

Dell Precision Optimizer

User's Guide



Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

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

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Dell Precision Optimizer

Dell Precision Optimizer contains a powerful engine that allows you to dynamically configure your system settings to optimize the performance of your application. It also alerts you when software updates are available and automatically applies, if configured to do so. Dell Precision Optimizer contains an analytics section that collects extensive data about your system and helps identify potential issues.

In summary, Dell Precision Optimizer consists of the following components:

- Optimization
- Analytics
- System Updates




Each of the above components is accessible as a separate tab. Optimization is the first page that is seen when you launch the application by clicking the Dell Precision Optimizer from the **Desktop** or **Start** menu.

On Windows 7, the application may also be launched from **Start > Program Files > Dell > Dell Precision Optimizer**. The **OPTIMIZATION** page depicts the current resource utilization values of your system. This page displays the list of user created application profiles and also displays the active profiles along with available system updates if you click **SWITCH TO PRE-LEARNED PROFILES**.

Table 1. Icons on top right corner of all windows

Option	Function
-	Minimizes the application.
□	Maximizes the application.
X	Closes the application.

Table 2. Icons on menu bar of all screens

Option	Function
	Displays the help content.
	Fetches the About Page, the Feedback link, the Improve DPO settings.
	Displays all current notifications along with plug-in options for graphics and performance notifications.

Topics:

- [Profiles](#)
- [CPU and GPU Intelligence](#)
- [Graphics Plug-in Options](#)
- [Improve Dell Precision Optimizer](#)

Profiles

If you click **SWITCH TO PRE-LEARNED PROFILES** in Optimization tab, it displays the currently active and inactive profiles for the selected applications. A **profile** is a collection of system settings that are grouped to optimize the Dell Precision workstation's performance for your application. You can activate or deactivate a profile. Multiple profiles may be active at the same time. Even after you exit Dell Precision Optimizer, the system changes from your active profiles remain in effect.

Dell Precision Optimizer has several application-specific profiles to help enhance your experience. These profiles are disabled by default. You may have to enable the profile for your given application, if available in the Dell Precision Optimizer, to see its benefits.

New application profiles are made available through the Application Software updates available in the **SYSTEM UPDATES** module or **CHECK FOR PROFILE UPDATES** option from the **OPTIMIZATION** page.

CPU and GPU Intelligence

You can review CPU or graphics subsystem details by clicking the **CPU Details** or **GPU Details** links in the CPU or graphics dials on the **Optimization** page.

The CPU or **GPU Intelligence Chart Activity** page allows you to view the current processor and graphics subsystem utilizations. You can view the detail of your processor and graphics configurations.

To enable the collection and display of various processor or graphics data elements, toggle **Charting** from **Off** to **On**.

After enabling charting for CPU data, Dell Precision Optimizer starts collecting CPU data and displays it for all logical processors in the system. Similarly, when you enable the Charting for Graphics subsystem, the Dell Precision Optimizer starts collecting data and displays that data for all graphics processors found in the system.

NOTE:

- **Graphics data collection is supported for NVIDIA and AMD graphics adapters running the latest drivers. If you have Switchable Graphics enabled in the system BIOS, your graphics application may not execute on your NVIDIA or AMD controller. Therefore, you may not see any GPU utilization change.**
- **Graphics data only displays the name and driver information for the first active graphics adapter found in the system. If you have more than one graphics adapter (but different models), the name, driver, or the version of the first one is displayed. However, the performance data (like utilization, temperature, and so on) for all active adapters are displayed.**

Graphics Plug-in Options

Access the graphics plug-in options for your system by clicking **Notifications** in the graphics details on the **Optimization** page.

This page allows you to view the Radeon ProRender plug-ins that are available for your system for various ISV applications. You may choose to download and install them on your system if you have the corresponding ISV applications installed. If a plug-in is installed, you can uninstall it later using **Windows Programs and Features** page, accessible through the Control Panel.

The **Graphics Plug-in Options** page also displays a newer version of an installed Radeon ProRender plug-in, if available. Download and install the newer version.

NOTE: After the download and installation has started, exit the application. These operations continue in the background as long as you do not log off or reboot the system.

