IBM Tivoli Analyzer for Lotus Domino

The IBM Tivoli Analyzer for Lotus Domino includes two integrated system-management tools: the Server Health Monitor, which offers real-time assessment and recommendations for server performance, and Activity Trends, which provides data collection, data exploration, and resource balancing. Using these tools, you can manage servers and databases, ensure better server performance, and plan for current and future needs.

The IBM Tivoli Analyzer for Lotus Domino is a separate product offering from Tivoli Systems.

**The Server Health Monitor** determines server health by calculating health statistics and comparing them against preset thresholds. The Server Health Monitor reports the information, pinpoints problematic server components, and provides short-term and long-term recommendations for restoring server health.

**Activity Trends** collects and stores activity statistics as current observations and historical trends. The activity statistics relate to the server, databases, users, and connections of users to databases. You can explore the collected data to see how database workload is distributed across servers. Using the data, Activity Trends recommends a resource-balancing plan. Then, working with the Domino Change Manager, which is a part of the Domino server, Activity Trends provides a workflow that facilitates implementing the recommended changes.
Server Health Monitor

In Domino, performing traditional performance troubleshooting involves:

- Using event generators and notifications and Domino server monitoring to perform real-time data-analysis
- Using information from the server log (LOG.NSF), the Monitoring Results database (STATREP.NSF), and the Administration Requests database (ADMIN4.NSF) to perform historical data-analysis
- Using Domino Directory documents and NOTES.INI settings to customize the server configuration

The Server Health Monitor extends the usefulness of traditional performance troubleshooting by automatically calculating health statistics, comparing those statistics to predefined thresholds, and reporting on overall server health. If the server health rating is Warning or Critical, a health report, which is stored in the Health Monitoring database (DOMMON.NSF), suggests short-term and long-term recommendations for tuning the server and returning its performance status to Healthy.

The Server Health Monitor is incorporated into the Domino server monitor, which is part of the Domino Administration client. All health statistics generated by the Server Health Monitor are local to the Domino Administration client.

For each server being monitored, the Server Health Monitor reports a health rating for the server and for all enabled individual server components -- namely, CPU, disk, memory, and network utilization; NRPC name lookup; mail delivery latency; and server, HTTP, LDAP, and IMAP response.

The health rating of each server and server component is based on a collection of indices. Health ratings, such as healthy, warning, or critical, are assigned, based on these index values. Each index has a calculated value between 0 and 100. These values are based on server health monitoring assessment algorithms and rules. Each index has two related thresholds: a warning threshold and a critical threshold. When the index value is less than both thresholds, the server or server component is rated Healthy. When the index value is greater than the warning threshold, the server or server component is rated Warning. When the index value is higher than the critical threshold, the server performance is judged to be Critical and requires immediate attention.

The Server Health Monitor includes threshold values for each index on these platforms: AIX, IBM eServer iSeries (OS400), IBM eServer zSeries (Z/OS), Linux/Intel, Solaris/Sparc, Windows NT and Windows 2000. You can modify the thresholds to customize server assessment for each platform. You reduce or increase the thresholds to make the algorithms more or less sensitive.

Health Monitoring reports on each server area for which data can be retrieved. If no data is available, nothing is reported for that component. You can customize this behavior by specifying which servers you want to monitor. You can exclude any component from the health report, which is useful for filtering out known situations about which you don’t want to be constantly reminded.

If you use the Server Health Monitor, the Current Reports view of the Health Monitoring database (DOMMON.NSF) displays a health rating for each monitored server and server component.

See Also
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Table of Server Health Monitor statistics

The Server Health Monitor reports a statistic for the overall server and for individual components. Each statistic corresponds to a rating. Occasionally, the Server Health Monitor assigns the rating of Unknown. This happens when the Domino Administration client workstation performs at 100 percent of its CPU capacity for an extended period of time. If this happens you may need to make some adjustments to improve the performance of the Server Health Monitor.

Server Health reports are stored in the Health Monitoring database (DOMMON.NSF).

For information on how to improve the performance of the Server Health Monitor, see the topic Improving the performance of the Server Health Monitor.

Overall server health statistics

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Rating</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Health.Overall.Value</td>
<td>Never Seen</td>
<td>The server has never been seen running during the current server monitor session.</td>
</tr>
<tr>
<td>0 &lt; Health.Overall.Value and Health.Overall.Value &lt; Health.Overall.Threshold.Warning</td>
<td>Healthy</td>
<td>The server is performing within acceptable levels of tolerance.</td>
</tr>
<tr>
<td>98 = Health.Overall.Value</td>
<td>Critical</td>
<td>One or more server tasks issued a fatal error message.</td>
</tr>
<tr>
<td>99 = Health.Overall.Value</td>
<td>Critical</td>
<td>One or more tasks are not responding.</td>
</tr>
<tr>
<td>100 = Health.Overall.Value</td>
<td>Server Down</td>
<td>The server is not responding.</td>
</tr>
</tbody>
</table>

Component health statistics

Overall health ratings are based, in part, on component health statistics values.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Rating</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = Health.*.Value</td>
<td>Never Seen</td>
<td>The component is not being monitored.</td>
</tr>
<tr>
<td>Condition</td>
<td>State</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>0 &lt; Health.<em>.Value and Health.</em>.Value &lt; Health.*.Threshold.Warning</td>
<td>Healthy</td>
<td>The component is performing within acceptable levels of tolerance.</td>
</tr>
<tr>
<td>Health.<em>.Threshold.Warning &lt;= Health.</em>.Value and Health.<em>.Value &lt; Health.</em>.Threshold.Critical</td>
<td>Warning</td>
<td>The component is approaching unacceptable levels of poor performance.</td>
</tr>
<tr>
<td>Health.<em>.Threshold.Critical &lt;= Health.</em>.Value and Health.*.Value &lt;= 97</td>
<td>Critical</td>
<td>The component is failing to perform acceptably.</td>
</tr>
<tr>
<td>98 = Health.*.Value</td>
<td>Fatal</td>
<td>The task associated with the component issued a fatal error message.</td>
</tr>
<tr>
<td>99 = Health.*.Value</td>
<td>Not Responding</td>
<td>The task associated with the component is not responding</td>
</tr>
</tbody>
</table>

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Table of Server Health Monitor ratings

The Current Reports view of the Health Monitoring database (DOMMON.NSF) displays the assigned rating for each enabled server and server component. When a server rating is Warning or Critical, the Overall Health Report provides recommendations for correcting the problems.

### Server ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Seen</td>
<td>The server has never been seen running during the current server monitor session.</td>
</tr>
<tr>
<td>Healthy</td>
<td>The server is performing within acceptable tolerances.</td>
</tr>
<tr>
<td>Warning</td>
<td>One or more server components are approaching unacceptable levels of poor performance.</td>
</tr>
<tr>
<td>Critical</td>
<td>The server is experiencing one or more of these critical problems:</td>
</tr>
<tr>
<td></td>
<td>- One or more server components are failing to perform acceptably</td>
</tr>
<tr>
<td></td>
<td>- One or more tasks on the server have issued a fatal error</td>
</tr>
<tr>
<td></td>
<td>- One or more tasks on the server are not responding</td>
</tr>
<tr>
<td>Server Down</td>
<td>The server is not responding; therefore, it isn’t responding to requests for statistics.</td>
</tr>
</tbody>
</table>

### Component ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>The server component appears to be running correctly.</td>
</tr>
<tr>
<td>Warning</td>
<td>The server component is approaching unacceptable levels of poor performance.</td>
</tr>
<tr>
<td>Critical</td>
<td>The server component is failing to perform acceptably.</td>
</tr>
<tr>
<td>Fatal</td>
<td>The task related to this component has issued a fatal error.</td>
</tr>
<tr>
<td>Not Responding</td>
<td>The task related to this component is not responding.</td>
</tr>
</tbody>
</table>

See Also

- Server Health Monitor
- Server Health reports
MONITORING

Server Health Monitor configuration

The Server Health Monitor is part of the IBM Tivoli Analyzer for Lotus Domino.

For information on the license required to use the Server Health Monitor, see the topic Installing the IBM Tivoli Analyzer for Lotus Domino.

To set up the Server Health Monitor, complete these procedures:

1. Install the IBM Tivoli Analyzer for Lotus Domino.
2. Start the Domino server monitor.

See Also

Server Health Monitor
Installing the IBM Tivoli Analyzer for Lotus Domino

To install the IBM Tivoli Analyzer for Lotus Domino:

1. Make sure you have installed the Domino Administrator.
2. Run the install program (SETUP.EXE) from the Tivoli Analyzer directory.

For more information about installing the Domino Administrator, see Setting up client installation for users.

The IBM Tivoli Analyzer for Lotus Domino is a separate product offering from Tivoli Systems. To learn more about how this integrated system management tool can help manage your servers and databases, ensure better performance, and help you plan for current and future needs, visit http://www.ibm.com/software/tivoli/r/analyzerfordomino or contact your Tivoli sales representative or Business Partner.

See Also

Server Health Monitor configuration
MONITORING

Setting up the Server Health Monitor

To create Server Health Monitor reports and historical charts, you must enable both the Server Health Monitor and statistic reporting.

1. From the Domino Administrator, choose File - Preferences - Administration Preferences.
2. Click Monitoring, and then check "Generate server health statistics and reports."
3. For "Poll servers every n minutes," enter a value from 1 to 60 minutes.
   **Tip** The higher the number of servers to monitor, the larger the polling interval to enter. For timely monitoring, enter a value between 1 and 10.
4. (Optional) To start the server monitor automatically, check "Automatically monitor servers at startup."
5. Click Statistics, and then check "Generate statistic reports while monitoring or charting statistics."
6. For "Generate reports every n minutes," enter a value greater than or equal to the server polling interval specified in Step 3.
7. Wait a few minutes longer than the polling interval, and then open the Health Monitoring Database (DOMMON.NSF) to see the Health report.

Before you start the Server Health Monitor

The Server Health Monitor does not require any specific Domino server configuration, but you can generate more accurate reports by following these guidelines:

- Enable platform statistics on the server. Platform statistics are enabled, by default, in Domino 6. Follow the specific instructions for your platform. You may need to perform additional steps to ensure that platform statistics are working and are fully enabled on your platform.
- Make sure you have at least View-only Administrator rights for every server you want to monitor.
- Use a TCP server event generator as a self probe to create Quality of Service (QOS) statistics.

See Also

Server Health Monitor configuration
Starting the Server Health Monitor

To start the Server Health Monitor, you start the Domino server monitor, which automatically monitors the most recently viewed server profile or profiles that you configured to run in the background. The Domino server monitor does not begin on startup by default.

To start and stop the Domino server monitor manually

1. From the Domino Administrator, click the Server - Monitoring tab.
2. Click the Green arrow in the upper-right of the task screen. When the server monitor is running, this arrow toggles to a red Stop button.
3. To stop the server monitor, click Stop.

To start the Domino server monitor automatically

1. From the Domino Administrator, click the Server - Monitoring tab.
2. Click File - Preferences - Administration Preferences.
3. Click Monitoring.
4. Enable "Automatically monitor servers at startup."

For more information on the Domino server monitor see the topic The Domino server monitor. For more information on server profiles, see the topic Server monitor profiles.

See Also
Server Health Monitor
MONITORING

Using the Server Health Monitor

Using the Server Health Monitor, you can perform these tasks to monitor the health of servers and server components:

- Specify which server components to monitor
- Enable statistic alarms
- Modify threshold values for server components
- Create health reports
- Excluding a server from monitoring by the Server Health Monitor
- Change the purge interval for historical health reports
- Improve the performance of the Server Health Monitor
Selecting server components to include in health reports

Each server you monitor has a Health Monitoring Configuration document in the Health Monitoring database (DOMMON.NSF). This document specifies the server components you want to include in health reports. Based on statistics and task information obtained from the server, the Server Health Monitor automatically determines which components to include in health reports. For example, if the HTTP task is not running on a particular server, then the Server Health Monitor automatically excludes the HTTP component from any analysis.

Occasionally, you may want to exclude a component manually. For example, if you know that a particular server has a disk I/O bottleneck, exclude the Disk Utilization component so that it doesn’t adversely affect the server’s overall health rating.

Server components that are selecting components manually display a pencil icon next to the server name. If there is no pencil icon, the components are being selected automatically.

To select server components to include
1. From the Domino Administrator, click the Server - Monitoring tab.
2. From the menu, choose Monitoring - Display Health Reports, and then open the Configuration view.
3. Choose Server Components.
4. Choose the server you want to modify, and click Edit Server Document.
5. Under “How should component indices be enabled?” choose one:
   - Automatic -- to allow the Server Health Monitor to select the components to include in health reports, based on which server tasks are running.
   - Custom -- to manually select the components to include in health reports. Statistics for selected components are included in health reports, whether the server task is running or not.

