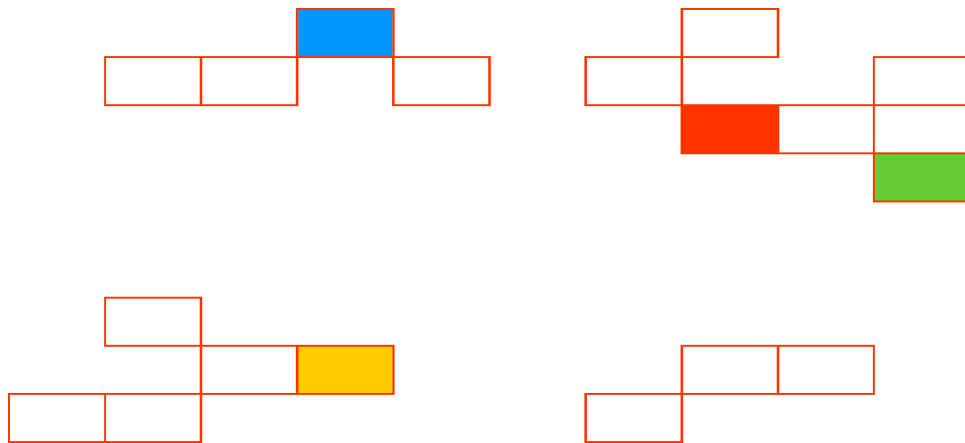# An Overview of Monitoring Microsoft® Exchange 2000 Server with Microsoft Operations Manager 2000

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Microsoft
.net Enterprise Servers

Microsoft®

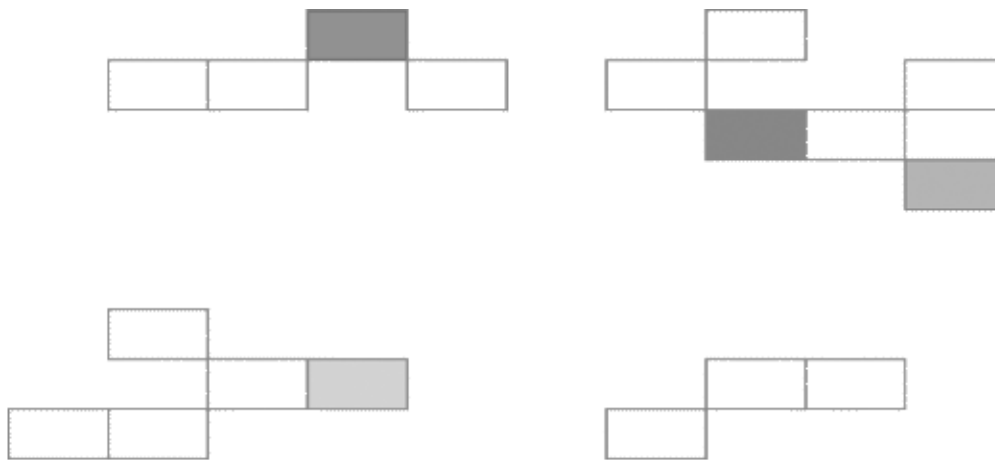# An Overview of Monitoring Microsoft® Exchange 2000 Server with Microsoft Operations Manager 2000

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Introduction

The Microsoft® Exchange 2000 Server monitoring tools that are available in System Manager are sufficient for monitoring individual Exchange servers. However, as deployments increase in complexity, monitoring servers becomes increasingly difficult.

The Exchange 2000 Server component of Microsoft Operations Manager 2000 Application Management Pack version 1.0 – Exchange 2000 Management Pack – is designed to aid you in achieving the highest possible server availability. A key feature of this Exchange 2000 Management Pack is that you can monitor all of your servers running Exchange from a single console or Web page. The Exchange 2000 Management Pack monitors the performance, availability, and security of your servers running Exchange, alerting you to events that have a direct impact on server availability while filtering out events that require no action. Through alerts, knowledge base solutions, and reports, the Exchange 2000 Management Pack helps you correct problems long before a catastrophic failure occurs. The Exchange 2000 Management Pack also includes reports that allow you to summarize server availability and analyze trends.

The Exchange 2000 Management Pack is designed to help e-mail administrators of all experience levels monitor and manage an Exchange 2000 deployment. The detailed alert descriptions and integrated knowledge base empower less experienced Exchange administrators by helping them diagnose problems before the problems require escalation to area experts. Over time, a company can build a customized knowledge base by adding information that is specific to its own environment, allowing all administrators to respond to issues more rapidly and efficiently.