Improve Dell Precision Optimizer


The Dell Precision Optimizer Customer Experience Improvement Program allows the Dell customers to impact the development of future releases of Dell Precision Optimizer. By sharing information with Dell regarding how you use Dell Precision Optimizer, you can contribute to improvements of future versions of the product.

The Dell Precision Optimizer Customer Experience Improvement Program adheres to all of the provisions of the Dell privacy policy. Data collected will be limited to Dell Precision Optimizer usage and your workstation's service tag. No personal information or data will be collected. You have the option to opt in or out at any time.

To opt in or opt out of this program, select  > **Improve DPO** from the upper right side of the screen.

Select the radio button that corresponds to the desired selection, and select **Apply**.



Optimization

The **Optimization** page lists all the available profiles. Click  to view the names and descriptions of policies, followed by more guidance, if available, for the selected profile.

New application profiles are made available using Dell Precision Optimizer updates available in the System Maintenance module or **CHECK FOR PROFILE UPDATES**.


The application checks for the new profiles that are available when you click **CHECK FOR PROFILE UPDATES**. New profiles are downloaded, obsolete profiles may be deleted, and some profiles may be updated. This feature functions when the machine is connected to the Internet.

 **NOTE:** This option is available only for local administrators.

 **NOTE:** The software may come with special profiles that can be activated when no other profile is active. When the profile is activated, it is automatically deactivated by the software once they have started. The *Dell Factory Settings* profile is a hidden profile, activated when you click  **RESTORE**. It can be used to restore certain system parameters that are changed by Dell Precision Optimizer back to their factory defaults. If you select this option, then all active profiles are disabled. When you apply default settings, you must reactivate the profiles that are disabled.

If you are running Dell Precision Optimizer Premium software, click SWITCH TO ADVANCED OPTIMIZATION which lists all the applications that are either custom optimized on your system, or the applications for which you imported optimization settings. User can also click **SWITCH TO PRE-LEARNED PROFILES** which lists all the integrated profiles.

Use **SWITCH TO ADVANCED OPTIMIZATION** to optimize any application, even the ones for which Dell Precision Optimizer has a built-in legacy profile.

The process to optimize a new application is by selecting the target process using the  button. Either select an application from the list of most commonly used applications that are determined by Dell Precision Optimizer, or select **BROWSE FOR MORE** to select the executable application.

After you select the application, it is marked as **In Progress** until Dell Precision Optimizer finishes learning the behavior of the application using machine learning and applies learned optimization settings. During this stage, you can pause the application learning and later resume application learning. You must actively use the application for Dell Precision Optimizer software to learn the application's behavior and then determine the most optimal settings for that application. When your application is learning and the performance score is not displayed, ensure that you do not turn off the learning application, as Dell Precision Optimizer collects utilization data while optimizing the learning application.

You can also choose to cancel the learning at any stage, which will discard any learned information for that application. It typically takes between 1 and 5 hours to learn an application. However, if there are long periods in between where the application is not running or is inactive, this period may be much longer.

After the application is learned, Dell Precision Optimizer marks that application as **Optimized**. Sometimes, the optimized application may prompt you to **Reboot** the system or **Restart** the application for the optimizations to take effect. Use the **Disable/Enable** option for each optimized application if you want to temporarily turn off/on the optimizations applied by Dell Precision Optimizer for that application. You may want to do this if you have used Dell Precision Optimizer to optimize more than one application and they have conflicting optimization settings. In such a case, Dell Precision Optimizer displays a warning message before you enable the optimization for the conflicting application.

After optimization, the overall performance score of the application and a bar graph with CPU and Storage improvement scores are displayed.

You can import or export its configurations. Dell Precision Optimizer shows the stock icon for any imported profile instead of the actual application icon.

 **NOTE:**

- Only a local system administrator is allowed to import an application profile.

- **When you switch from Pre-learned profiles view to Advanced view or conversely, all Enabled or Optimized profiles are disabled before the switch. When switching from Advanced to Pre-learned profiles view, if Dell Precision Optimizer is still learning an application, the learning is cancelled before the switch.**

Analytics

The **Analytics** page helps in analyzing the system:

Table 3. Features

Option	Function
Workload Analysis	This option allows you to track system resource utilization – CPU, Memory, GPU, and Disk – while you run your specific work load. Once the report is ready, click VIEW REPORT to view the report.
System Analysis	When enabled, this feature runs for the specified period and collects system configuration and subsystem usage data. This data is collected in the background and is compiled in the form of a System Analysis Report at the end of the period.
System Diagnostics	This option allows you to generate and view full system health and diagnostic reports for your system.