To reset server component select to automatic.
1. From the Domino Administrator, click the Server - Monitoring tab.
2. From the menu, choose Monitoring - Display Health Reports, and then open the Configuration view.
3. Choose Server Components.
4. Choose the server you want to modify, and click Edit Server Document.
5. Click “Restore Automatic Selections” and click OK.

See Also
- Table of Server Health Monitor ratings
- Using the Server Health Monitor

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Setting up statistic alarms for the Server Health Monitor

Just as you create an event generator for a Domino system statistic, you create an event generator for a health statistic. Then when the statistic does not meet the defined threshold, an event is generated. For an event to be created, however, you must enable statistic alarms. Then, the first time a statistic alarm is reported, an event is generated and reported to the Monitoring Results database (STATREP.NSF). In addition to an alarm, you can create an event handler to notify you of the event. Event generators and event handlers are stored in the Monitoring Configuration database (EVENTS4.NSF).

For more information on event generators and event handlers, see the topics Event Generators and Event Handlers.

To enable statistic alarms

1. From the Domino Administrator, choose File - Preferences - Administration Preferences.
2. Click Statistics, and then check "Check statistic alarms while monitoring or charting statistics."
3. For "Check alarms every <n> minutes (greater than monitoring poll interval)" enter a value that is greater than the server polling value. The default is 15.
   Tip If you are not sure what the polling value is, click Monitoring and locate the value for "Poll servers every <n> minutes (1-60 mins)."

For more information on setting Administration Preferences for server monitoring, see Setting Monitoring Preferences.

See Also
   Using the Server Health Monitor

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Modifying threshold values for the Server Health Monitor

The Index Thresholds view in the Health Monitoring database (DOMMON.NSF) displays the threshold values for each platform. To modify the sensitivity to a particular component, change the threshold value. For example, if you want to run your networks with higher utilization for servers running on a specific platform, increase the threshold for the Network Utilization component for the platform.

Keep these considerations in mind if you decide to modify threshold values. First, have a strategy in mind before you change the them. Your strategy should address your system performance needs and reflect your philosophy toward managing servers. Second, if you change threshold values remember that you have done so. Changing any system configuration parameters or adjusting user workload behavior might also have a future impact on these settings. And finally, remember that changing threshold values inappropriately may result in health values that do not accurately reflect server capacity and availability. If you get results that seem inaccurate, restore the default threshold values.

To modify a threshold value

1. From the Domino Administrator, click the Server - Monitoring tab.
2. From the menu, choose Monitoring - Display Health Reports.
3. Under Configuration, choose Index Thresholds.
4. Choose the operating system whose threshold you want to change, and choose "Edit Threshold Document."
5. Change the value for the Warning Threshold and/or Critical Threshold.
6. Click OK.

If you later decide to restore the default threshold values, perform Steps 1 through 5 above and then click Restore Defaults.

See Also
Using the Server Health Monitor
MONITORING

Server Health reports

Based on information gathered by the Domino Server Monitor, the Serve Health Monitor issues Health reports. Health reports are stored in the Health Monitoring database (DOMMON.NSF). There are two views of Health reports, current and historical. Current reports are based on information reported by the Domino server monitor. Historical reports are an accumulation of past reports.

Each report includes the following information:

- Server Health information -- Information about the server, including the version of Domino and operating system. Displays the rating and rating value, and lists the first time this rating appeared. Also shows the last time the server was evaluated.

- Configuration Issues -- Identifies any configuration issues that may be preventing the Server Health Monitor from generating the most accurate diagnoses possible. Failing to correct these configuration issues will result in health reports that are less accurate and less detailed.

- Details Regarding Rating -- This information backs up the recommendations. Information can include details about the server’s configuration or performance.

- Short Term Recommendations -- These are things you can do immediately to improve the server’s performance.

- Long Term Recommendations -- These are suggestions for making lasting improvements that will prevent a poor health rating in the future.

See Also

Changing the purge interval for historical health reports
Displaying Server Health reports
Server Health Monitor

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Displaying Server Health reports

If a server is repeatedly rated Warning or Critical, look at historical health reports to get a better picture of server health.

To display a current health report
1. From the Domino Administrator, click the Server - Monitoring tab.
2. From the menu, choose Monitoring - Display Health Reports.
3. Select the view Health Reports - Current Reports.
4. Double-click a server to display the Overall Health Report for that server.

To display a historical health reports
1. From the Domino Administrator, click the Server - Monitoring tab.
2. From the menu, choose Monitoring - Display Health Reports.
3. Select the view Health Reports - Historical Reports.
4. Find the target server in the list and expand its report documents.

See Also
- Changing the purge interval for historical health reports
- Server Health reports

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Changing the purge interval for historical health reports

By default, the historical reports are purged from the Health Monitoring database (DOMMON.NSF) after 7 days. To change this default, edit the NOTES.INI file on the Domino Administration client to include this setting:

    HEALTH_REPORT_PURGE_AFTER_N_DAYS=n

See Also
- Displaying Server Health reports
- Server Health reports
MONITORING

Improving the performance of the Server Health Monitor

If the Domino Administration client workstation performs at 100 percent CPU utilization for a long period of time, the Server Health Monitor discards server statistic data to keep up with the workload. If statistic data is discarded over an extended period of time, the Server Health Monitor assigns the rating Unknown to every server. When that happens, each health report includes the statement “The Domino Administrator workstation CPU is constantly saturated. Too much server statistic data is being retrieved. This condition causes inaccurate server monitoring reports.”

To reduce the amount of statistic data:

- Increase the server polling interval in Administration Preferences.
- Reduce the number of servers being actively monitored during a Domino server monitor session. The servers for each monitoring profile you use are added to the total number of servers being monitored. To clear this list to the servers a specific profile only, stop the Domino server monitor, and then restart it.
- Dedicate one workstation to the Server Health Monitor

See Also

Using the Server Health Monitor

Glossary
Working with Server Health Monitor statistics

Health statistics are recorded in the Monitoring Results database (STATREP.NSF). Health statistics are local to the Domino Administration client; therefore, they do not reside on the servers being monitored. Just as you use a Domino server statistic, you use a health statistic to monitor the system.

You can do any of these:
- Use monitoring profiles to [monitor server health](#)
- [View server health](#)
- Define [event generators](#) and [event handlers](#) for health statistics (Jump to topics)
- [Excluding a server from monitoring by the Server Health Monitor](#) from being monitored or from generating health reports
- [Create statistics profiles and chart health statistics](#)
Monitoring server health in the Domino server monitor

You monitor server health in the Domino server monitor, using monitoring profiles. You must be actively monitoring each server from which you want to collect health statistics. This means that the Domino server monitor must be running for you to collect Server Health statistics. By default, the Domino server monitor includes a set of default server profiles that are created in the Domino Directory. However, you can create custom profiles that monitor the servers, server tasks and health statistics that you choose.

By default, when you start the Domino server monitor, it begins monitoring servers in the last profile that was selected when you shut down the Domino server monitor. The servers in each subsequent profile that you monitor, are added to those servers previously monitored. If you monitor several different profiles in a single session, the number of servers monitored may be quite lengthy, which may impact the performance of the Server Health Monitor. To clear the list of servers monitored, stop and then start the Domino server monitor.

You can also customize which profiles to monitor upon startup, by specifying profiles you want to monitor in the background, no matter which profile was monitored when you shut down the Domino server monitor.

You can perform the following tasks when you work with monitoring profiles:

- Creating monitoring profiles in the Domino server monitor
- Modify a system profile
- Specify monitoring profiles to monitor when you start the Domino server monitor

See Also

Profiles and the Domino server monitor

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Viewing server health with the Server Health Monitor

After the first polling interval passes, the Server Health Monitor posts a report of server health, which you can view in the Domino server monitor for a quick visual representation of your server’s health. When a server rating is Warning or Critical, or when there is a configuration issue, check the Overall Health Report in the Health Monitoring database (DOMMON.NSF). Each server health report provides short-term and long-term recommendations for restoring the server’s rating to healthy.

For example, if the Memory Utilization component receives a Warning rating, the short-term solution may be to check the server for unnecessary processes that have been loaded. The long-term recommendation may be to add memory or to check the server’s page-file allocation.

**Note** A red exclamation mark next to a server indicates a configuration issue. Read the server health report for information on configuration issues.

**To view server health**

1. Make sure you enabled the Server Health Monitor in Administration Preferences, started the Domino Server Monitor, and allowed the monitor to run for a few minutes longer that the specified polling interval.
2. From the Domino Administrator, click the Server - Monitoring tab.
3. In the Health column (Hea), the Server Health Monitor uses these icons to indicate the server’s overall health:
   - Green thermometer -- the server’s overall health rating is Healthy. All server components are within the appropriate range.
   - Yellow thermometer -- the server’s overall health rating is Warning. One or more server components being monitored are approaching unacceptably poor levels of performance.
   - Red thermometer -- the server’s overall health rating is Critical. One or more server components being monitored are failing to perform within acceptable tolerance levels.

**See Also**

- [Server Health reports](#)

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**Glossary**

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Excluding a server from the Server Health Monitor report documents

The Server Health Monitor creates health reports for each server you are actively monitoring and stores them in the Health Monitoring database (DOMMON.NSF). You can exclude a server from a monitoring profile, so that the server is removed from the current monitoring view in the Domino server monitor. However, the Server Health Monitor continues to include that server in the health reports until you remove the server permanently from DOMMON.NSF. You permanently exclude a server from being included in health reports by removing its current report documents and its configuration server component document. After you exclude a server permanently, the Server Health Monitor no longer generates reports.

To exclude a server from a monitoring profile

Use this procedure when you do not want to see the continued output of the server health rating for the server, but you want to continue listing the health report for the server in the Health Monitoring database.

1. From the Domino Administrator, click the Server - Monitoring tab.
2. Select the server you want to remove and right-click. From the menu, choose "Remove Server."
3. Click the Stop button.

The next time you press the Start button, the server will no longer be monitored. However, it will continue to be listed in the current health report view.

To exclude a server from generating Health Reports

Use this procedure when you do not want to monitor the server and do not want to continue receiving health reports on it in the Health Monitoring database.

1. Perform the steps listed above to exclude temporarily the server from the server monitor view.
2. From the Domino Administrator, click the Files tab.
3. Open the Health Monitoring database (dommon.nsf), and open the Configuration - Server Components view.
4. Delete the Health Monitoring Server Configuration document for the server being excluded.
5. Open the Health Reports - Current Reports view and delete the current health report and all the response documents for the server.
6. (Optional) Open the Health Reports - Historical Reports view and delete the historical health reports and the associated response documents for the server.

See Also
Monitoring server health in the Domino server monitor
Charting Server Health Monitor statistics

To chart the performance of Server Health statistics, you must be actively monitoring all servers whose performance you want to chart in the Domino server monitor. In addition, if you want to chart health statistics historically, you must enable the generation of statistic reports while monitoring or charting statistics in the statistic Administration Preferences.

You can chart real-time and historical performance of Server Health statistics. Real-time health statistics are gathered by the Statistic Collector server task in the Domino Administrator and are stored in memory, for use when charting real-time statistics. Historical health statistics are created from the historical statistics information stored in the local Monitoring Results database (STATREP.NSF).

You can also create statistic profiles to monitor groups of servers and associated statistics routinely. There is a limit of 25 statistics in each statistic profile.

You can perform the following tasks when charting server health statistics:

- Create statistics profiles
- Modify statistic profiles
- Display statistic charts

For information on charting real-time and historical statistics, see the topic Charting statistics to monitor performance.
Activity Trends

Domino server resource utilization can be separated into two types, system activity and user activity. System activity, which includes the level of processor, disk, memory, and network consumption that Domino generates to keep the server running, is a fixed amount of activity, as long as systems are healthy and performing smoothly. Domino servers typically use a modest percentage of their resources to run. The remaining server capacity is used to support user activity, which varies with the usefulness of the data on the server.

Using Activity Logging servers account for their time precisely, recording user activity by person, database, and access protocol. When summarized and averaged, or trended over time, activity logging of trended statistics provides a way to measure and compare workloads across servers. You can use this information to identify the most active users and databases on each server. Using the Domino Change Manager, you can automate the creation and execution of workload redistribution plans to load a new server, decommission an old one, or balance workloads across unevenly burdened servers.

Activity Trends is part of the IBM Tivoli Analyzer for Lotus Domino, a separate product offering from Tivoli Systems. The Activity Trends Collector is a Domino server add-in task that records and reports statistics about database activity on a server. Information is stored in the Activity Trends database (ACTIVITY.NSF).

The IBM Tivoli Analyzer for Lotus Domino uses the collected data to determine the load on the server. Then, using resource-balancing functionality, the Analyzer applies trends analysis and statistics to intelligent algorithms that can provide computer-aided load balancing on a set of servers or simplify the server decommissioning process.