Exchange 2000 Management Pack Features

The Exchange 2000 Management Pack builds on the Microsoft Operations Manager tool, which monitors computers running Microsoft Windows® 2000 Server and its services. Microsoft Operations Manager provides the centralized console through which system administrators can view events and alerts.

The Exchange 2000 Server component of the Exchange 2000 Management Pack extends the features of Microsoft Operations Manager by specifically monitoring servers running Exchange and its services. The Exchange 2000 Management Pack goes beyond simple event gathering by using built-in logic to determine whether an event is relevant to an Exchange administrator. The Exchange 2000 Management Pack gathers only those events that could indicate an impending problem, or that require action on the part of the administrator. By detecting, alerting administrators to, and automatically responding to critical events, the Exchange 2000 Management Pack helps indicate, correct, and prevent possible Exchange 2000 service outages.

What the Exchange 2000 Management Pack Monitors

The Exchange 2000 Management Pack monitors the following Exchange 2000 components:

- Directory Service Access
- Information Store service
- Extensible Storage Engine (ESE)
- Message transfer agent (MTA)
- Exchange clustering
- Internet protocols such as:
    - Simple Mail Transfer Protocol (SMTP)
    - Post Office Protocol (POP)
    - Internet Message Access Protocol (IMAP)

The Exchange 2000 Management Pack monitors the events that are placed in the application event log by these Exchange components. By also verifying access to components such as Active Directory® directory service and message transport, the Exchange 2000 Management Pack provides a complete monitoring solution.

The Exchange 2000 Management Pack contains rules and scripts that determine the types of events to monitor and the actions to take in response to certain events or trends. You can customize the rules and scripts by configuring them with your own thresholds. You can also customize the response to a certain event by adding a batch processing script or a particular notification to the rule that detects the event. For example, if a specific person is the best person to address a certain type of alert, you can configure the alert so that it is immediately assigned to that person along with an e-mail or pager notification.

Examples of monitoring features are described below.

Mail Flow Verification

The Exchange 2000 Management Pack allows you to verify that mail can flow between servers in your organization and to monitor how long it takes to route from the originating server to the destination server. This is done by selecting the servers between which mail flow must be monitored, and configuring the Exchange 2000 Management Pack to send periodic test mails between them. The administrator will be alerted if successive mails have not arrived at the recipient server, and mail delivery latencies can be monitored to ensure mail is flowing in a timely fashion.

Client Logon Verification

The Exchange 2000 Management Pack continually sends test MAPI client logon requests to each server running Exchange. This process ensures that a client can log on to the server, which in turn verifies that both the Exchange database and Active Directory are functioning properly.

Server Health Monitoring

The key to maintaining high server availability is to constantly monitor the health of the system. The Exchange 2000 Management Pack collects crucial performance data and alerts the administrator when critical thresholds (for example, low virtual memory) are exceeded. One aspect of health monitoring is to monitor the configuration of computers and generate alerts about non-optimal configurations. Health monitoring also includes monitoring system and Exchange-specific resources, which gives an early indication of impending problems.

Mail Queue Length Monitoring

The Exchange 2000 Management Pack monitors high queue lengths that are caused by an inability to send e-mail messages to a destination server. Although it is normal for queue lengths to fluctuate, a steady increase in queue length can indicate a message delivery blockage somewhere in the system. The Exchange 2000 Management Pack alerts you to this condition and pinpoints the link at which mail flow is blocked.

Exchange-Specific Disk Capacity Monitoring

The Exchange 2000 Management Pack monitors the disk capacity of each drive on each server running Exchange. This component checks the bytes used and calculates the percentage of available disk space. You can set different thresholds based on the type of Exchange data contained on drives (for example, log files or mail queues), because different data types tend to have different levels of disk space fluctuation. If the available disk space falls below a specific threshold, Exchange 2000 Management Pack generates an alert and specifies the drives, servers, and files that are affected.

Services Monitoring

The Exchange 2000 Management Pack monitors the Exchange services that are expected to be running on individual servers. You designate the services that should run on a given server by adding a registry key with the name of the service. The Exchange 2000 Management Pack then continually verifies that the service is running.

