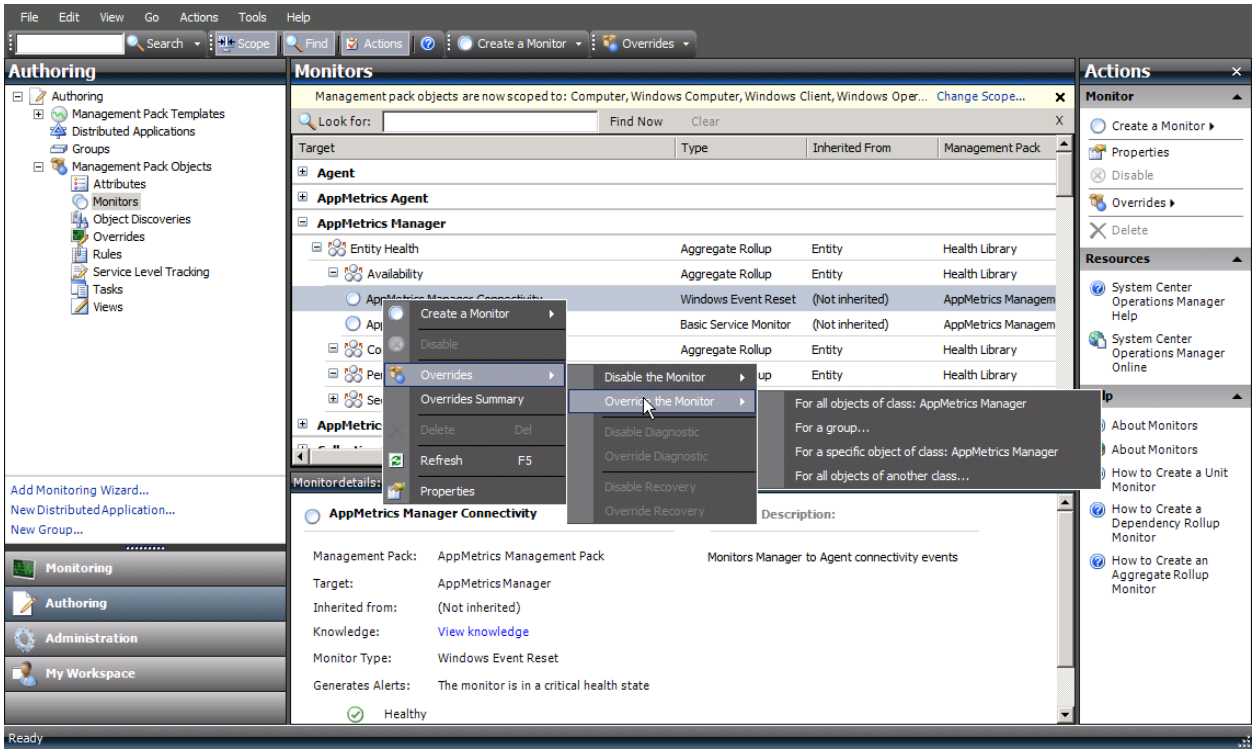
Figure 28 - Object Properties Monitor Enabled



In the below example we will show how to disable a monitor for all computers using the SCOM Authoring console Monitor view.

Here, the AppMetrics Manager Connectivity monitor was selected, and the item right clicked in order to bring up the **Overrides** menu. The monitor can be disabled by either selecting **Disable the Monitor** or from the **Override the Monitor** selection. To disable the monitor for all computers, select **For all objects of class AppMetrics Manager**. To disable the monitor for a specific computer, select **For a specific object of class AppMetrics Manger**.

Figure 29 - Authoring Console Monitors View



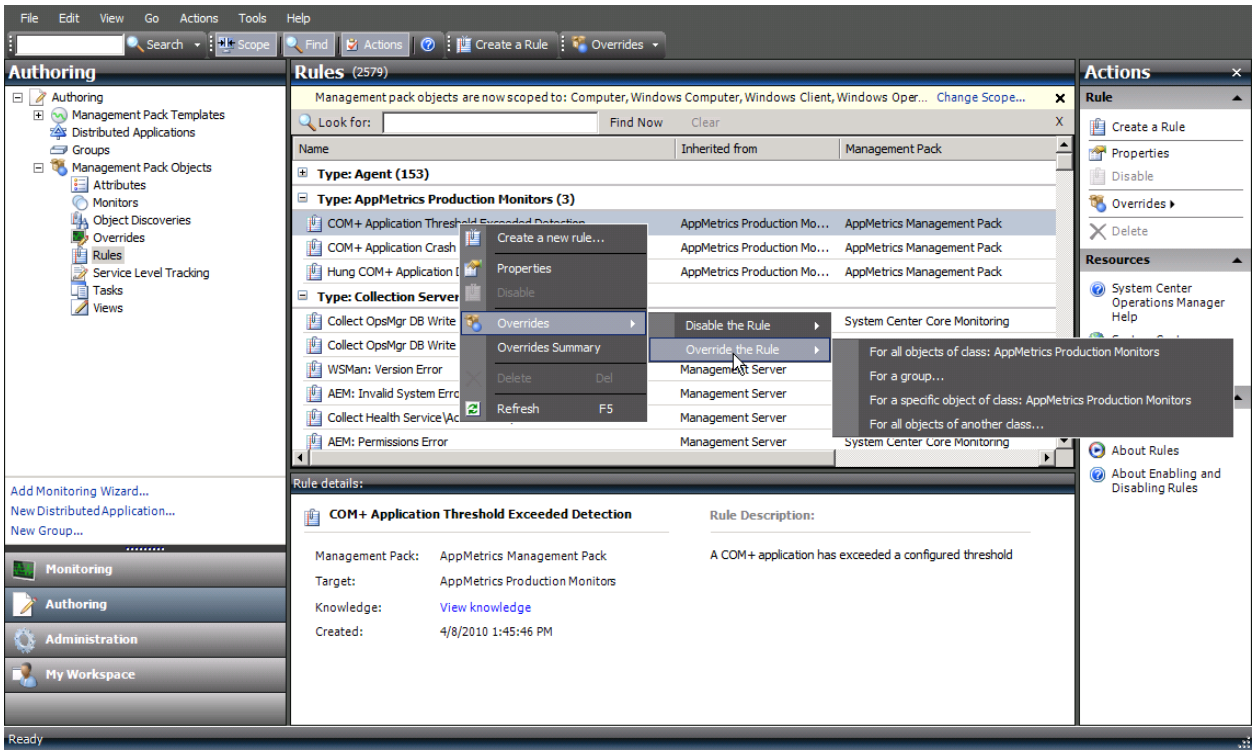
To enable the monitor, select the **Override the Monitor** item and remove the override on the **Enable** property.

Disabling and Enabling Alerts

From time to time it may be desired to disable certain alerts for machines undergoing maintenance, or for specific COM+ production monitors when it is known that a certain machine has higher than typical load and is generating excessive threshold exceeded alerts.

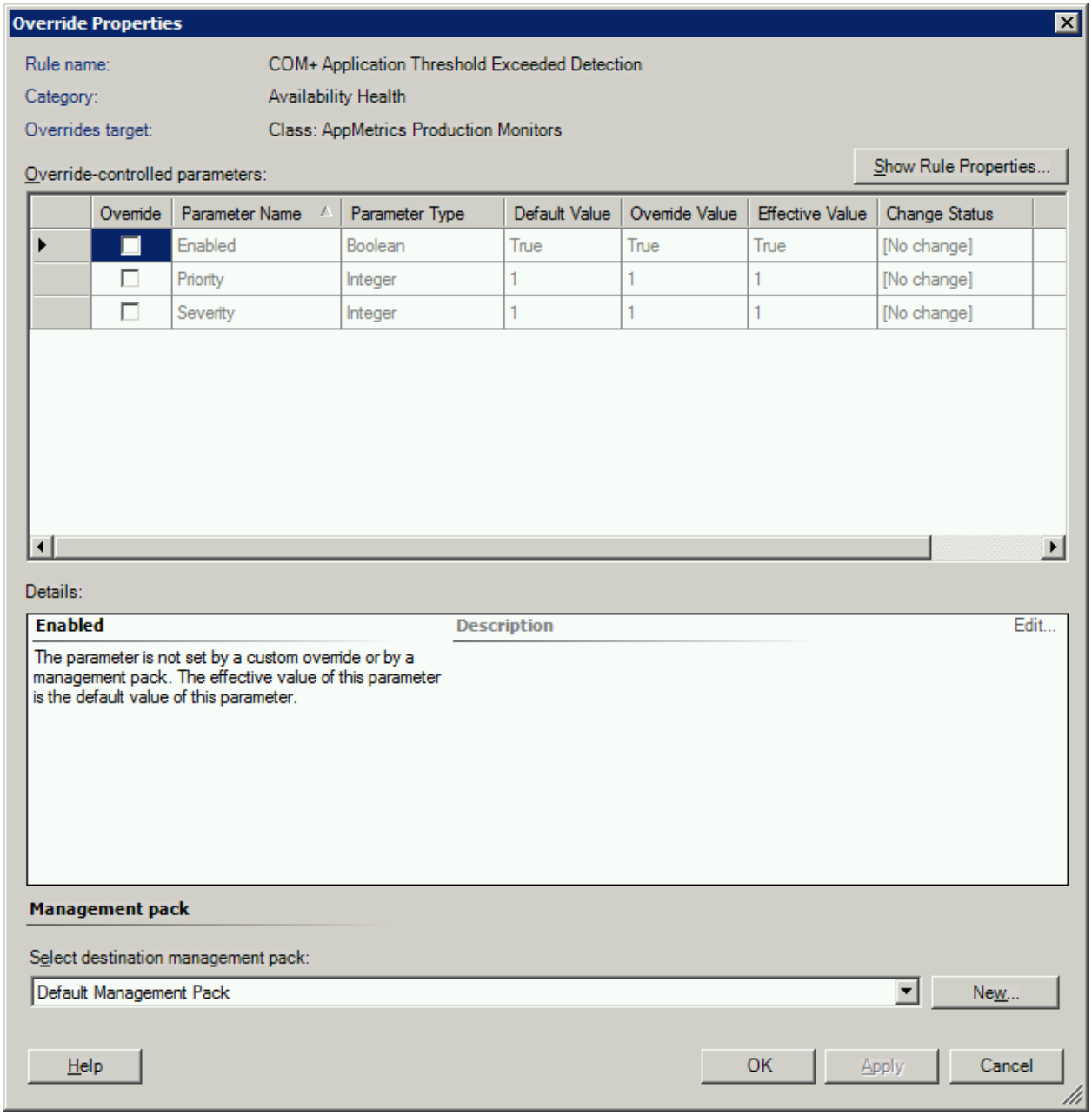
To disable alerts, navigate to the Authoring console Rules view, choose an AppMetrics rule, then select the Overrides menu item, then select either **Disable the Rule** or **Override the Rule**, and either select **For all objects of class** or **For a specific object of class**. Here we have selected the COM+ Application Threshold Exceeded Detection rule.

Figure 30 – Rules Override



If **Disable the Rule** was selected, nothing further needs to be done, where if **Override the Rule** was selected, the Override checkbox of the **Enabled** property would need to be checked, and the **Override Value** set to False.

Figure 31 - Rules Override Properties



To enable the rule, **Override the rule** would need to be selected, and the **Override** checkbox unchecked on the **Enabled** property.

Overriding the Default COM+ Application Health Monitor Timer Reset Interval

The AppMetrics COM+ Application Health Monitor uses a timer reset interval to specify how long the monitor should stay in an unhealthy state when an AppMetrics COM+ Application alert is detected. The default interval is 3 days, but can be modified to expire sooner or later than the default value.

The timer reset only affects the state of the monitor, and will not auto resolve the actual COM+ alert since the alert is triggered by a SCOM rule rather than by the associated monitor. This is for added granularity in the SCOM alert, and to provide detailed product knowledge pertaining to each specific alert type.

To modify the timer reset interval, you will need to navigate to either a COM+ Application Health Monitor Health Explorer view (to modify a specific monitor object), or to the Authoring Console Monitors view (to modify all COM+ Application Health Monitors).

In the following example, we'll navigate to the Override Properties view from the Authoring Console Monitor view, and selecting **Overrides->Override the Monitor->For all objects of class: AppMetrics Production Monitors**.

