Windows 10 for Enterprise: Deployment
Achieve more and transform your business with the most secure Windows ever.

- Safer and more secure
- More productive
- More personal
- Powerful, modern devices
Agenda

- Application Compatibility
- Windows Deployment Methods
- Windows as a Service
- Additional Resources
App compatibility
### Browser & Applications – Content Details

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<tr>
<th>Overview</th>
<th>Approach</th>
<th>Prepare</th>
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<td>Supportability</td>
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<td>What's new</td>
<td>Prioritize</td>
<td>Web application compatibility tools</td>
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- **Overview**
  - Application compatibility
  - Supportability
  - What’s new

- **Approach**
  - Discovery
  - Rationalize

- **Prepare**
  - Overview
  - Application compatibility tools
  - Web application compatibility tools

- **Test**
Overview

Application compatibility

Supportability

What’s new
Compatibility in Windows 10

- Compatibility of Windows 7, Windows 8 and Windows 10 desktop apps is a top Microsoft goal.
- Most existing Win32 and Win64 applications run reliably on Windows 10 without any changes.
- Strong compatibility and support for Web apps and devices.

<table>
<thead>
<tr>
<th>Desktop apps</th>
<th>Web sites</th>
<th>Modern apps</th>
<th>Hardware</th>
</tr>
</thead>
</table>
| Organizations are observing compatibility rates above 99% | Internet Explorer 11 included (unchanged) for backwards compatibility | High compatibility achieved through:  
  • Validation of Windows Store apps  
  • Insider feedback during development  
  • Telemetry | Windows 10 supports all devices capable of running Windows 7 and above  
  Identical hardware minimum requirements as Windows 7  
  Strong driver compatibility, with updates delivered as needed through Windows Update |
| High compatibility achieved through:  
  • Minimal changes to Win32 APIs  
  • Insider feedback during development  
  • Telemetry | New Microsoft Edge browser for modern HTML5-based web sites  
  Enterprise Mode features to ensure proper use | Significant investments, enhancements in each release |  


Application Compatibility

**Overview**

Applications & web applications traditionally the largest blocker to move towards a new operating system

**Challenges**

How to approach discovery / rationalization / prioritization
- What applications are owned / used
- What applications can be tested

App testing
- Approach
- Integration with other applications
- Finding test contacts

Selecting the right tools and process to support application compatibility
### Application Compatibility for OS Transformation Projects

<table>
<thead>
<tr>
<th>Discover</th>
<th>Win32 / UWP Applications</th>
<th>Web Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>What applications does my company rely on?</td>
<td></td>
<td>What web applications does my company rely on?</td>
</tr>
<tr>
<td>Rationalize</td>
<td>What should I test</td>
<td>What should I test</td>
</tr>
<tr>
<td>Prioritize</td>
<td>When and how should I test</td>
<td>When and how should I test</td>
</tr>
<tr>
<td>Test</td>
<td>Validate application</td>
<td>Validate web application</td>
</tr>
<tr>
<td>Remediate</td>
<td>Determine remediation approach</td>
<td>Determine site/ browser configuration required for remediation</td>
</tr>
<tr>
<td>Deploy</td>
<td>Deploy application in production</td>
<td>Deploy site or browser configuration in production</td>
</tr>
</tbody>
</table>
Supportability

### Applications

**Windows 10 ISV application support**
- Will vary by application
- May vary by branch
  - Current Branch
  - Current Branch for Business
  - Long Term Servicing Branch

**LOB application support**
- Consider UWP to extend application functionality on Windows 10

### Browser

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<td>Internet Explorer 8</td>
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<td>Windows 7</td>
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<td>Windows 8.1</td>
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<td>Internet Explorer 11</td>
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<td>Windows 10</td>
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<td>Microsoft Edge</td>
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</table>
What’s New

Microsoft Edge

- Support for the Modern Web
- Integrated with Cortana
- Ink directly on the web page
- Reading list and reading view
- Built in PDF viewer and Tab Preview
- Browser extensions
- Biometric support with Windows Hello

Making sure it's you
For security, Microsoft Edge needs to verify your identity.

Face
Hello Jatinder Mann! Select OK to continue.

Here's the weather right now in Redmond, Washington 98052

Cloudy
Risk Based Application Compatibility

Overview
- Testing for application compatibility is a matter of balancing risks - not everything can be tested
- Not every application compatibility error can be identified in non-production environments
- A risk based approach for driving application compatibility is the most effective for OS changes

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus available resources on what’s critical for the business</td>
<td>Issues with non critical applications (larger set) are identified later</td>
</tr>
<tr>
<td>Fits better with a faster rhythm of changes</td>
<td>Dependent on application portfolio accuracy</td>
</tr>
<tr>
<td>Discover potential issues on critical applications earlier</td>
<td>May introduce changes in the organizational processes</td>
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<tr>
<td>Leverage application users to check application compatibility</td>
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<tr>
<td>Optimize overall Operating System update cost</td>
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</tbody>
</table>
Apply Risk Based Compatibility to Windows 10

