

Dell™ Active Roles 7.0

Management Pack Technical Description



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Legend

 **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

 **WARNING:** A WARNING icon indicates a potential for property damage, personal injury, or death.

 **IMPORTANT NOTE, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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Management Pack for SCOM

The Active Roles Management Pack for Microsoft System Center Operations Manager (SCOM) provides a basic solution for monitoring availability and health of the Active Roles Administration Service and its information store, Active Roles replication status, and availability of the Active Roles Web Interface. By detecting, alerting on, and automatically responding to critical events, the Management Pack helps indicate, correct, and in many cases prevent outages of the Administration Service and Web Interface.

Features

The Management Pack provides the features that you need to monitor your Active Roles environment, such as automated discovery, availability and performance monitoring, and replication monitoring. The Management Pack alerts you to the following error conditions:

- Administration Service is not responding
- Active Roles replication failure has occurred
- Connection to the Active Roles database has been lost
- Administration Service failed to update a Dynamic Group
- Administration Service failed to update a Group Family
- Active Roles Web Interface is unavailable

Monitoring views

The monitoring views are used to centrally monitor availability and health of the Active Roles components in the Operations Manager console's Monitoring pane. The Management Pack provides the following views:

- **Alerts** Displays the alerts on the computers running the Active Roles Administration Service or Web Interface.
- **Computers** Shows information about the state of the computers running the Active Roles Administration Service or Web Interface.
- **Events** Displays the events on the computers running the Active Roles Administration Service or Web Interface.
- **Performance** Shows performance information collected from the computers running the Active Roles Administration Service or Web Interface.
- **Service Level Exceptions** Displays the unresolved alerts that have exceeded service levels on the computers running the Active Roles Administration Service or Web Interface.
- **Task Status** Shows information indicating task results on the computers running the Active Roles Administration Service or Web Interface.
- **Discovery** Contains separate views allowing you to examine the state of the computers running the Web Interface, computers running the Administration Service, and computers running the Web Interface or Administration Service.
- **Services Monitoring** Contains the views allowing you to monitor availability, health and performance of the Administration Service instances in your environment.
- **Web Interfaces Monitoring** Contains the views allowing you to monitor availability and health of the Web Interface instances in your environment.

Getting started

Install the Management Pack by importing the ActiveRoles.SCOP.MP.xml file into System Center Operations Manager. You can install this Management Pack on System Center Operations Manager 2007 R2 or System Center 2012 - Operations Manager.

Monitoring Active Roles Administration Service

This section briefly discusses the processing rules that the Management Pack uses to monitor availability and health of the Active Roles Administration Service:

- General response
- Replication monitoring
- Monitoring of connection to configuration database
- Monitoring of Dynamic Group-related operations
- Monitoring of Group Family-related operations
- Internal error
- Critical error on startup
- License system failure

Monitoring of general response and replication is performed by using custom, script-based processing rules. Those rules run on a scheduled basis, analyzing information returned by the scripts and raising an appropriate event if an error situation is detected. The schedule is stored as part of rule configuration data, and can be adjusted by managing rule properties in the Operations Manager console.

General response - Script

This rule uses a script to check the responsiveness of the Administration Service by periodically issuing a simple request to the Service. By default, this rule is scheduled to run every 10 minutes. The schedule can be adjusted by managing rule properties in the Operations Manager console.

General response - Alert

This rule generates an alert when the **General response** script detects that the Administration Service is unavailable.

Possible causes of the alert include:

- Administration Service is not running
- Administration Service is not configured properly
- Administration Service has encountered a critical error
- Administration database is unavailable

Replication monitoring - Script

This rule uses a script to check the status of Active Roles replication. The script is intended to run on the Publisher Administration Service so as to verify the replication status of the Publisher and Subscribers. By default, this rule is scheduled to run every 30 minutes. The schedule can be adjusted by managing rule properties in the Operations Manager console.

Replication monitoring - Alert

This rule generates an alert when the **Replication monitoring** script detects that the Active Roles replication status indicates a replication failure.