Integrated with the IBM Tivoli Analyzer for Lotus Domino, the Domino Change Manager provides workflow capability that creates resource-balancing plans and implements database moves, using the Tivoli Analyzer tools and analysis. The Domino Change Control database (DOMCHANGE.NSF) and Domino Change Manager are part of the Domino server core functionality.

Activity Trends includes:

- Server profile definition -- For easy access to a named group of servers.
- Statistics profile creation -- For easy access to a named group of statistics.
- Activity trends charting -- You can chart a selected group of statistics for a single server or a group of servers.
- Resource balancing -- Analyzes server resource use and creates recommendations for balancing the servers based on specified resource goals.

Activity Trends uses these Domino server features:

- Activity logging -- To collect information that will be used for resource-balancing.
- Activity Trends -- To set up times for data collection and retention.
- Domino Change Manager -- To implement a workflow process in which changes made to the system are controlled and approved.

See Also

- Enabling activity logging and setting up Activity Trends
- IBM Tivoli Analyzer for Lotus Domino
- Server Health Monitor
Setting up Activity Trends

The basic setup for Activity Trends includes these tasks:

1. Make sure the IBM Tivoli Analyzer for Lotus Domino is installed.
2. For each server for which you want to collect activity logging information and analyze activity trends, enable activity logging and activity trends in the Configuration Settings document.
3. To set up resource balancing, do the following:
   a. Load the Domino Change Manager administration task on one server in the domain.
   b. Define a set of server profile options that specify the locations, goals, and behavior of resource balancing.

See Also

Activity Trends
Enabling activity logging and setting up Activity Trends

You enable activity logging and set up Activity Trends in the Configuration Settings document. First, you enable activity logging to gather data for the selected server tasks. The first time you start Activity Trends, the system must run and collect data for 24 hours before you can work with the data.

Then you specify how you to collect the Activity Trends and create the Activity Trends database (ACTIVITY.NSF), which is stored, by default, in the Domino data directory.

To enable activity logging and set up Activity Trends

1. From the Domino Administrator, click the Configuration tab, expand the Server section, and click Configurations.
2. Select the server, and click Edit Configuration or Add Configuration.
3. Click the Activity Logging tab, and check “Activity logging is enabled.”
4. Under Server Activity Logging Configuration, complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabled logging types</td>
<td>Select the server tasks to use to produce activity logging data.</td>
</tr>
<tr>
<td></td>
<td>For Activity Trends, enable all tasks except Domino.MAIL. At a minimum, you must enable Domino.Notes.Session and Domino.Notes.Database.</td>
</tr>
<tr>
<td>Checkpoint interval</td>
<td>Enter the number of minutes to wait between the creation of checkpoint records. The default is 15 minutes.</td>
</tr>
<tr>
<td></td>
<td>For detailed information on checkpoint records, see the topic Activity logging records.</td>
</tr>
<tr>
<td>Log Checkpoint at Midnight</td>
<td>Check Yes to log ongoing session activity at midnight. This is required for Activity Trends.</td>
</tr>
<tr>
<td></td>
<td>You must enable this field to enable Activity Logging.</td>
</tr>
<tr>
<td>Log Checkpoints for Prime Shift</td>
<td>Check Yes and then specify the prime shift interval to log checkpoints for the prime shift.</td>
</tr>
<tr>
<td></td>
<td>You must enable this field to enable Activity Logging.</td>
</tr>
<tr>
<td>Prime Shift Interval</td>
<td>Specify the start and end time of prime shift. Set the interval on the hour.</td>
</tr>
</tbody>
</table>

5. Click the Activity Trends tab, and complete the following fields on the Basics tab:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable activity trends collector</td>
<td>Click yes to run the Activity Trends Collector.</td>
</tr>
<tr>
<td></td>
<td>Activity Trends Collector uses the raw data from activity logging and prepares it for use with Activity Trends.</td>
</tr>
<tr>
<td>Activity trends collector database path</td>
<td>Enter the name and path of the database where Activity Trends data is stored if you want to change this. The default is activity.nsf.</td>
</tr>
<tr>
<td>Time of day to run activity trends collector</td>
<td>Enter a time. The default is 3:23 AM. Schedule the Activity Trends Collector to run after the</td>
</tr>
</tbody>
</table>
Catalog task runs. By default, the Catalog task runs at 1 AM.

| Days of the week to collect observations | Select the days for which you want to collect observations. The default is Monday through Friday. |

6. Under Activity Trends Data Profile Options, keep the "Use defaults" field enabled. If you choose not to use the defaults, complete these fields.

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
</table>
| Trends cardinal interval      | Enter the number of recent observations you want to use. The default is 10.  
When computing trended values, recent observations are weighted the most. For example, if you select Monday through Friday in the "Day of the week to collect observations" field and use the default 10 in the "Trends cardinal interval" field, the trended values will include two weeks of observations (five days each week).  
**Note** If you know there has been a recent change in user activity, you may choose not to use trended values. |
| Observation time bucket (seconds) | Specify the time in seconds for one bucket. The default is 300.  
The observation time controls how many buckets you will have for one 24-hour observation period. |
| Maximum observation list time | Specify the maximum length of time data is kept in the Trends database before it is overwritten with new data. The default is 366, the number of days in a leap year. |
| Trends history interval        | Choose one:  
• Daily  
• Weekly (default)  
• Monthly  
• Trend Interval |

7. Click the Retention tab. Keep the "Use defaults" field enabled. Documents are overwritten after the retention period expires. The defaults are:  
• Server history -- 366 days  
• Server observations -- 15 days  
• Database observations -- 10 days  
• User observations -- 10 days  
• Connection observations -- 10 days  
• Inactive database trends -- 10 days  
• Inactive user trends -- 28 days  
• Inactive connection trends -- 28 days  
• Run log -- 20 days

8. Click the Proxy Data tab, and enter the names of the databases containing activity data to search.
9. Click Save and Close.

See Also
- Activity Trends
- Understanding how Activity Trends collects data
Understanding how Activity Trends collects data

Activity Logging collects data from the log file (LOG.NSF) and the Catalog task and stores it in the Activity Trends database (ACTIVITY.NSF). The Activity Trends Collector task processes this data and produces the trended data that is used in charting and resource balancing.

The "Trends cardinal interval," "Observation time bucket," and "Proxy data" settings affect Activity Trends.

Trends Cardinal Interval
Trend statistics are based on data gathered during an observation period, which is a 24-hour period from midnight to midnight. Each trend statistic is a weighted running average, which is computed by adding data from a new observation to the existing "trend," or running average, with an exponential weighting.

Consequently, the newest observations are weighted most heavily, and older observations are weighted exponentially less and less in the new computed trend. Keep in mind that increasing the cardinal interval increases the number of recent observations that are heavily weighted, and decreasing the cardinal interval decreases the number.

Observation Time Bucket
Activity Trends stores data in a "time bucket," or array, that represents a distribution of activity across one observation period. When you set up Activity Trends, you specify the size of each bucket, by specifying the number of seconds that make up one bucket. The specified number must divide evenly into one hour. For example, the default is 300 seconds, or 5 minutes; therefore, there are 288 5-minute buckets in one observation period.

Proxy data
By default, the server from which you are running Activity Trends will find the local Activity Trends database (ACTIVITY.NSF). However, you may replicate Activity Trends databases that contain data you want to access. You use proxy data to include the names of other Activity Trends databases that contain trends data from other servers.

See Also
Enabling activity logging and setting up Activity Trends.
Activity Trends server and statistics profiles

Using profiles simplifies the work of managing groups of servers and groups of statistics. In Activity Trends, you can collect servers into a server profile, and you can specify the statistics to be included in a server profile.

In a server profile, you collect servers from the same domain into a named group. Then when you perform resource balancing or use charting to review performance, you have easy access to those servers. After you create a server profile, you can select a statistics profile to view the statistics for the selected server profile.

When you perform resource balancing, the server profile can include one or more phantom servers. Phantom servers do not physically exist, but you can use them in "what if" scenarios to evaluate how adding servers might alleviate load problems. Phantom servers are not visible when viewing activity trends, in either the Latest or Historical views, because there is no activity trends data for phantom servers.

Activity Trends analysis includes default statistics that differ depending on the view you are in. The Users view, for example, has only one default statistic, while the Server view has two. You can create statistics profiles that contain an unlimited number of Domino system statistics. Then you can use any statistic profile with any server profile.

For more information on profiles, see:
- Creating an Activity Trends statistics profile
- Creating an Activity Trends server profile
Creating an Activity Trends server profile

You can create one or more Activity Trends server profiles.

To create a server profile

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and do one:
   - Select a view in the Latest folder or Historical folder
   - Select Resource Balancing
2. In the “Server profiles” area, click the green plus sign.
3. In the Add Server dialog box, select the domain to use.
4. Under Server, do one or both of these:
   - Click Existing Server, and select from the list of available servers.
   - Click Phantom (Resource Balancing only), and enter a name for the phantom server.
5. Click Add to add each server, and then click Done when you have completed your selections. This group is only temporary. To save this server profile, proceed to the next step.
6. Click the document icon and choose “Save As.”
7. In the “Save Server Profile” dialog box, enter a group name and click OK.

To create an additional server profile

Use this procedure to clear the current server profile and create a new one.

1. In the “Server profile” area, click the document icon, and choose New.
2. Click the green plus sign, and complete Steps 4 through 7 in the above procedure.

See Also

Activity Trends server and statistics profiles
Deleting an Activity Trends server profile
Modifying an Activity Trends server profile
Modifying an Activity Trends server profile

You can add or delete servers to an existing server profile. In Resource Balancing, you can also add phantom servers. A phantom server does not physically exist, but is factored in to the resource-balancing plan to evaluate how adding servers might alleviate current load problems.

To add a server to a profile

1. From the Domino Administrator, click the Server - Performance tab, and expand the Activity Trends section.
2. Select an Activity Trends view.
4. Click the green plus sign to display the "Add Server" dialog box.
5. Under Server, do one or both of these:
   - Click Existing Server, and then select from the list of available servers.
   - Click Phantom (Resource Balancing view only), and then enter a name for the phantom server.
6. Click Add to add each server, and then click Done when you complete the selections. This group is only temporary. To save this server profile, proceed to the next step.
7. Click the document icon, and do one:
   - Click Save As, and enter a new profile name.
   - Click Save to update the existing profile.

To delete a server from a profile

1. From the Domino Administrator, click the Server - Performance tab, and expand the Activity Trends section.
2. Select an Activity Trends view.
4. Select the name of one or more servers to delete.
5. Click the red minus sign.

See Also

- Activity Trends server and statistics profiles
- Creating an Activity Trends server profile
- Deleting an Activity Trends server profile
Deleting an Activity Trends server profile

You can delete a server profile that was previously saved.

1. From the Domino Administrator, click the Server - Performance tab, and expand the Activity Trends section.
2. Select an Activity Trends view.
3. Select a server profile from the list.
4. Click the document icon, and choose Delete.

See Also
- [Activity Trends server and statistics profiles](#)
- [Creating an Activity Trends server profile](#)
- [Modifying an Activity Trends server profile](#)
MONITORING

Creating an Activity Trends statistics profile

To create a statistics profile

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and select a view in the Latest folder or Historical folder.
2. In the “Statistics profiles” area, click the green plus sign.
3. In the Add Activity Statistic dialog box, expand the statistic categories. The list of activity statistics varies depending on the view.
4. Choose one or more statistics to add, and click OK.
   **Tip** To select more than one statistic, locate your cursor in the column to the left of the list and click next to each statistic you want to add. Drag the mouse to select large group of statistics.
5. Click the document icon, and choose "Save As."
6. In the Save Statistics Profile dialog box, enter a name for the group.

To create another statistics profile

1. In the “Statistics Profiles” area, click the document icon, and choose New.
2. Click the green plus sign, then complete Steps 4 through 6 in the above procedure.

See Also
- Activity Trends server and statistics profiles
- Modifying an Activity Trends statistics profile
- Viewing Activity Trends charts

Glossary

Feedback on Help or Product Usability?
Modifying an Activity Trends statistics profile

You can add or delete statistics from a saved statistics profile.

To add a statistic to a saved profile

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and select a view in either the Latest folder or Historical folder.
3. Click the green plus sign to display the "Add Activity Statistic" dialog box.
4. For each statistic you want to add, select the statistic, and click OK. When you finish adding statistics, click Done.
   Tip To select more than one statistic, position the cursor in the column to the left of the list and click next to each statistic to add, or drag the mouse to select large group of statistics.
5. Click the document icon, and do one:
   • Click Save As, and enter a new profile name.
   • Click Save to update the existing profile.