**Fit the OS servicing model**
- Risk based App Compat fits with Windows 10 as updates will mainly extend OS capabilities
- Windows 10 OS will evolve through ‘feature updates’ more frequently than in the past
- OS updates will be available at various time (WIP, CB, CBB) giving choices to start App Compat (Critical Apps first) before broadly deploying the OS update

**Focus on critical Applications**
- Critical Applications identified in the App Portfolio need to be addressed earlier
- ‘Nice to have’ Applications could directly target End Users devices (when pilot prioritized Apps)
- Third party applications App Compat should leverage ISV input first (support required)

**Gradually increase device updates**
- Organize your target users/devices in rings in order to gradually update devices
- WaaS first rings focus on non-production and pilot devices up to last ring (broad deployment)
- Test environments need to take care of multiple OS releases when moving across rings until all devices are updated
Discovery – Traditional Approach

Legacy Approach

• Limited to no visibility of the application landscape
• Application ownership and support may be unknown

Why Change?

No/Incomplete Application Portfolio

Full Discovery

Application Portfolio

• Cost implications due to no or limited application portfolio management
• Having no information on application ownership or support greatly adds to the complexity

Full Discovery

• Identify every application used by in the organization
• Discovery performed manually
• Decentralized strategy

Why Change?

• Requires a longer duration to be able to complete a full discovery
• Manually approaching each user is impractical
Discovery – Modern Approach

Desktop / Win32 / Universal Windows Platform Applications

- **Mandatory Apps**
  - Installed in image
  - Targeted during deployment
  - Targeted to specific groups or users

- **Optional Apps**
  - Provide niche value
  - User or group preference

- **Other Apps**
  - Not known by IT

Web Applications

- **Internal**
  - Developed and maintained internally e.g. Timesheet, Intranet

- **Supplier**
  - Outsourced business functions e.g. Payroll

- **Other**
  - No corporate investment in web application
Rationalize – Traditional Approach

Legacy Approach

- Limited collaboration with business groups or application owners
- Application assessment mostly done based on IT knowledge

Why Change?

- Limited understanding of what the business needs and which applications have business value
- Lack of concrete information leads to higher project cost and complexity
- Absence of support and buy-in from the business makes the activity more challenging

IT Centric

Test before Rationalize

- All applications are considered business critical
- All applications are tested first before categorization
- No appropriate goals for the application portfolio

- Streamlined application management - Operations team will need to manage a significantly small app portfolio
- Save time and money from testing applications with no business value
- Optimize licensing costs and reduce the risk of running unlicensed software
Overview

- Review install base and usage data (if available)

Managed Applications

- Financial or business impact if application does not work
- Critical to business operation

Supported Applications

- Application has business value
- Productivity impact if application does not work

Unsupported Applications

- Application superseded by new version or new application
- Application not introduced in environment by IT

Unwanted Applications

- Unlicensed application
- Applications banned by corporate policy
**Overview**

Determine the investment for each group of rationalized applications

**Proactive Testing**

**Must Test (Managed Applications)**
- Dedicated resources to test
- Test plan to confirm operation

**Should Test (Supported Applications)**
- Test when resources available
- Test as part of pilot group for OS update / upgrade

**Reactive Testing**

**Don’t Test (Unsupported Applications)**
- Not included in pilot test group
- Test when service desk call raised
- If it breaks, it may not be fixed

**Unwanted Applications**
- Applications will not be tested (Remove application from device)
- Use AppLocker / management tool to ensure application cannot be re-installed or used
Test – Traditional Approach

Overview

Inefficient testing process

- Only runtime (functionality) tests performed
- Installation, launch and uninstallation not tested
- A documented test plan is manually performed
- Challenges with business group involvement
- Decentralized test environments

Remediate before deploy

- Platform deployment will not begin until all applications are remediated

Workaround as permanent fixes

- Workarounds such as virtualization or compatibility mode are considered compatibility solutions
Test – Reasons for Change

**Inefficient testing process**
- Support and buy-in from the business units provides a more holistic testing strategy
- The most important factor in determining that no bugs exist that affect user scenarios is the user
- Automated testing delivers more efficiency and time to test benefits
- Virtualization offers a faster and standard infrastructure provisioning for validation and testing

**Remediate before deploy**
- Development of a new approach for deployment and monitoring based on a staged or pilot roll-out will save on time and cost
- It will be more effective to quickly have a simple pilot so that issues can be discovered immediately in a controlled, but more realistic, environment

**Workaround as permanent fix**
- Having a workaround, in some cases, may be critical but having a plan for how to provide a proper fix is the right path
- Workarounds (shims or virtualization) are not future proof
Assign a proactive or reactive testing strategy based on application classification

**Overview**

**Proactive Testing**
- Select Windows 10 branches to test
- Align to update and upgrade release cadence

<table>
<thead>
<tr>
<th></th>
<th>Must Test</th>
<th>Should Test</th>
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</thead>
<tbody>
<tr>
<td>Windows Insider Preview Branch</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Current Branch</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Current Branch for Business</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Long Term Servicing Branch</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>