Rapid Alerts to Problems

In addition to the features described above, which are designed to preempt problems, the Exchange 2000 Management Pack alerts you when problems occur that require intervention. The primary sources of this information are performance counter thresholds, the occurrence of particular application events, and data gathered through scripts. Each alert contains information about how to handle the problem or a link to the up-to-date Microsoft Knowledge Base at the Microsoft Product Support Services Web site.

Monitoring Exchange Clusters

The Exchange 2000 Management Pack uses the script capability of Microsoft Operations Manager to monitor servers running Exchange in a cluster environment. Components in the Exchange 2000 Management Pack allow Microsoft Operations Manager to automatically detect the presence of a cluster and identify the active virtual servers on a given node.

The events generated by the scripts are specific to each virtual server or, when appropriate, to the physical node itself. For example, events related to MAPI availability are generated for the virtual server, but events related to disk space are generated for the physical server.

Alerts Generated by the Exchange 2000 Management Pack

When a performance rule determines that an event warrants an alert, it generates a detailed entry in the Microsoft Operations Manager console.

There are several ways to view and receive alerts. You can:

- View the list of alerts on the Microsoft Operations Manager console (Figure 1).
- View the alerts on the public view Web page through a Web browser.
- Set up the monitoring rule to send a page to a system administrator's pager.
- Automatically forward specified types of alerts to employees by using either e-mail messages or a pager.

For example, if a critical event occurs while the system administrator is away from the office, the Exchange 2000 Management Pack can send a notification to his or her pager. The system administrator can then use any Web browser to view the alerts and obtain detailed information about the situation.
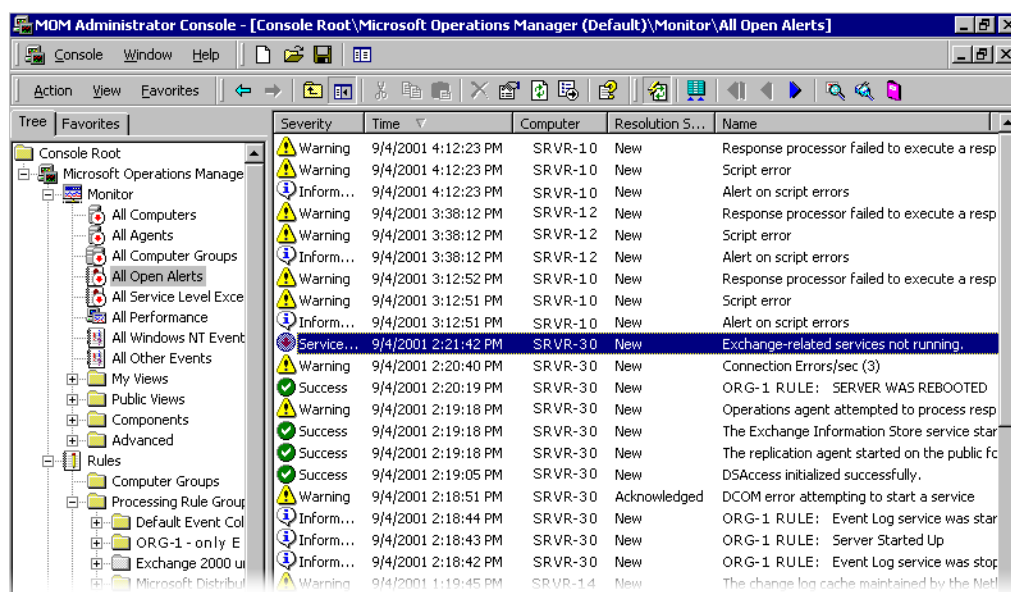

Figure 1 Exchange 2000 Management Pack Alerts

The alerts that are generated by the Exchange 2000 Management Pack are designed to give as much information about the problem as possible. Double-click an alert in the console to view its detail tabs (Figure 2).
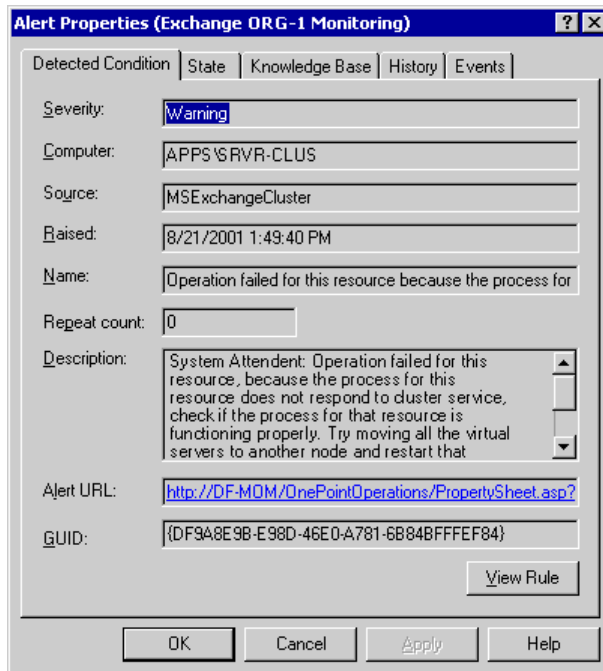

