CoreImage Device Management
Software Distribution, Maintenance, GreenIT, Reboots

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Overview
This document outlines various device management methods used on HITS CoreImage computers. It describes and illustrates the maintenance, software update, distribution and power management techniques at a high level to provide a basic understanding and familiarity with the user experience. The intended audience of this reading is consumers or potential consumers of the CoreImage Windows product.
CoreImage Maintenance

CoreImage Maintenance is an automated mechanism used to apply and maintain a standardized set of configurations on CoreImage computers, derived primarily from values in the Core Workstation Database (CWDb). This includes actions such as installing printers and software provisioned in CWDb, setting administrators, and configuring MiChart settings. Maintenance is also the primary means of enacting:

- Delayable reboot - when a reboot is needed but can be delayed (ref Reboot section below for more details)
- Daily shutdown of GreenIT enabled workstations - for power conservation

The Workstation Information application (located in the Windows Start menu on all CoreImage machines...shown below) can be used to display the overall Maintenance status of a specific computer.

![Workstation Information application](image)

**Key Maintenance Metrics**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Began</td>
<td>Mon 12/04/2017 - 18:03:10.05</td>
</tr>
<tr>
<td>Last Completed</td>
<td>Mon 12/04/2017 - 18:08:21.07</td>
</tr>
<tr>
<td>Last Succeeded</td>
<td>Mon 12/04/2017 - 18:08:19.71</td>
</tr>
<tr>
<td>Last Result</td>
<td>Success</td>
</tr>
<tr>
<td>Reboot Pending</td>
<td>False</td>
</tr>
<tr>
<td>Machine Up Time</td>
<td>26 minutes, 2 seconds</td>
</tr>
</tbody>
</table>
Scheduled Maintenance

Scheduled Maintenance is run daily on CoreImage machines at a time specified in the CWDb. The execution time can be set for the same time each day or customized, upon request, for a different time during each day of the week.

Workstation Information may be referenced for details on the upcoming--as well as last--Maintenance execution time:

Note: Maintenance displays no progress bar when executing in scheduled mode. Only if a reboot is needed will the user be prompted with a visible indication that Maintenance has completed.

Manual Maintenance

In addition to scheduled execution, Maintenance may also be manually initiated by the user. Manual execution may be convenient after support has added new software or configurations to a device and the user would like to initiate Maintenance to apply the changes ahead of the normal schedule. Software Center, installed on all CoreImage computers, is used to initiate the manual execution of Maintenance.

Notes:

- Manual execution will display a progress bar during the Maintenance process, as opposed to the hidden execution of the scheduled Maintenance configuration.
- Manual execution of Maintenance may be temporarily unavailable during the installation of monthly software updates / patches.
- Manual execution does not change or override the next scheduled execution of Maintenance.
GreenIT

GreenIT is a power management configuration applied to CoreImage computers. It allows the computer to be powered on and off at user-defined times. This creates power savings during times when the machine is not normally in use. To meet specific workflow requirements GreenIT may be adjusted (including disabled) upon request.

Scheduled GreenIT

GreenIT startup and shutdowns can be scheduled in fifteen minute increments to best meet the business hours of the end-user or department. The common vernacular used to describe the GreenIT power settings that are applied to the local machine is “Beginning of Business,” or BOB, and “End of Business,” or EOB. Both settings are configured for each day in the CWDb. For example, one could specify that the computer power off with an EOB of 18:00 on Monday, Thursday, Friday and 20:00 on Tuesday, Wednesday. The same granularity and customization is possible for BOB as well.

The Workstation Information application—located in the Windows Start menu on all CoreImage machines—can be used to display the GreenIT configurations applied to a specific computer (shown below).

Deferred GreenIT

GreenIT shutdowns may be deferred up to one week by the end-user when the normal power management schedule conflicts with business requirements. During a deferment period Maintenance will continue to run at its scheduled time, but shutdown and reboot operations will be disabled. A deferment is scheduled via the Workstation Information application (shown below).

Note: The GreenIT icon will be greyed out and non-functional on non-GreenIT workstations.
Note: **Not all reboots will be suppressed by a deferral.** In the event that a reboot is required to process an urgent system update, the deferment setting may be overridden (as noted in the deferment confirmation window, shown below). Reference the Mandatory Reboots section below for more details.

