Modern Standby

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Agenda

• Modern Standby Introduction
• Modern Standby Value Proposition
• Modern Standby Investments
• Modern Standby FAQs
• Industry Trends
Modern Standby is a term that includes both Connected and Disconnected Modern Standby.

Offers background activities and wake scenarios that are not available on legacy S3.

Enables Instant On device availability and thus lower power during screen off scenarios.

Connected Modern Standby allows device and its applications to be connected and updated.

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Legacy Standby (S3)

Modern Standby (S0ix)

Hibernate (S4)
Modern Standby Value Proposition

- Instant On
- Innovative Features
- Always Up-to-Date
- Connectivity
## Modern Standby Improves User Experience

<table>
<thead>
<tr>
<th>Today</th>
<th>Vision</th>
</tr>
</thead>
</table>
| **Responsiveness** | Resume from Legacy Standby (ACPI S3) | Consumer Electronics On/Off Experience  
Modern Standby power model designed for quick on/off transitions; Resume to productivity 3X faster than Legacy Standby |
| **Features** | Legacy Standby incapable of many new usages | Wake scenarios and other key features enabled  
“Wake on” scenarios such as Wake on Remote Desktop & File Sharing; Windows Defender System Guard security also dependent on the Modern Standby power model |
| **Regulation** | Challenged to meet coming gov’t energy usage requirements | Positioned to comply with coming energy regulations  
Ability to quickly go into and resume from standby allows for more aggressive power management meaning that idle devices are far less often fully-powered |
Modern Standby Investments

Windows Fall Creators Update (1709)
- Modern Standby support for rotational storage

Windows April 2018 Update (1803)
- Directed power management for plug-in PCIe devices
- Remote Desktop & File Sharing
- Wake on Voice power consumption improvements
- Power-Battery Life metrics on HW Dev Center
- HLK test for platform consistency
- Diagnostics on low power blockers
- New Wake on FingerPrint behavior for low power states

Windows October 2018 Update (1809)
- Windows Defender System Guard
# Modern Standby Dependent Scenarios

<table>
<thead>
<tr>
<th>#</th>
<th>Key User Scenarios</th>
<th>1709</th>
<th>1803</th>
<th>1809</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Instant On keyboard/mouse press &amp; move</td>
<td>✓</td>
<td>✓</td>
<td>Improved</td>
</tr>
<tr>
<td>2</td>
<td>Instant On power button press</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Instant On lid open</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Instant On Bluetooth HID devices (pen, keyboard, etc.)</td>
<td>✓</td>
<td>✓</td>
<td>Improved</td>
</tr>
<tr>
<td>5</td>
<td>Instant On touch pad input</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Instant On AC/DC toggle</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Wake on Bluetooth device notification (e.g. fitbit)</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Wake on docking to a base that has a 2nd battery</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Wake on Fingerprint Reader</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Wake on Voice (Hey Cortana)</td>
<td>SWKWS ✓</td>
<td>+ HWKWS ✓</td>
<td>✓</td>
</tr>
<tr>
<td>11</td>
<td>Wake on incoming Skype UWP app calls / IMs</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Wake on push notifications (3rd party UWP apps)</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Inbox Mail UWP app mail sync during standby</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Magic Packet Wake On LAN during screen off</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Windows Update performs while standby</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Audio playback (internal and BT speakers)</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Wake on Remote Desktop and File Sharing</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Windows Defender System Guard (Level 3 Security)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Wake on Remote Desktop & File Sharing

Connect remotely to your system at work from home, or vise versa

Energy saving benefits with the ability to remotely Wake a device
Windows Defender System Guard

Protect and verify boot and runtime integrity

- System Guard protects boot integrity to ensure trusted and tamper free
  - Requires the consistency of the interfaces delivered by Modern Standby

- System Guard also protects runtime integrity using virtualization base security and a container to protect sensitive Windows processes and data
Frequently Asked Questions
Not all WLANs support Modern Standby?

Today’s WLAN solutions support Modern Standby

Offload capability is a standard included in WLAN solutions today
Modern Standby only Supports SSDs?

Rotational storage supported in Modern Standby

Support added for Disconnected Modern Standby in Fall 2017 Creators Update (1709)

Support added for Connected Modern Standby enabled in April 2018 Update (1803)

Better user experience with SSD, not just for Modern Standby systems

Improved performance across the Entry, Mainstream and Premium categories

Stay unplugged an average of up to 33% longer

Start an average of up to 39% faster

Office Productivity Battery Life

8:54hrs SSD

5:53hrs HDD

8:54hrs SSD

20.5s SSD

513s HDD

Mainstream Notebooks
Modern Standby does support discreet graphics solutions

- There are discrete graphics solutions today that support Modern Standby
- To support Modern Standby dGPU must be implemented with VRAM that can be put into self-refresh when the dGPU is in D3
- Graphics drivers must be equipped to perform this self-refresh operation
Only For Notebooks & 2-in-1s?

Modern Standby applies to ALL form-factors

- PCIe device support enabled in 1803
- Modern Standby-dependent features with Desktops in mind
Industry Trends
Industry Expectations & Trends

HOME
- Appliances
- Smart Home devices

WORKPLACE
- Entertainment systems
- Fitness Trackers

DESKTOP
- ALL-IN-ONE
- CLAMSHELL
- CONVERTIBLE
- DETACHABLE

Goverment
- Energy Star

WinHEC 2018
Session Objectives:
Modern Standby improves the user experience giving system Instant On capability
More key capabilities are only possible with Modern Standby enabled system
Modern Standby helps ensure energy efficiency / regulation compliance is achieved

Adopt Modern Standby across your portfolio
Understand Modern Standby dependent features
Participate in IHV Plugfests & OEM Workshops