**Reactive Testing**
- If multiple service requests for unsupported applications, review application classification
  - Move to managed, supported or banned app (if required)
- Determine a test approach and time limit / allowed resource effort for unsupported applications e.g.
  - Test on branch where app discovered
  - No more than 30 minutes investigation by second line technical support
  - Review with support forums / ISV’s as a first step
Prepare

Overview

Application Compatibility Tools

Web Application Compatibility Tools
### Increased OS Compatibility
- Since Win7, focus has been to keep the OS highly backwards compatible
- Not compatible means no shipping the OS
- Close engagements with feature teams and ISV/IHV on code & design changes
- Raised the bar with in-place upgrade

### Data-Driven Insights
- Developed new technologies to gather insights into the ecosystem
- Prioritize which apps to test and mitigate
- Prioritize ISV and IHV engagements for problematic apps and drivers
- Upgrade machines only when we know they will have a good experience
Overview

**Win32 / UWP Applications**
- System Center Configuration Manager
- WMI Query
- Microsoft Assessment & Planning Toolkit
  - 3rd Party Tools

**Web Applications**
- Enterprise Site Discovery
- Enterprise Site List
- IE 11 Enterprise Mode

**Discover**
- Windows 10 Setup Compatibility Scan

**Rationalize**
- Upgrade Analytics
- User and/or Administrator
- Service Provider
- 3rd Party Tools

**Prioritize**
- Dedicated Resource
- ISV
- 3rd Party Tools

**Test**
- Application Compatibility Toolkit

**Remediate**
- 3rd Party Tools

**Deploy**
- See Windows 10 Deployment Workshop
- Group Policy
- Enterprise Site List

**3rd Party Tools**
- See Windows 10 Deployment Workshop
- System Center Configuration Manager
- WMI Query
- Application Compatibility Toolkit
- F12 Developer Tools
- Service Provider
- User and/or Administrator
- Upgrade Analytics
- Dedicated Resource
- ISV
- 3rd Party Tools
- Group Policy
- Enterprise Site List
Application Compatibility Tools

- **Discover**
  - **Microsoft Assessment and Planning Toolkit**
    - Provide inventory, assessment, and reporting services to simplify the migration planning process to Windows 10
  - **System Center Configuration Manager**
    - Leverage existing software inventory and asset intelligence capabilities for discovery information

- **Test**
  - **Setup Compat Scan**
    - Perform readiness assessment on existing Operating System
    - Checks hardware, power requirements and compatibility for installed applications and devices
    - Use SETUP.EXE /Auto Upgrade /Compat ScanOnly /Quiet
    - Full media needs to be downloaded to device where the assessment is performed
    - Check the return codes, XML files

- **Remediate**
  - **Microsoft Application Compatibility Toolkit**
    - Installed with the Windows Assessment & Deployment Kit
    - Create custom short term compatibility fixes for applications
    - Not recommended for long term compatibility fixes
Discover & Rationalize

1. Prepare Your Environment
   - Upgrade overview
   - Run a pilot
   - Prioritize your applications

2. Resolve Issues
   - Review applications with known issues
   - Review applications with no known issues
   - Review Drivers with known issues

3. Deploy
   - Deploy Windows to those devices that have had compatibility issues resolved
# Upgrade Analytics

Microsoft cloud service that allows enterprise IT to quickly identify and focus on the critical issues impeding upgrades; provides data driven tools to plan and manage the upgrade process end to end.

<table>
<thead>
<tr>
<th>Discover &amp; Rationalize</th>
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</thead>
<tbody>
<tr>
<td>▪ Leverages Windows telemetry for rapid data collection</td>
</tr>
<tr>
<td>▪ Applications, usage, device and device driver inventory</td>
</tr>
<tr>
<td>▪ Data-driven rationalization based on install base and usage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resolve Issues &amp; Assess Apps</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Integration with Microsoft compatibility data to determine compatibility</td>
</tr>
<tr>
<td>▪ As Microsoft publishes compatibility information based on investigations and ISV information, Upgrade Analytics has access to the data</td>
</tr>
<tr>
<td>▪ Issue resolution guidance where available</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Deploy</th>
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<tbody>
<tr>
<td>▪ Identify computers eligible for deployment</td>
</tr>
<tr>
<td>▪ Report on overall deployment progress</td>
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</tbody>
</table>
## Approach

### Overview
- Prepare
  - Reg key configuration to send data to Microsoft for analysis
  - Proxy/firewall configuration may be required to allow data to flow to Microsoft
  - Management/GPO may be used to configure CEIP and set commercial ID on participating systems
  - Install client compatibility analysis tools/KBs and restart

### Cloud Service
- Azure Operations Management Suite (OMS) provides a reporting interface
- OMS account may be created using a Microsoft Account or Azure Active Directory account
- OMS dynamically generates a COMMERCIAL ID that is unique to your organization
- Data sent to Microsoft will be tagged with the commercial ID to present only your information in OMS