To delete a statistic from a saved profile

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and select a view in the Latest folder or Historical folder.
3. Select the statistic you want to remove, and click the red minus sign.
4. Click the document icon, and do one:
   • Click Save As, and enter a new profile name.
   • Click Save to update the existing profile.

See Also
Activity Trends server and statistics profiles
Creating an Activity Trends statistics profile
Viewing Activity Trends charts
Viewing Activity Trends charts

You can view the latest available data and historical data charts of Activity Trends statistics. You can also set display options that customize the appearance of the charts. You can select servers and statistics to view, or you can select predefined server and statistic profiles.

You can also "drill down" for more information on any user or database statistic in the Latest Folder view. For example, to see which databases a user is accessing, select a user from the Latest Folder - User view and double-click the user’s name; the Connection view displays a chart of that user’s database use.

For information about setting charting display options, see the topic Setting charting options for resource balancing.

To view Activity Trends charts

1. From the Domino Administrator, click the Server - Performance tab.
2. Select the Activity Trends view.
3. Select one of these views:
   - Latest folder - Server -- To view the set of data available for selected statistics on each selected server.
   - Latest folder - Database -- To view the databases on each selected server.
   - Latest folder - User -- To view the users statistics for all databases on the selected servers.
   - Latest folder - Connection -- To view information for a selected statistic from either the User or Database charts.
   - Historical folder -- Weekly
   - Historical folder -- Daily

See Also
   Activity Trends server and statistics profiles
   Changing the layout of the Activity Trends view

Glossary

Feedback on Help or Product Usability?
Resource balancing in Activity Trends

Using resource balancing, you can balance selected resources, such as database transaction load and disk space, among a selected group of servers. You decide which databases are available to be relocated as part of the resource balancing. All system databases are automatically "pinned" and cannot be moved. You can pin other databases to prevent them from being moved.

In addition to balancing the resources of existing servers, you can create phantom servers to use for future planning. Each phantom server represents a new server that can be loaded with databases. Then you can evaluate the effect of adding a new server before you incur the expense of additional hardware.

Server roles

The role you assign to a server affects the resource-balancing results.

- Source Only -- These servers cannot have any databases moved to them.
- Destination Only -- These servers cannot have any databases removed from them. A phantom server is a Destination Only server and cannot be changed.
- Any -- These servers can have databases moved to or from them.

See Also

- Activity Trends
- Setting up resource balancing in Activity Trends
- Specifying which databases can move during resource balancing

Glossary

Feedback on Help or Product Usability?
Setting up resource balancing in Activity Trends

Within an Activity Trends server profile, you define criteria that determines which databases and servers to evaluate and how to balance resources.

1. Specify locations of the databases and servers to search for activity data.
2. (Optional) Set display options for Activity Trends charts.
3. Set the primary and secondary goals for analyzing the database activity that you want to balance.
4. Specify which databases can move during resource balancing.
5. Specify the location of the Change Manager database and set resource-balancing behavior.
MONITORING

Specifying database and server locations for resource balancing

Use the Server Profile Options dialog box to specify which databases and servers will be searched for activity data, and whether to use cached data. Because Activity Trends data changes only on a daily basis, caching data is highly recommended to increase system performance by avoiding a read across a potentially slow network. The first time a server’s data is read, the data is cached and remains available. For example, if you read and then delete a server’s activity data and later add the same server, the in-memory data is used.

You can open the Server Profile Options dialog box from the Activity Trends menu or by clicking the Server Profile Options button:

To specify locations

1. From the Domino Administrator, click the Server - Performance tab.
2. Select the Activity Trends - Resource Balancing view.
3. Choose Resource Balancing - Options to open the Server Profile Options dialog box.
4. Click General.
5. Under Activity Data Search Order, choose one or both:
   - Search Local Activity Databases -- To search the Activity databases (ACTIVITY.NSF) on each server on which Activity Trends is enabled.
   - Search Activity Data Proxy Servers -- To use servers that contain activity data copied or replicated from another server. Enter the name of the servers that have the proxy data. Activity Trends Collector proxy data options are configured in the Configuration Settings document in the Domino Directory.

6. Under Activity Trends Data Cache for the field “Enable caching of activity data,” do one:
   - Check Yes (default) -- To cache Activity Trends data. When data is cached, if the data for a server has already been retrieved (even though the server may not appear in any of the server lists), the cached data is used.
   - Uncheck Yes -- To gather Activity Trends data every time a new server is added. Data from servers that are removed is discarded immediately, and new data is retrieved.

7. For the field “Cache expiration time out,” enter the number of minutes that data remains cached after the server’s data is first retrieved. The default is 360 minutes.

8. Choose one of the following to set location defaults. These defaults apply only to items on the current tab.
   - Use Defaults -- To revert to previously stored custom defaults.
   - Save as Defaults -- To save a custom set of defaults and override the system defaults.
   - Reset Defaults -- To revert to the system defaults.

See Also
- Setting up Activity Trends
- Setting primary and secondary resource-balancing goals
- Specifying which databases can move during resource balancing

Glossary

Feedback on Help or Product Usability?
Setting charting options for resource balancing

You can set options for how Activity Trends charts display on the Domino Administrator Server - Performance tab. For all Activity Trends views, you can specify font appearance and show database names instead of file names. You can specify additional charting options that apply individually to the Latest folder, Historical folder, and the Resource Balancing views.

You can open the Server Profile Options dialog box from the Activity Trends or Resource Balancing menus, or by clicking the Server Profile Options button:

### To set chart options

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and click Resource Balancing.
2. Choose Resource Balancing - Options to open the Server Profile Options dialog box.
3. Click Charting.
4. Under Font Preferences, select the way that type will appear on all charts in all Activity Trends views. The defaults are:

<table>
<thead>
<tr>
<th>Chart Element</th>
<th>Font</th>
<th>Size</th>
<th>Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chart Heading Font</td>
<td>Default Sans Serif</td>
<td>12.00</td>
<td>Bold</td>
</tr>
<tr>
<td>Chart Axis Label Font</td>
<td>Default Sans Serif</td>
<td>8.00</td>
<td>Plain</td>
</tr>
<tr>
<td>ChartLegend Font (when visible)</td>
<td>Default Sans serif</td>
<td>8.00</td>
<td>Plain</td>
</tr>
</tbody>
</table>

5. Under Resource Balancing Display Options, check Yes to enable these options for Resource Balancing view. The default is unchecked.
   - Show actual values on Y-axis when displaying non-normalized data
   - Show chart using 3D effect

6. Under Latest Activity Display Options, do the following to set the appearance of for the Activity Trends - Latest folder views:
   a. For the field "Maximum X-axis items that can be displayed" enter the number of items that can be shown in the horizontal position on the chart. The default is 1000.
   b. Check Yes to enable these display options. The default is unchecked:
      - Show database titles on X-axis
      - Show actual values on Y-axis when displaying single data type (such as bytes, transactions, milliseconds)
      - Show chart using 3D effect

7. Under Historical Activity Display Options, check Yes to enable these options for the Activity Trends - Historical folder views. The default is unchecked.
   - Show actual values on Y-axis
   - Show chart using 3D effect

8. Choose one of the following to set Charting defaults:
   - Use Defaults -- To revert to previously saved custom defaults.
   - Save as Defaults -- To save a custom set of defaults and override the system defaults.
   - Reset Defaults -- To revert to the system defaults.
See Also

Setting up resource balancing in Activity Trends
Primary and secondary goals for resource balancing

To balance resources, first determine your primary and secondary goals, and specify how much weight to give each of these goals. The default goals are Notes Transactions and Disk Space, which are the defaults for Primary and Secondary goals respectively. Because transactions factors in almost all user and server activity, and disk space is typically a constrained resource, these are a good measurement on which to balance.

The second factor in resource balancing is tolerance. When you specify tolerance, you indicate the level of accuracy you want for the resource. A low value typically generates more moves (it is less tolerant when the values are lower), but produces a better distribution of the resources that are closer to the targeted accuracy. A higher tolerance value creates fewer moves, but does not distribute the activity as evenly. You set tolerance values for both the Primary and Secondary Goals, however the primary tolerance is much more important than the secondary tolerance in determining the number of moves.

Finally, you specify whether to use trended data or data collected from one observation period. You also choose when to gather the data.

The resulting resource chart may show heavy activity on some servers and light activity on others. You can choose to balance the activity across the servers so that no single server shows a high incidence of activity. You can balance resources based on a primary and a secondary goal. Unless you have specific requirements in mind, the recommended primary and secondary goals are Notes Transactions and Disk Space, respectively.

Because the primary goal is given more weight than the secondary goal, set the resolution of the most troublesome resource area as the primary goal. For example, if you suspect that some servers have available disk space, while others have almost none, choose the statistic Disk Space as the primary goal.

<table>
<thead>
<tr>
<th>Statistic Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AvgSpaceUsed</td>
<td>Percentage of the disk space actually in use, as recorded by the database activity data.</td>
</tr>
<tr>
<td>DiskSpace</td>
<td>The number of bytes of disk space occupied by the database, as recorded by the database activity data.</td>
</tr>
<tr>
<td>FullTextIndexSize</td>
<td>Size of the full-text index for this database.</td>
</tr>
<tr>
<td>HTTP BytesFromServer</td>
<td>The number of bytes sent from the database, as recorded by the user session data.</td>
</tr>
<tr>
<td>HTTP BytesToServer</td>
<td>The number of bytes sent to the database, as recorded by the user session data.</td>
</tr>
<tr>
<td>HTTP RequestMsecs</td>
<td>Request time, in milliseconds.</td>
</tr>
<tr>
<td>HTTP Requests</td>
<td>The number of HTTP requests.</td>
</tr>
<tr>
<td>Notes BytesFromServer</td>
<td>The number of bytes sent from the server, as recorded by the user session data.</td>
</tr>
<tr>
<td>Notes BytesToServer</td>
<td>The number of bytes sent to the server, as recorded by the user session data.</td>
</tr>
<tr>
<td>Notes Connects</td>
<td>The number of database connections, as recorded by the user session data.</td>
</tr>
<tr>
<td>Notes DocumentsRead</td>
<td>The database read count, as recorded by the database.</td>
</tr>
</tbody>
</table>
### Glossary

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes DocumentsWritten</td>
<td>The database write count, as recorded by the database activity data.</td>
</tr>
<tr>
<td>Notes Transactions</td>
<td>The number of transactions, as recorded by the user session data.</td>
</tr>
<tr>
<td>Replica BytesRead</td>
<td>The number of bytes read, as recorded by the Replicator task.</td>
</tr>
<tr>
<td>Replica BytesWritten</td>
<td>The number of bytes written, as recorded by the Replicator task.</td>
</tr>
<tr>
<td>Users</td>
<td>The count of unique users, as recorded by the user session data.</td>
</tr>
</tbody>
</table>

**See Also**
- Setting primary and secondary resource-balancing goals
- Setting up resource balancing in Activity Trends
Setting primary and secondary resource-balancing goals

To balance resources, you establish two goals based on two selected statistics. Each goal is based on a statistic that is associated with the activity you want to balance.

You can open the Server Profile Options dialog box from the Resource Balancing menu, or by clicking the Server Profile Options button:

1. From the Domino Administrator, click the Server - Performance tab.
2. Select the Activity Trends - Resource Balancing view.
3. Choose Resource Balancing - Options to open the Server Profile Options dialog box.
4. Expand the Balancing section, and then click Goals.
5. Complete these fields to specify the primary goal:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic Name</td>
<td>Select a statistic from the list. The default is Notes Transactions.</td>
</tr>
<tr>
<td>Tolerance</td>
<td>Enter a percentage. The default is 10%.</td>
</tr>
<tr>
<td>Analyze</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>- Trended Data (default) -- To analyze the resource balance based on</td>
</tr>
<tr>
<td></td>
<td>trended data.</td>
</tr>
<tr>
<td></td>
<td>- Last Observation Data -- To analyze the resource balance based on</td>
</tr>
<tr>
<td></td>
<td>the data that was gathered during the most recent observation time.</td>
</tr>
<tr>
<td>Over period</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>- Complete Day (24 hours) -- To analyze data gathered during a</td>
</tr>
<tr>
<td></td>
<td>24-hour period.</td>
</tr>
<tr>
<td></td>
<td>- Prime Shift Only (default) -- To analyze data gathered during the</td>
</tr>
<tr>
<td></td>
<td>prime shift hours.</td>
</tr>
<tr>
<td></td>
<td>Note: The prime shift hours are defined on the Activity Logging tab</td>
</tr>
<tr>
<td></td>
<td>of the Configuration Settings document.</td>
</tr>
</tbody>
</table>

6. Click Secondary Goal, and repeat Step 5 to specify the values for the secondary goal. Goals that were selected as Primary goals will not appear in the list of available statistics for secondary goals.

7. (Optional for secondary goal only) Enable "Other options" if any tolerance value is acceptable as a solution for resource balancing.