Figure 32 - Authoring Console Monitors View

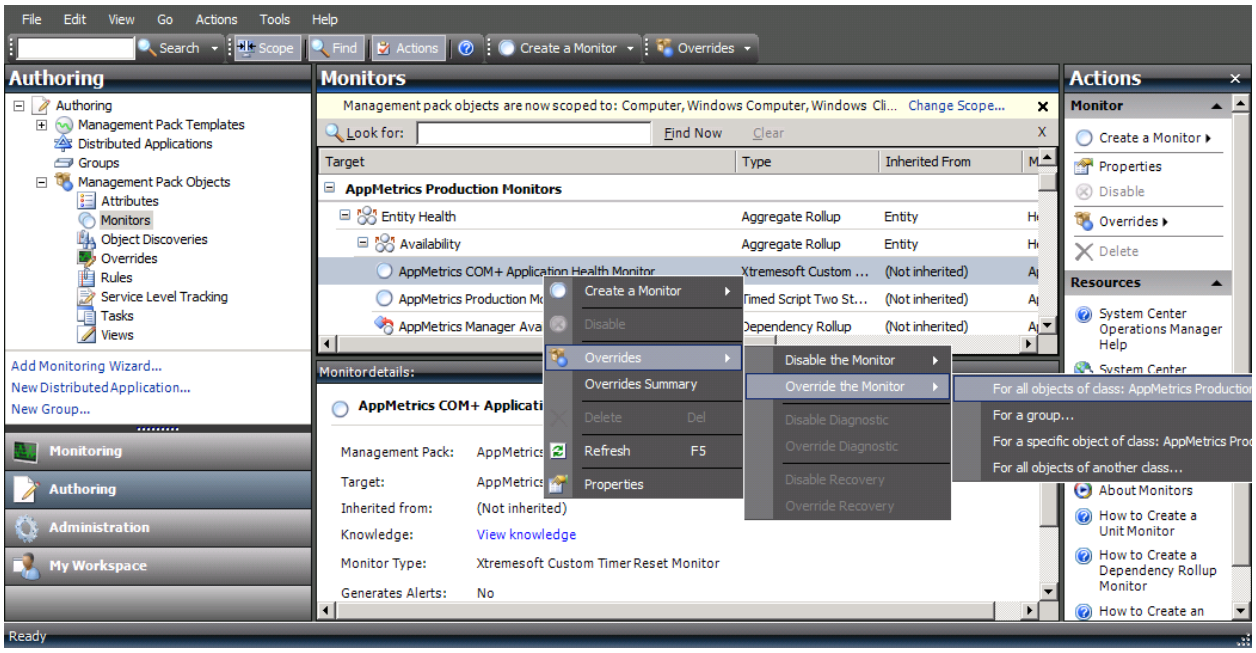
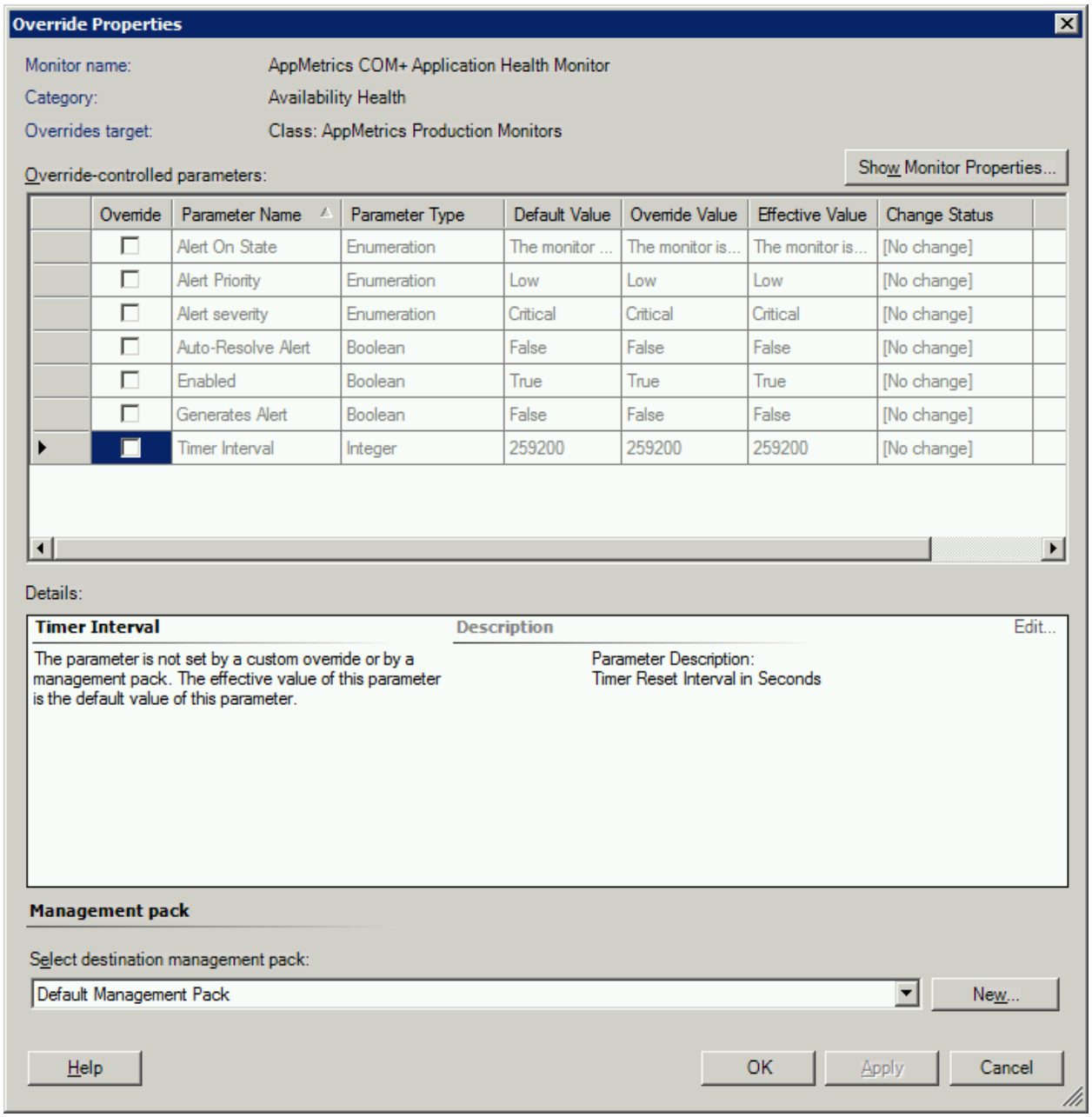
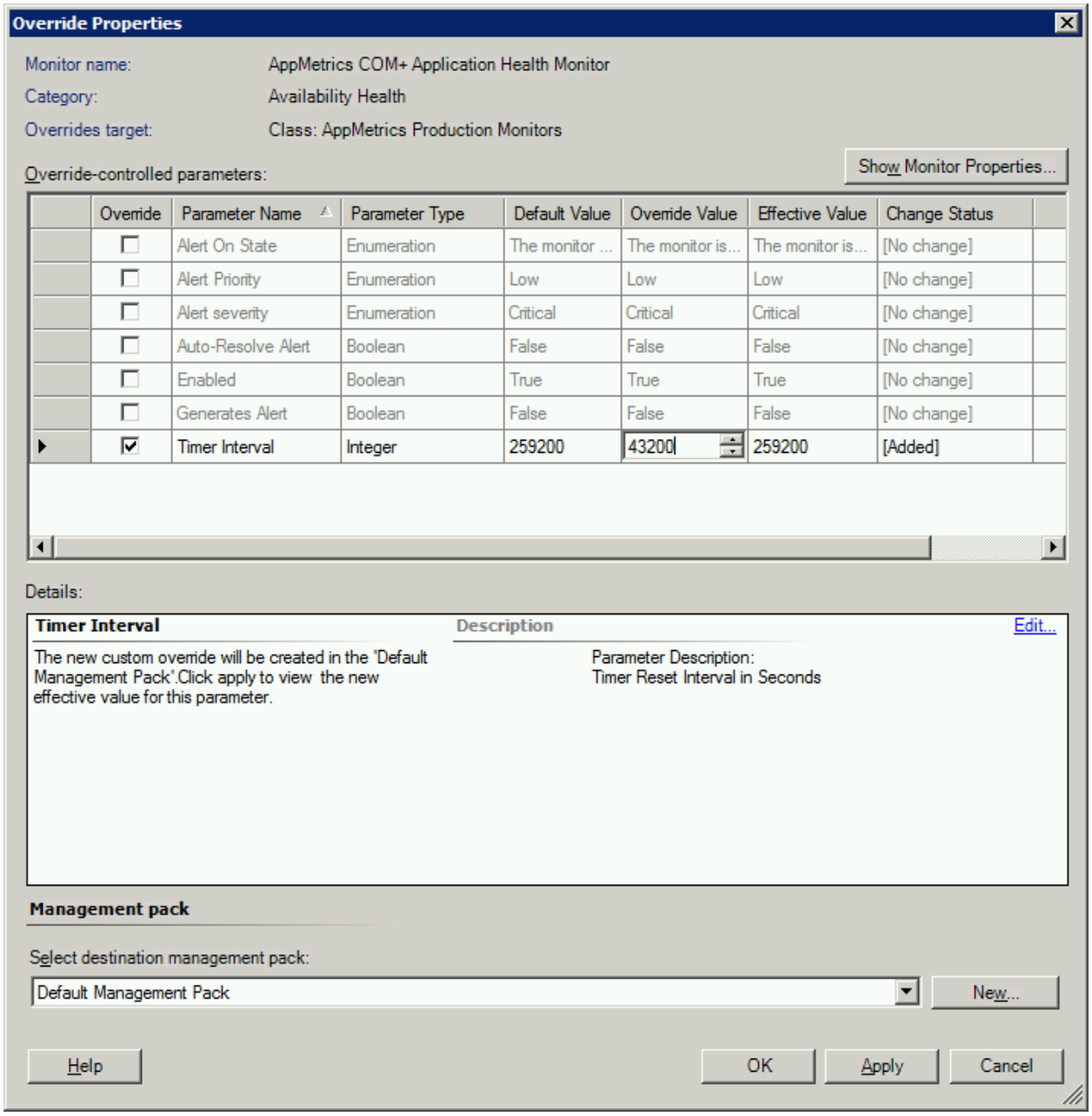


Figure 33- Timer Reset Interval Override Properties



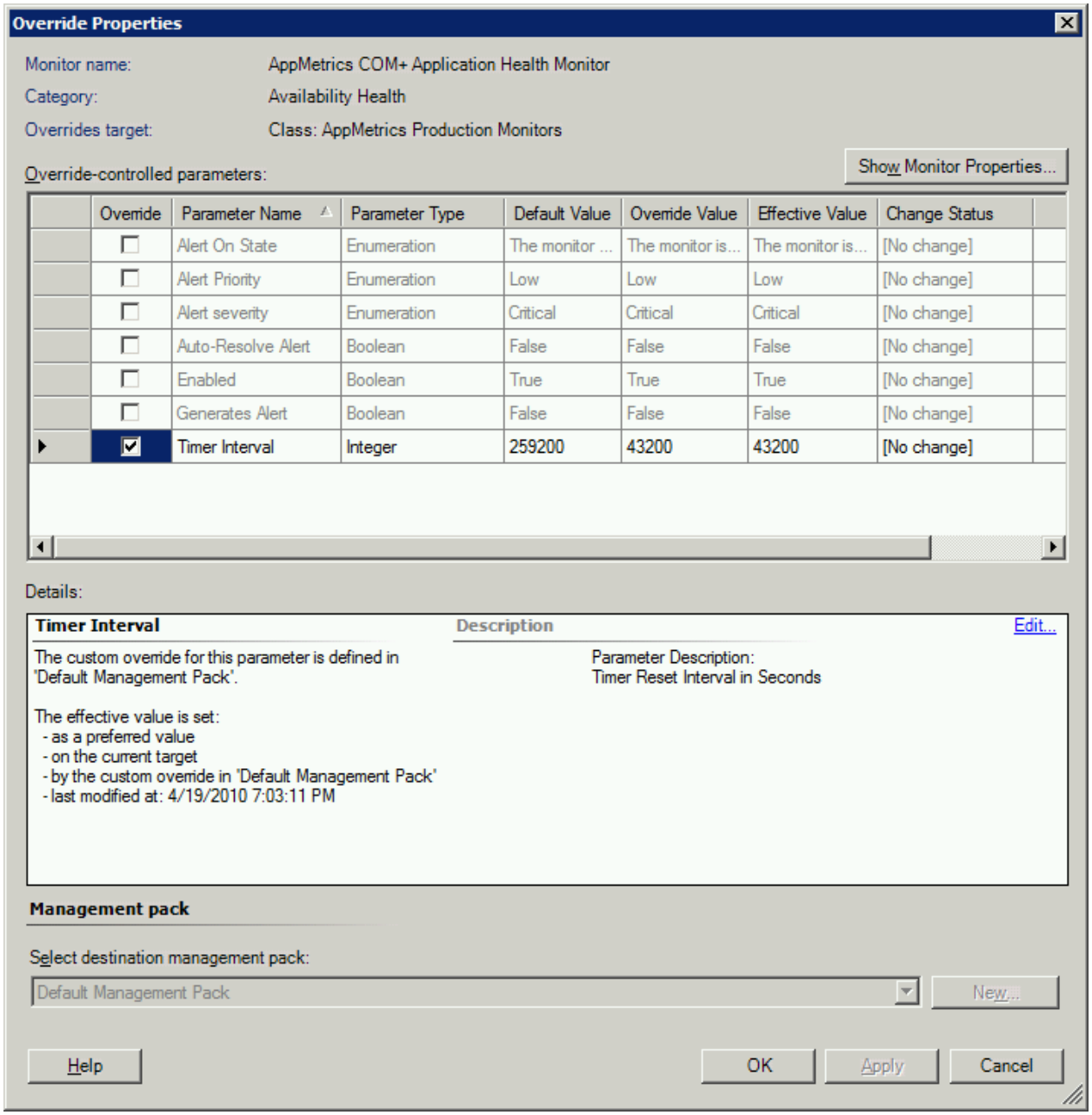
Check the **Timer Interval** check box, and change the **Override Value** to the desired value. In the following example the value has been changed to 12 hours (43200 seconds).

Figure 34 - Timer Reset Interval New Value Entered



Select **Apply** to verify your changes. The **Effective Value** should change to the **Override Value**. You can then select OK to dismiss the view.

Figure 35 - Timer Reset Interval Overridden



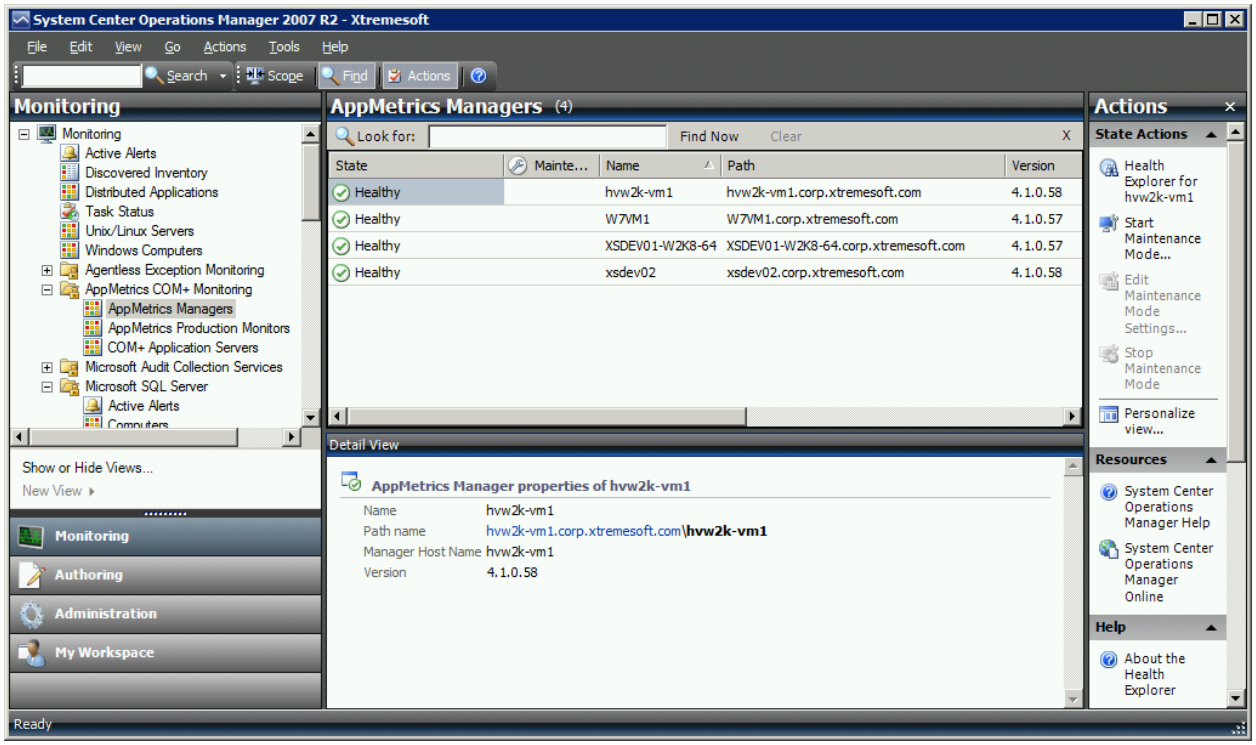
Management Pack Views

The AppMetrics management pack incorporates 3 main views to present health, status, and performance data.

AppMetrics Managers View

The AppMetrics Managers view will list all of the discovered Windows computers which have the AppMetrics manager installed, along with the version number of AppMetrics which is installed on that machine.

Figure 36 - AppMetrics Managers View



The state of the AppMetrics manager is reflected in the **State** column, and will indicate whether or not there are problems with connectivity or security in connecting to the associated agent machines, and whether or not the AppMetrics service is running on the computer.

The monitors will indicate an unhealthy state under the following conditions:

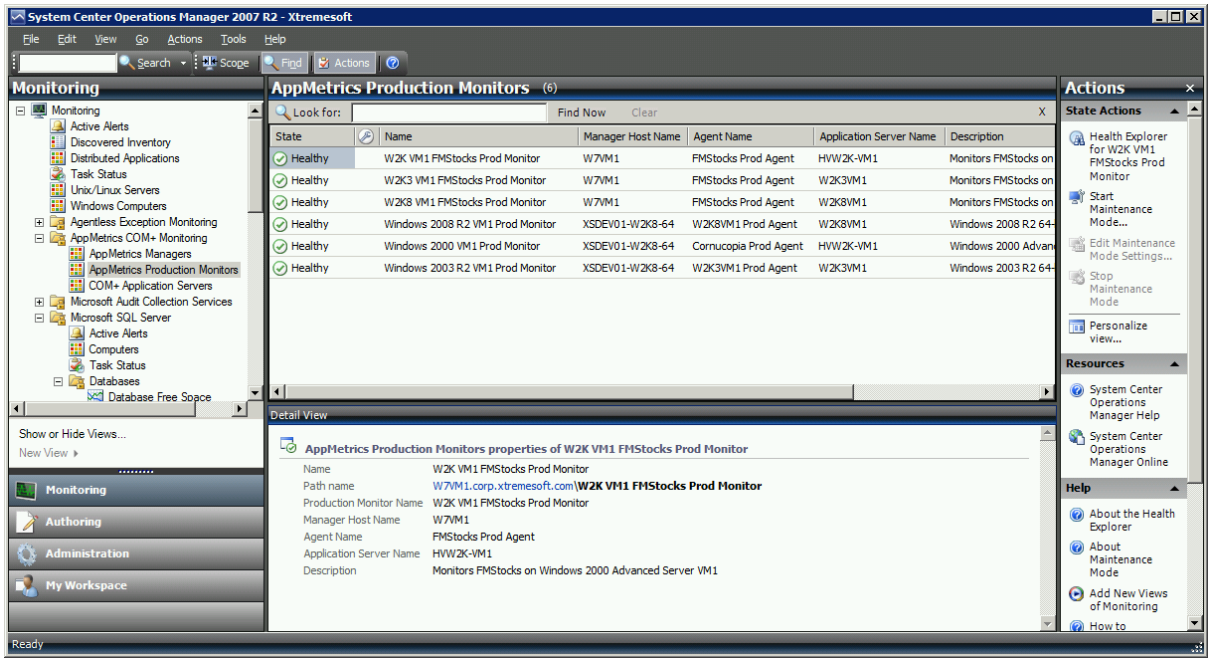
- The AppMetrics service is not running
- There are RPC issues blocking communications to an AppMetrics agent
- The manager has lost connectivity to an AppMetrics agent
- There are security issues blocking communications with the agent
- The computer hosting the AppMetrics manager has other issues

The *Health Explorer* for the view can be selected by double clicking on the manager state item, or by right clicking the row and selecting Health Explorer from the menu.

AppMetrics Production Monitors

The AppMetrics Production Monitors view lists the production monitor name, the name of the hosting manager, the name of the agent, the name of the application server hosting the monitored applications, and the monitor description.

Figure 37 - AppMetrics Production Monitors View



The AppMetrics Production Monitors view reflects the presence of COM+ application alerts in the monitor **State** column. In addition, the state of the AppMetrics production monitors themselves (as well as the state of the hosting AppMetrics manager) will be reflected by the **State** column.