### Client Configuration
- Reg key configuration to send data to Microsoft for analysis
  - Proxy/firewall configuration may be required to allow data to flow to Microsoft
  - Management/GPO may be used to configure CEIP and set commercial ID on participating systems

### Required KBs

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Required KB</th>
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<tbody>
<tr>
<td>Windows 7 RTM</td>
<td>KB2977759</td>
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<tr>
<td>Windows 7 SP1</td>
<td>KB2952664</td>
</tr>
<tr>
<td>Windows 8 RTM</td>
<td>KB2976978</td>
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<tr>
<td>Windows 8.1</td>
<td>KB2976978</td>
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</table>
Application Test & Remediation Approach

**Discover**
- Select target groups / users
- Collect information ahead of project
- Determine managed and supported applications
- Use Upgrade Analytics to obtain information

**Test**
- Use Setup compat scan on Windows 7/8.1 device with managed/supported applications installed
- Select pilot groups / users based on discovery information
- Select virtual or physical test platform
- Involve service desk representatives

**Remediate**
- Determine remediation approach for each application
- Favor long term fixes over band-aid solutions
- Track and document environment changes to support application

**Deploy**
- Deploy Windows 10 with confidence
- Develop a strategy to maintain application compatibility with Windows as a Service
Web Application Compatibility Tools

**Discover**

**Enterprise Site Discovery**
- Use Internet Explorer to collect data on computers running Windows Internet Explorer 8 through Internet Explorer 11 on Windows 7/8.1/10

**Remediate**

**F12 Developer Tools**
- Debug websites to address compatibility problems

**IE11 Enterprise Mode**
- Compatibility mode that's designed to emulate either Windows Internet Explorer 7 or Windows Internet Explorer 8

**Deploy**

**Enterprise Site List**
- Enterprise Mode configuration settings to users to enable rendering of websites in compatibility mode

**Group Policy**
- Deploys the enterprise site list to specified computers
Enterprise Site Discovery

Overview
- Provides IT Pros with clearer picture about how IE is being used in their deployment based on actual user data.
- Works with Internet Explorer 8, 9, 10 and 11

Purpose
- Understand what web applications are being used and what websites are being accessed
- Determine the add-ons required for each web application and website

Requirements
- Works with Internet Explorer 8, 9, 10 and 11 on Windows 7 or Windows 8.1
- Installed via PowerShell
- Managed by PowerShell or Group Policy

User Browses the Web (IE8, IE9, IE10, IE11) → Site Scoping → Site A → Site B → Site C → Local Data Collection (WMI) → Data Driven Picture of Web Environment
Enterprise Mode

Overview

- Enterprise Mode is a compatibility mode in Internet Explorer 11 that can emulate Internet Explorer 7, Internet Explorer 8, and other Internet Explorer document modes.
- Enterprise Mode is designed to avoid the common compatibility problems associated with web apps written and tested on older versions of Internet Explorer.
- In Windows 10, Enterprise Mode Site List can be set to open sites in Internet Explorer 11 if attempted to be viewed in Microsoft Edge, allowing the modern browser to be left as the default choice.

Requirements

- Windows 10
- Windows 8.1
- Windows 7 Service Pack 1

Features

- Improved web app and website compatibility
- Tool-based management for website lists
- Centralized control
- Integrated browsing
- Data gathering
- Supported until Jan 14 2020
## Overview

- Microsoft Edge and Internet Explorer 11 are designed to operate in conjunction to give the best experience for web browsing in Windows 10.
- Administrators can define interoperability between browsers for managed devices.

## Option | User Experience | Administrative Effort
---|---|---
All websites open in Microsoft Edge (Default) | Users needs to manually open Internet Explorer 11 if a site fails to operate correctly. | Nil – default configuration
| Critical intranet sites to be tested on Microsoft Edge to confirm operability of sites.

Websites open in Microsoft Edge unless Internet Explorer 11 is defined by an administrator (Recommended). | No user interaction required to switch to Internet Explorer 11 for sites with known issues | Moderate - List creation and management overhead
| Interstitial page will be removed by default in Windows 10 1607.

All websites open in Internet Explorer 11. (Not Recommended) | Single browser for all sites | Low – Setting implemented via Group Policy
| Sites may not display correctly.
Web Application Test & Remediation Approach

**Technical Approach and Tooling**

**Discover**
- Use the Enterprise Site Discovery Toolkit on IE8/9/10 (11 if needed)
- Select target groups / users
- Collect information monthly
- Determine critical LoB applications

**Test**
- Use IE11 on Windows 7 / 8.1 / to test critical LoB web applications
- Select pilot groups / users
- Test using Enterprise Mode
- Confirm add-on compatibility

**Remediate**
- Determine compatibility for each web application using assessment information / F12 Developer tool
- Create & configure Enterprise Mode site lists
- Modify websites where required

**Deploy**
- Deploy IE 11 with confidence to Windows 7/8.1
- Deploy Windows 10 with confidence
- Develop a strategy to move web applications away from Enterprise Mode reliance

**Controlled Approach – Windows 7 / 8.1 users on IE 8-11**

**Dynamic Approach – For Windows XP / Vista users & Windows 7 / 8.1 users on IE 8-11**
Application Readiness Resources

Application Compatibility
- **Windows Insider Program**
  - Join the Windows Insiders Program community to help shape the future of Windows, get early releases and more.
  - **Windows 10 Cookbook**
    - Leverage the [Application Compatibility Cookbook](#) for guidance in verifying compatibility of existing and planned apps for Windows 10.