Possible causes of the alert include:

- The SQL Server Agent service is not started on the computer running the Publisher SQL Server
- The Snapshot Agent or a Merge Agent is not started at the Publisher SQL Server
- The Merge Agent uses incorrect credentials when connecting to the Publisher or a Subscriber
- The Snapshot Agent uses incorrect credentials when connecting to the Publisher

For more information, and details on how resolve replication-related problems, refer to the “Troubleshooting” section in the *Replication: Best Practices and Troubleshooting* document, which is part of the Active Roles product documentation set.

Monitoring connection to configuration database

This category includes the event-based processing rules to monitor health of the connection to the configuration database:

- **Connection to database has been lost** Administration Service has lost connection to the configuration database, and is making attempts to re-establish the connection.
- **Connection to database has been restored** Administration Service has restored connection to the configuration database.

The following sub-sections elaborate on each of these processing rules.

Connection to database has been lost - Alert

This rule generates an alert indicating that the Administration Service has lost a connection to the configuration database, and is making attempts to restore the connection. For details, refer to the alert description generated by this rule. Losing the connection to the database does not affect the directory management functions of the Administration Service. All operations related to Active Directory management continue to work as expected.

Until after the connection has been restored, unavailable are the functions of the Administration Service that require access to the database. These include:

- Collecting data related to change history and user activity
- Retrieving and updating configuration data
- Retrieving changes to configuration data made by other Administration Services (both directly and via replication)
- Retrieving and updating virtual attributes stored in the configuration database

Connection to database has been restored - Alert

This rule generates an alert indicating that the Administration Service has restored the connection to the configuration database. For details, refer to the alert description generated by this rule. Once the connection has been restored, available are all the functions of the Administration Service that require access to the database.

Monitoring of Dynamic Group-related operations

This category includes the event-based processing rules to monitor the background activities of Active Roles related to Dynamic Groups:

- **Rebuilding has been started** Administration Service has been forced to re-calculate (rebuild) the membership list of a Dynamic Group.
- **Failed to add object to Dynamic Group** Administration Service failed to add an object to a Dynamic Group.
- **Failed to remove object from Dynamic Group** Administration Service failed to remove an object from a Dynamic Group.
- **Failed to process membership rule** Administration Service failed to apply a query-based membership rule when updating the membership list of a Dynamic Group.
- **Failed to update membership list** Administration Service failed to update the membership list of a Dynamic Group in accordance with the membership rules.
- **Failed to update membership list of nested group** Administration Service failed to update the membership list of an additional (nested) group generated to accommodate extra members of a Dynamic Group.
- **Failed to update membership rule upon deletion of object** When updating a Dynamic Group, Administration Service failed to delete or update a membership rule of a Dynamic Group upon deletion of an object.
- **Failed to look up object when updating** When updating a Dynamic Group, Administration Service failed to locate an object that is referred to by a certain membership rule. The object may have been deleted.
- **Failed to retrieve information from domain** Administration Service failed to retrieve information about Dynamic Groups from a certain domain.
- **Membership rule domain unavailable** When updating a Dynamic Group, Administration Service failed to apply a membership rule because the rule applies to a domain unavailable on the network.
- **Membership rule failed** When updating a Dynamic Group, Administration Service failed to apply one of the membership rules, which prevented all rules from being applied and stopped changes to the members list of the Dynamic Group.

The following sub-sections elaborate on each of these processing rules.

Dynamic Group - Rebuilding has been started - Alert

This rule generates an alert indicating that an administrator has forced Active Roles to re-calculate (rebuild) the membership list of a Dynamic Group. For details, refer to the alert description generated by this rule.

The administrator could start the rebuilding of a Dynamic Group from the **Members** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console.

Failed to add object to Dynamic Group - Alert

This rule generates an alert indicating that the Administration Service failed to add an object to a Dynamic Group due to a certain problem. The object is missing from the Dynamic Group until after the problem has been resolved. For details, refer to the alert description generated by this rule.

Try to force rebuilding of the Dynamic Group from the **Members** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console.

Failed to remove object from Dynamic Group - Alert

This rule generates an alert indicating that the Administration Service failed to remove an object from a Dynamic Group due to a certain problem. The object remains in the Dynamic Group until after the problem has been resolved. For details, refer to the alert description generated by this rule.