The monitors will indicate an unhealthy state under the following conditions:

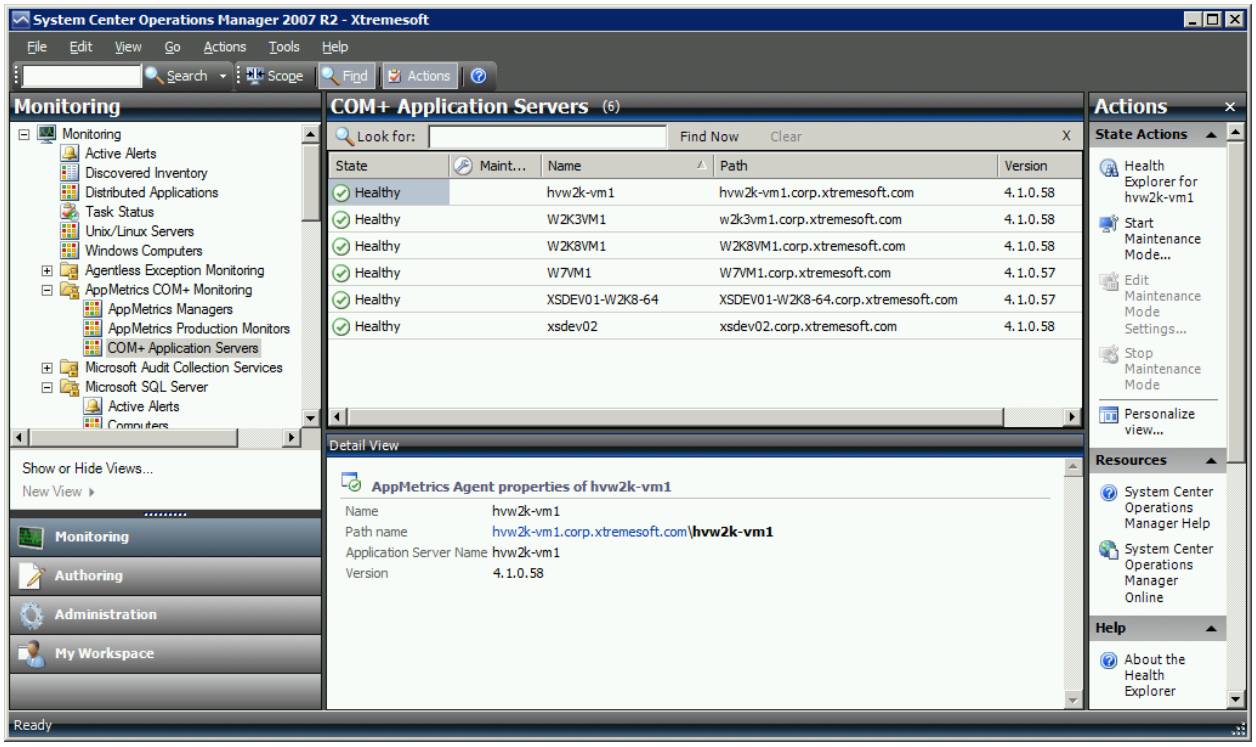
- There is a COM+ application alert for that monitor
- The production monitor is not running
- The AppMetrics service is not running for the manager hosting the production monitor
- The hosting AppMetrics manager has connectivity or security problems

The *Health Explorer* for the view can be selected by double clicking on the production monitor state item, or by right clicking the row and selecting Health Explorer from the menu.

COM+ Application Servers

The COM+ Application Servers view will list the name of the application servers being monitored by AppMetrics agents, and the version number of AppMetrics installed on that computer.

Figure 38 - COM+ Application Servers View



The state of the Application Servers is reflected in the **State** column, and indicates the health and status of the AppMetrics agents running on that computer.

The monitors will indicate an unhealthy state under the following conditions:

- The AppMetrics service is not running
- The AppMetrics agent has terminated abnormally

Health Explorer Views

The SCOM Health Explorer provides a hierarchical view of the various health and status monitors which reflect the state of each object listed in the 3 main AppMetrics views.

By clicking on the individual monitors, details concerning the state of the monitor and associated knowledge concerning that monitor can be viewed.

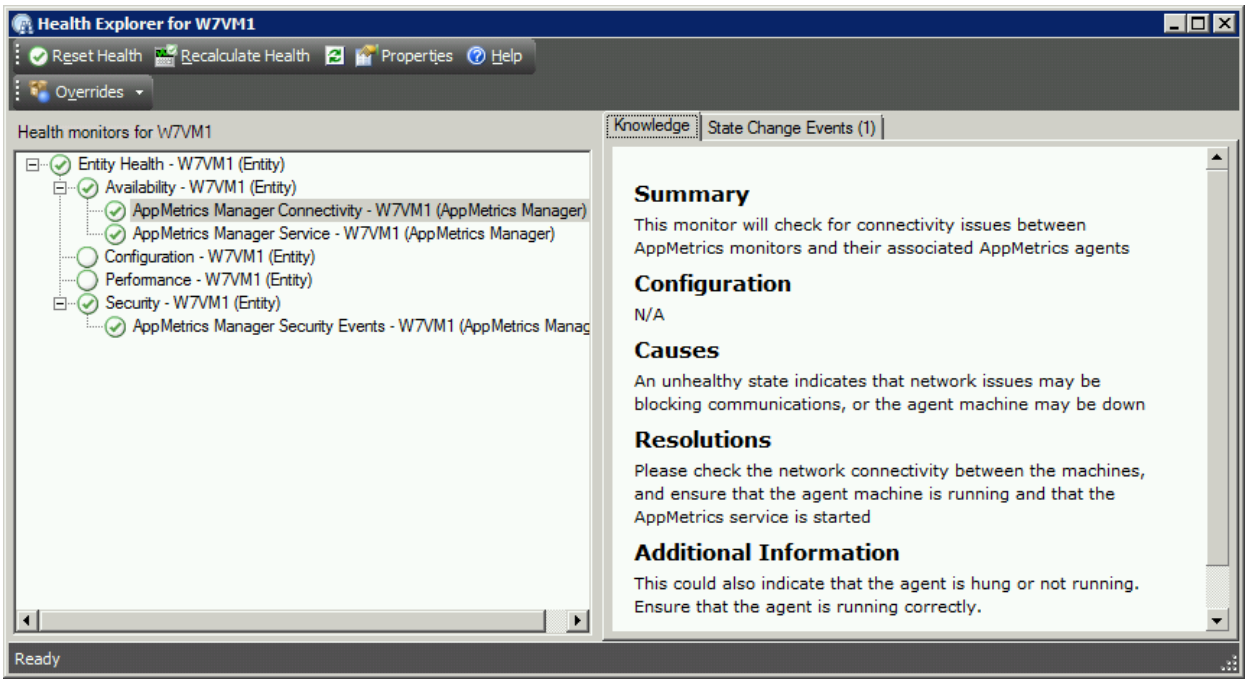
AppMetrics Managers

The *Health Explorer* for items listed in the AppMetrics Managers view can be selected by double clicking on the manager state item, or by right clicking the row and selecting **Health Explorer** from the menu.

Manager Connectivity Monitor

The Manager Connectivity monitor reflects whether or not the manager can connect to its associated agents, and whether or not a connection to an agent has been lost. It will reset from an unhealthy state to a healthy state once communication is reestablished in the case of a lost connection, or when the manager machine is rebooted.

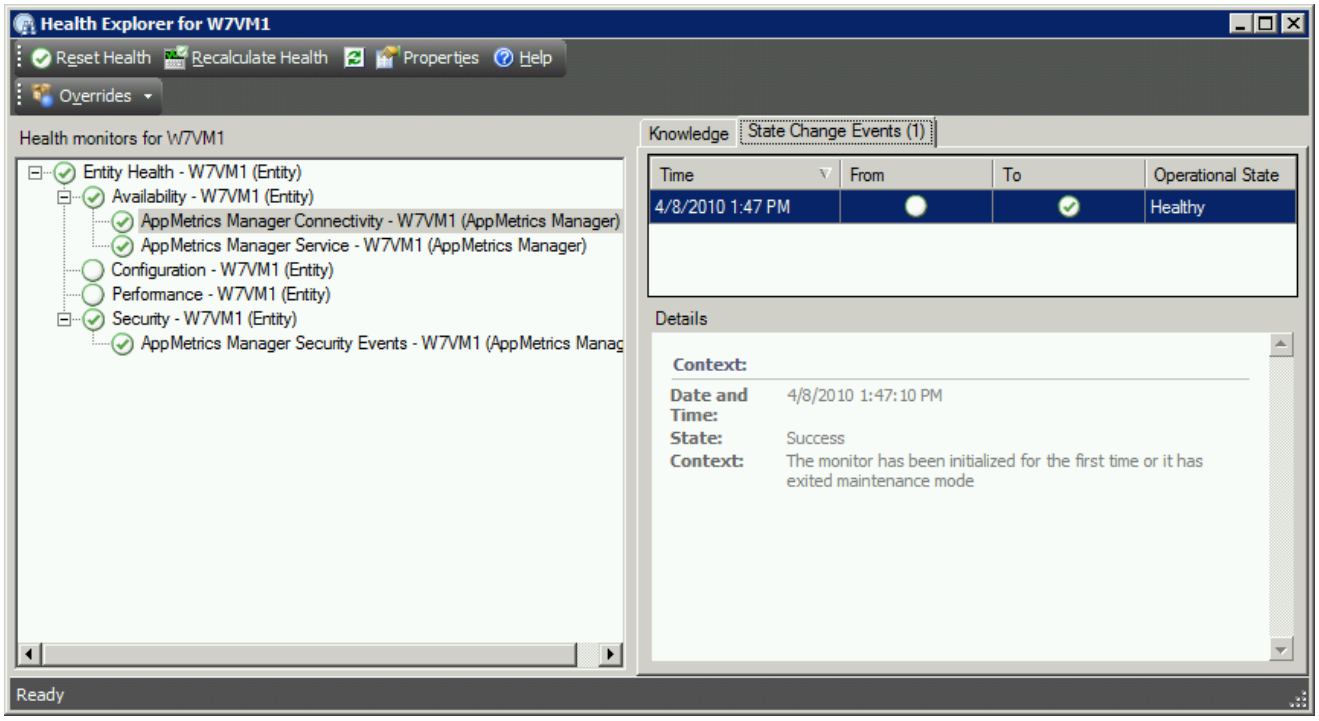
Figure 39 – Manager Connectivity Monitor Knowledge View



The Health Explorer view shown above illustrates the *Knowledge* view of the Manager Connectivity Monitor. The Knowledge view provides detailed information concerning the monitor, and gives causes and resolutions for unhealthy states.

The *State Change Events* view, shown below, indicates dates and times the state of the monitor changed, and provides Windows Event Log information concerning the event which caused the state change.

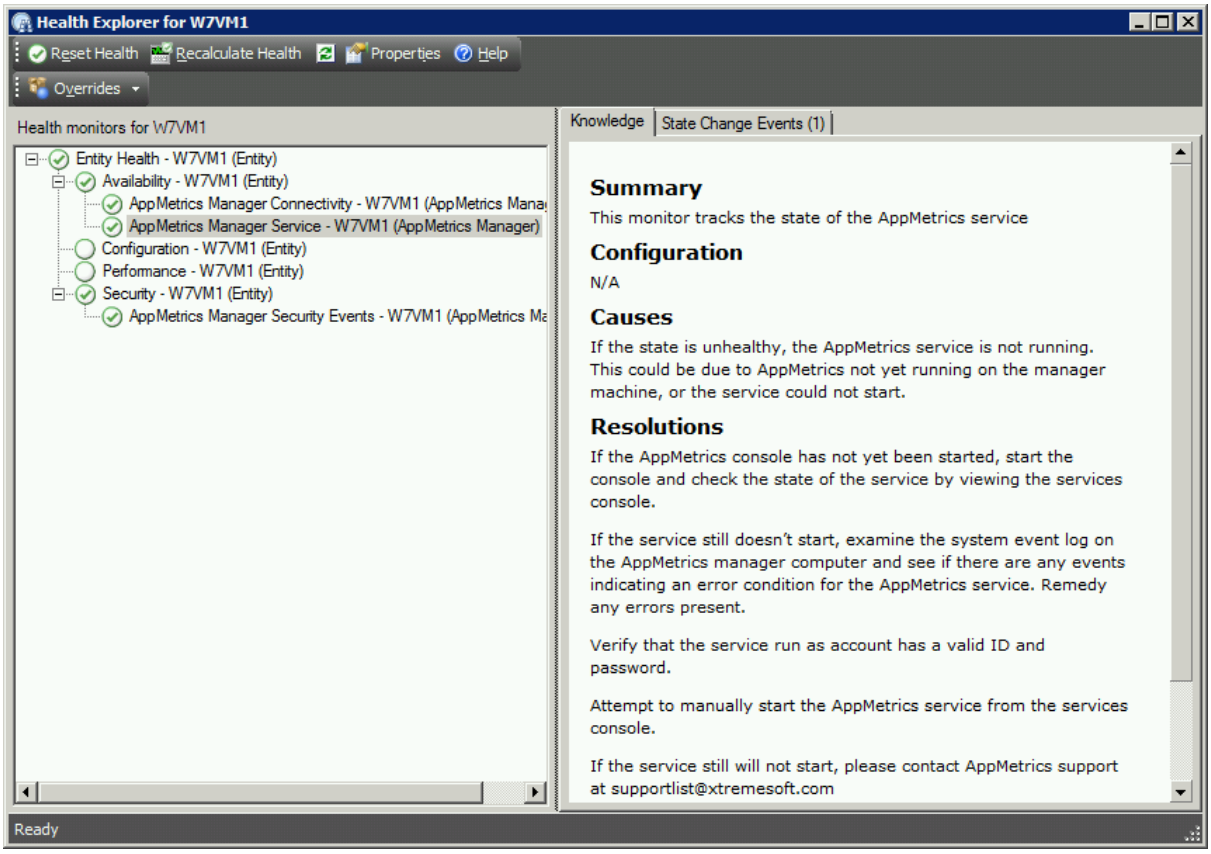
Figure 40 – Manager Connectivity Monitor State Change Events View



Manager Service Monitor

The Manager Service Monitor reflects the state of the AppMetrics service on the computer hosting the AppMetrics manager. It will automatically reset from an unhealthy state to a healthy state once the AppMetrics service is started.

Figure 41 - Manager Service Monitor Knowledge View

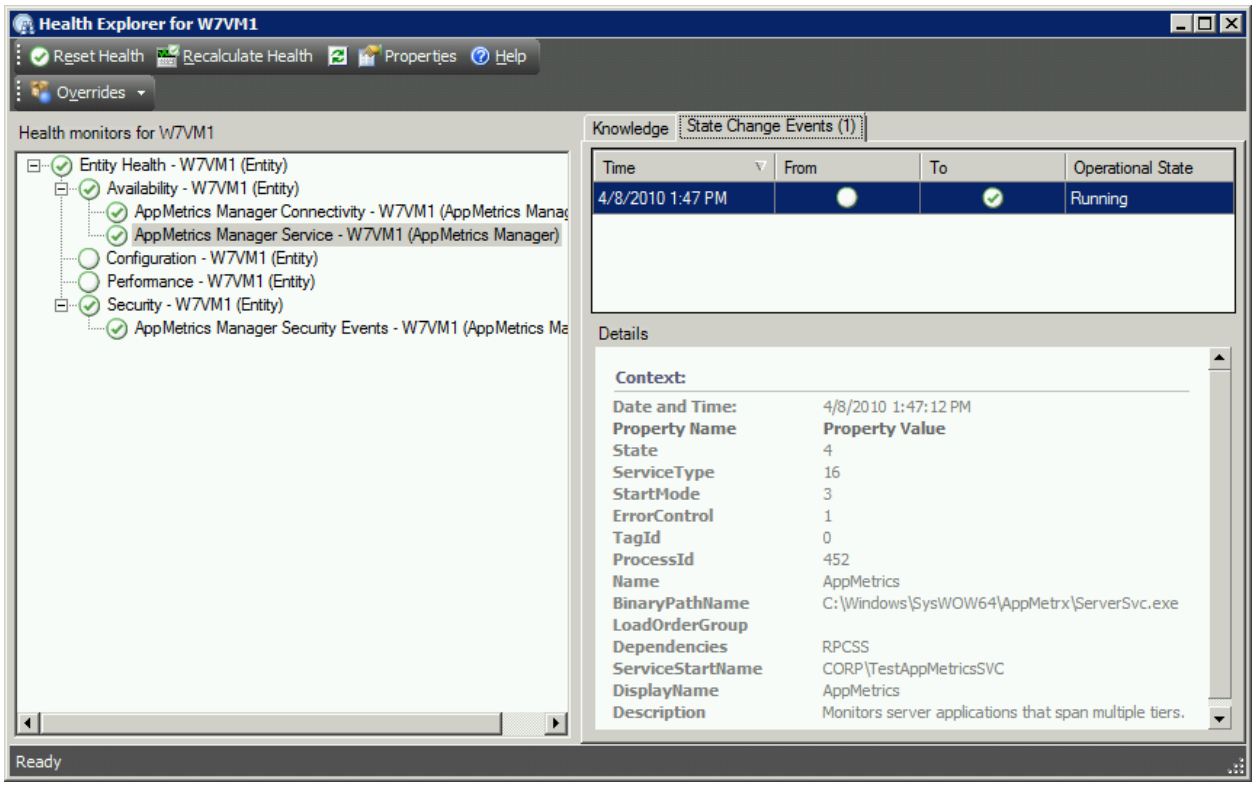


The Health Explorer view shown above illustrates the *Knowledge* view of the Manager Service Monitor. The Knowledge view provides detailed information concerning the monitor, and gives causes and resolutions for unhealthy states

The *State Change Events* view, indicates dates and times the state of the monitor changed, and provides Windows Event Log information concerning the event which caused the state change.

Various properties related to the AppMetrics service are also displayed in the Details section.