8. Choose one of the following to set defaults for goals. You can set these defaults on either the Primary or Secondary Goal tab.
   - Use Defaults -- To revert to previously saved custom defaults.
   - Save as Defaults -- To save a custom set of defaults and override the system defaults.
   - Reset Defaults -- To revert to the system defaults.

See Also

Primary and secondary goals for resource balancing
Setting up resource balancing in Activity Trends
Specifying database and server locations for resource balancing
Specifying which databases can move during resource balancing
Specifying which databases can move during resource balancing

To specify which databases can move during resource balancing, you create a master pin list. Because system databases, such as the Domino Directory, are never moved, do not include them in the pin list.

You pin databases in one of two ways. You can list databases you do not want to move, or you can list only the databases that you do want to move. After you define a pin list, you can save it as a pin list profile.

Tip You can also pin individual databases from the Available Databases list in the Server - Performance tab, in the Resource Balancing view of the Domino Administrator.

By default, all databases are associated with all servers. The server name can be specified as part of the entry. Use a colon to specify the server part. For example, Acme/East:mail/*.nsf applies to all mail/*.nsf databases on the server Acme.

When you select servers to balance resources, you should be aware that Activity Trends does not recognize that servers are in a cluster. If you include servers from different clusters or some servers that are in a cluster and some servers that are not in a cluster, Activity Trends may suggest moving a database out of a cluster in order to balance the resources. To prevent this, you can create a separate server profile for each cluster and one for nonclustered servers, or you can pin databases that you want to exclude from resource balancing.

You can open the Server Profile Options dialog box from the Resource Balancing menu, or by clicking the Server Profile Options button:

To create a master pin list

1. From the Domino Administrator, click the Server - Performance tab.
2. Select the Activity Trends - Resource Balancing view.
3. Choose Resource Balancing - Options to open the Server Profile Options dialog box.
4. Expand the Balancing section, and then click Pin List.
5. Click the Database Pin List tab.
6. Under Pin Method, choose one:
   - Pin listed databases -- To pin the listed databases so that they will not be moved.
   - Pin all but listed -- To make the listed databases available to be moved, and pin all other databases.
7. Under "Database List," add or delete databases. To add a database, enter the name directly on the list.
8. Next to the list of database names, do one:
   - Choose Reset to return the list to its original set of databases.
   - Choose Save as, and enter a name to save a new pin list.
9. Choose one:
   - Use Defaults -- To revert to previously saved custom defaults.
   - Save as Defaults -- To save a custom set of defaults and override the system defaults.
   - Reset Defaults -- To revert to the system defaults.

To edit or delete a saved pin list profile

2. Do one:
   - Edit the list of databases, and then click Save.
   - Click Delete.

See Also

Pinning additional databases during resource balancing
Setting primary and secondary resource-balancing goals
Setting up resource balancing in Activity Trends
Specifying database and server locations for resource balancing
Understanding resource-balancing behavior

When you set the resource-balancing behavior, you balance the amount of moves made during resource balancing with the amount of accuracy achieved. Accuracy is how successfully the moves were made, based on the number of moves allowed. The higher the accuracy, the more evenly resources are balanced.

You also specify the location of the Domino Change Control database (DOMCHANGE.NSF). By default, Activity Trends automatically selects a server. However, you must specify the Domino Change manager server in the Configuration Settings document. Use the default unless you want to use a local replica or are working remotely and want to use a server that has a replica of the Domino Change Control database.

Resource balancing distributes database activity across three bins:

- **Light** -- The top bin when graphed, has the lightest amount of activity.
- **Medium** -- The middle bin when graphed, has a medium amount of activity. This percentage is calculated based on the percentage in the other two bins.
- **Heavy** -- The bottom bin when graphed, has the heaviest amount of activity.

Resource balancing attempts to balance the bins among the servers as well as the total for the servers. This is important because heavily utilized databases (databases with a high number of transactions) also have the greatest variance. That is, their usage is more likely to vary from the mean more frequently. This means that when there is a spike in activity, the spike will be a big spike, and the dip will be a big dip. Dividing the databases into bins separates the few databases that account for a large amount of activity, from the large amount of databases that account for little activity. For example, out of 100 databases on a server, 10 databases may account for 30% of activity, while 65 databases account for another 30%. The remaining 40% of activity is accounted for by the medium usage 250 databases.

Balancing according to the bins, ensures that the spread of heavily used and lightly used databases are evenly distributed across the servers. This results in more predictable usage patterns, increased availability, and more efficient use of resources.

Deciding the exact percentages for each of the bins depends on how your organization uses their databases and the type of server being balanced (mail server versus application server). For mail servers in most organizations you may want to increase the size of the light bin and decrease the size of your heavy bin, while for application servers the mix may be different.

For more information about charting bin activity and how the values are calculated, see Understanding current and projected profile charts.

You also specify how Activity Trends analyzes the server resource capacities. By default, server capacities are determined relative to other servers in the list. For example a server that has a capacity of x1 transactions has half the transactional capability (CPU) of a server at x2. You could, however balance resources based on actual values (such as the number of transactions per day, or the total amount of disk space available). Using the example above, you would specify the servers as having a capacity of 10,000 and 20,000 transactions. However, if you choose to balance resources based on actual values, you have to know that the servers involved can actually handle the capacities specified.

Another way in which you indicate server resource capabilities, is to specify how the server volume is determined. You can either use server volume and file system information when resource balancing, or ignore volume information and treat all space as flat. The default is to use the volume information, which uses the different physical volumes and their sizes that comprise the space available to Domino, rather than just the total amount of space on the server. Volume balancing is recommended. This may produce plans in which a database moves to a different server and has a different destination path because of space requirements on a particular volume on the destination server.

See also

Customizing resource-balancing behavior
Customizing resource-balancing behavior

Customizing resource-balancing behavior is an advanced feature. Therefore, unless you know how changes will affect the outcome of resource balancing, use the default settings.

To customize resource-balancing behavior

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and click Resource Balancing.
2. Choose Resource Balancing - Options to open the Server Profile Options dialog box.
3. Expand the Balancing section, and then click Advanced.
4. Under Resource Balancing Behavior, choose one:
   - Minimize Moves -- To minimize the number of moves made, even though the balance may not be as accurate when completed.
   - Balance Moves and Accuracy -- To allow more moves, in an effort to reach a higher level of accuracy.
   - Maximize Accuracy -- To allow as many moves as it takes to get the most accurate resource balance.
5. Under “When submitting a resource balancing plan” choose one of these:
   - Automatically Select Server -- to automatically locate the server in the domain that has the Domino Change Control database (DOMCHANGE.NSF). This is the default.
   - Use Local Database Replica -- and then enter the path to use a replica of the Domino Change Control database (DOMCHANGE.NSF) located on the local drive.
   - Use Remote Server -- and then enter the name of the server that has the Domino Change Control database (DOMCHANGE.NSF).
6. Under Bin Sizes, choose the percentage for each bin:
   - Light Bin -- Default is 30%
   - Middle Bin -- Default is 40%
   - Heavy Bin -- Default is 30%
7. For the field “Enter server resource capacities as relative values when editing server properties” do one:
   - Check Yes (default) to specify server resource capabilities relative to other servers in the list.
   - Uncheck Yes to specify actual values, such as the number of transactions per day or the total amount of available disk space.
8. For the field “Use server volume and file system information when resource balancing,” do one:
   - Check Yes (default) to use the volume information, such as physical volumes and their sizes that comprise the space available to Domino.
   - Uncheck Yes to ignore volume information and use the total amount of space on the server, treating all space as flat.
9. For the field “Warning when data is older than \( n \) days,” enter the number of days before a warning is generated. The default is 7 days. Then if you create a resource-balancing plan and the data is older than 7 days, you receive a warning that the resulting plan will be based on old data.
10. Choose one of the following options to set Resource Balancing behavior defaults:
    - Use Defaults -- To revert to previously saved custom defaults.
    - Save as Defaults -- To save a custom set of defaults and override the system defaults.
    - Reset Defaults -- To revert to the system defaults.

See Also
- Setting up resource balancing in Activity Trends
- Understanding resource-balancing behavior
MONITORING

Analyzing resource-balancing distributions

Use any of these procedures to analyze the current and proposed distribution of user activity on specified databases. The statistics and charts displayed during this process reflect the choices you made in the Server Profile Options dialog boxes.

1. Create a proposal for a new, balanced distribution.
2. Compare the current and projected distribution of databases on servers.
3. Review the distribution of user activity represented in the light, medium, and heavy bins. Review the effect of changes on other resource statistics in these charts as well. The accuracy is only a guide as to how well it achieved the balance within the tolerance specified. Sometimes the required accuracy may not be achieved for a particular server. There are many reasons why this could happen. Sometimes, there is no solution within the parameters specified and resources are balanced as well as they can be.
4. Review the server capacity and accuracy information before and after proposed targets.
5. Change the mix of servers and server properties and run the analysis again, if necessary.
6. Submit a plan to the Domino Change Manager to implement the new balance of resources.
Creating a proposal for balanced resources

Based on the selections made in the Server Profile Options dialog box, you can balance resources for a server profile that you created. During the resource-balancing process, it may take several attempts before databases are distributed in a way that you find acceptable. You may need to change source server or database selections. You can make these adjustments during this process to help make the analysis process run smoothly.

- Pin and unpin databases
- Change server properties or add a phantom server
- Filter out servers and their databases that you do not want displayed on the Available Databases tab
- Change the layout of the Activity Trends view on the Server - Performance tab of the Domino Administrator

To create a proposal

1. From the Domino Administrator, click the Server - Performance tab.
3. Choose a server profile.
4. Click the "Available Databases" tab to display the list of databases that can be moved.
5. (Optional) To change the databases that are available for moving, select a database and click Pin or Unpin.
6. Make sure that each server in the top frame has an arrow next to its name. If there is a red (x) instead of an arrow, the server is not reporting its trended data. You must remove the server or make it a phantom server; otherwise, the Analyze button will be disabled and you will not be able to create a proposal.
7. Check the server properties to make sure that the capacity of each server is weighted correctly.
8. Click Analyze.
9. When the analysis is complete, view the Recommended Plan and Project Profile.

See Also
- Analyzing resource-balancing distributions
- Setting up resource balancing in Activity Trends
Comparing current and projected resource balances

After creating a proposal for balanced resources, compare the proposal against the current resource profile by reviewing the information on the Resource Balancing tabs. The Available Databases and Current Profile tabs display information about the current state of the servers. You can also look at the information in the upper frame, which shows you the current and projected activity, and the targeted and achieved accuracy. The Recommended Plan and Projected Profile tabs, which are populated after you analyze current resources, display the distribution of resources after the plan is completed. The Resource Balancing view is on the Server - Performance tab of the Domino Administrator. The four tabs provide the following information about the servers for which you want to balance resources:

- **Available Databases** -- Lists the databases that are not pinned in the Master Pin List and are, therefore, available to be moved
- **Recommended Plan** -- Shows the new source and proposed destination for the databases
- **Current Profile** -- Shows how the servers are currently balanced
- **Projected Profile** -- Shows how the servers will be balanced after the plan is carried out

Evaluate the changes that are proposed during resource balancing. If you are not satisfied with the proposed changes, change the mix of servers or databases or adjust the specified tolerance level in the Server Profile Options dialog box. If you are happy with the proposal, then you are ready to submit the plan to the Domino Change Manager.

**See Also**
- Displaying additional statistics during resource balancing
- Evaluating server activity for resource balancing
- Filtering servers used during resource balancing
- Pinning additional databases during resource balancing
- Understanding current and projected profile charts

Glossary
MONITORING

Evaluating server activity for resource balancing

To balance resources, evaluate the database activity for each server on which you want to balance resources. Then compare that activity to redistributed database activity that would result from balancing resources. The Resource Balancing view on the Server - Performance tab of the Domino Administrator provides this information in a number of ways. First, the status of selected servers or of servers in a selected server profile displays. A red X next to the server indicates that the server is not available for resource balancing, possibly because the server is down. Hover over the red X with your mouse to see the status of the server, including the error message. The Edit Server Properties dialog box also shows associated error messages in the Status field.

For each goal specified in the Server Profile Options dialog box, Activity Trends displays the following information that you use to evaluate whether a server is a candidate for resource balancing:

- **Current** -- The current value of the metric as recorded.
- **Capacity** -- The resource capacities of each server. Resources are balanced using either capacity or target values. By default, the capacity is the value used in determining the targets during resource balancing. You set this value by editing server properties.
- **Target** -- The target value that you want to meet during resource balancing. This value is based on the statistics specified as primary and secondary goals. For example, if Notes Transactions is a goal, the value is the number of transactions. So, if a server has a target of 2000 transactions, the resource-balancing solution attempts to provide this server with 2000 transactions.
- **Projected** -- The calculated final value of the server’s resource, if the generated solution (plan) were to be applied.
- **Accuracy** -- A percentage from 0 to 100 that represents how successfully the moves were made, based on the behavior criteria you specified. A low percentage is bad and a high percentage is good. Servers whose values are within the tolerance for the goal (set in server profile options) display in blue. Values that did not achieve the tolerance specified for the goal display in red. This is not necessarily bad, sometimes it means you need to use other servers or that there is no good solution for this resource problem. In a good balance, there should be almost no red values for the primary goal, and perhaps a few ones for the secondary.