Topics:

- [System analysis](#)
- [System diagnostics](#)
- [Workload analysis](#)

System analysis

The **Analytics** page allows you to enable or disable the Dell System Analysis feature. Click **RUN NEW REPORT** button to enable or disable the Dell System Analysis feature. When enabled, System Analysis runs for the specified period and collects system configuration and subsystem usage data. This data is collected in the background and is compiled in the form of a System Analysis Report at the end of the specified period.

System Analysis reports contain data such as fan speed, thermal data, battery usage, and processor utilization. These reports can help you understand the behavior of your system under the operating environment that was present when the report was running. You can configure the following options that control the operation of System Analysis.

Report duration

The report duration settings on the **Analytics** page controls how often reports are generated. Daily reports are generated whenever the system date changes, which may be a period less than 24 hours. The report frequency period does not include the time your system spends in **Sleep**, **Hibernate**, or **Shutdown** states.

Number of reports

The number of reports setting on the **Analytics** page controls how many reports are generated before the **System Tracking** feature gets disabled automatically. For example, if you configure the system with a Report Duration of 10 hours and a Number of Reports of 3 reports, then you should expect to see your first report after 10 hours. Two new reports should be seen every 10 hours after the first one. **System Tracking** feature should stop after three reports are generated.

View report

The **VIEW REPORT** page shows you the number of previously completed reports. To view these reports, click **VIEW REPORT**. If multiple reports are available on your system, you can select a report to view by clicking the left and right arrows on the top of the report page. The bottom right side of the report page displays detailed information and graphs from the selected report.

System diagnostics

To generate a full system health and diagnostic report, click **RUN NEW REPORT**. To view the report, click **VIEW REPORT**. The report generation usually takes few seconds.

View system diagnostics Report

This button is grayed out when no **System Diagnostics** has been generated. Once a report has been generated, click **VIEW REPORT** to view the following:

- System Report
- Reliability Report
- Battery Report (*This report is available on Windows 8 and later*)

The default behavior is to show the diagnostic part of the Full System Report. To view the full system report, click **Show Full System Report**.

Workload analysis

To start tracking the system resource utilization – CPU, memory, GPU, and disk – while a specific workload is executing, click **RUN NEW REPORT**. To turn off tracking after the work is completed, click **STOP**.

NOTE: The report automatically stops if you shut down or reboot the system.

After clicking **RUN NEW REPORT**, configure the options for the **Workload Analysis** report. The report runs until manually stopped or the timeout limit is reached. Setting the **Automatic Timeout** feature prevents the report from running indefinitely should you forget to turn off workload analysis tracking.

Once the report is ready, click **VIEW REPORT** to see the report.


NOTE: It may take a few minutes to prepare the report after you click **VIEW REPORT**.

View workload analysis report

To view the report generated upon the previous activation of the Workload Analysis, click **VIEW REPORT**. You can also save the report as PDF.

The Workload Analysis report displays the process specific information on charts that shows the top five processes of system resource, so that user can assess the impact of applications.

Save report

Click  **SAVE AS PDF** to save the selected report in a PDF format.

Delete report

Click **Delete** to delete the currently selected report.

Reading a graph

The X-axis shows the range of data or specific value collected for the given system parameter. The Y-axis displays the percentage of time, the given range (or specific value) that was found during the report interval. For example, in the above report for *Temperature* (Location Memory), the graph shows the range of temperature in degrees Celsius on the X-axis whereas the Y-axis shows the percentage of time the temperature was found to be in the range, say 30-40 C.

System Updates

The **System Updates** page lists the available software updates for your system.

System Updates are Dell provided updates for your system's hardware and software configuration. Windows Updates are available within your operating system and are not available through this module.