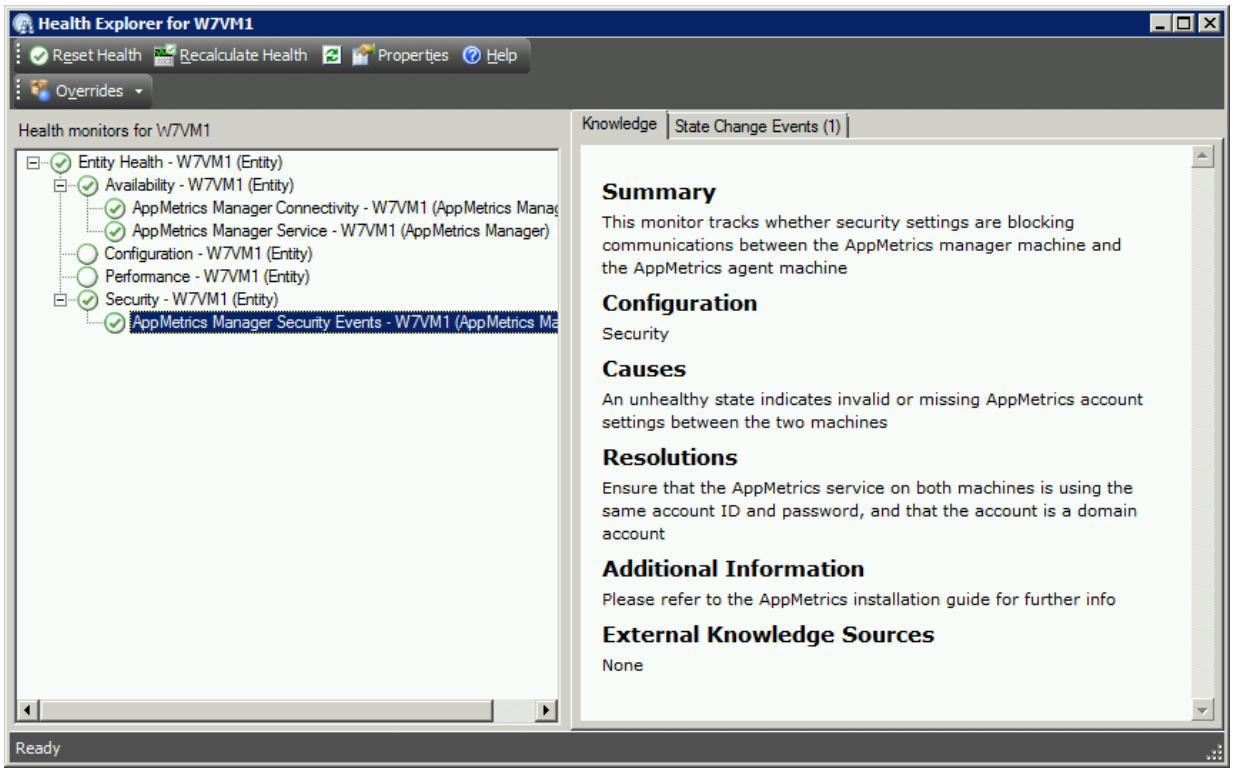
Figure 42 – Manager Service Monitor State Change Events View



Manager Security Events Monitor

The Manager Security Monitor reflects the state of the AppMetrics security settings on the computer hosting the AppMetrics manager and associated AppMetrics machine. It will need to be reset manually from an unhealthy state to a healthy state once the issue is resolved, or will automatically reset once the manager machine is rebooted.

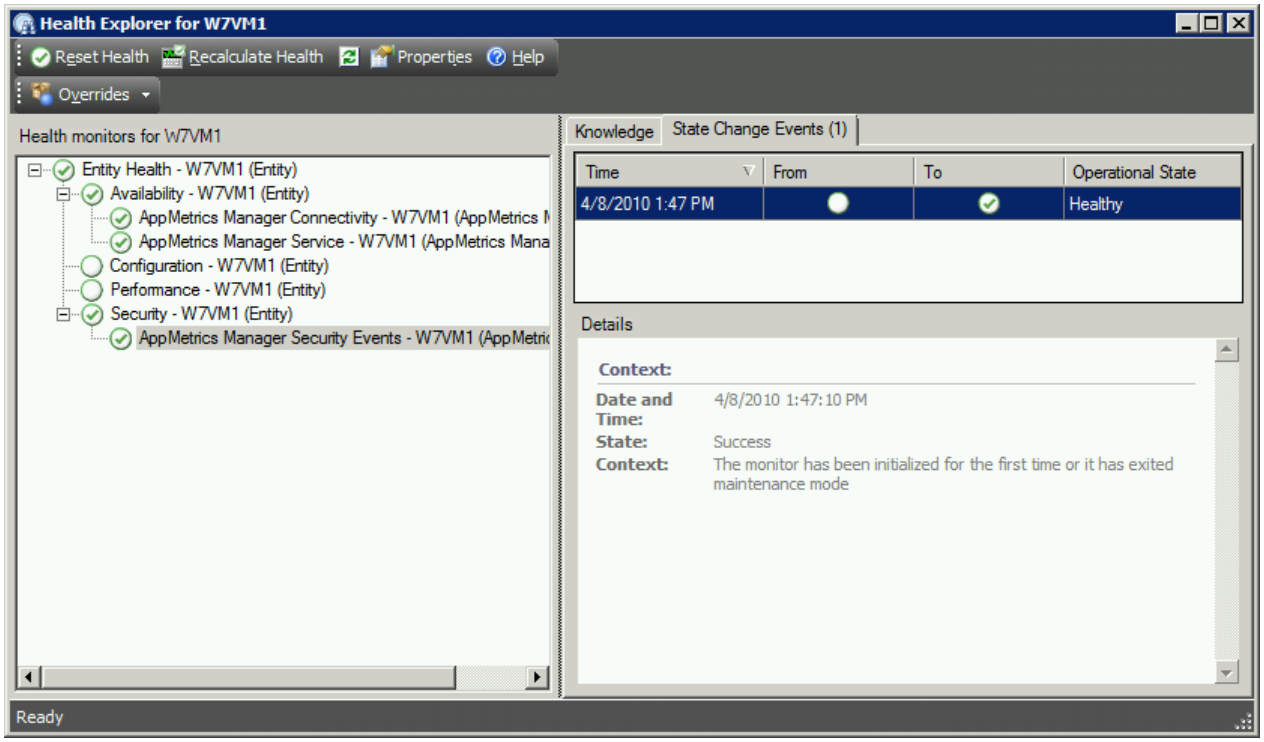
Figure 43 – Manager Security Events Monitor Knowledge View



The Health Explorer view shown above illustrates the *Knowledge* view of the Manager Security Monitor. The Knowledge view provides detailed information concerning the monitor, and gives causes and resolutions for unhealthy states

The *State Change Events* view indicates dates and times the state of the monitor changed, and provides Windows Event Log information concerning the event which caused the state change.

Figure 44 – Manager Security Monitor State Change Events Ciew



AppMetrics Production Monitors

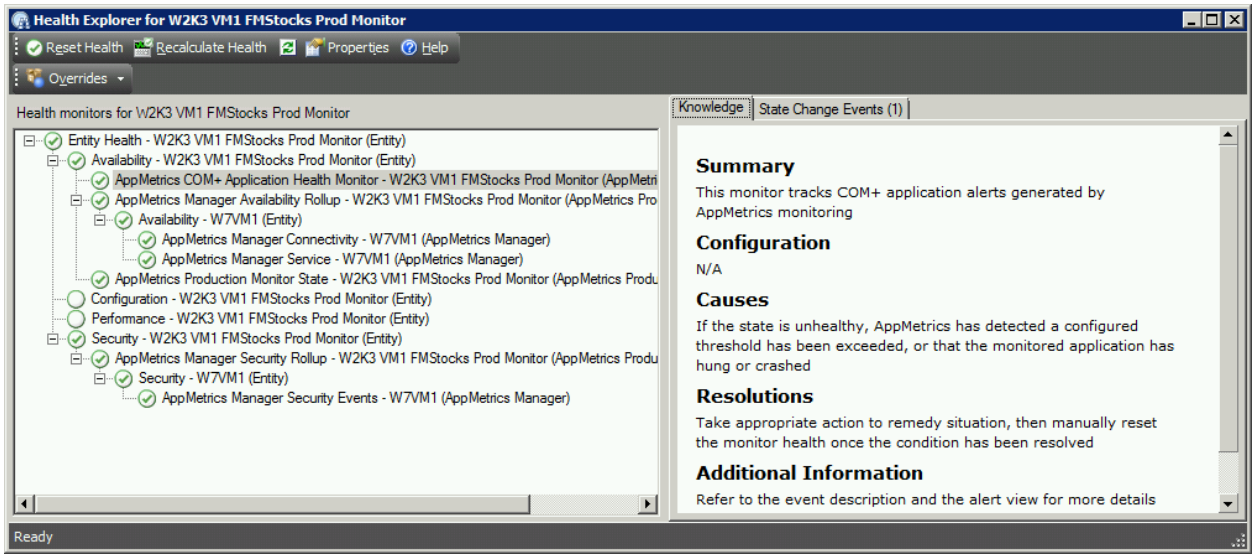
The *Health Explorer* for items listed in the AppMetrics Production Monitors view can be selected by double clicking on the production monitor state item, or by right clicking the row and selecting **Health Explorer** from the menu.

COM+ Application Health Monitor

The COM+ Application Health monitor reflects the health of COM+ applications monitored by the associated AppMetrics production monitor. It will change to an unhealthy state when a monitored application, transaction, or component threshold has been exceeded. It will also reflect whether any monitored applications have crashed or are hung.

This monitor will need to be reset to a healthy state manually by right clicking on the monitor and selecting Reset Health once the alert has been viewed in the Alert View. It will automatically reset after a 3 day interval has lapsed, giving the operations center staff adequate time to view the alert and take appropriate action.

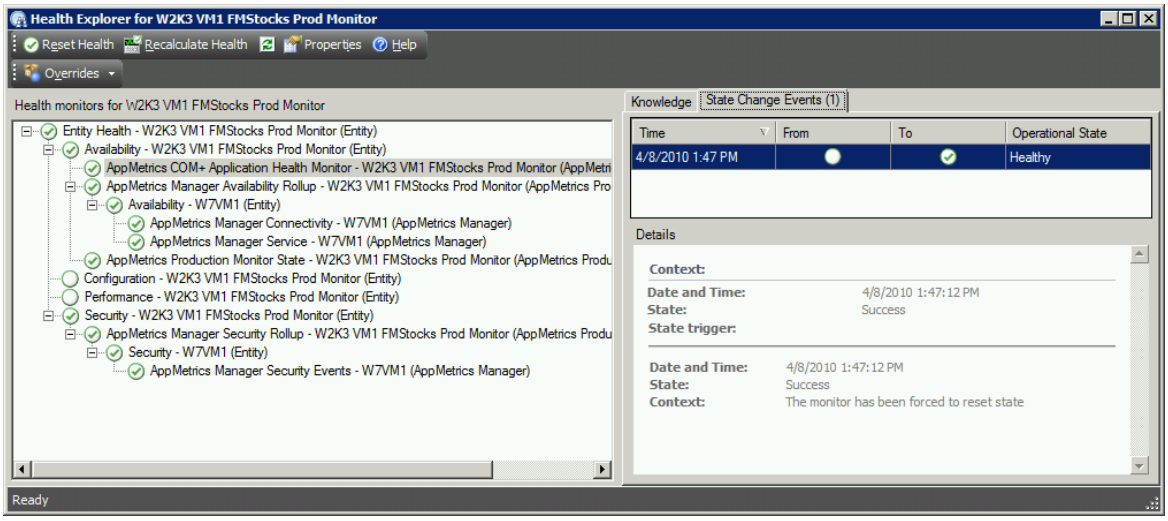
Figure 45 - COM+ Application Health Monitor Knowledge View



The Health Explorer view shown above illustrates the *Knowledge* view of the COM+ Application Health Monitor. The Knowledge view provides detailed information concerning the monitor, and gives causes and resolutions for unhealthy states

The *State Change Events* view indicates dates and times the state of the monitor changed, and provides Windows Event Log information concerning the event which caused the state change.

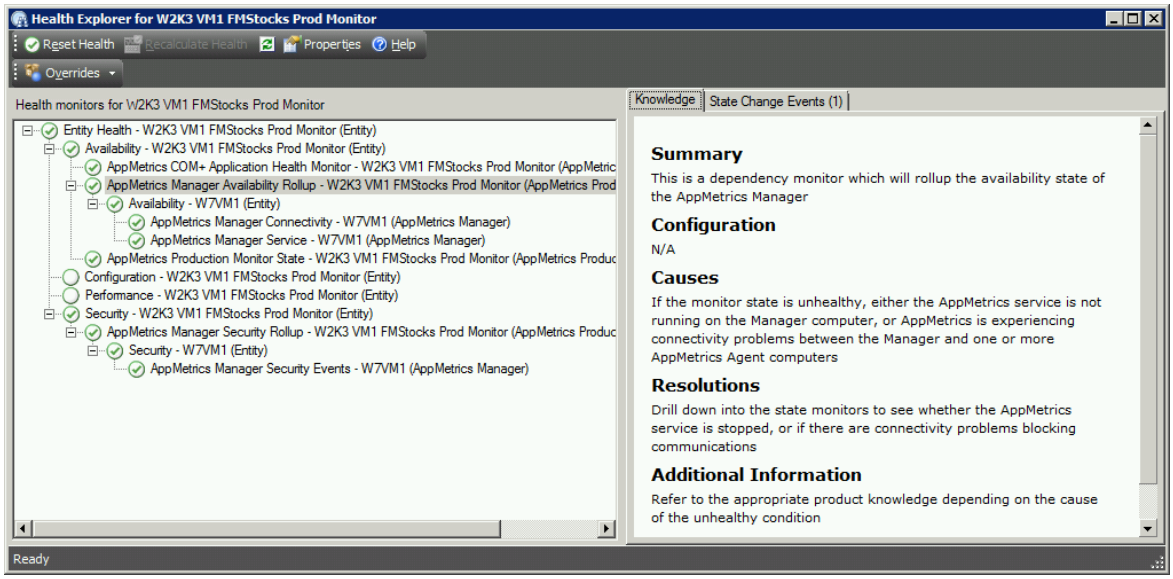
Figure 46 - COM+ Application Health Monitor State Change View



Manager Availability Rollup Monitor

The Manager Availability Rollup monitor reflects the availability state of the hosting AppMetrics manager. Unhealthy states rollup to the Production Monitor object, and will reset to a healthy state as described in the documentation pertaining to the individual manager availability monitors, Manager Connectivity and Manager Service.

Figure 47 - Manager Availability Rollup Monitor



Production Monitor State Monitor

The Production Monitor State monitor reflects whether or not the AppMetrics production monitor is running or stopped. An unhealthy state indicates the production monitor is stopped. Once the production monitor is started, the state will automatically be reset to healthy.

Figure 48 - Production Monitor State Monitor Knowledge View

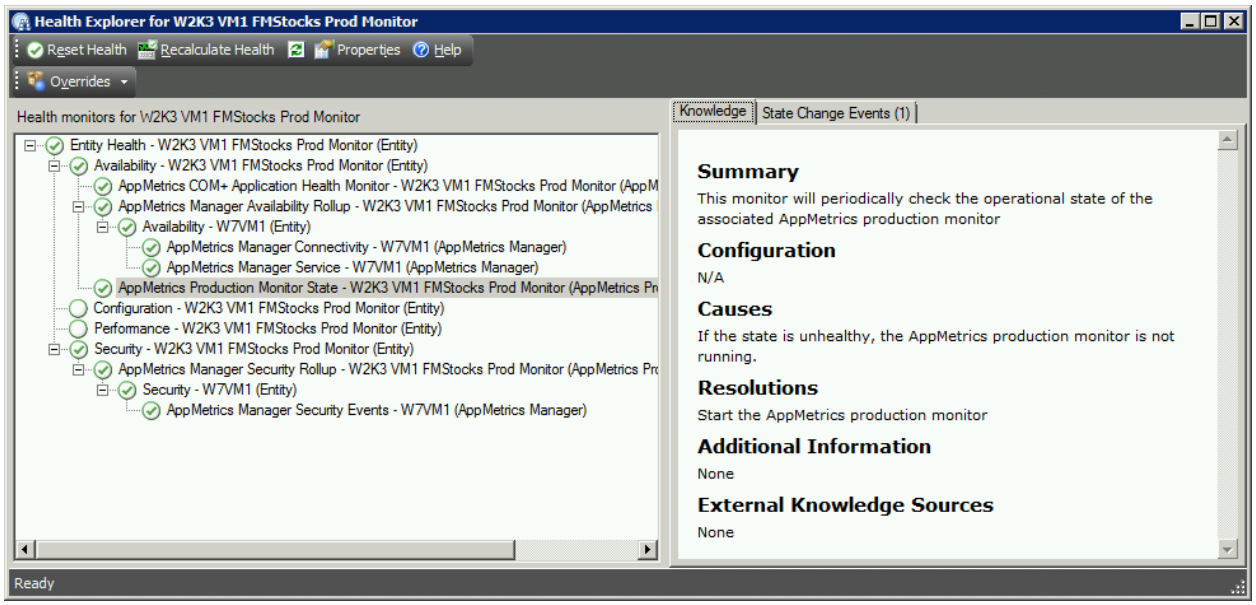
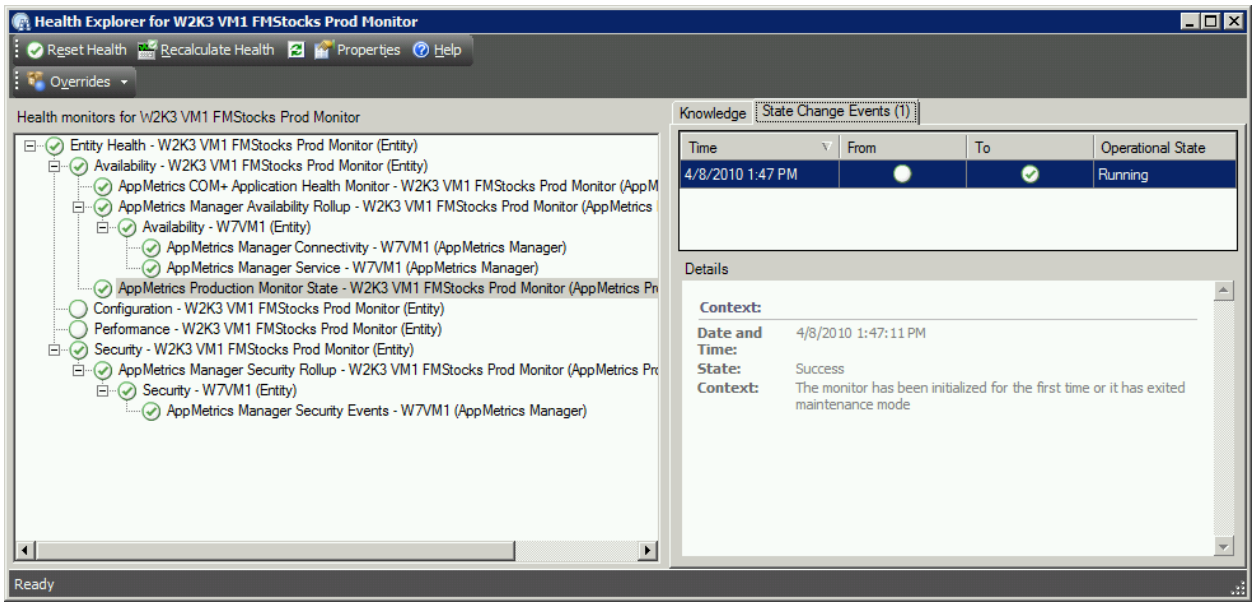