Find Supported Apps
- **Windows Upgrade Analytics**
  - Identify critical issues impeding upgrades; data insights to plan and manage the upgrade process end to end.
- **Ready For Windows**
  - Look for a list of compatible apps in Microsoft’s global [Ready for Windows Directory](#) available for IT decision makers around the world.

Modernize
- **Desktop Bridge**
  - Use the Desktop Bridge or build UWP to bring your existing desktop apps to the Universal Windows Platform.

Servicing
- **WaaS Servicing**
  - Adopt the new Windows Servicing model for app development and testing of internally developed custom apps.

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**Download** a preview build of the latest Windows SDK and Emulator to explore what’s new in building apps for Windows.

**Download** the Application Compatibility Cookbook for Windows 10.

**Sign up** for Windows Upgrade Analytics and begin evaluating your environment.

**Submit** your compatible application to the Ready for Windows Directory.

**Download Desktop Application Converter** to make your applications available in the Windows Store.

**Implement** new practices in your organization and adopt best practices to optimize app development and management costs.
Getting Started with Upgrade Analytics

1. Network
   - Device telemetry must be able to leave the system and the network
   - Data is transmitted to Microsoft servers
   - Telemetry is sent as Local System – ensure that proxy servers allow this method of internet access

2. OMS Setup
   - Signup at: aka.ms/omsregister
   - Microsoft Account or Azure AD Credentials may be used
   - If required, create your own workspace

3. Solution Config
   - From the Solutions Gallery, add the Upgrade Analytics solution to the workspace
   - In Settings, select Connected Sources. Find the Windows Telemetry panel
   - Generate a Commercial ID Key. This is the key that is used to identify all data from your organization

4. System Config
   - MDM/GPO may be used to configure Windows client systems that will participate in telemetry
   - Applies the Commercial ID Key to the registry
   - Data sent by the system contains the commercial ID to allow your data to be accessible by the Upgrade Analytics Solution
Windows Deployment
## Deployment – Content Details

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<td>Recommendations</td>
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</table>

### Recommendations
- **Wipe & load**
- **In-place upgrade**
- **Upgrade process**
- **Upgrade vs refresh**
- **Recovery & troubleshooting**
Deployment Choices

Wipe-and-Load

Traditional process
• Capture data and settings
• Deploy (custom) OS image
• Inject drivers
• Install apps
• Restore data and settings

Still an option for all scenarios

In-Place

Let Windows do the work
• Preserve all data, settings, apps, drivers
• Install (standard) OS image
• Restore everything

Recommended for existing devices (Windows 7/8/8.1)

Provisioning

Configure new devices
• Transform into an Enterprise device
• Remove extra items, add organizational apps and config

New capability for new devices
Transformation Choices

In-Place Upgrade

Windows 7

Windows 10

Credential Guard

UI
Edge
Store

UWP
Cortana
Performance

Wipe & Load / Device Refresh

Windows 10

Device Guard
Windows Hello
WIP
Credential Guard

UI
Edge
Store

UWP
Cortana
Performance

Time

Feature Adoption

Overview
## Transformation Effort

<table>
<thead>
<tr>
<th></th>
<th>Refresh</th>
<th>Replace</th>
<th>Upgrade</th>
</tr>
</thead>
</table>
| **Pre-Reqs** | ▪ Assessing systems requires time  
▪ Extent of assessment depends on approach  
▪ Upgrade required infrastructure to support Windows 10 | | |
| **Engineer** | ▪ Image must be designed  
▪ Finalized when compat information is known | ▪ Image must be designed  
▪ Finalized when compat information is known  
▪ Remote data migration solution | ▪ No image or data migration solution required |
| **Deploy** | ▪ Image is typically larger than Microsoft media | ▪ Image is typically larger than Microsoft media | ▪ Smallest media is from Microsoft |
| **Post-Install** | ▪ All app installers must be compatible with Windows 10 for re-install | ▪ All app installers must be compatible with Windows 10 for re-install  
▪ User data must be restored from remote repository | ▪ Only apps determined to require re-installation must have compatible installers  
▪ Compatible/non-blocking apps are migrated |
| **Rollback** | ▪ No rollback  
▪ Re-deploy old OS and re-configure system | ▪ Revert to old machine  
▪ Data on old system becomes increasing stale | ▪ Built-in rollback for ~ 1 month  
▪ Data on old system becomes increasing stale |
| **Duration** | ▪ Fast | ▪ Slow | ▪ Faster |
Deploying Windows 10