If you do not like the distribution of activity or servers based on this evaluation, you can edit the server properties to change the server role. Likewise, you can alter some of the options selected in the Server Profile Options dialog box. If you have not set server profile options, you can edit the server properties to change some of the option defaults, and then analyze again using the new server values.

See Also

- Displaying additional statistics during resource balancing
- Filtering servers used during resource balancing
- Pinning additional databases during resource balancing
- Understanding current and projected profile charts
Understanding current and projected profile charts

To determine the proposed resource distribution, view the charts of trended statistics created by Activity Trends. The Resource Balancing view on the Server - Performance tab of the Domino Administrator displays database activity for each server. The chart on the Current Profile tab represents the current server load. The chart on the Projected Profile tab shows how the servers will be rebalanced if the proposed plan is implemented.

The charts use light, medium, and heavy bins to show the distribution of user activity. Each bin represents a group of databases and their metric values. These bins reflect the "bin sizes" values specified in the Server Profile Options dialog box. View the distribution of activity before it is balanced (Current Profile), and then view it again to determine if your goals have been met. Resources that are not well balanced show a disproportionate amount of activity in the heavy bin. After resource balancing has been applied, the recommended distribution in bins should be relatively even across the servers, if your goals were achieved. The higher the accuracy of resource balancing, the more evenly activity is distributed.

Example

The following chart shows database transactions on each server. The overall height of the bar represents the sum (total) of the database transactions. The three bins represent the light, medium, and heavy modal distribution of the database metric -- in this case, transaction. In this example, heavy is the first 30% of databases; middle is the next 40%; and light is the top 30%, all adding up to 100%.

- Light -- The light bin is the top bin when graphed, using the lightest color of blue. This indicates the bin with the lightest amount of activity.
- Medium -- The medium bin is the middle bin when graphed, using a medium blue. This indicates the bin with a medium amount of activity.
- Heavy -- The heavy bin is the bottom bin when graphed, using the darkest color of blue. This indicates the bin with the heaviest amount of activity.

How bin values are calculated

To understand how bin values are calculated, assume there are 20 databases, each with a varying number of transactions. Five is the lowest number of transactions on any database, and 420 is the highest number of transactions on the most active database. The total transactions per database is represented as follows:

5, 10, 15, 25, 25, 50, 75, 100, 120, 125, 140, 150, 250, 300, 310, 350, 400, 420 = 2885 transactions

When you group these transactions based on the bin sizes designated in the Server Profile Options (30% light, 40% medium, and 30% heavy), the transactions are distributed as follows:

Light = 5, 10, 10, 15, 25, 25, 50, 75, 100, 120, 125, 140, 150 (14 databases account for 855 transactions; 865 is the target)
Middle = 250, 300, 310 (3 databases account for 860 transactions; 1154 is the target)
Heavy = 350, 400, 420 (3 databases account for 1170 transactions; 866 is the target).
When you view these charts, you see that 29% of the chart is light blue; 30% is medium blue; and 40% is dark blue. Hovering over the bar on the chart, the pop-up shows that most transactions on the server occur on relatively few (three) databases. In this case, 15% of the databases account for about 40% of the transactions. If the bars for the other servers on which you are balancing resources have different proportions for light, medium and high bins, then resource balancing would better spread the load across the system and probably result in better server performance.

See Also
- Analyzing resource-balancing distributions
- Evaluating server activity for resource balancing
Using resource balancing in Activity Trends to decommission a server

Decommissioning a server is a special case of workload balancing in which everything outside the default pin list is moved from the server. The databases that remain, which may still account for significant activity, are either system databases or databases that are typically installed on every server, such as templates or help files. In most cases the latter group will be the same on every server, with the possible exception of unread marks.

Use these guidelines to decommission a server:

1. Edit the server properties and do the following:
   - Set the server as "source only" to prevent Activity Trends from moving any databases to it.
   - Set the server capacity to 0% for the unit you are using as the primary balancing goal.

2. Use the default pin list so that Activity Trends relocates all databases other than the system databases and the databases installed on every server. You can also use an empty pin list since system databases are always pinned.

See Also
- Analyzing resource-balancing distributions
- Creating a proposal for balanced resources
**Monitoring**

**Editing server properties for resource balancing**

You can balance resources based on capacity or on a specified target. For example, if you have a new server, you can redistribute server activity to accommodate the increased resource capacity. However, if you need to increase the number of transactions per server, you balance resources by redistributing activity based on achieving a new target value.

In addition, you can assign a weight to each server’s capacity. For example, assume you have one server with 1.5GB of RAM and a 60GB hard drive and have a second server with 3GB of RAM and a 120GB hard drive. You can enter the capacity of the first server as 1 and the second server as 2, giving it twice the weight.

If you set a capacity (or target) of zero for source-only or any-role servers, resource balancing tries to move all unpinned databases on the server. This is useful when decommissioning servers and moving their contents to new servers.

If a server’s data cannot be obtained, you can treat the server as a phantom server and then change it back to a real server when data becomes available. After changing it back, press F9 to refresh and read the data from the server.

**To edit server properties**

1. From the Domino Administrator, click the Server - Performance tab and open the Resource Balancing view.
2. Under Server profiles do one:
   - Select a profile
   - Select All Servers
3. In the Servers section, double-click the server whose properties you want to edit. In the Edit Server Properties dialog box, the server name and domain name appear by default. Complete the following fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>• Real -- To identify a server that physically exists in the domain.</td>
</tr>
<tr>
<td></td>
<td>• Phantom -- To identify a server that does not physically exist but is factored in to the resource-balancing analysis.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong> The option to toggle between a real server and a phantom server is available only for real servers whose data cannot be obtained.</td>
</tr>
<tr>
<td>Role</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>• Any -- Databases can be moved to or from the server.</td>
</tr>
<tr>
<td></td>
<td>• Source Only -- This server will not have any databases moved to it.</td>
</tr>
<tr>
<td></td>
<td>• Destination Only -- This server will not have any databases moved from it.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong> Phantom servers are always Destination Only.</td>
</tr>
<tr>
<td>Goals</td>
<td>Select either the primary or secondary goal from the list. These are the goals set in the Server Profile Options dialog box.</td>
</tr>
<tr>
<td></td>
<td>For more information about goals, see the topic “Primary and secondary goals for resource balancing.”</td>
</tr>
<tr>
<td>Capacity</td>
<td>Select this option to balance resources for the selected goal, based on server capacity. Enter the number of resource units. The default is 1.</td>
</tr>
<tr>
<td>Target</td>
<td>Select this option to balance resources based on achieving a target goal. Enter a target value for the goal you selected.</td>
</tr>
</tbody>
</table>

**See Also**

- [Evaluating server activity for resource balancing](#)
Monitoring

Filtering servers used during resource balancing

You can change the displayed list of available databases by setting filters that hide databases from display without affecting the master pin list or affecting how a plan is generated. Using these options provides you with the information you want quickly and easily. For example, using "hide databases appearing in plan" shows only the databases that will remain and filters out all databases that will move. The "hide system databases" and "hide master pin databases" options show all of the databases on the servers, even though you don’t want to move them. This option is useful when you need to see the complete picture of databases on a server and is useful especially when decommissioning a server.

To filter servers

1. From the Domino Administrator, click the Server - Performance tab and open the Resource Balancing view.
2. Click the Filter button on the Available Databases tab.
3. In the Servers field choose one:
   - All Servers
   - Selected Servers
4. Check or uncheck one or more:
   - Hide System Databases (default is checked)
   - Hide Master Pin Databases (default is checked)
   - Hide Databases appearing in Plan (default is unchecked)

See Also
Evaluating server activity for resource balancing
Using resource balancing in Activity Trends to decommission a server

Glossary

Feedback on Help or Product Usability?
Pinning additional databases during resource balancing

When you set the Server Profile Options, you create a pin list of databases that cannot be moved during resource balancing. However, as part of the resource-balancing process, you can pin or unpin databases. For example, you may want to evaluate the effect of pinning an additional database, or you may want to unpin a database to see if resources balance with fewer moves.

Pinning or unpinning databases as you balance resources does not change the saved pin list. You cannot unpin a system database or a database that is pinned by the master pin list. However, the status of each database is saved with the server profile information for the selected server profile.

**To pin or unpin databases as you balance resources**

1. From the Domino Administrator, click the Server - Performance tab, expand the Activity Trends section, and choose Resource Balancing.
2. Click the Available Databases tab.
3. Do one of the following:
   - Select the databases that cannot be moved, and then click Pin.
   - Select one or more databases that are currently pinned, and then click Unpin.
4. Click the Analyze button to see the effect of the new pinning information.

**See Also**

- Evaluating server activity for resource balancing
- Setting up resource balancing in Activity Trends
- Specifying which databases can move during resource balancing
MONITORING

Displaying additional statistics during resource balancing

You can change the statistic that displays on the current or projected profile chart so that you can view the balance of other types of database activity. By default, when you balance resources, the primary goal is the statistic that displays.

1. From the Domino Administrator, click the Server - Performance tab and open the Resource Balancing view.
2. Click the Filter button on the Available Databases tab.
3. Select the statistic you want to display.
4. Under Options, select one or more of the following. The defaults vary depending on the statistic.
   - Use Trended values -- to use trended statistics, instead of current statistics.
   - Use Prime Shift values -- to use statistics collected during the prime shift hours. Prime shift hours are specified in the Configuration Settings document when you set up Activity Trends.
   - Size in proportion to capacity -- to base statistics on server capacity. Server capacity is specified in the server properties.

See Also

Evaluating server activity for resource balancing
Changing the layout of the Activity Trends view

You can change the layout of the charts in the Activity Trends or Resource Balancing view. For example, you can maximize the sections you are working on to reduce the amount of scrolling. You can change the layout of the chart display using the Resource Balancing or Activity Trends menus, or the layout button:

1. From the Domino Administrator, click Server - Performance.
2. From the Resource Balancing menu, select layout, and then choose one:
   - Maximize
   - Maximum Width
   - Maximum Height
   - Restore

See Also
Analyzing resource-balancing distributions

Glossary
MONITORING

Submitting a resource-balancing plan to the Domino Change Manager

When you decide to implement resource balancing, you submit a plan to the Domino Change Manager.

To submit a resource-balancing plan

1. From the Domino Administrator, click the Server - Performance tab.
2. Select the Resource Balancing view, and then select the Recommended Plan tab.
3. Click Submit to submit the current data to the Domino Change Manager.
4. Enter a plan name and a description of the plan.
5. The field "Submit to" displays the option selected in the Advanced section of the Server Profile Options. Click the button at the right of this field to open the Server Profile Options dialog box and change this selection.

See Also
Domino Change Manager
**Domino Change Manager**

To implement a resource-balancing plan, you use the Domino Change Manager task, which you load on only one server, usually the Administration server, in a domain. The Domino Change Manager uses the Domino Change Control database (domchange.nsf) to manage and implement a plan.

After you submit a plan, you track the status of the plan in the Domino Change Control database (DOMCHANGE.NSF). To access the Domino Change Manager from the Domino Administrator, choose Server - Analysis, then expand the Domino Change Control view and choose "Plans - by Status."

**The Domino Change Manager and the Administration Process**

The Domino Change Manager uses the Administration Process to move databases from one server to another. Data is collected and stored in the Activity Trends database (ACTIVITY.NSF). When you use resource balancing to create a plan for redistributing the database load, it first initiates a database move command. Then it generates the "Maintain Trends Database Record" request during the standard execution of the database move. The "Maintain Trends Database Record" request is posted in the Administration Requests database (ADMIN4.NSF) after the database is created on the destination server.

During the execution of the "Maintain Trends Database Record" request, the administration requests that typically require your approval are automatically approved because the plan has been approved. You do not have to manually approve requests in the Administration Requests database (admin4.nsf).

For more information on the Maintain Trends Database Records Administration Process request, see [Maintain Trends Database Records](#).

See Also

[Setting up Domino Change Manager](#)
Setting up Domino Change Manager

To set up the Domino Change Manager, you load the Change Manager task. Then, the first time you run the task, it creates the Domino Change Control database (DOMCHANGE.NSF). Load this task on only one server in the domain -- usually the Administration server.