Try to force rebuilding of the Dynamic Group from the **Members** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console.

Dynamic Group - Failed to process membership rule - Alert

This rule generates an alert indicating that the Administration Service failed to apply a query-based membership rule when updating the membership list of a Dynamic Group. The failed rule is not taken into account, so the membership list may be incompliant with the membership rules. For details, refer to the alert description generated by this rule.

Try to force rebuilding of the Dynamic Group from the **Members** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console. Check membership rules by using the Membership Rules tab in that dialog box.

Dynamic Group - Failed to update membership list - Alert

This rule generates an alert indicating that the Administration Service failed to update the membership list of a Dynamic Group in accordance with the membership rules. The membership list may be incompliant with the membership rules. For details, refer to the alert description generated by this rule.

Try to force rebuilding of the Dynamic Group from the **Members** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console.

Dynamic Group - Failed to update membership list of nested group - Alert

This rule generates an alert indicating that the Administration Service failed to update the membership list of an additional (nested) group generated to accommodate extra members of a Dynamic Group. The membership list of the nested group may be incompliant with the membership rules. For details, refer to the alert description generated by this rule.

Try to force rebuilding of the Dynamic Group from the **Members** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console.

Dynamic Group - Failed to update membership rule upon deletion of object - Alert

This rule generates an alert indicating that the Administration Service failed to delete or update a membership rule of a Dynamic Group upon deletion of a certain object. The membership rule could be one of the following:

- Implicit inclusion or exclusion of that object from the Dynamic Group
- Query with a filter referring to that object
- Inclusion or exclusion of the members of the group represented by that object

For details, refer to the alert description generated by this rule.

To resolve these issues, delete or update membership rules by using the **Membership Rules** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console. Then, force rebuilding of the Dynamic Group from the **Members** tab in that dialog box.

Dynamic Group - Failed to look up object when updating - Alert

This rule generates an alert indicating that the Administration Service failed to locate an object when updating the membership list of a Dynamic Group in accordance with the membership rules. The object may have been deleted. The object could be referred to by:

- A membership rule to explicitly include or exclude that object from the Dynamic Group
- A query-based membership rule (the object may represent the base of a search or be a member of the search result set)
- A membership rule to include or exclude the members of a certain group (the object may represent the domain of that group)
- A directory synchronization (DirSync) query (this may be one of the objects returned by that query)

For details, refer to the alert description generated by this rule.

The membership rules referring to that object are inoperative and are not taken into account when updating the Dynamic Group, so the membership list may be noncompliant with the membership rules.

To prevent issues with the membership list of the Dynamic Group, check membership rules by using the **Membership Rules** tab in the **Properties** dialog box for that Dynamic Group, in the Active Roles console. Then, force rebuilding of the Dynamic Group from the **Members** tab in that dialog box.

Dynamic Group - Failed to retrieve information from domain - Alert

This rule generates an alert indicating that the Administration Service failed to retrieve information about Dynamic Groups from a certain domain. The Dynamic Groups contained in that domain are inoperative until after the problem has been resolved. For details, refer to the alert description generated by this rule.

Dynamic Group - Membership rule domain unavailable - Alert

This rule generates an alert indicating that Active Roles failed to update the members list of the Dynamic Group in accordance with one of the membership rules. The failed membership rule applies to a domain that is currently unavailable. The membership rule is disregarded, so the members list of the Dynamic Group may be noncompliant with the membership rules. For details, refer to the alert description generated by this rule.

Ensure that the domain is available on the network, and then update the Dynamic Group by clicking **Rebuild** on the **Members** tab in the **Properties** dialog box for that group in the Active Roles console or wait for Active Roles to update the Dynamic Group on a schedule.

Dynamic Group - Membership rule failed - Alert

This rule generates an alert indicating that Active Roles failed to update the members list of the Dynamic Group in accordance with one of the membership rules. As one of the membership rules failed, no membership rules are applied until the issue is resolved, so the members list of this Dynamic Group remains unchanged. For details, refer to the alert description generated by this rule.