Update filters

All software updates are categorized based on three criteria:

- **Criticality** (Critical/Recommended/Optional)
- **Type** (Hardware Drivers/BIOS Updates/Application Software/Firmware Updates)
- **Device Category** (Audio/Mouse and Keyboard/Storage/Chipset/Network and Bluetooth/Video/All others)

The **System Updates** page contains three sets of check boxes – one set for each of the above – allowing you to select/deselect updates based on their Criticality, Type, and Device Category. Selected updates have a check mark before their names. It is not possible to select or deselect individual updates by name.

The **System Updates** page contains the following options:

Table 4. List of buttons and functions

Option	Function
Check for Updates	<p>Click the Check for Updates button to check for available updates. This operation may take a few minutes to complete. Once the operation completes, the list of all available updates is displayed in the right pane and all updates are selected by default. Individual updates are grouped based on their criticality, and the appropriate criticality icon is also displayed before each group.</p> <p>The date/time when the last check for updates was performed (either manually or by Dell Precision Optimizer automatic updates) is displayed under this button.</p>
Apply Selected Updates	Click the Apply Selected Update button to go to a confirmation page and apply the updates.
Apply Updates	<p>Click the Apply Update button on the confirmation window to download currently selected updates and install them on your system.</p> <p>NOTE: It is recommended that you create a system restore point and close all running applications before applying any updates.</p> <p>Ensure that you have selected the appropriate filters before clicking this button. To filter out the updates that you do not want to apply, you must uncheck the appropriate Criticality, Type and Device Category check boxes on this screen. This operation may take a few minutes to complete. A reboot may be required once the operation completes. Restart your system when notified by Dell Precision Optimizer. Click the Apply Update button on the confirmation window to download currently selected updates and install them on your system.</p>
View History Log	Click this link to display the logs containing detailed information of the previous Update History.
Turn On	Click this button to schedule automatic updates. The various options and filters to be applied can be configured in the Automatic Update Setting page.

The list of available updates are displayed on this tab. The tab further displays detailed information including the Version and Release Date.

- Check or Uncheck **Type** (Hardware Drivers, BIOS Updates, Application software, Firmware Updates) check boxes to select or deselect the corresponding updates from the selection.
- Check/Uncheck criticality (**Critical/Recommended/Optional**) check boxes to select or de-select the corresponding updates from the selection.
- Click **Apply Update** button to install the current selection of updates.

The software can check the Dell server to retrieve the list of updates available for your specific system and/or download and install certain updates upon your request. Updates can be configured so that they are done either manually or periodically. The updates are classified as **Critical**, **Recommended** or **Optional**.

All updates belong to one of the following four types:

- Hardware Drivers
- BIOS Updates
- Application Software
- Firmware Updates

In addition, the following seven categories exist for updates:

- Audio
- Chipset
- Mouse and Keyboard
- Network and Bluetooth
- Storage
- Video
- All others

If the software is configured to **Check** or **Install Update** periodically, then the above filters are used to determine which updates are displayed to the user, or which will be downloaded and installed on the system. For example, if the user selects only Critical Updates, all 4 types and 7 categories are downloaded and installed. However, if the Dell Server has one Recommended BIOS Update or one Optional Video Driver update for your system, then these two updates are not displayed or installed.

Notifications

The application may give notifications to the user using pop-up dialog boxes to inform the user if some problem occurred during a check for updates, or if a system reboot is required for an installed update to work correctly. You may see a dialog box offering the following options:

- To start the reboot process, click **Yes**. Ensure that you close all other applications and save your data before proceeding.
- To halt the update installation process, click **No**.

Topics:

- [Settings](#)
- [History Log](#)
- [Proxy Settings](#)

Settings

Click **Turn On** from the **System Updates** page to configure automatic updates.

Update Frequency

This selection can be used to schedule weekly or monthly updates.

Table 5. Update Frequency

Option	Function
Weekly	Select this option to allow the application to perform weekly update operations based on other filters selected on the Automatic Update Setting page.
	Select the day of the week (Monday - Sunday), and then select the time of the day (AM/PM) when the operation is scheduled.
Monthly	Select this option to allow the application to perform monthly update operations based on other filters selected on the Automatic Update Setting page.