To set up and run the Change Manager task

1. Open the NOTES.INI file for the server on which the Change Manager will run.
2. Add the following to the ServerTasks setting:
   runjava ChangeMan
3. Save and close the NOTES.INI file.
4. At the console, enter this case-sensitive command exactly as shown:
   load runjava ChangeMan

   Tip To display full help text for this task, append -? or -help to the command.

See Also

- Domino Change Manager
- Specifying maximum concurrent tasks for Domino Change Manager
MONITORING

Specifying maximum concurrent tasks for Domino Change Manager

There are three thread pools that control the number of concurrent tasks that the Domino Change Manager can carry out. The combination of the number of concurrent plans and demands creates a pool from which all the demands of all the plans are run. How the size of these thread pools affects performance depends on the size of the server. If necessary, you can limit the amount of CPU used by the Domino Change Manager. On very powerful machines, however, you may want to increase these numbers considerably. You typically want to increase the number of concurrent demands to change the total number of demands (across all executing plans) that can run simultaneously. This is the key variable that will affect performance. As a general guideline:

- Increase the number of concurrent messages when you have many people drafting, preparing, and submitting many plans. If you have only a few plans, this is not necessary.
- Increase the number of concurrent plans when you want many plans to execute at the same time.

You set these options in the Configuration Settings document for the domain. This Configuration Settings document applies the settings as the default settings for all servers and uses the "[All Servers] as the group or server name.

To specify the maximum concurrent tasks

1. From the Domino Administrator, click the Configuration tab, expand the Server section, and click Configurations.
2. Select the "[All Servers] Configuration Settings document, and click Add Configuration or Edit Configuration.
3. Click the Change Control tab, and complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain Change Server</td>
<td>Choose the server that stores the Domino Change Control database (DOMCHANGE.NSF).</td>
</tr>
<tr>
<td>Database file name</td>
<td>Enter the name of the Domino Change Manager. The default name is DOMCHANGE.NSF in server/data directory. If the database is not in the default directory, enter a full path name.</td>
</tr>
<tr>
<td>Max. concurrent messages</td>
<td>Enter the maximum number of messages that can be executed at the same time. The default is 5. The recommended number is between 1 and 10.</td>
</tr>
<tr>
<td>Max. concurrent plans</td>
<td>Enter the maximum number of plans that can be executed at the same time. The default is 5. The recommended number is between 1 and 10.</td>
</tr>
<tr>
<td>Max. concurrent demands</td>
<td>Enter the maximum number of demands (for example, database moves) that can be simultaneously processed. The default is 40. This number should be equal to or larger than the &quot;Max. concurrent plans&quot; number.</td>
</tr>
</tbody>
</table>

4. Click Save & Close.

See Also
Domino Change Manager
Setting up Domino Change Manager
Using the Tell ChangeMan command at the Domino console

You can use the Tell ChangeMan command at the console to control the Domino Change Manager. The following options are available. The command Tell ChangeMan is not case sensitive.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>quit</td>
<td>Stops the Change Manager and all plug-ins.</td>
</tr>
<tr>
<td>stop</td>
<td>Stops the Change Manager and all plug-ins. Same as Quit.</td>
</tr>
<tr>
<td>exit</td>
<td>Stops the Change Manager and all plug-ins. Same as Quit.</td>
</tr>
<tr>
<td>help</td>
<td>Refers you to documentation.</td>
</tr>
<tr>
<td>?</td>
<td>Refers you to documentation. Same as Help.</td>
</tr>
<tr>
<td>restart</td>
<td>Stops and then restarts the Change Manager and all plug-in subsystems.</td>
</tr>
<tr>
<td>start plug-in</td>
<td>Starts the plug-in. Currently, Control, Monitor, and RoboAdmin are the defined plug-ins.</td>
</tr>
</tbody>
</table>
| stop plug-in | Stops the plug-in. Currently, Control, Monitor, and RoboAdmin are the defined plug-ins.  
**Note** Alternatively, you can also use the forms `plug-in stop`, `plug-in quit` and `plug-in kill`. |
| restart plug-in | Stops and then starts the plug-in. Currently, Control, Monitor, and RoboAdmin are the defined plug-ins.  
**Note** Alternatively, you can also use the form `plug-in restart`. |
| `plug-in` command | Attempts to issue the command to the named plug-in, if it exists and is running. |
| reset        | Resets the internal lookup caches.                  |

See Also

[Domino server commands](#)
ACLs for the Domino Change Control database

There are four ACL roles created specifically for those who are working with the resource-balancing plan. However, users or groups can also have standard Domino ACL roles, such as Author or Reader. The roles specific to resource balancing are: Change Admin, System Admin, Plan Creator, and Plan Reader.

**Change Admin**

A Change Administrator has the authority to change the settings in any plan or plan element, such as a constraint or variable. In addition, a Change Administrator can alter and add some elements used to create a plan. Specifically, a Change Administrator can edit, create, and delete constraints and constraint sets, approval profiles, keywords, and resources.

A Change Administrator must commit a plan to be executed. All plans (including move requests created in the Administration Process database) execute with the authority of the Change Administrator who committed the plan. For that reason, the Change Administrator must also have Create Replica access on each destination server. A Change Administrator automatically has the Plan Reader role.

**System Admin**

The System Admin role is distinct from the Change Admin role, which does not automatically include the role of System Admin. Each of these roles is independent but not mutually exclusive in terms of the access that the role grants. As with a Change Administrator, a System Administrator can edit, create, and delete keywords, resources, interfaces, functions, domain configurations, and plug-ins. Because users with the System Admin role can make powerful and potentially catastrophic changes, assign the role only to users or groups of users who have an in-depth understanding the Domino Change Manager. In addition, all control documents (Interface and Function Definitions, Domain Configurations and Plug-ins) must be signed by either the Change Manager server or a user who has the System Admin role. When the database is first created, all control documents are signed by the server. This is to ensure the security of the Change Manager system and the Domino Server.

**Plan Creator**

This role designates users and groups of users who can create plans.

**Plan Reader**

This role allows users and groups of users to read all plans. By default a Change Administrator can read all plans and does not explicitly need this role. Authors and Requesters of plans do not need this role to read their own plans.

See Also

- Default ACL settings for the Domino Change Control database
- Domino Change Manager
MONITORING

Default ACL settings for the Domino Change Control database

When the Change Control database (DOMCHANGE.NSF) is created, these default access levels and roles are assigned.

<table>
<thead>
<tr>
<th>Name</th>
<th>Access level</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Access Administrator Administrator (Listed in the Server document of the current server.)</td>
<td>Manager</td>
<td>Change Admin System Admin Plan Creator</td>
</tr>
<tr>
<td>Default</td>
<td>No access</td>
<td>No roles</td>
</tr>
<tr>
<td>LocalDomainServers</td>
<td>Manager</td>
<td>Plan Reader</td>
</tr>
<tr>
<td>OtherDomainServers</td>
<td>No access</td>
<td>No roles</td>
</tr>
<tr>
<td>Anonymous</td>
<td>No access</td>
<td>No roles</td>
</tr>
</tbody>
</table>

Recommended ACL settings

Assign the roles of Change Administrator and System Administrator only to administrators who require them. Administrators who have these roles have the ability to alter the basic system documents of a plan. The recommended access level is Editor for most Change Administrators and System Administrators. However, you can assign the Author access level, but add restrictions on editing existing system documents such as Interface or Function definitions. The System Admin role should be especially restricted.

Assign the Plan Creator role only to those people or groups in an organization that can create plans. Plan Creators only create plans, they cannot commit them.

Assign the Plan Reader role to people and groups that will be allowed to read plans only. This role assumes that the people and groups reading the plans are not Authors or Requesters.

Make sure that the Change Administrators and servers in the LocalDomainServers group have Create Replica access rights.

See Also

- ACLs for the Domino Change Control database
- Setting ACLs for mail database moves during resource balancing

Glossary

Feedback on Help or Product Usability?
Setting ACLs for mail database moves during resource balancing

To move databases within the domain, both the LocalDomainServers group and the Change Administrator who committed the plan must have Create Replica and Create Database rights.

1. From the Domino Administrator, click the Configuration tab, and open the Server view.
2. Open the Server document for the mail server.
4. Under server access, add LocalDomainServers and any users with the Change Admin role to these fields:
   - Create databases & templates
   - Create new replicas
5. Save and close the document.

Note When load balancing, you don’t have to approve the deletion of the mail database on the source server. This is handled by the Domino Change Manager.

See Also
- ACLs for the Domino Change Control database
- Default ACL settings for the Domino Change Control database
MONITORING

Resource-balancing plans

The purpose of a resource-balancing plan is to move databases according to the set of criteria defined in the Server Profile Options. The plan is based on the analysis and proposal created during data exploration in Activity Trends. When a plan is first submitted to the Domino Change Manager, the plan has draft status. By default, the person who submits the plan to the Domino Change Manager is the author and has the Plan Creator role.

After the plan is submitted, it follows a prescribed course of submissions and approvals until the final plan is activated and then completed. The flowchart below shows the progression of a resource balancing plan from its original draft state through its completed, archived state.

Promoting a plan from one state to another, such as from drafted to prepared, can be made from within the plan document or from the Change Control database (DOMCHANGE.NSF).

The workflow for processing a plan submitted by Resource Balancing follows these steps:

1. The author fully defines a plan by editing the draft plan.
2. The author or a Change Administrator "prepares" the plan, thereby changing the plan’s status to "prepared." The prepared state signals that the author is satisfied with the details of the plan and wants to have it executed.
3. A Change Administrator reviews the details of the plan and makes any necessary changes, which are typically limited to adding or removing approvers. At this time a Change Administrator can cancel the plan or commit the plan to execution, subject to approval by various groups and roles.
4. A committed plan is either approved or rejected by approvers. Approval must be unanimous for a plan to be approved. If one of the approvers is a group, only one member must approve the plan. If one approver rejects a plan, it passes into the rejected state. If no approvers are assigned, the plan automatically passes to the approved state.
5. At any stage, a plan can be canceled. An author can cancel a plan prior to its prepared state. A Change Administrator can cancel a plan any time prior to completion. Canceled and rejected plans can be redrafted. Plans can be changed only in the draft state. If change to a plan is required, cancel or reject it, and then redraft the plan. A redrafted plan begins again in draft status.
6. After a plan is approved (and is within the plan’s optional start and end times for activation), it is moved to
activated status. While the plan is in the activated state, a Change Administrator can put any part of the plan on hold.

7. The activated plan runs to completion unless an error causes the plan to fail. If the plan fails, the Change Administrator can change the environment or the plan, and then retry it.

See Also
- Database move sequences
- Domino Change Manager
- Preparing a plan document for resource balancing

Glossary

Feedback on Help or Product Usability?
Database move sequences

Database move sequences are generated by Activity Trends Resource Balancing in the Domino Administrator. To move large groups of databases that include more than 25 moves, it groups them into sets of 25 moves or more, called demand sets. A demand set can involve any grouping of commands to be executed.

In the Domino Change Manager, these demand sets are titled “database move sequences.” Each database move sequence has a maximum of 25 moves. The contents of each move sequence is generated automatically. You can see these database move sets when you submit a resource-balancing plan to the Domino Change Manager. You can restructure the contents by cutting and pasting the demands from one demand set into another or by creating additional demand sets and new demands. (To cut and paste, select a demand and use the Edit menu.) The Domino Administrator creates as many of these demand sets as needed to accomplish a move. For example, the Acme Move Plan includes 55 database moves, so the Domino Change Manager creates three database move sequences -- two that include 25 moves, and one that includes 5 moves.

You can determine whether the database moves and database move sequences are executed sequentially or concurrently or any combination of the two. By default, all are moved concurrently. Using the Acme Move Plan example, the Domino Change Manager attempts to perform all three database move sequences at the same time. Within each database move sequence, the Domino Change Manager attempts to move all databases at the same time.

What happens if a move fails

A database move can fail for a number of reasons. For example, a database move fails if a server is down, if the destination server does not have create replica rights, or if the source database has been manually moved or deleted. How the Domino Change Manager handles the failure depends on how the moves are executed.

- Concurrently -- If any demand fails, the plan continues with other demands. When all demands are in a state of completion or failure, the plan reports a failure to the Domino Change Control database (DOMCHANGE.NSF). You can then retry the move, and the plan will attempt to complete only the demands that failed during the previous attempt.
- Sequentially -- If any demand fails, the plan stops.

See Also
Choosing how database moves are executed
Domino Change Manager
Resource-balancing plans
Viewing database moves

Glossary
Choosing how database moves are executed

You can specify whether database moves are sequential or concurrent.

1. From the Domino Administrator, click the Server - Analysis tab.
2. Open the Domino Change Control view, and then select the Plan - By Status.
3. Select one and then click Edit:
   - A plan
   - A database move sequence
4. Under Execution Options, for the field Execution Method choose one:
   - Sequential
   - Concurrent
5. Click OK to save and close the document.