Try forcing update of the Dynamic Group by clicking **Rebuild** on the **Members** tab in the **Properties** dialog box for that group in the Active Roles console. Check the membership rules on the **Membership Rules** tab in that dialog box.

Monitoring of Group Family-related operations

This category includes the event-based processing rules to monitor the background activities of Active Roles related to Group Families:

- **Cannot find configuration storage group** Administration Service failed to run a Group Family due to the following problem: The Group Family configuration storage group cannot be found.
- **Failed to retrieve configuration data** Administration Service failed to run a Group Family due to the following problem: Group Family configuration data cannot be retrieved from the Group Family configuration storage group.

- **Incorrect configuration data** Administration Service failed to run a Group Family due to the following problem: Incorrect configuration data was encountered in the Group Family configuration storage group.
- **Failed to retrieve configuration data for controlled group** Administration Service encountered an error when running a Group Family, failed to retrieve configuration data for a controlled group. Changes to the controlled group may not be applied until a subsequent run of the Group Family.
- **Failed to retrieve data from container** Administration Service encountered an error when running a Group Family, failed to search a certain container within the Group Family scope. Until a subsequent run, Group Family does not consider information about objects held in that container.
- **Failed to update configuration data** Administration Service encountered an error when running a Group Family, failed to update data in the Group Family configuration storage group. Information about controlled groups may be incorrect until a subsequent run of the Group Family.
- **Failed to update configuration data for controlled group** Administration Service encountered an error when running a Group Family, failed to update configuration data for a controlled group. The controlled group is not linked with the Group Family until a subsequent run of the Group Family.
- **Cannot find controlled group** Administration Service encountered an error when running a Group Family, failed to find a controlled group. Changes to the controlled group, if any, are not applied until a subsequent run of the Group Family.
- **Failed to create controlled group** Administration Service encountered an error when running a Group Family, failed to create a controlled group. Administration Service will attempt to create that controlled group during a subsequent run of the Group Family.
- **Failed to update membership list of controlled group** Administration Service encountered an error when running a Group Family, failed to update membership data for a controlled group. The membership list of the controlled group may be incorrect until a subsequent run of the Group Family.
- **Failed to create run task** Administration Service failed to create a task to run a Group Family. The Group Family is inoperative until the task is created.
- **Failed to modify run task** Administration Service failed to update a task to run a Group Family. The Group Family runs in accordance with the earlier schedule settings of that task.
- **Failed to delete run task** Administration Service failed to delete a task to run a Group Family. The Group Family continues to run in accordance with the schedule settings of that task.
- **Run task has been started manually** A task to run a Group Family was started manually.
- **Group Family run has been completed** Administration Service has completed a run of a Group Family.

Group Family - Cannot find configuration storage group - Alert

This rule generates an alert indicating that the Administration Service failed to run a Group Family due to the following problem: The Group Family configuration storage group cannot be found. The Administration Service cannot run the Group Family until the problem is resolved.

The configuration storage group may have been either inaccessible or deleted. For details, refer to the alert description generated by this rule.

Group Family - Failed to retrieve configuration data - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Group Family configuration data cannot be retrieved from the configuration storage group. The Administration Service cannot run the Group Family until the problem is resolved. For details, refer to the alert description generated by this rule.

Group Family - Incorrect configuration data - Alert

This rule generates an alert indicating that the Administration Service failed to run a Group Family due to the following problem: Incorrect configuration data was encountered in the Group Family configuration storage group. The configuration storage group may have been corrupted. The run of the Group Family has been canceled. For details, refer to the alert description generated by this rule.

Group Family - Failed to retrieve configuration data for controlled group - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Failed to retrieve configuration data for a certain group that is under the control of the Group Family (controlled group). Changes to the controlled group may not be applied until a subsequent run of the Group Family. For details, refer to the alert description generated by this rule.

Group Family - Failed to retrieve data from container - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Failed to search a certain container within the Group Family scope. The groupings that were calculated during this run of the Group Family may not take into account information about some objects held in that container. For details, refer to the alert description generated by this rule.

During a subsequent run of the Group Family, the Administration Service will attempt to search the entire Group Family scope, including the failed container, in order to re-calculate the Group Family groupings.