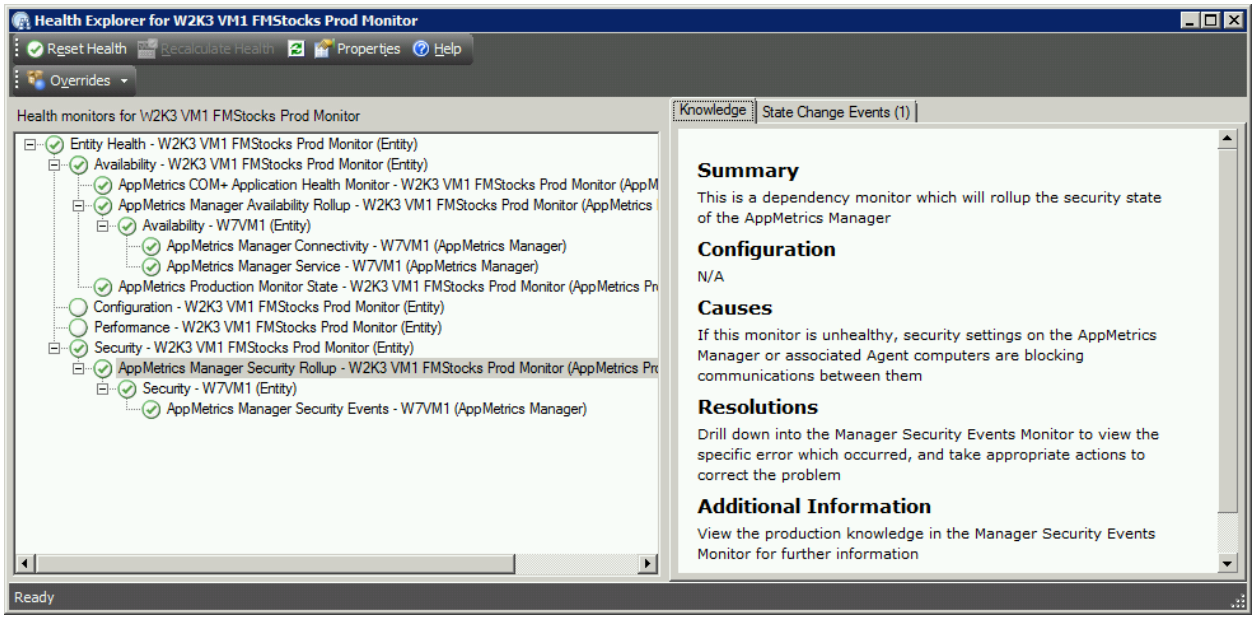
Figure 49 - Production Monitor State Monitor State Change View



Manager Security Rollup Monitor

The Manager Security Rollup monitor reflects the security state of the hosting AppMetrics manager. Unhealthy states rollup to the Production Monitor object, and will reset to a healthy state as described in the documentation pertaining to the individual manager security monitor, Manager Security Events.

Figure 50 - Manager Security Rollup Monitor



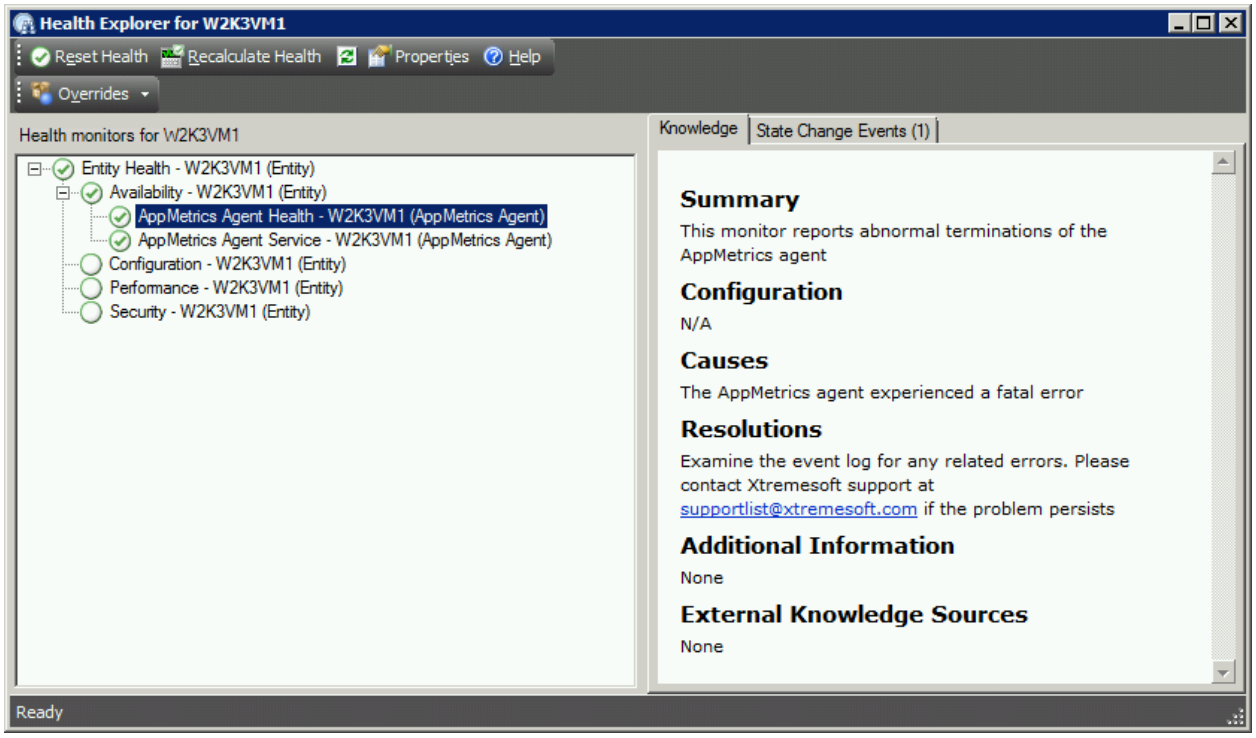
COM+ Application Servers

The *Health Explorer* for items listed in the COM+ Application Servers view can be selected by double clicking on the production monitor state item, or by right clicking the row and selecting **Health Explorer** from the menu.

Agent Health Monitor

The Agent Health monitor reflects the health of the AppMetrics agent running on the listed computer. It will change to an unhealthy state if the AppMetrics agent terminates abnormally. It will reset to a healthy state when the agent is restarted.

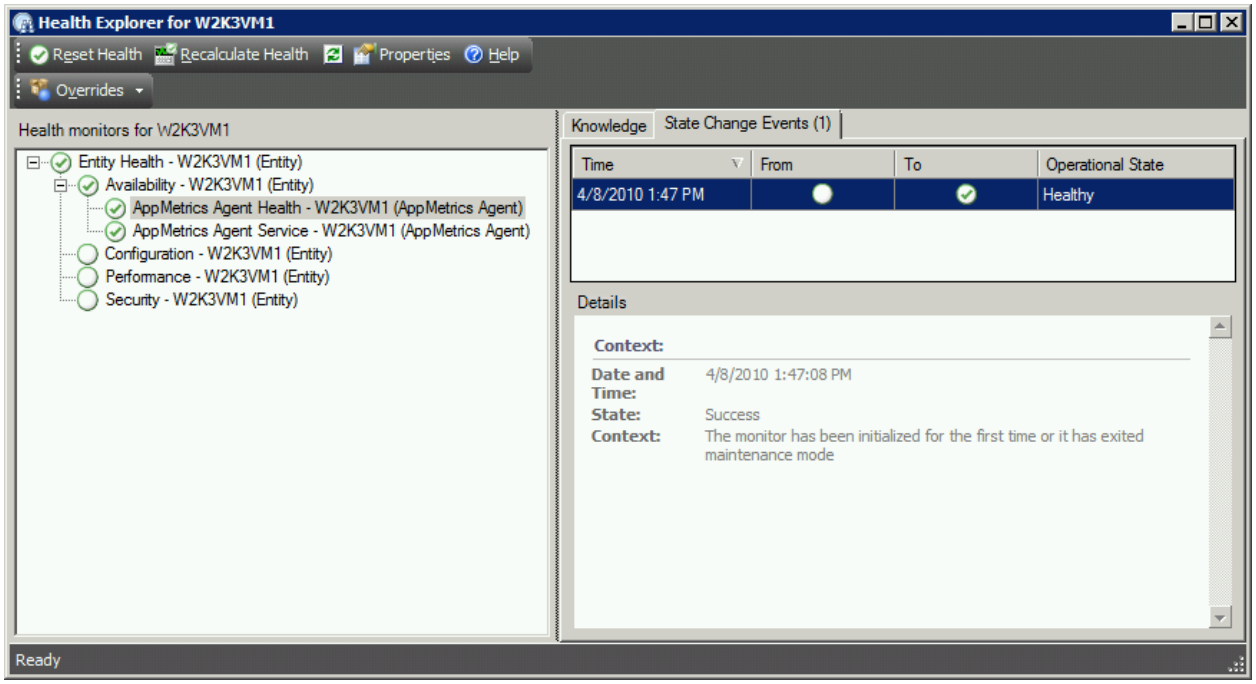
Figure 51 - Agent Health Monitor Knowledge View



The Health Explorer view shown above illustrates the *Knowledge* view of the Agent Health Monitor. The Knowledge view provides detailed information concerning the monitor, and gives causes and resolutions for unhealthy states

The *State Change Events* view, indicates dates and times the state of the monitor changed, and provides Windows Event Log information concerning the event which caused the state change.

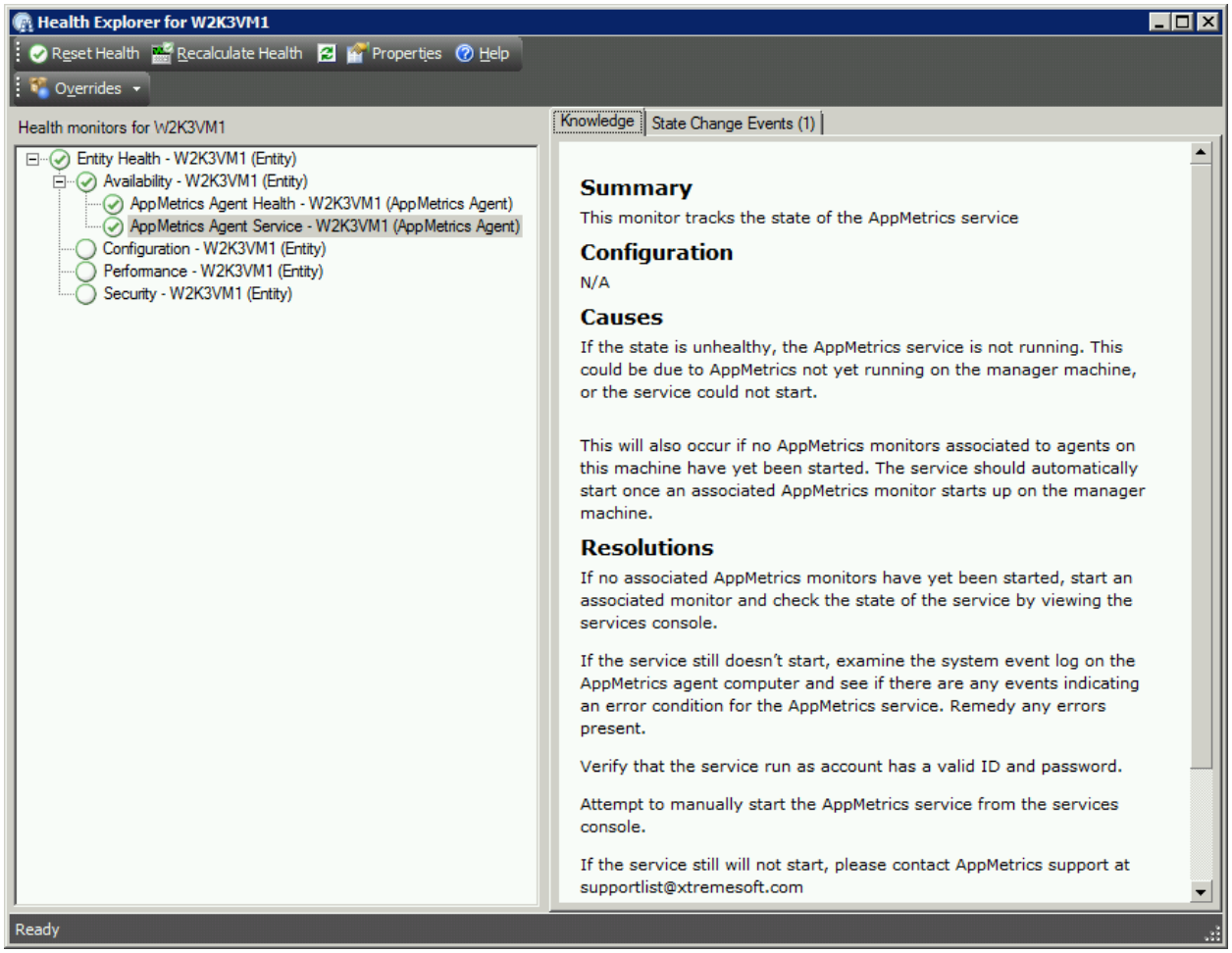
Figure 52 - Agent Health Monitor State Change View



Agent Service Monitor

The Agent Service Monitor reflects the state of the AppMetrics service on the computer hosting the AppMetrics agent. It will automatically reset from an unhealthy state to a healthy state once the AppMetrics service is started.

Figure 53 – Agent Service Monitor Knowledge View

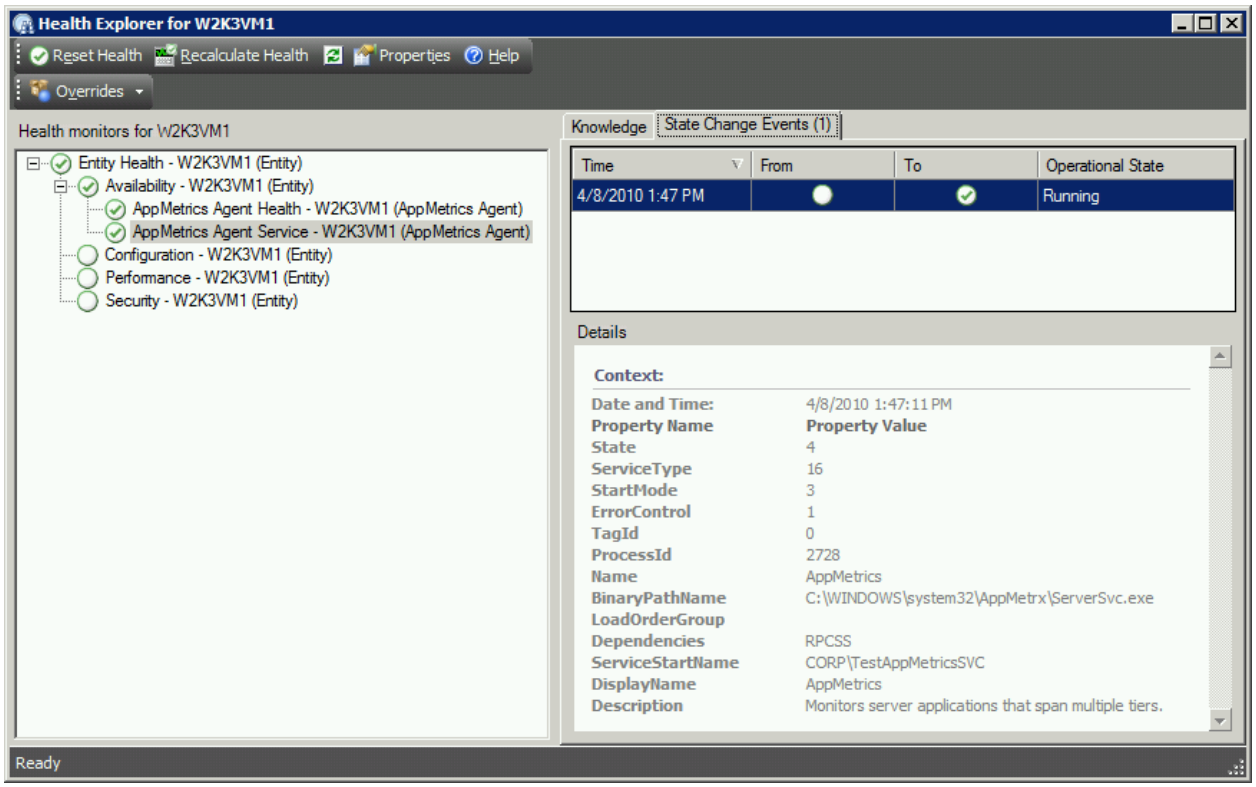


The Health Explorer view shown above illustrates the *Knowledge* view of the Agent Service Monitor. The Knowledge view provides detailed information concerning the monitor, and gives causes and resolutions for unhealthy states

The *State Change Events* view, indicates dates and times the state of the monitor changed, and provides Windows Event Log information concerning the event which caused the state change.