Table 5. Update Frequency (continued)

Option	Function
	Select the day of the month (1-28), and then select the time of the day (AM/PM) when the operation is scheduled.

Update Type

This selection identifies the action to be performed in the automatic mode.

Table 6. Update Type

Option	Function
Check for Updates Only	The application notifies you, if there are any updates available based on your filter selection. Updates are not downloaded or automatically installed to the local system.
Automatically download and install updates	The application downloads and installs any available updates based on your filter selection before notifying you.

Updates to Include

The **Automatic Update Setting** page also contains three sets of check boxes allowing you to filter scheduled updates based on their **Criticality**, **Type**, and **Device** category. The check boxes on this page are applicable to scheduled updates only.

- **Criticality** - Critical/Recommended/Optional
- **Type** - Hardware Drivers/BIOS Updates/Application Software/Firmware Updates
- **Device Category** - Audio/Mouse and Keyboard/Storage/Chipset/Network and Bluetooth/Video/All others

Table 7. Options

Option	Function
Cancel	Click Cancel to exit the settings page without saving any changes.
Apply	Click Apply to save your changes (if any).

History Log

Click on the **View History Log** link on the **System Updates** page to display the logs containing detailed information of previous updates. After viewing the history logs, click **Close** to return to the **System Updates** page.

Proxy Settings

Dell Precision Optimizer takes the proxy settings from the Microsoft Internet Explorer web browser which works usually. However, there may be systems where the user has specific proxy settings that are not set up correctly in the Internet Explorer. In such cases, this option allows you to configure Dell Precision Optimizer to connect to the Dell servers through the specified Internet proxy, if required.

Table 8. Proxy Settings

Option	Function
Use Current Internet Proxy Settings	Use existing internet proxy settings on the system. A systems global proxy configuration for Windows is set in the Microsoft Internet Explorer web browser.
Proxy Server	Enter the name or the IP address of the proxy server.
Proxy Port	Enter the proxy port number.

Table 8. Proxy Settings (continued)

Option	Function
Use Proxy Authentication	Select the check box to use the proxy authentication.
Username	Enter the user name for accessing the proxy server.
Password	Enter the password for accessing the proxy server.
Show Password	Select the check box to show the password for the proxy server.

Notifications

The **Notifications** section displays all current notifications. You can view the **Plug-In Options for Graphics** and **Performance Notifications** in this section.

Plug-In Options for Graphics

Dell Precision Optimizer allows you to install plug-in options that are certified for some applications which you may be using on your system. To find out whether Dell provides any certified plug-in options for your specific system, click **View all**.

NOTE: This section is not displayed if plug-in options are not available for your system.

The certified version that you have downloaded and installed may be an older version, than the latest version is available in the Dell support site for your system. If you need to switch back to the latest graphics plug-in options (which may or may not be certified), use the System Updates page.

Install Plug-In for Graphics

Click **Notifications** on the upper right corner of the **Optimization** page to view the available plug-in options for graphics. This link is disabled if Dell Precision Optimizer did not find any available certified drivers for your system or you have not run **CHECK FOR UPDATES** from the **System Updates** page even once.

NOTE: Dell Precision Optimizer checks for available plug-in options when you either run **CHECK FOR UPDATES** manually or run it periodically in auto mode.

Click **View all** to see all the available plug-in options and their versions. If that specific plug-in version is not already installed, an option to **Download and Install** is displayed.

This page also shows whether or not one of these plug-in options are already installed on your system.

Once you start to download and install a plug-in option from this page, you would not be able to either check for updates, nor apply any updates.

Once the update is complete, a window indicating the status of the update is displayed.

NOTE: The certified driver that you have downloaded and installed may be an older version than the latest available from the Dell support site for your system. If you need to switch back to the latest graphics driver (which may or may not be certified), use the System Updates screen.

Performance Notifications

Enabling the toggle allows you to track and view any Performance Notifications generated by the Dell Precision Optimizer. These notifications are generated only when either System Analysis or Workload Analysis is running and when either high CPU, Memory, or Disk utilization is detected by Dell Precision Optimizer.

To view any existing notifications, click **View all**.