Group Family - Failed to update configuration data - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Failed to update configuration data in the Group Family configuration storage group. The Active Roles console may display incorrect information about results of the Group Family run and about groups that are under the control of the Group Family (controlled groups). For details, refer to the alert description generated by this rule.

During a subsequent run of the Group Family, the Administration Service will attempt to update configuration data in the configuration storage group.

Group Family - Failed to update configuration data for controlled group - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Failed to update configuration data for a certain group that is under the control of the Group Family (controlled group). The group is removed from the control of the Group Family. For details, refer to the alert description generated by this rule.

During a subsequent run of the Group Family, the Administration Service will attempt to locate the failed group and put it under the control of the Group Family.

Group Family - Cannot find controlled group - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Cannot find a certain group that is under the control of the Group Family (controlled group). Some changes to the controlled group may not be applied. For details, refer to the alert description generated by this rule.

During a subsequent run of the Group Family, the Administration Service will attempt to locate the controlled group and apply the changes, if any, to that group.

Group Family - Failed to create controlled group - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Failed to create a certain group to be put under the control of the Group Family (controlled group). For details, refer to the alert description generated by this rule.

During a subsequent run of the Group Family, the Administration Service will attempt to create the controlled group and apply the changes, if any, to that group.

Group Family - Failed to update membership list of controlled group - Alert

This rule generates an alert indicating that the Administration Service encountered the following problem when running a Group Family: Failed to update the membership list of a certain group that is under the control of the Group Family (controlled group). Some changes to the membership list of the controlled group may not be applied. For details, refer to the alert description generated by this rule.

During a subsequent run of the Group Family, the Administration Service will attempt to locate the controlled group and apply the changes, if any, to the membership list of that group.

Group Family - Failed to create run task - Alert

This rule generates an alert indicating that the Administration Service failed to create a task to run a Group Family. The Group Family is inoperative until the task is created. For details, refer to the alert description generated by this rule.

Group Family - Failed to modify run task - Alert

This rule generates an alert indicating that the Administration Service failed to update a task to run a Group Family. The Group Family continues to run in accordance with the earlier schedule settings of that task. For details, refer to the alert description generated by this rule.

Try to adjust the schedule settings by using the **Schedule** tab in the **Properties** dialog box for the Group Family configuration storage group, in the Active Roles console.

Group Family - Failed to delete run task - Alert

This rule generates an alert indicating that the Administration Service failed to delete a task to run a Group Family while the configuration storage group of that Group Family was successfully deleted. The Group Family continues to run in accordance with the schedule settings of that task, which may cause an error situation. For details, refer to the alert description generated by this rule.

Delete the run task manually. You can do this by switching the Active Roles console into Raw view mode, and then deleting the appropriate task from the **Configuration/Server Configuration/Scheduled Tasks/Group Family** container.

Group Family - Run task has been started manually - Alert

This rule generates an alert indicating that an administrator has forced Active Roles to run a Group Family. For details, refer to the alert description generated by this rule.

The administrator could start the run task for a Group Family by using the **Force Run** command on the configuration storage group of that Group Family, in the Active Roles console.

Group Family run has been completed - Alert

This rule generates an alert indicating that the Administration Service has completed the run task for a Group Family. For task results, refer to the alert description generated by this rule.

The alert description also includes the name of the Group Family configuration storage group, so you could use the **Properties** dialog box for that group in order to examine task results in more detail.

Internal error - Alert

This rule generates an alert when a fatal error occurs at Administration Service run time. Normally, the alert indicates that Administration Service execution stopped.

Critical error on startup - Alert

This rule generates an alert when a fatal error occurs at Administration Service startup time. The alert includes information detailing the error.

License system failure - Alert

This rule generates an alert when a failure occurs in the Administration Service licensing system. The alert includes information detailing the problem.

Monitoring Active Roles Web Interface

This section briefly discusses the processing rules that you can use to monitor availability of the Active Roles Web Interface.

Availability - Script

This rule uses a script to check the availability of the Web Interface. The script invokes a self-diagnostic script built into the Web Interface so as to verify the Web Interface configuration, including the customization settings, and to check whether the Administration Service is available.