**Overview**

- **In-place upgrade**
- **Bare Metal (Custom Image)**

**Device Considerations**

- BIOS → UEFI
- Disk partitioning
- WinPE Offline Operation
- 3rd party disk encryption*

**Operating System Considerations**

- Architecture (x86 → x64)
- Base OS language
- Domain
- Local Administrators
- Configuration drift
- Moving from XP or Vista
- Custom base image

**Application Considerations**

- Bulk app change

**Refresh (Wipe & Load)**

- Re-install the operating system (Custom Image)
- Install applications
- Migrate user state

**In-Place Upgrade**

- Upgrade key apps as needed post OS update
# Windows Tooling & Deployment Capabilities

## Overview

When choosing a Windows Client Platform delivery tool, System Center Configuration Manager and Microsoft Deployment Toolkit are options. See below for the feature comparison.

<table>
<thead>
<tr>
<th>Capability</th>
<th>Microsoft Deployment Toolkit</th>
<th>System Center 2012 Configuration Manager (R2 SP1, SP2)</th>
<th>System Center Configuration Manager (Current Branch 1606)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 10 Version Support</td>
<td>1507, 1511, 1607</td>
<td>1507, 1511</td>
<td>1507, 1511, 1607</td>
</tr>
<tr>
<td>Deploy UEFI/BIOS Platforms</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Deploy applications during Task Sequence</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Supports Image Creation</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lite Touch Deployment</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Zero Touch Deployment</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Manage a wide range of platforms</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Increased Scalability (PXE, etc.)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Offline Image Servicing</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Deploy Windows-to-Go</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>In-Place Upgrade</td>
<td>Task Sequence</td>
<td>Servicing</td>
<td></td>
</tr>
</tbody>
</table>
### Architecture

<table>
<thead>
<tr>
<th>64-bit Operating System (Recommended)</th>
<th>32-bit Operating System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td><strong>Disadvantages</strong></td>
</tr>
<tr>
<td>• Single image architecture support</td>
<td>• No 16-Bit application support</td>
</tr>
<tr>
<td>• Fewer deployment objects to support</td>
<td>• No x86 device support (e.g. legacy and tablet devices)</td>
</tr>
<tr>
<td>• Simple driver support</td>
<td>• Authentication applications (e.g. GINA, biometric) support</td>
</tr>
<tr>
<td>• Reduced engineering support due to</td>
<td>• When multiple images are used, the Image Creation Service must support multiple image engineering, deployment and test scenarios</td>
</tr>
<tr>
<td>single architecture policy</td>
<td>• Devices limited to 4GB RAM</td>
</tr>
</tbody>
</table>

**64-bit Operating System**
- Legacy device drivers likely to function
- Allows for increased device compatibility
- Better support for machines with older hardware specifications
- Same Compatibility options as Previous OS’s
### Strategy

<table>
<thead>
<tr>
<th>Image Strategy</th>
<th>Thin Image</th>
<th>Hybrid Image</th>
<th>Thick Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Updates</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Windows Features</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Common Frameworks</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Common Productivity Apps</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>LOB used by Every Employee</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Frequently Updated Frameworks</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LOB Applications</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

#### Considerations

- Image revisions to support component and application updates
- Device deployment time
- Windows 10 1607 provides support for Sysprep via Windows as a Service, although image recreation is still the recommended approach
### Overview
- Group Policy Objects are commonly used to manage connected machines in an Active Directory Domain Services environment
- A similar object called a Local Group Policy object can be used to “stamp” the image with settings

### Use Cases
Local Group Policy Objects should be used in the following scenarios:
- When a machine does not join an active directory domain
- When security settings are required by the business to be implemented ahead of a domain join

### Disadvantages
The settings that are configured in Local Policy Objects will need to be countermanded in Group Policy should they need to be superseded. This can cause a complicated Administrative scenario, leading to unnecessary GPO’s, and the possibility for misconfigured systems

### Recommendation
Apply policies using group policy (where possible) to reduce the number of changes required to the core image
Wipe & Load

Overview

Methods

User State Migration

Platform Configuration

Driver Management

Recommendations
Wipe & Load Overview

- Familiar with enterprises
- Out of the box support with Windows 7, Windows 8, and Windows 8.1
- Customized approach required to move from Windows XP/Vista to Windows 10
- Use System Center Configuration Manager or MDT for managing the process – requires update
- Administrator to configure preservation of existing apps, settings, and drivers

Wipe & Load (Refresh) Process

- Capture data and settings
- Remove existing OS
- Install new OS image
- Install apps
- Restore data and settings

Deployment Tools (MDT, System Center Configuration Manager)
# Deployment Methods

<table>
<thead>
<tr>
<th>Deployment</th>
<th>Tools</th>
<th>Advantages</th>
<th>Scenarios</th>
</tr>
</thead>
</table>
| Offline Deployment | System Center Configuration Manager  | - No infrastructure required to deploy  
                         - Support Challenges  
                         - Challenging to maintain versioning  | - Remote offices  
                         - Limited network connectivity  |
| Lite touch Deployment (LTI) | Microsoft Deployment Toolkit | - Less engineering time than ZTI  
                         - Requires interaction to initiate the deployment process  
                         - Varied levels of automation supported  | - Windows 10 Pilot  
                         - Interactive deployment capability  |
| Zero Touch Deployment (ZTI) |                                | - Requires the most engineering time  
                         - No user interaction required to initiate deployment  
                         - 100% automation  | - Organizations requiring high volume deployment capability  |
### User State Migration

**Overview**
User state migration preserves user generated content, the user’s customized experience of Windows, and application settings within the constraints of operating system and application compatibility.