Figure 2   Detailed Alert information

Integrated Knowledge Base

The Exchange 2000 Management Pack contains an extensive knowledge base, which provides you with specific information about how to remedy situations. By viewing an alert's **Knowledge Base** tab (Figure 3), you get detailed resolutions and links to up-to-date information on the Web.

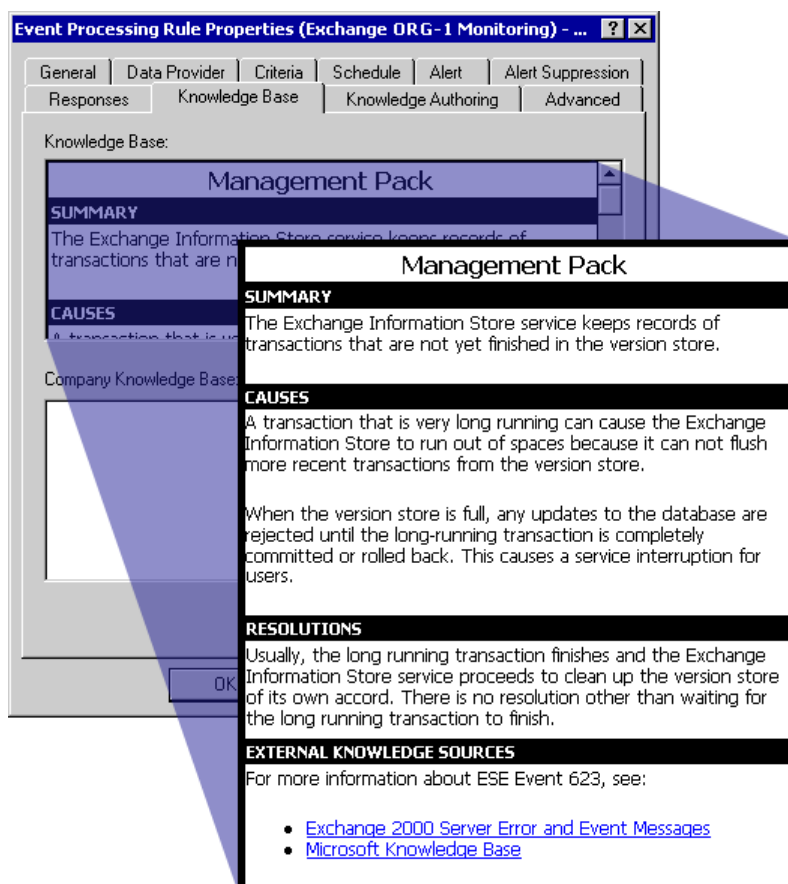**Figure 3**   **Knowledge Base** tab

Reports

The Exchange 2000 Management Pack includes many Exchange-specific reports to help you quickly identify and correct Exchange issues. With these reports, you can analyze and graph performance data to understand usage trends, perform accurate load balancing, and manage system capacity. The following reports are available through the Exchange 2000 Management Pack.

Health Monitoring and Operations Report

The Exchange 2000 Health Monitoring and Operations report summarizes Exchange 2000 health and usage, server availability, and configuration of Exchange 2000 servers, databases, and mailboxes.

Server Availability Report

The Exchange 2000 Server Availability report (Figure 4) summarizes the percentage of server availability for computers running Exchange 2000 during the specified time period. The percentage of availability and unavailability are listed along with the reasons why the servers were unavailable.

Figure 4   Exchange 2000 Server Availability report

Usage and Health Report

The Exchange 2000 Usage and Health report (Figure 5) provides server usage and health of computers running Exchange 2000, based on key Exchange and SMTP performance counters. The report presents daily totals and averages for the specified time period. The highest average for each counter in a 30-minute period is also included with the time of occurrence for the highest average.