The rule ensures that both the default and customized Web Interface sites are monitored properly if customization is performed by using the point-and-click tools included in the Web Interface.

The rule does not check the availability of the Web Interface functions that are based on custom ASP files integrated with the Web Interface, if any. An additional, custom rule needs to be implemented in Operations Manager to monitor such functions.

By default, this rule is scheduled to run every 30 minutes. The schedule can be adjusted by managing rule properties in the Operations Manager console.

Availability - Alert

This rule generates an alert when the **Availability** script detects that the Web Interface is unavailable.

Possible causes of the alert include:

- Web Interface is not running
- Web Interface is not configured properly
- Administration Service is unavailable

Monitoring performance

This section provides information on the processing rules based on performance counters that allow you to evaluate performance of the Administration Service:

- AD changes processed per second
- Changes queue length (AD + Database)
- Connected clients
- Database changes processed per second
- LDAP operations in progress
- LDAP operations per second
- Private bytes
- Queued post-processing policies
- Requests in progress
- Requests per second
- Script module average execution time
- Script modules executing

AD changes processed/sec

This rule collects **AD changes processed/sec** counter samples for the **AR Server:External Changes** performance object. A sample of the counter is the number of changes received from Active Directory and processed by the Active Roles Administration Service per second.

Changes queue length (AD + Database)

This rule collects **Changes queue length (AD + Database)** counter samples for the **AR Server:External Changes** performance object. A sample of the counter is the number of unprocessed changes that the Active Roles Administration Service received from Active Directory and from the Active Roles database.

Connected clients

This rule collects **Connected clients** counter samples for the **AR Server:Miscellaneous** performance object. A sample of the counter is the current number of the clients connected to the Active Roles Administration Service.

Database changes processed/sec

This rule collects **Database changes processed/sec** counter samples for the **AR Server:External Changes** performance object. A sample of the counter is the number of changes received from the Active Roles database and processed by the Active Roles Administration Service per second.

LDAP operations in progress

This rule collects **LDAP operations in progress** counter samples for the **AR Server:LDAP Operations** performance object. A sample of the counter is the current number of the LDAP operation requests that are in progress on the Active Roles Administration Service.

LDAP operations/sec

This rule collects **LDAP operations/sec** counter samples for the **AR Server:LDAP Operations** performance object. A sample of the counter is the number of LDAP operations executed by the Active Roles Administration Service per second.

Private bytes

This rule collects **Private Bytes** counter samples for the **Process** performance object specific to the Active Roles Service (arssvc) process. A sample of the counter is the amount of virtual memory (in bytes) that the Active Roles Administration Service process allocates (process private bytes).

Queued post-processing policies

This rule collects **Queued post-processing policies** counter samples for the **AR Server:Miscellaneous** performance object. A sample of the counter is the number of the post-processing policy operations queued by the Active Roles Administration Service.

Requests in progress

This rule collects **Requests in progress** counter samples for the **AR Server:Requests** performance object. A sample of the counter is the current number of the client requests being processed by the Active Roles Administration Service.

Requests/sec

This rule collects **Requests/sec** counter samples for the **AR Server:Requests** performance object. A sample of the counter is the number of requests received by the Active Roles Administration Service per second.

Script module average execution time

This rule collects **Script module average execution time** counter samples for the **AR Server:Script Modules** performance object. A sample of the counter is the average execution time of all script module instances run by the Active Roles Administration Service.

Script modules executing

This rule collects **Script modules executing** counter samples for the **AR Server:Script Modules** performance object. A sample of the counter is the current number of the script module instances being executed by the Active Roles Administration Service.

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Technical support resources

Technical support is available to customers who have purchased Dell software with a valid maintenance contract and to customers who have trial versions. To access the Support Portal, go to <https://support.software.dell.com>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. In addition, the portal provides direct access to product support engineers through an online Service Request system.

The site enables you to:

- Create, update, and manage Service Requests (cases)
- View Knowledge Base articles
- Obtain product notifications
- Download software. For trial software, go to [Trial Downloads](#).
- View how-to videos
- Engage in community discussions
- Chat with a support engineer