Various properties related to the AppMetrics service are also displayed in the Details section.

Figure 54 – Agent Service Monitor Knowledge View



Management Pack Alerts

SCOM generates alerts to notify data center staff of events and conditions affecting the health and performance of monitored computers, applications, and devices. The AppMetrics management pack extends SCOM in order to generate alerts when COM+ applications exceed their configured thresholds, experience abnormal terminations, or when they cease to respond in a timely manner. In addition, conditions affecting connectivity between the AppMetrics manager and agent are also reported.

Managing Alerts

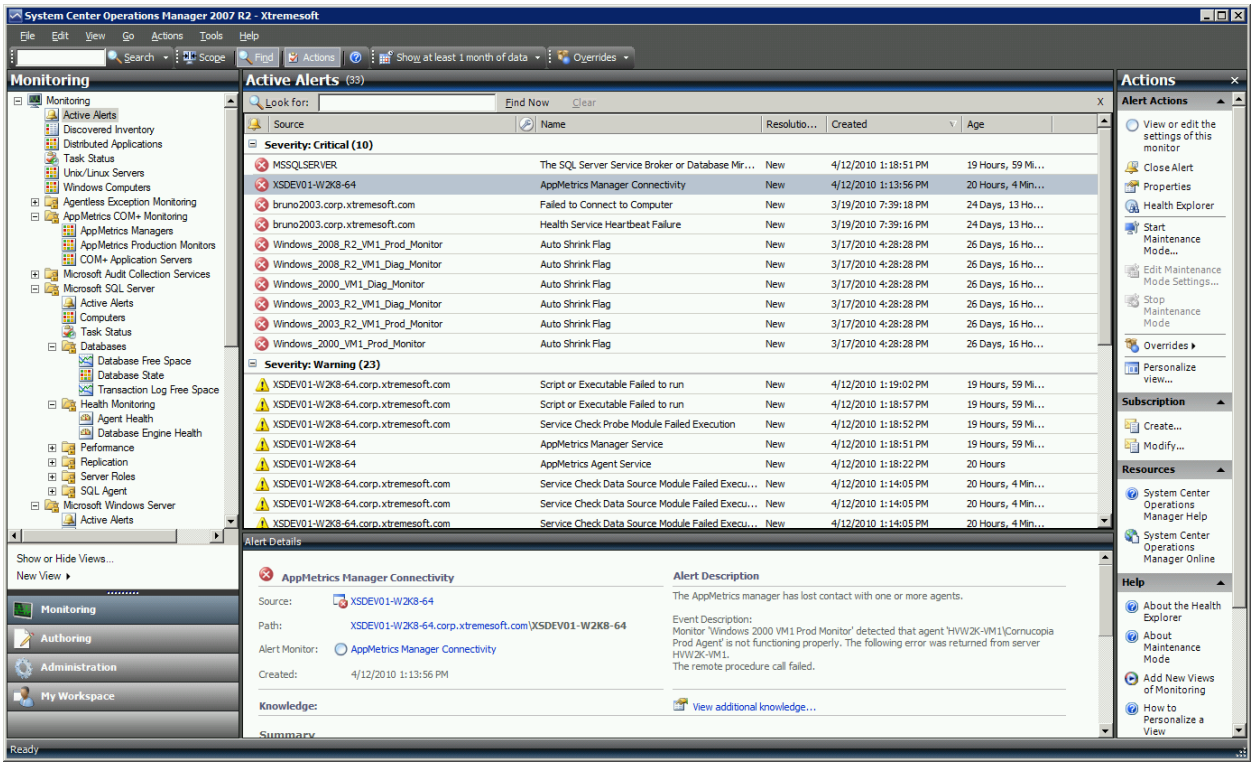
Alerts can be managed either globally for all monitored computers, applications, and devices, or locally for each specific managed entity.

Active Alert View

The Active Alert View provides a global view of active alerts collected from all monitored entities.

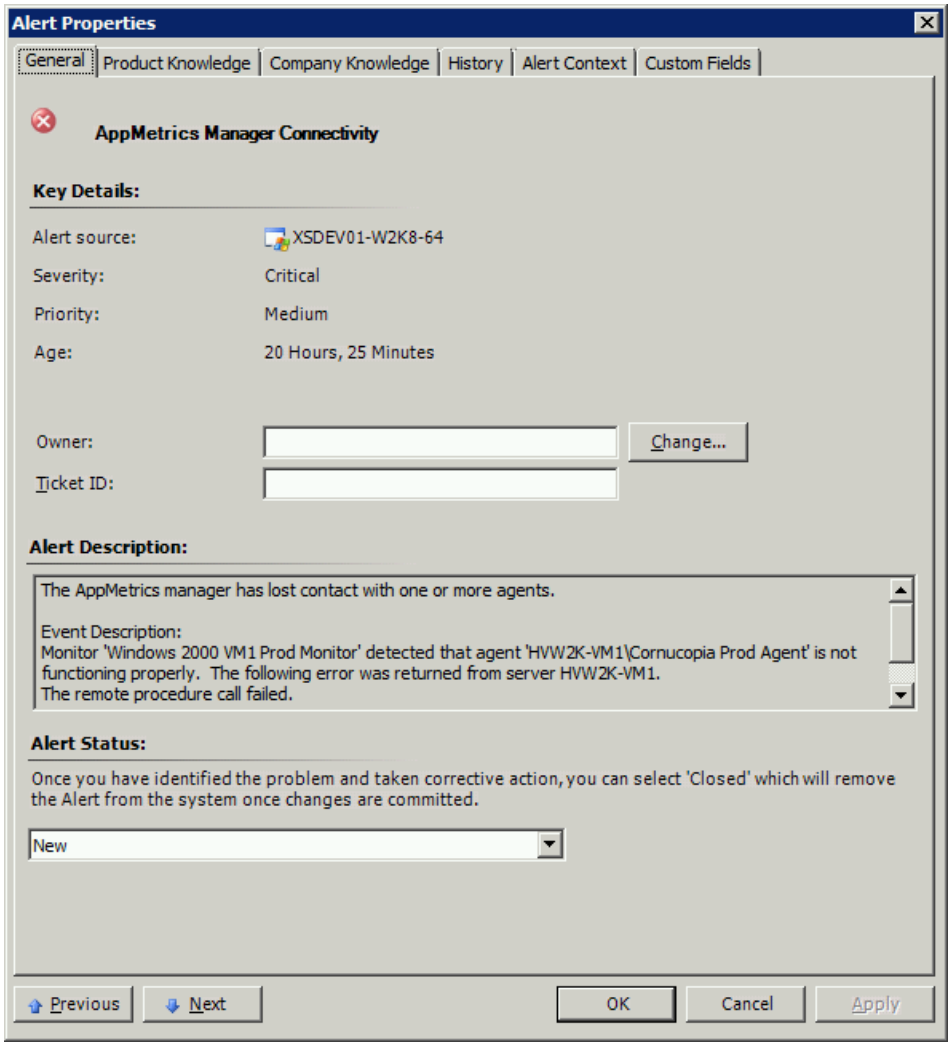
It can be accessed from the SCOM Monitoring console.

Figure 55 - Active Alert View



By double clicking an alert item in the Active Alert View, the Alert Properties view will appear.

Figure 56 - Alert Properties View



Additionally, the alert item may be further examined by right clicking on the item and selecting Open, where various objects associated to the item may be opened, such as the related Health Explorer for example.

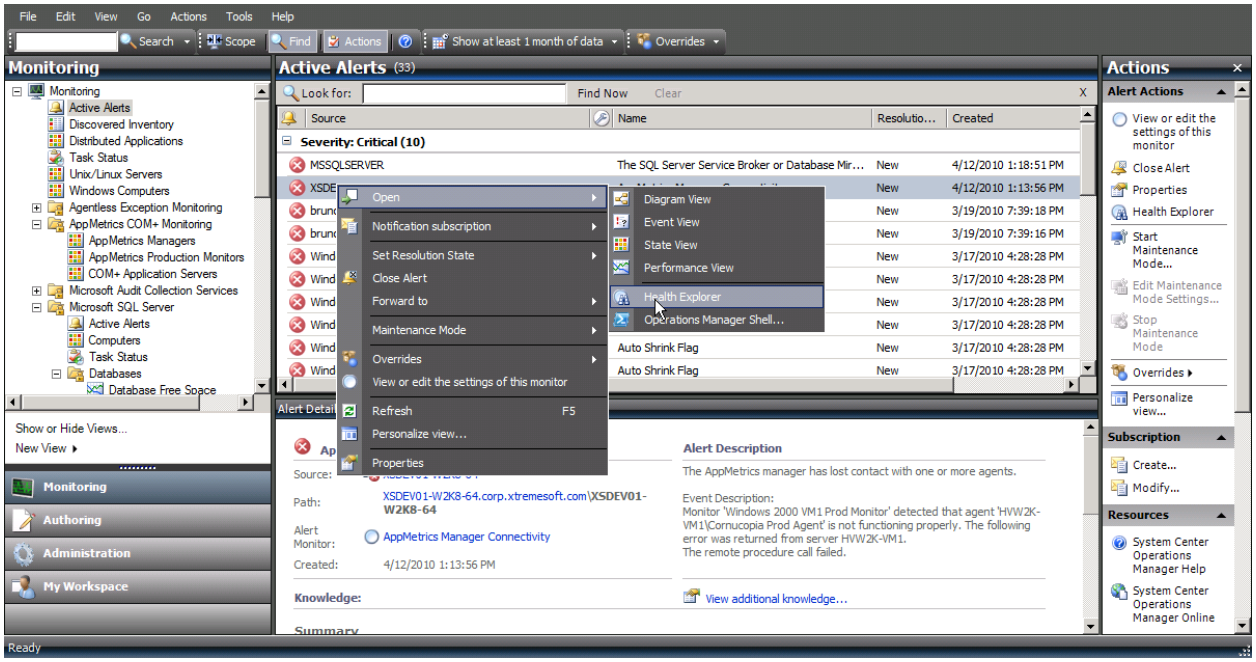
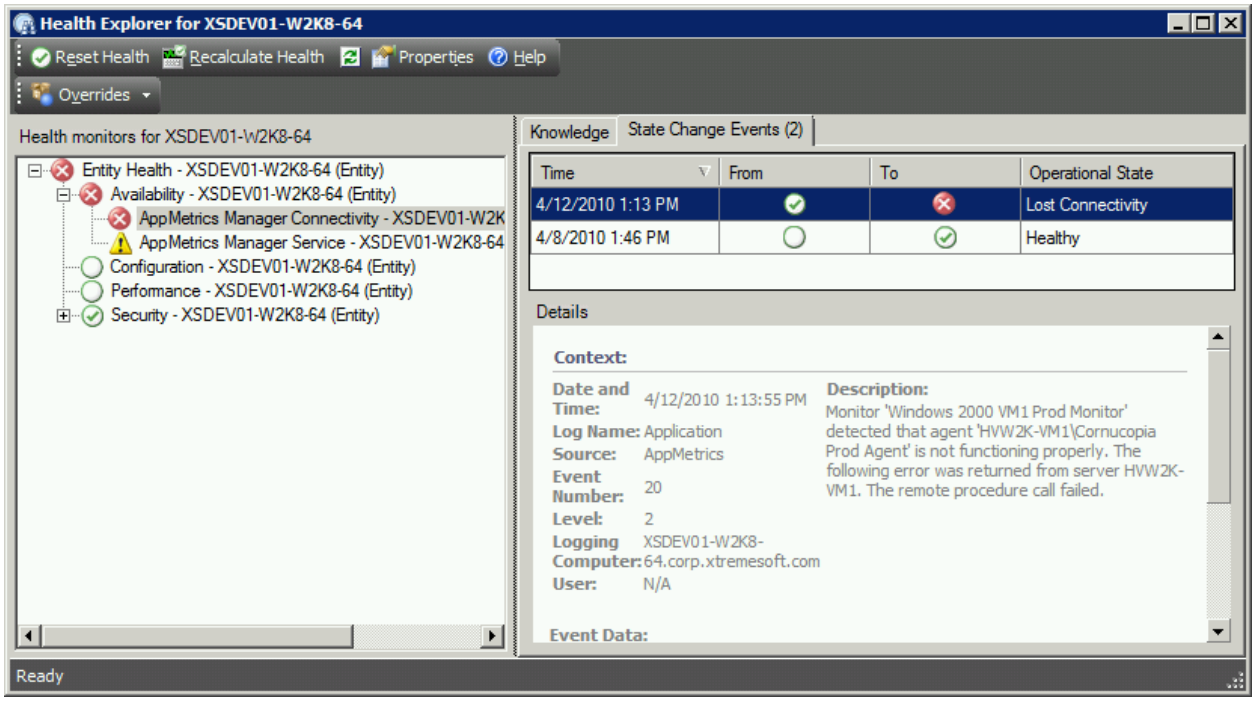


Figure 57 - Health Explorer for Active Alert



Monitor Specific Alerts

In addition to the global list of active alerts, monitor specific alerts may be viewed from the AppMetrics Health Explorer Views by right clicking a monitor and selecting View Alerts from the menu.

Figure 58 - Heath Explorer Menu

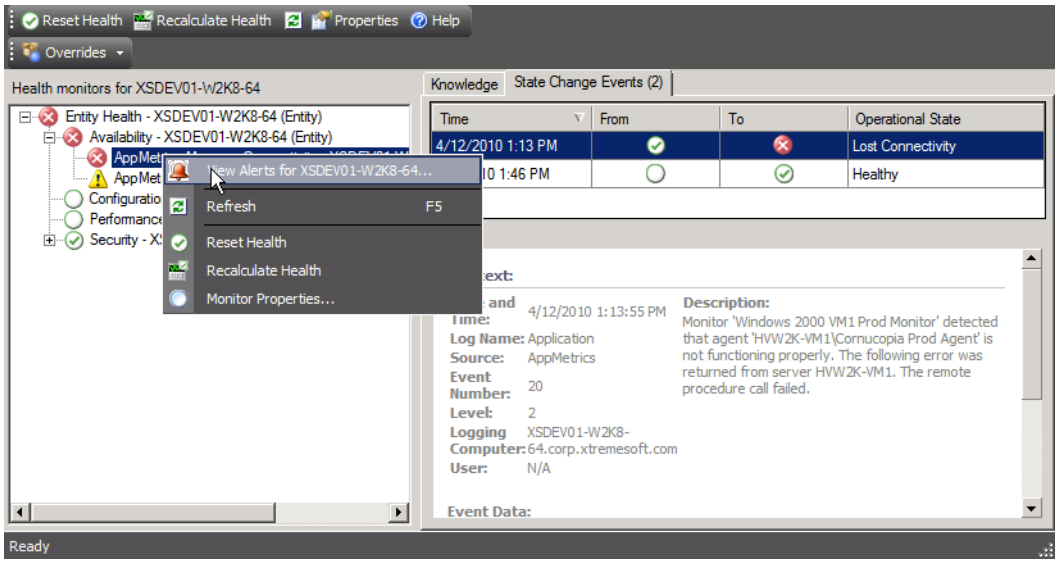
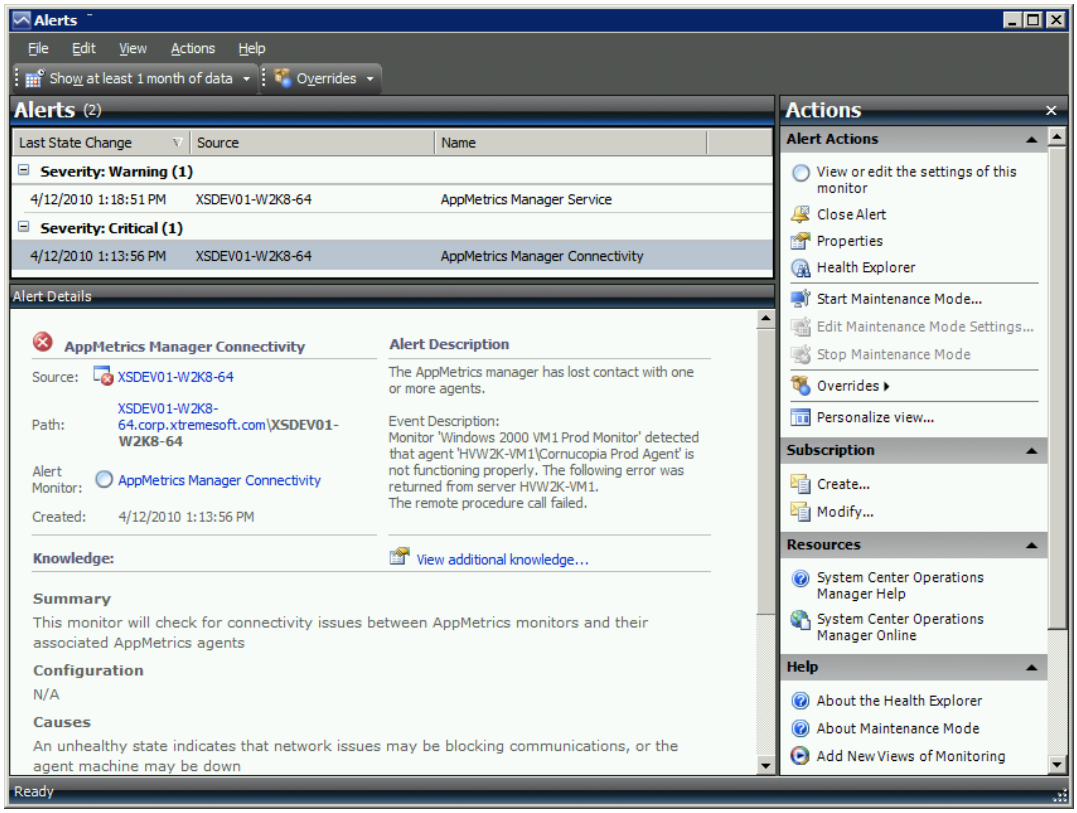