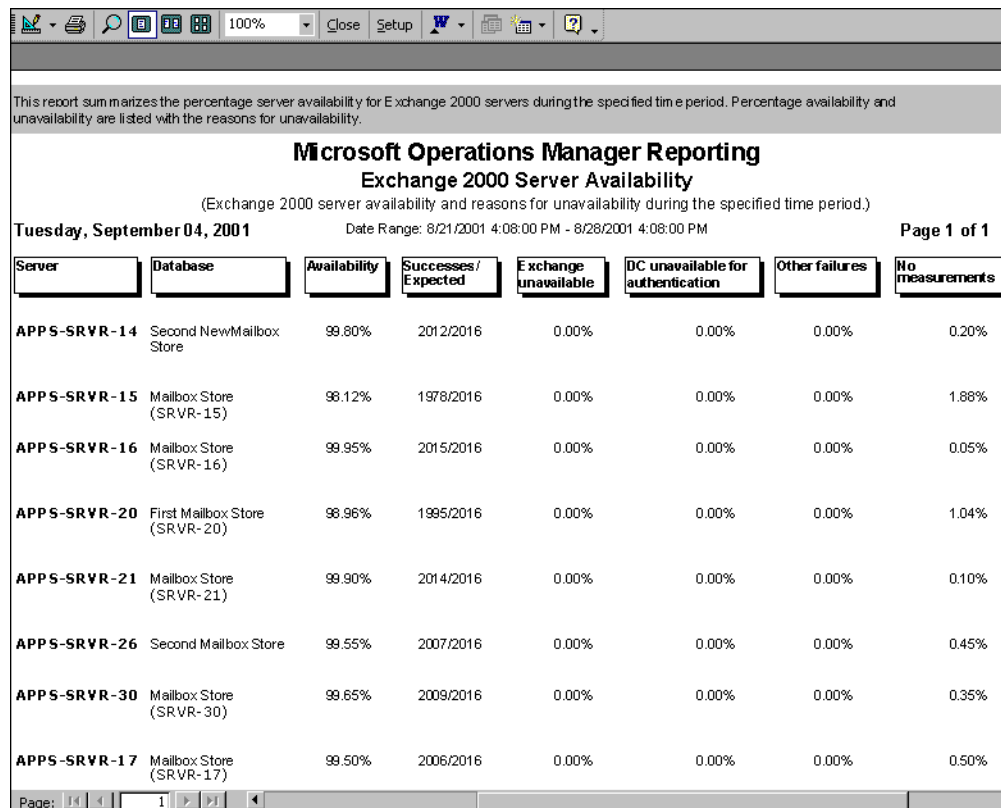**Figure 5**   **Exchange 2000 Usage and Health** report

Additional Reports

The Exchange 2000 Management Pack contains the following additional reports:

- The Exchange Capacity Planning report summarizes the Exchange server resource usage and help you plan for current and future capacity needs.

- The Exchange Mailbox and Folder Sizes report summarizes the size of Exchange mailboxes and folders.

- The Exchange 2000 Database Size report lists database sizes for servers running Exchange. Database size (in megabytes) is presented for each server, storage group, and database.

- The Exchange 2000 Disk Usage report provides the disk usage of servers running Exchange, based on disk performance counters. Daily averages for each counter are included. Highest average in a 30-minute period for each of the counters is also included, along with the time that the highest average occurred.

- The Exchange 2000 Mailboxes per Server report lists the distribution of mailboxes across storage groups and databases for servers running Exchange. The number of mailboxes and maximum limit for mailboxes is presented for each server, storage group, and database.

- The Exchange 2000 Server Configuration report provides Exchange 2000 Server configuration information including computer and operating system configuration, local disk information, and Exchange 2000 server and storage group configuration.

- The Exchange Performance Analysis report summarizes Exchange performance counters and helps you analyze your queue performance.

- The Exchange Traffic Analysis report summarizes Exchange mail traffic patterns by message count and size.

Additional Resources

For more information about Exchange 2000 Management Pack, see

http://www.microsoft.com/exchange/mom/

For more information about Microsoft Operation Manager, see

- http://www.microsoft.com/mom/

For more information about Exchange, see

- http://www.microsoft.com/exchange/

To download a self-extracting executable of all Exchange Product Team technical articles, see

- http://www.microsoft.com/downloads/release.asp?ReleaseID=42464&area=search&ordinal=5

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