![Confirm Deferral Window]

In the event the deferral is no longer needed, the shutdown deferrals may also be cleared using the *Workstation Information* application.

![GreenIT Deferment Options Window]

**Reboot**

Sometimes it is necessary to reboot a computer to finalize changes applied by software installations or other updates.

**CoreImage Shutdown Assistant**

CoreImage Shutdown Assistant (a.k.a. *Punt*) is the application used to enact a reboot or shutdown on CoreImage machines. *Punt* presents a user interface which contains a countdown timer, a message with information about the reboot or shutdown, a “Reboot Now” button, and a “Delay Reboot” button with dropdown menu.

![Shutdown Assistant with Timer](image1)

![Shutdown Assistant with Timer About to Expire](image2)
Delayable Reboot

When changes do not require immediate finalization the *Punt* interface allows the user to delay the restart until a more convenient time. If no user is logged onto the computer or the user does not respond to the prompt before the timer expires, the computer will be rebooted.

Mandatory Reboot

Rarely installations or other changes—such as urgent security updates—are applied to a workstation that require an immediate reboot to replace the affected files. In most cases an option to defer the initial application installation will be presented. However, once the installation or update has completed, the reboot will be mandatory. The “Delay Reboot” button and associated dropdown menu on the Shutdown Assistant will be greyed out and disabled.

Software Distribution

Deployed Software

Deployments are software installations that are targeted to collections of computers and scheduled for specific times over a determined number of days. They run automatically. Standard deployments run at 8:00 PM, whereas deployments with a mandatory reboot are scheduled for 4:00 AM. Other deployments may be scheduled to occur at non-standard times in cases when they are coordinated with infrastructure upgrades or in response to a security threat or malware outbreak. Computers that are not connected to the network will run the deployment shortly after they connect.

Provisioned Software

Many software titles are provisioned within the CWDb (Core Workstation Database) so that Maintenance can install them. In addition to the standard suite of CoreImage applications, there are ala carte offerings which can be provisioned to individual computers by contacting the Service Desk. Installation of these provisioned software titles occurs when:

- The CoreImage operating system is initially installed
- A computer automatically runs CoreImage Maintenance
- A user runs CoreImage Maintenance manually from Software Center
- A user runs CoreImage Software Distribution manually from Software Center
Installation Notifications

When a software deployment will interrupt the user experience or will include a reboot after installation, a notification window is presented to the logged on user to inform them what will occur. The user will be able to defer the installation up to two times for standard software deployments, after which the installation will begin automatically. For example, if the computer is targeted to install the application on Day 1, the user can defer the installation on Day 1 and on Day 3, but the installation will start automatically on Day 3. The installation notification includes a countdown timer indicating the amount of time the user has to defer the installation. After the countdown timer elapses or if there is no user logged on, the installation will begin automatically.

Software Updates / Patches

This category of deployment consists of what is commonly referred to as Microsoft Updates, or Windows updates. The focus is primarily security updates but will occasionally contain stability or feature updates. Installation occurs in the background to not disrupt the user. The computer reboot needed for these updates is postponed, by design, and will be handled the next time Maintenance runs. Since Maintenance is controlling the reboot, the user receives the standard option to delay the reboot. Typical product updates include Windows Operating System, Microsoft Office, Google Chrome, and Adobe Acrobat products.
Example Scenarios
Software Deployment (with deferrable installation and no reboot delay)

<table>
<thead>
<tr>
<th>Installation notification with defer option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: if one clicks the defer button the installation will attempt to run the next day. A second deferral is offered. However on the third day, the installation will automatically occur</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Installation progress</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reboot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: In this case, Office 2016 required an immediate reboot and the delay reboot functionality is unavailable.</td>
</tr>
</tbody>
</table>
GreenIT Deferment

User opens the Workstation Information application and selects the GreenIT deferment button.

User chooses to defer shutdowns for two days (starting from Tuesday through midnight Thursday morning).

Maintenance will continue to run at its scheduled times but will not power off the workstation until Thursday at 18:00 (i.e., its execution time on Wed is prior to the deferment expiration end-time).

On Thursday at 18:00 Maintenance will issue a shutdown after the GreenIT deferment window has expired.