See Also
- Database move sequences
- Domino Change Manager
- Viewing database moves
Viewing database moves

Anyone with access to the Domino Change Control database (DOMCHANGE.NSF) can view database moves. Approvers can view database moves in the plan document when they are notified to approve the plan.

To view database moves in the Domino Change Control database

1. From the Domino Administrator, click the Server Status tab. view.
2. Open the Domino Change Control - Plans view, and then choose one of the following views:
   - By Status -- if you know the status of the plan you want to view
   - By Author -- if you don’t know the status of the plan but you know who the author is
3. Find the target plan and expand the plan to view the database move sequences.
4. Expand any of the database move sequences and view the individual moves.

To view database moves in the resource-balancing plan

1. From the e-mail notification, click the link to the plan.
2. In the plan document, select the Demand Details tab.

See Also

Choosing how database moves are executed
Database move sequences
Preparing a plan document for resource balancing

After you submit a plan, the plan document is a draft document that may require additional input before it is ready to be submitted to the Change Administrator. In the plan document, you specify how the moves are carried out, when the plan is submitted to the Administration Process, and when you want the Administration Process to execute the plan. When the Domino Change Manager moves databases, it creates groups of database move sequences, called demand sets. You can choose whether to move the demand sets one at a time or all at the same time.

Each plan can have an associated approval profile that lists the names of persons or groups who must approve the plan document. If there is no approval profile, you can list the names of approvers in the plan document. If you assign a group as an approver, any one of the group members can approve the plan.

For more information on creating an approval profile, see the topic Creating a resource balancing plan approval profile.

The Resource Balancing plan document is a dynamic document that provides the current status of the plan and keeps a history of plan modifications, including the author and date of each modification.

Whether you make any changes to the plan document, it must be moved to its next state, which is the prepared state. In its draft state the plan can be edited by its author.

To prepare a plan document

1. From the Domino Administrator, click the Server - Analysis tab.
2. Open the Domino Change Control view, and then select the Plans - by Status view.
3. Select the draft plan to move to the prepared state and then click Edit.
4. In the Basics section, complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a unique name for the plan.</td>
</tr>
<tr>
<td>Categories</td>
<td>(Optional) Select a category or enter a new category name.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Enter a description of the plan.</td>
</tr>
</tbody>
</table>

5. Under Execution options, choose one:
   - Sequential -- To execute each demand set (database move sequence) one at a time.
   - Concurrent -- To move all demand sets at the same time.

6. In the field Activate Plan, do one:
   - Choose "Only between specified start and stop periods" and specify a time during which the request can be sent to the Administration Process.
   - Choose "Anytime after specified start" and specify a time after which the request can be sent to the Administration Process.
   - Choose" Anytime before specified end" and specify a time by which the request must be sent to the Administration Process.
   - Choose "At any time (after approval)" to submit the request to the Administration Process any time after the plan is approved.

7. Under Requesters and Authors, the plan automatically displays the name of the person who submitted the plan. However, you can edit either field if, for example, you submitted the plan for someone else but you do not want to remain as the requester or the only author.

8. Click the Approval tab, and complete one or both of these fields:
<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval profile</td>
<td>Do one:</td>
</tr>
<tr>
<td></td>
<td>• Click &quot;Choose Profile&quot; and select the approval profile from the list.</td>
</tr>
<tr>
<td></td>
<td>• Click &quot;Clear Profile&quot; to remove the assigned profile.</td>
</tr>
<tr>
<td>Require approval from</td>
<td>Enter the names of users or groups to add to the approval list.</td>
</tr>
</tbody>
</table>

9. Click the Notifications tab. This tab lists, by role, those who will be notified at each stage of the plan. Add or remove the selection of any role as needed. Check Others, and then select from the list to add users to the notification list.

10. (Optional) Click the Variables tab. The default variable is Execution time, and the value is unspecified. To specify an execution time at which the Administration Process executes the plan, you must edit the variable.

11. Click the Constraints tab to view and edit the constraints that will apply to the moves executed by this plan. By default, no constraints are assigned automatically.
   • Referenced constraints -- Lists the constraints that apply to this plan. Click Edit to add or remove one of the constraints.
   • Ad-hoc constraints -- Click New to create a new constraint.

12. When you finish changing the draft plan, click Apply.

13. Click Change Control to promote this plan from draft state to prepared state, and then click OK.

See Also
- Creating constraints in the Domino Change Manager
- Database move sequences
- Editing and creating plan variables

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Glossary

Feedback on Help or Product Usability?
Creating an approval profile for resource balancing

You use an Approval Profile document to create a set of approvers. Then you can assign the approval profile to one or more resource-balancing plans. You can include users and groups as members of an approval profile. However, if you list a group as a profile member, only one group member must approve the plan. For example, if you move a database that is used by the marketing group, you may want one user, but not all, to approve the plan. If you want all members of a group to approve a plan, enter each user’s name in the approval profile.

Changes to the Approval Profile document are tracked for you and listed in the Creation and Modifications section.

To create an approval profile

1. Make sure that you have the Change Admin role in the ACL of the Domino Change Control database.
2. From the Domino Administrator, click the Server - Analysis tab.
3. Open the Domino Change Control view, and then select the Setup - Approval Profiles.
4. Click Create - Approval Profile.
5. On the Basics tab, complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name (unique)</td>
<td>Enter a unique name for the profile.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Enter a description.</td>
</tr>
<tr>
<td>Category</td>
<td>(Optional) Select a category or enter a new category name.</td>
</tr>
<tr>
<td>Members</td>
<td>Select the names of users or groups to include in this approval profile.</td>
</tr>
</tbody>
</table>

6. Click the Administration tab, and complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>By default, the owner is the person who creates this document.</td>
</tr>
<tr>
<td>Administrators</td>
<td>Enter the names of users who can edit this document.</td>
</tr>
<tr>
<td>Prevent deletion</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>- No (default) -- To allow a Change Administrator to delete the plan.</td>
</tr>
<tr>
<td></td>
<td>- Yes -- To prevent anyone except a Change Administrator from deleting the plan.</td>
</tr>
<tr>
<td>Prevent design refresh</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>- No -- To allow the upgrade of all template documents during a version upgrade.</td>
</tr>
<tr>
<td></td>
<td>- Yes (default) -- To prevent edited template documents from being overwritten during a version upgrade. This will not affect any documents that the user creates -- it will only affect documents that match those from the template’s copy.</td>
</tr>
</tbody>
</table>

7. Click OK.

See Also
Preparation a plan document for resource balancing
Resource-balancing plans
MONITORING

Viewing the status of resource-balancing plans

You can view the status of resource-balancing plans in the Domino Change Control database (DOMCHANGE.NSF).

1. From the Domino Administrator, click the Server - Status tab and open the Plans view.
2. Choose one of the following views:
   - Awaiting Approval -- To view plans that have been drafted and submitted, but have not been approved by all approvers.
   - Awaiting Commitment -- To view plans that have been fully approved, but have not yet been committed for completion.
   - Active Plans -- To view plans that have been fully committed and are being carried out by Change Manager.
   - By Status -- to view all plans grouped by status.

See Also
Resource-balancing plans

Glossary

Feedback on Help or Product Usability?
Setting up plan documents for resource balancing

When you create a resource-balancing plan document, you access directly or edit information in other documents in the Domino Change Control database (DOMCHANGE.NSF). These documents support the plan and play a critical role in providing structure to the plan.

You use the following resource balancing plan documents to provide the following information:

- **Constraints** -- Specify when moves can be made.
- **Variables** -- Assign a common name that has a referenced value.
- **Notification messages** -- Create custom notification messages that are sent whenever the plan status changes.

See Also

Preparing a plan document for resource balancing
Working with Domino Change Manager constraints

When you create a plan, you can add constraints to specify when the moves will be made to affected databases. By default, no constraints are added to a plan automatically. When you edit the plan, you can assign one or more constraints or constraint sets. You can add a constraint to plans or to database move sequences in a plan. The Domino Change Control database (DOMCHANGE.NSF) includes predefined constraints and constraint sets.

The default constraints are:

- During standard change windows
- Is after hours
- Not during change freeze period
- Not on workdays

The default constraints sets are:

- Major change
- Minor change
- Trivial change

To view constraint definitions

You can view a definition of each constraint and constraint sets.

1. Make sure that you have the Change Admin role so that you can edit, create, and delete constraints.
2. From the Domino Administrator, click the Server - Analysis tab.
3. Click Domino Change Control, and then select the Setup - Constraints view.

See Also

Preparing a plan document for resource balancing
Creating constraints in the Domino Change Manager
Creating constraint sets in the Domino Change Manager
Creating constraints in the Domino Change Manager

Use constraints to specify time limitations for database moves.

1. You must have the Change Admin role to create a new constraint.
2. From the Domino Administrator, click the Server - Analysis tab.
3. Click Domino Change Control, and then select the Setup - Constraints view.
4. Click Create - Constraint.
5. On the Basics tab, complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name. This name appears in the Setup view.</td>
</tr>
<tr>
<td>Unique name</td>
<td>Enter a unique name. This is the name of the document you are defining.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description of the constraint.</td>
</tr>
</tbody>
</table>

6. Under Behavior, click Choose Function, and then select a function.
7. Click the Variables tab, and then click Edit to add a variable to this constraint.
8. Click OK to save and close the document.

Note To edit a constraint, select a constraint and edit the fields listed in Steps 5 through 7. When you edit a constraint, you can also edit the arguments for assigned variables.

See Also
- Creating constraint sets in the Domino Change Manager
- Preparing a plan document for resource balancing
- Working with Domino Change Manager constraints
Creating constraint sets in the Domino Change Manager

You use constraints to specify time limitations for database moves.

1. You must have the Change Admin role to create a new constraint.
2. From the Domino Administrator, click the Server - Analysis tab.
3. Click Domino Change Control, and then select the Setup - Constraints view.
4. Click Create - Constraint Set.
5. On the Basics tab, complete these fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a name. This name appears in the Setup view.</td>
</tr>
<tr>
<td>Unique name</td>
<td>Enter a unique name. This is the name of the document you are defining.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description of the constraint.</td>
</tr>
</tbody>
</table>

6. Click the Constraints tab, and then click Edit.
7. Select the constraints you want to include in this constraint set.
8. Click OK to save and close the document.

See Also
- Working with Domino Change Manager constraints
- Creating constraints in the Domino Change Manager
- Preparing a plan document for resource balancing
Working with plan variables

A variable is a convenient way to specify context for the execution of the demand sets and their demands. Values for variables that are defined within parent objects (such as plans and demand sets) can be used by lower-level objects, such as demands and constraints.

For example, you can define a plan variable called ExecutionTime. Then you can specify the value (in time) that you want a plan to be executed. You define a variable at a higher level (usually within a plan) and then reference it within a demand. When the value of a variable changes, all demands and plans that reference that variable automatically use the new value.

If you have the Change Administrator role, you can add, delete, or modify local variables that are referenced by function arguments and other variables.

See Also
- Editing and creating plan variables
- Preparing a plan document for resource balancing
- Working with Domino Change Manager constraints
Editing and creating plan variables

The one default variable for the Domino Change Control database is called Execution Time. This variable determines when the Administration Process executes the plan.

To edit a variable

1. You must have the role Change Admin role.
2. From the Domino Administrator, click the Server - Analysis tab.
3. Open the Domino Change Control view, and then select the Plans - by Status view.
4. Open a plan in edit mode, and then select Variables tab.
5. Click Edit.
6. In the Edit Variables dialog box, select a variable from the list, and then click edit.
7. Select a Type:
   - Text
   - Number
   - Time
   - Boolean
8. For the field Special, do one:
   - Choose Simple value, and then enter a Text value.
   - Choose Formula, and then click Keywords and Variables and copy a text formula.
   - Chose Unspecified to leave the value undefined.

To create a new variable

1. Perform Steps 1 through 5 in the procedure above.
2. In the Edit Variables dialog box, click New
3. In the Name field, enter a name for the variable.
4. Complete the Type and Special fields.

See Also

- Preparing a plan document for resource balancing
- Working with Domino Change Manager constraints
- Working with plan variables
Creating plan notification messages

Resource documents define the standard messages that are sent during the various phases of plan execution. The plan Resources are referenced by the Interface message definitions. They correspond to each step of the workflow, such as Approve, Prepare, or Commit. You can edit the text of any of the plan messages to customize them.

To edit a resource document

1. Make sure that you have the Change Admin role.
2. From the Domino Administrator, click the Server - Analysis tab.
3. Click Domino Change Control, and then select the Setup - Resources view.
4. Select the Standard Plan Message resource, and then click Edit.
5. Under Content body, make changes to the message text.
6. Click OK to save and close the document.

See Also
Preparing a plan document for resource balancing
Resource-balancing plans