Troubleshooting

Table 9. Installation Issues

Issue	Solution
Can I use Dell Precision Optimizer on my non-Dell laptop or desktop?	No. Dell Precision Optimizer software has been especially designed to optimize the performance of your Dell system. Dell Precision Optimizer does not run on any non-Dell system.
Why does the Dell Precision Optimizer installer fail with a message saying my system is not supported?	Dell Precision Optimizer does not install on operating systems other than Windows 7, Windows 8, or Windows 10. Windows Vista or earlier versions are not supported.

Table 10. Dashboard Page

Issue	Solution
Why don't I see the Graphics Utilization bar on the Dashboard page?	This is not a cause for concern. Graphics utilization is not available on some Dell systems. Based on the configuration of your system, this data may not be available. In some cases, even if the graphics adapter is supported by Dell Precision Optimizer, the graphics driver may not be compatible OR the current active display may not be through the supported graphics adapter. This may happen later if Switchable Graphics is enabled on the system.

Table 11. Optimization

Issue	Solution
Why do I see Policy needs reboot message?	Some of the Dell Precision Optimizer policies change system attributes that require a reboot before the changes can take effect. When this happens, the user is informed and given an opportunity to reboot the system. You can decide to reboot later but the changes applied to your system will become effective only after you reboot. Some examples of policies that require reboot are those that change Processor Hyper-Threading, Processor Cores, and so on.
Why do I see Policy needs application restart message?	Some of the Dell Precision Optimizer policies change system attributes that require the ISV application to be restarted before the changes can take effect. When this happens, the user is informed and given an opportunity to restart the ISV application. You can decide to continue using the application but the changes applied to your system will become effective only the next time the application is started. Some examples of policies that require application restart are those that change the NVIDIA settings.
Why do I see Policy conflict occurred message?	You may have two different active profiles that contain policies that change the same system attribute to different values. When such a situation is detected by the Dell Precision Optimizer, one of the policies is aborted and the user is notified. Dell Precision Optimizer determines a policy conflict at application runtime, not policy selection. To avoid such a situation, you must not activate conflicting policies at the same time. Such policies are meant to be enabled one at a time to optimize the system for ISV applications running in

Table 11. Optimization (continued)

Issue	Solution
	different modes. If you get a policy conflict message, disable one of the profiles.

Table 12. Dell System Updates

Issue	Solution
Why does Check for Updates or Apply Updates fail?	<p>Check for Updates or Apply Updates may fail if you do not have an internet connection or if the Dell server is not reachable. Check your network connection and try again after some time.</p> <p>You may also see this failure because of a conflict with some other application that updates your system such as Dell Client System Update software. If this happens, please retry the operation after closing other applications and associated update schedulers.</p>
Why do I see Update requires reboot message sometimes?	<p>Not all software updates require the system to be rebooted. If you get this message, it means that the software update that was just applied can only become effective once your system is rebooted. Save all your data and close all running applications before rebooting your system.</p>
Why do I see the same list of available updates even after I apply some updates?	<p>The list of available updates refreshes only after you run Check for Updates again. The list does not refresh after apply updates.</p>


Table 13. Analytics

Issue	Solution
Does enabling the Dell System Analysis or Workload Analysis impact my system's performance?	<p>Dell System/Workload Analysis is a very powerful tool and has been extensively tested to ensure that it does not adversely impact your system's performance or battery life. However, bear in mind that it is a tracking tool meant to be used as needed. You need not keep it enabled at all times.</p>
Why do I see System Analysis reports still in the running state in the user interface even though the reports should have completed?	<p>The System Analysis report status is not updated automatically in the user interface. Exit and run the application again to view the updated status in the user interface.</p>
Why do I see a blank Workload Analysis report?	<p>You may encounter this problem on some systems the first time you run a Workload Analysis report. Run the report again to resolve this issue.</p>

Table 14. CPU and Graphics Intelligence

Issue	Solution
Does enabling the CPU or Graphics Intelligence graphs impact my system's performance?	<p>As with Dell System or Workload Analysis tools, this tool is meant to be used as needed. You need not keep it enabled at all times.</p>

Contacting Dell

 **NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.**

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit dell.com/support.
2. Select your support category.
3. Verify your country or region in the Choose a Country/Region drop-down menu at the top of page.
4. Select the appropriate service or support link based on your need.