**Supported Versions**
Customers moving from earlier versions of Windows may choose to move to an intermediate Operating System version to allow full USMT support.

<table>
<thead>
<tr>
<th></th>
<th>Windows Vista</th>
<th>Windows 7</th>
<th>Windows 8</th>
<th>Windows 8.1</th>
<th>Windows 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Vista</td>
<td>4.0</td>
<td>4.0, 5.0</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows 7</td>
<td>4.0, 5.0, 6.3</td>
<td>5.0, 6.3</td>
<td>6.3</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Windows 8</td>
<td>5.0, 6.3</td>
<td></td>
<td>6.3</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Windows 8.1</td>
<td></td>
<td>6.3</td>
<td></td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Windows 10</td>
<td></td>
<td></td>
<td></td>
<td>Supported</td>
<td>Supported</td>
</tr>
</tbody>
</table>
### Platform Configuration

#### BIOS
- Flexible Deployment Media Support
- All legacy deployment methods still apply
- Maintain a single boot image

#### UEFI (Recommended)
- Allows firmware to implement security policy
- Secure boot
- Faster boot times
- Latest UEFI Version required for compliance with Windows 10 Baseline and some features

#### Device Examples
- Devices purchased over 4 years ago
- Devices purchased within 4 years

#### Consideration

Moving between UEFI and BIOS configurations is not currently supported through refresh scenario. The only supported way to move from UEFI to BIOS is through a **BARE METAL** (new device) deployment scenario, using PXE to boot into the device.
## Driver Management

<table>
<thead>
<tr>
<th>Option</th>
<th>Benefits</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-Apply Drivers</td>
<td>- Easy to setup and maintain.</td>
<td>- Less control over drivers chosen – first driver wins.</td>
</tr>
<tr>
<td></td>
<td>- Driver to client device matching ‘just works’</td>
<td>- If a problem occurs, troubleshooting is more difficult.</td>
</tr>
<tr>
<td>Apply Driver Packages</td>
<td>- Administrator can specify the exact driver for a particular make and</td>
<td>- Additional up-front configuration and maintenance required.</td>
</tr>
<tr>
<td>(Recommended)</td>
<td>model of client device.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- More control over each client device</td>
<td></td>
</tr>
</tbody>
</table>
Recommendsations
Consider wipe & load when...

<table>
<thead>
<tr>
<th>Configuration Drift / Change</th>
<th>Fundamental Change</th>
<th>Custom Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Domain membership</td>
<td>▪ Moving from Windows XP or Windows Vista</td>
<td>▪ WinPE offline operation</td>
</tr>
<tr>
<td>▪ Local Administrators</td>
<td>▪ Disk partitioning</td>
<td>▪ Custom base image</td>
</tr>
<tr>
<td>▪ Bulk application swap</td>
<td>▪ BIOS -&gt; UEFI</td>
<td>▪ 3rd party disk encryption</td>
</tr>
<tr>
<td></td>
<td>▪ x86 -&gt; x64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Base OS language</td>
<td></td>
</tr>
</tbody>
</table>
In-Place Upgrade

Overview

Upgrade vs Refresh

Upgrade Process

Recovery & Troubleshooting

Prepare
Preferred Option for Enterprises

- Supported with Windows 7, Windows 8, and Windows 8.1
- Supported to upgrade Windows 10 1507 to 1511 and beyond
- Consumers use Windows Update, but enterprises want more control
- Use System Center Configuration Manager or MDT for managing the process
- Uses the standard Windows 10 image
- Automatically preserves existing apps, settings, and drivers
- Proven process - popular for Windows 8 to Windows 8.1 upgrade

In-Place Upgrade Process

- Start
  - Windows 7
  - Windows 8
  - Windows 8.1
- Capture data and settings
- Remove existing OS
- Install new OS image
- Restore data and settings
- Windows Setup
- Finish
  - Windows 10
Upgrade process - The Four Primary Phases

1. Down-level
   - Running Windows 7, 8, 8.1, 10
   - Check the system
   - Inventory Applications
   - Inventory Drivers
   - Assess compatibility
   - Prepare WinRE

2. Windows PE
   - Minimalist OS
   - Both new & old are offline
   - Backup down-level OS
   - Lay down new OS
   - Prepare new OS
   - Inject drivers
   - Some Migration