Figure 59 - Monitor Specific Alerts

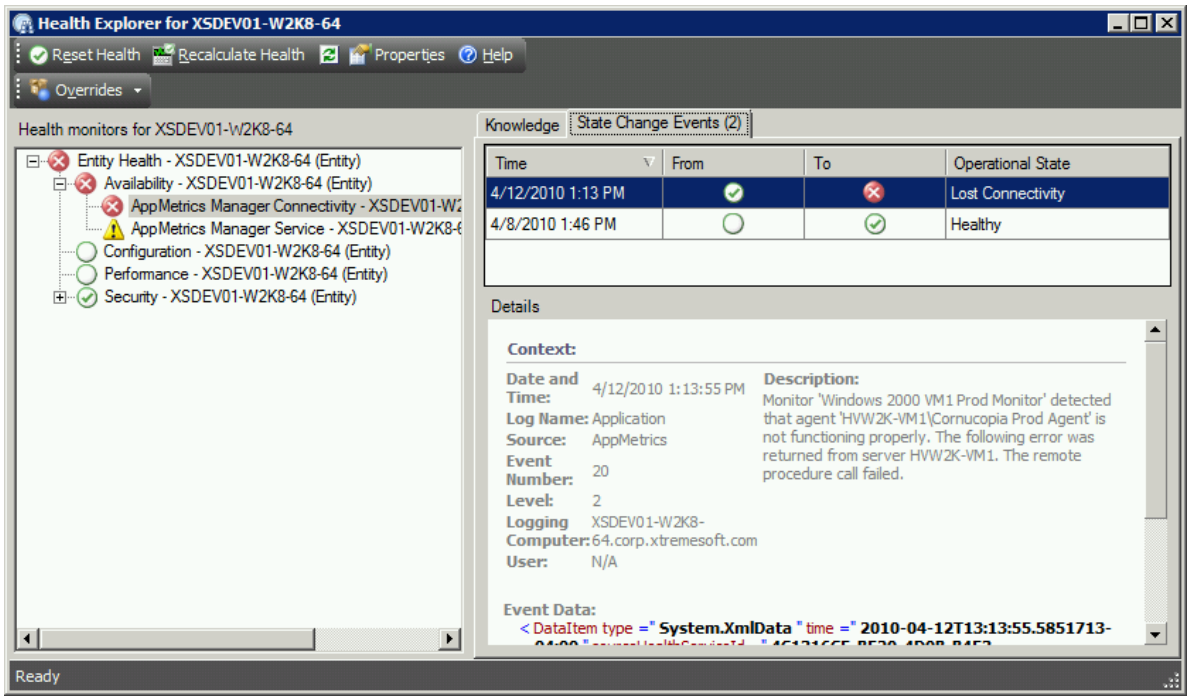


Examples

AppMetrics Manager Alerts

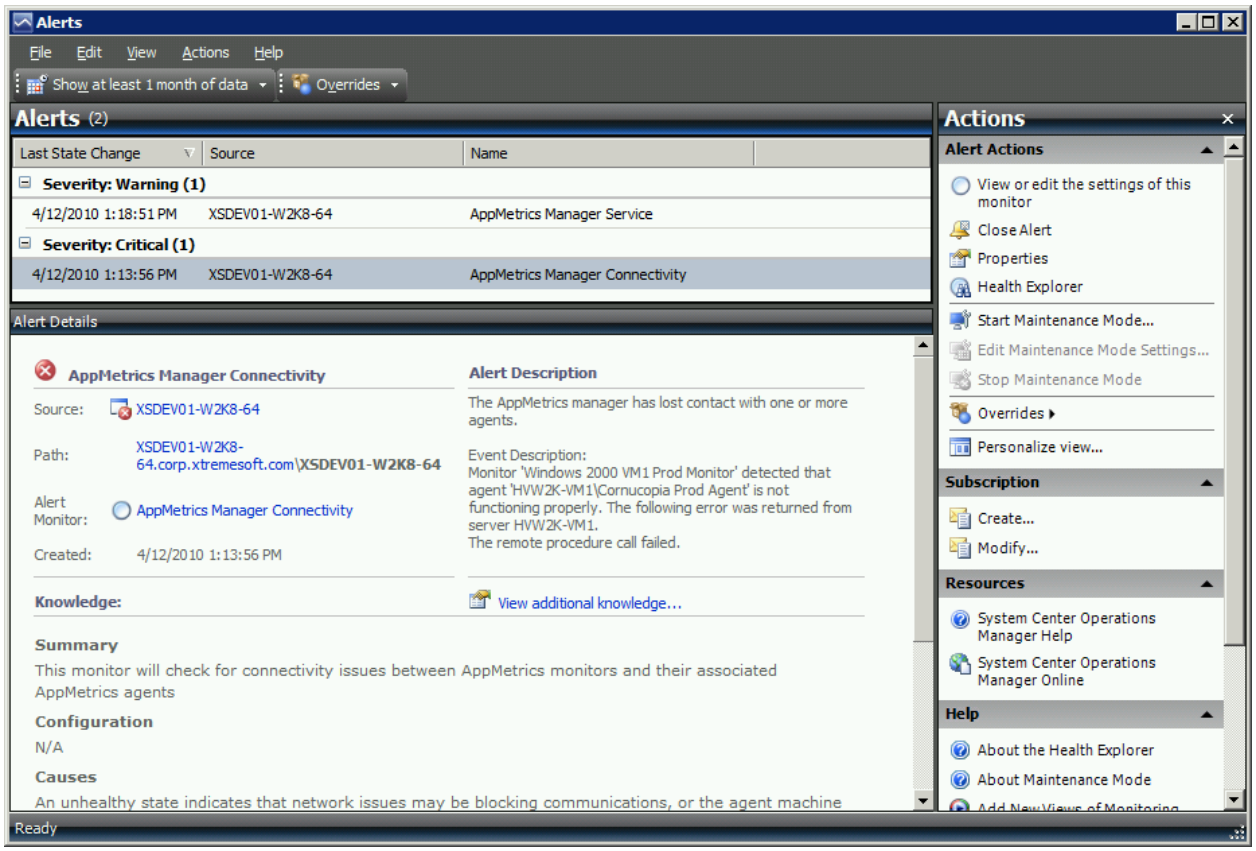
This example illustrates an AppMetrics Manager Connectivity Alert, as seen in the Manager Health Explorer.

Figure 60 - AppMetrics Manager Health Explorer



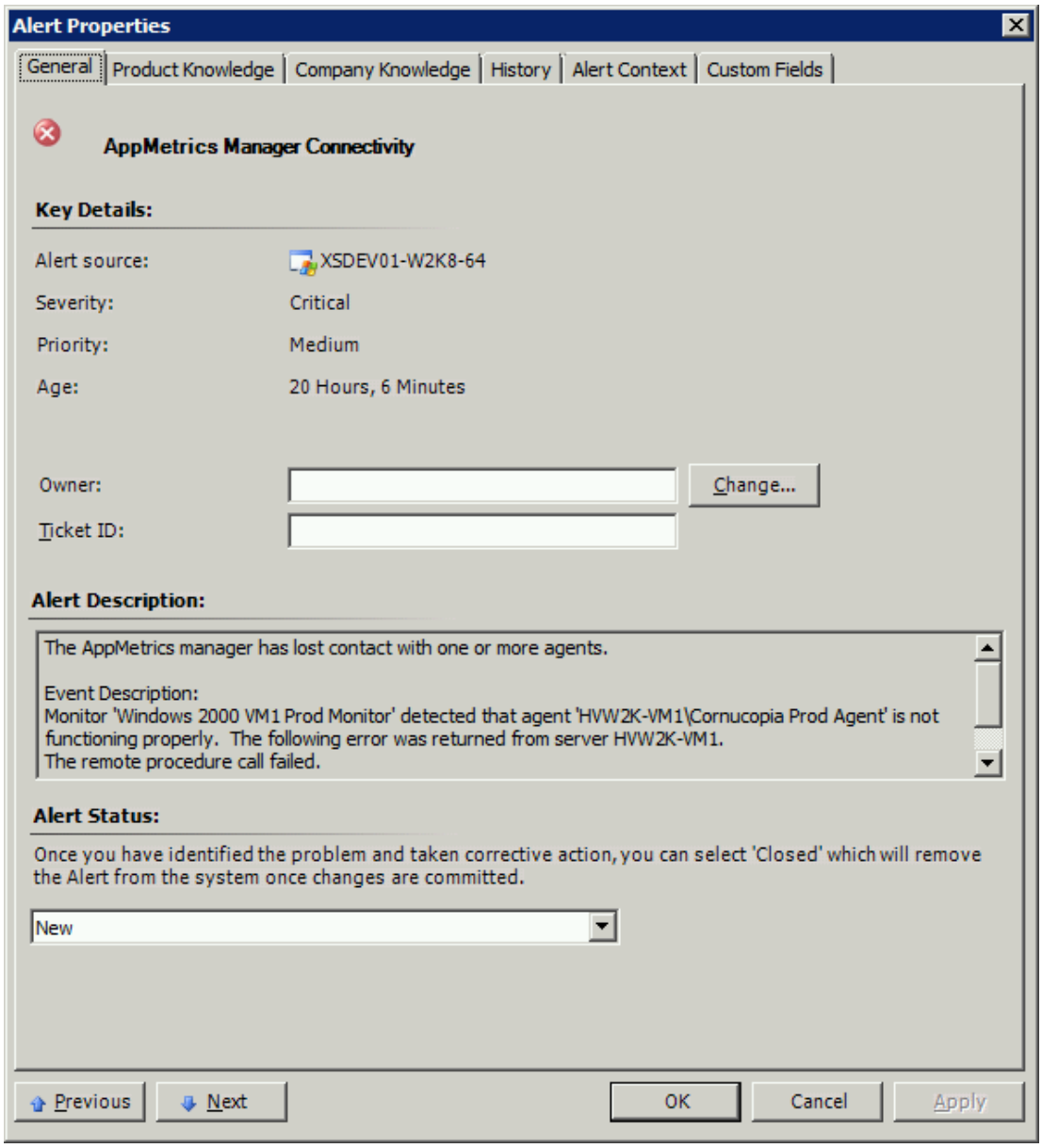
Below is the Alert View for the Manager Connectivity Monitor.

Figure 61 - Connectivity Monitor Alert View



Below the alert properties are displayed for the alert seen in the Connectivity Monitor Alert View above.

Figure 62 - Connectivity Alert Properties



COM+ Application Alerts

Below is an example of COM+ Application alerts caused by a COM+ Threshold Exceeded condition and Page Faults per Second exceeded condition.

Figure 63 - AppMetrics Production Monitors View with Warning State

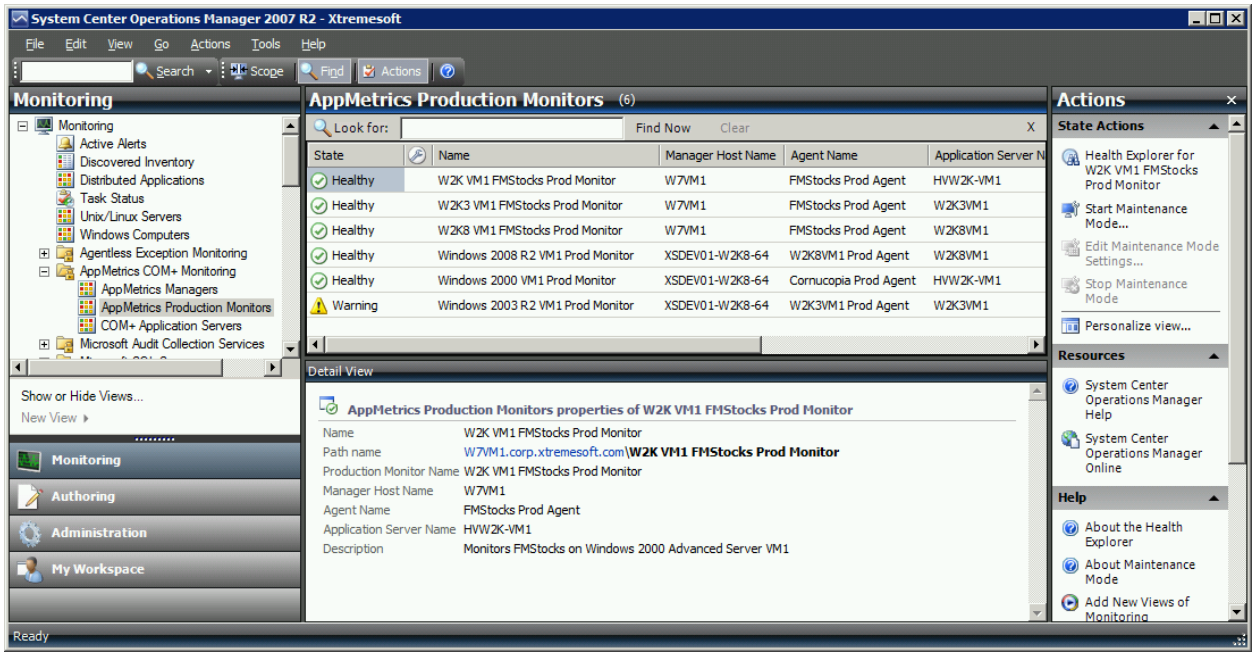


Figure 64 - Health Explorer with COM+ Application Monitor Alert

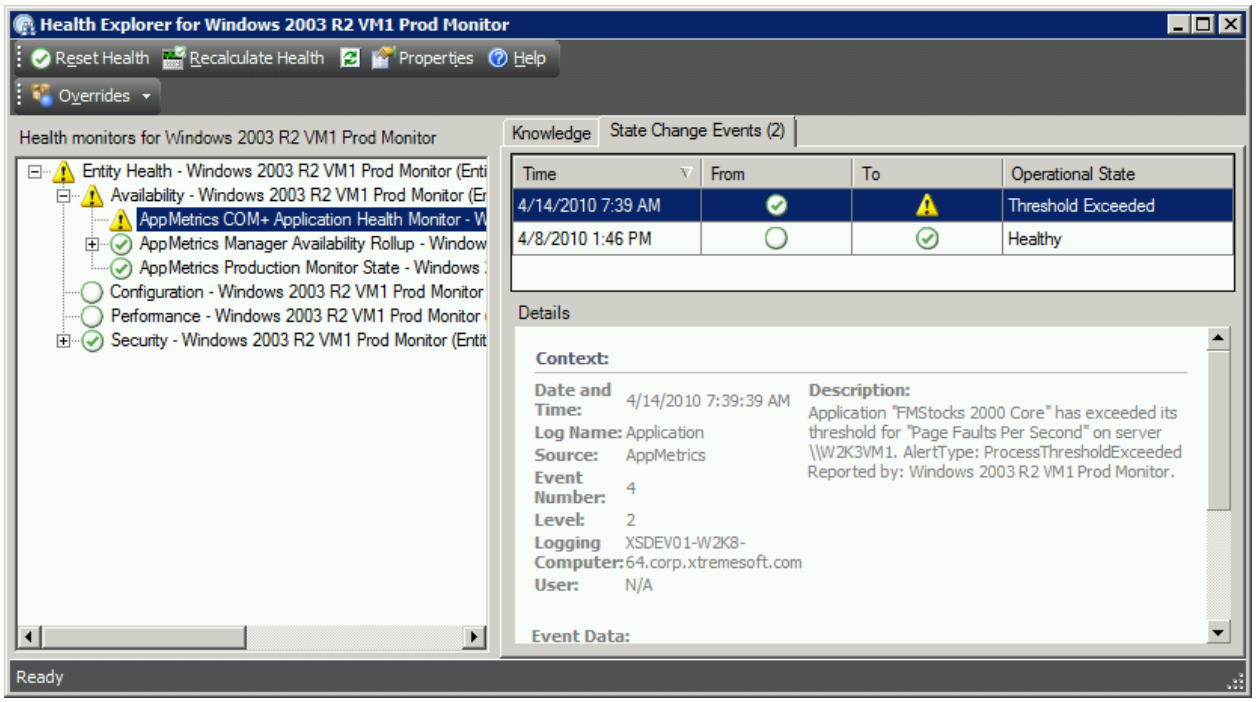


Figure 65 - COM+ Application Alerts View

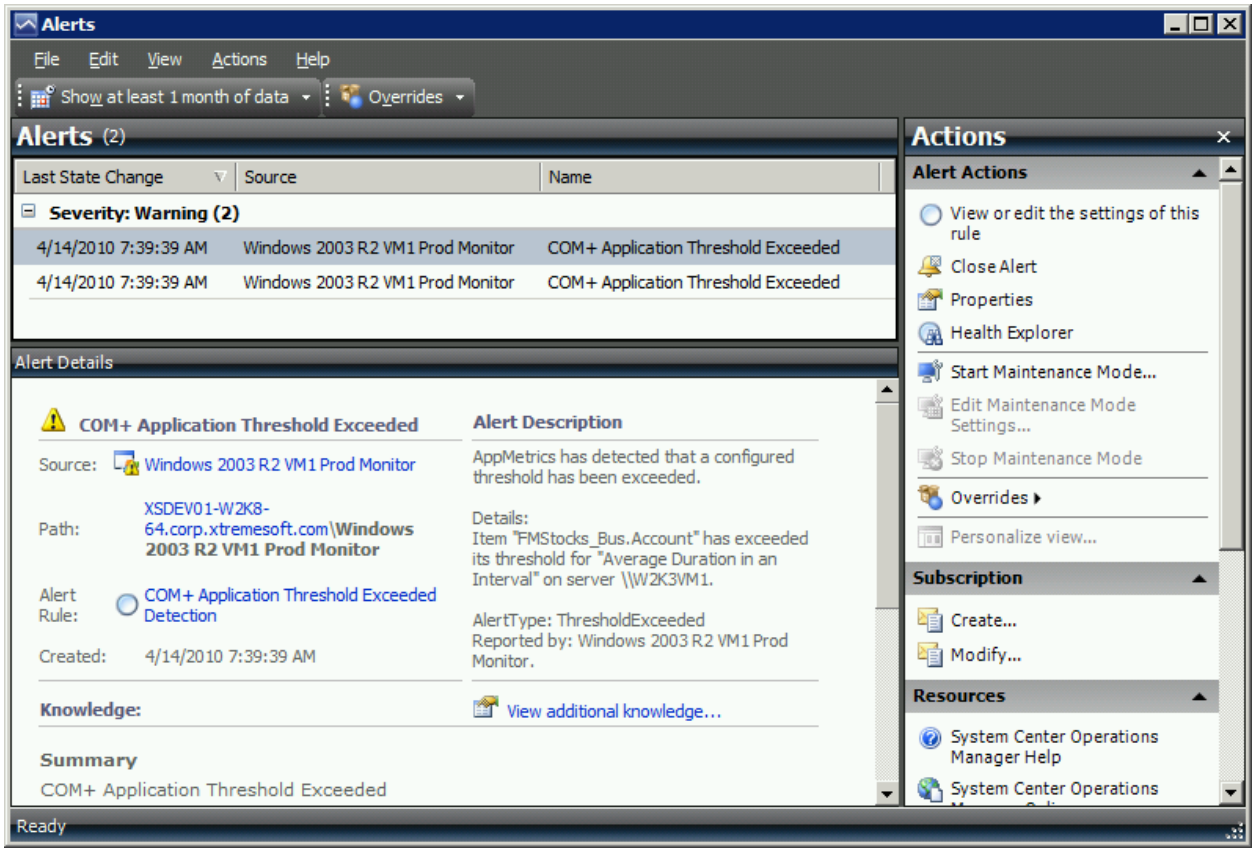
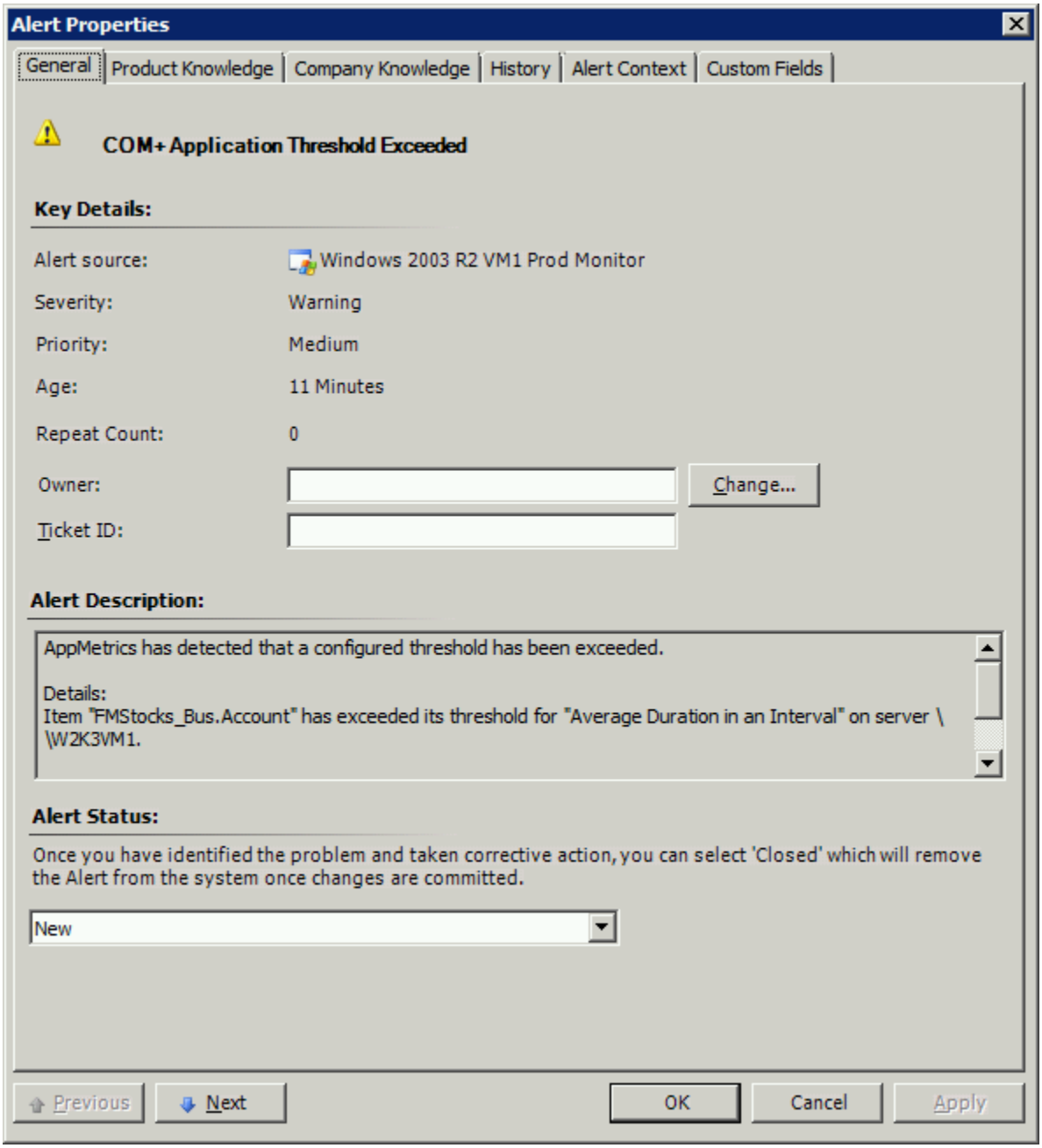


Figure 66 - COM+ Application Threshold Exceeded Alert



AppMetrics Agent Alerts

Below is an example of an AppMetrics Agent Service alert.

Figure 67 - COM+ Application Servers View Warning State

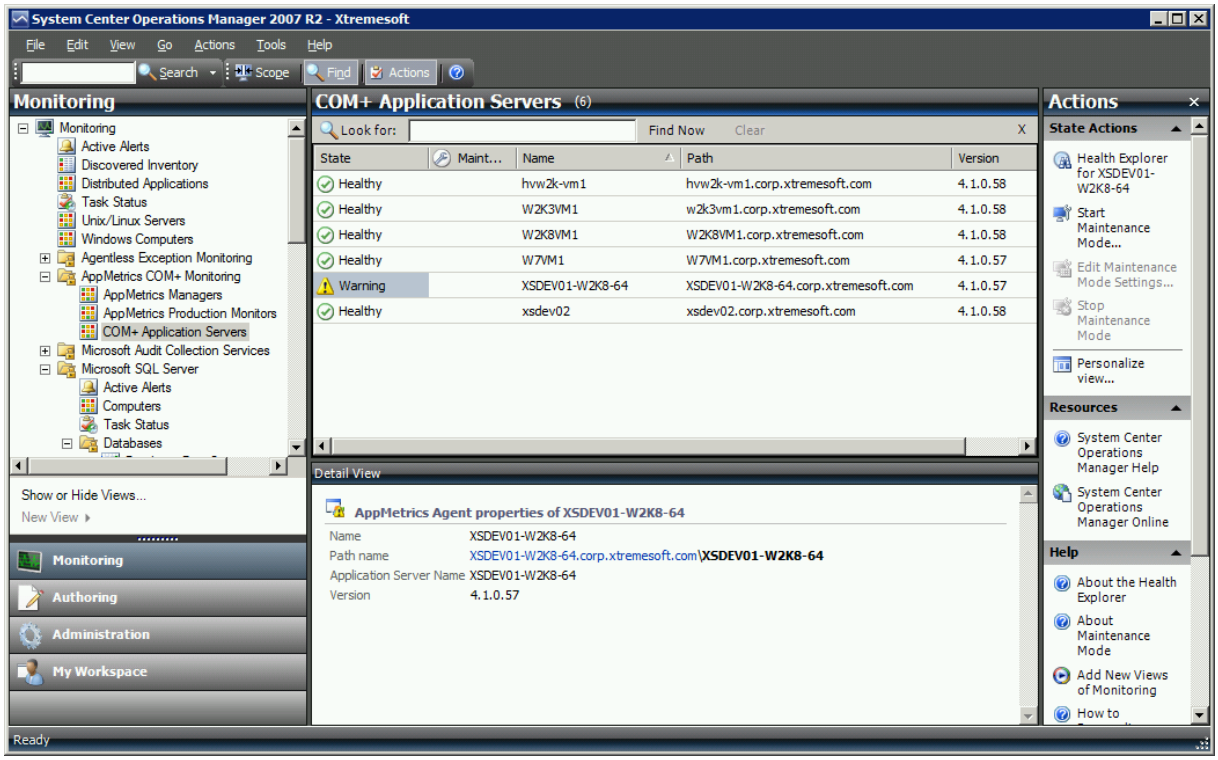


Figure 68 - COM+ Application Server Health Explorer View with Alert

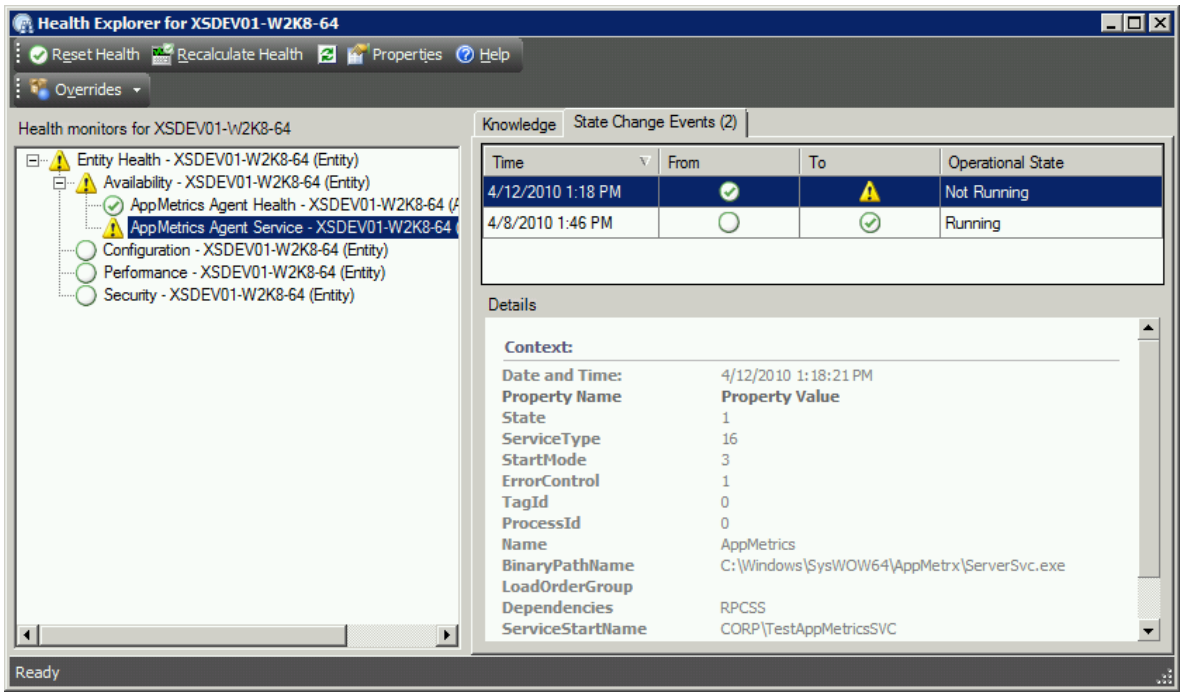
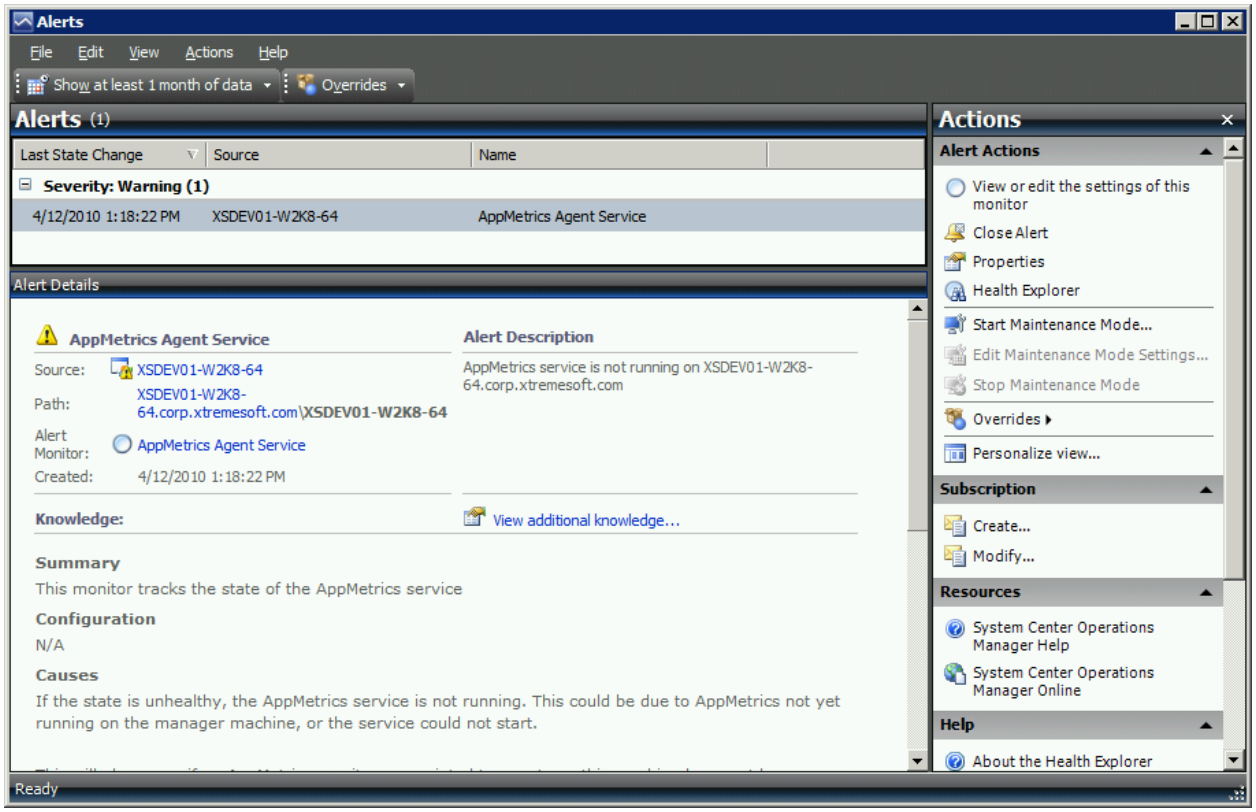


Figure 69 - COM+ Application Server Alert View



Summary

AppMetrics and SCOM working together can efficiently monitor your COM+ and .Net Serviced Component middle-tier applications, and provide a centralized view of your application's performance and status of all of those applications.

For further information or details, please contact Xtremesoft support at supportlist@xtremesoft.com.