3. 1st boot to new OS
   - Binding the new yoke
   - Specialize to the machine
   - Install drivers
   - Migrate Apps
   - More Migration

4. 2nd boot to new OS
   - Finalize Upgrade
   - Welcome the user back
   - OOBE (skip if Win10 to another)

Ready Set Go Welcome to Windows
Upgrade vs Refresh

**Why Upgrade?**

- **Preserve applications, drivers, user data and settings** - Reduce upfront testing and deployment preparation
- **Compared to refresh, upgrade is...**
  - Faster – 30 to 60 minutes, on average, to upgrade
  - Smaller – file size is just the default OS media, no applications
  - More robust – “bulletproof” rollback on failure to functional down level system
- **Zero ADK dependencies**
- **Use it to supplement existing deployment scenarios** - Refresh, replace, and bare metal

**Considerations**

- **Compatibility with 3rd Party Disk Encryption tools** (BitLocker supported) – *Improved support for 3rd Party Disk Encryption with Windows 10 1607*
- **Upgrade process can be tested with pre-validation checks**
  - Trial run can be performed with Windows 10 Media using “/Compat ScanOnly” switch
### Prepare for In-Place Upgrade

<table>
<thead>
<tr>
<th>Perform a Pre-Validation Check</th>
<th>Disk Encryption Compatibility</th>
<th>Plan Pilot Approach</th>
<th>Plan for Content Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Windows 10 media to assess system readiness</td>
<td>Check disk encryption technology support (if required)</td>
<td>Define success criteria  ▪ Critical LoB and Web apps tested ▪ User Experience ▪ Group Policy / management configuration updates required</td>
<td>Windows 10 Upgrade package size approximately 3.8Gb</td>
</tr>
<tr>
<td></td>
<td>Understand 3rd party ISV plans to support In-Place Upgrade approach</td>
<td></td>
<td>Plan for content delivery to large, medium and branch sites</td>
</tr>
<tr>
<td></td>
<td>Work with Microsoft to address blockers</td>
<td></td>
<td>Utilize content caching technologies where required</td>
</tr>
</tbody>
</table>
Provisioning

Provisioning

Recommendations
Provisioning

Overview

Take off-the-shelf hardware

Transform with little or no user interaction

Device is ready for use

User led provisioning
For company owned devices
- Azure AD Join – during OOBE or after from settings panel
For BYOD
- “Add a work account” for device registration
Automatic MDM enrollment and policy push:
- Change Windows SKU, apply settings, install applications

IT led provisioning
Create provisioning packages with WICD and apply settings
- Change Windows SKU, apply settings, install applications, install and apply updates
- Enroll a device for ongoing management
- Deploy manually, add to images
Provisioning

Approach

Flexible Methods
- Using media, USB tethering, or even e-mail for manual distribution
- Automatically triggered from the cloud or connection to a corporate network
- Leverage NFC or QR codes

Transform a Device
- Enable the Enterprise SKU
- Install apps and enterprise configuration
- Enroll the device to be managed via MDM

Provisioning Process

Start Windows 10
- Remove existing items
- Enable Enterprise SKU
- Add corporate apps
- Add corporate config

Finish Windows 10

Provisioning Package

Provisioning Package (Deployment)

Provisioning Package (Runtime)
Windows ICD makes it easy to build and flash a Windows image, create provisioning packages, or set up devices to use within your organization. To go or open a Recent project:

**Create**
- Simple provisioning
  - Configure common settings to connect devices to your work or school domain
- Provision school devices
  - Configure common settings for educational devices
- Advanced provisioning
  - View and configure all possible settings on provisioned devices
- Windows image customization
  - Create and customize settings for a Windows image

**Recent projects**
- Project 2
- Project 1
- Project 5
- IOT
  - Advanced provisioning
  - All Windows desktop editions
- Windows 10 IoT Core
  - Advanced provisioning
  - All Windows desktop editions
- Demonstration
  - Advanced provisioning
  - All Windows desktop editions
- Open
Windows as a Service
## Windows as a Service – Content Details

<table>
<thead>
<tr>
<th>Overview</th>
<th>Branches</th>
<th>Operate</th>
<th>Integrate</th>
<th>Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Windows as a Service (WaaS)?</td>
<td>Windows Insider Preview Branch</td>
<td>Updating reference images</td>
<td>Adoption</td>
<td>Overview</td>
</tr>
<tr>
<td>Introducing WaaS</td>
<td>Current Branch for Business</td>
<td>Moving branches</td>
<td>Managing WaaS</td>
<td>Modern service management for Windows 10</td>
</tr>
<tr>
<td>Long-Term Servicing Branch</td>
<td>Current Branch</td>
<td>How it works</td>
<td>Implementing</td>
<td>Implementing</td>
</tr>
</tbody>
</table>
Introducing WaaS

Overview

Why Windows as a Service (WaaS)?

Introducing WaaS
Becoming Agile with Microsoft

Windows | Office | Windows Server | Microsoft Azure | Microsoft System Center

Delivering new value, features and capabilities on a faster cadence

Deeply integrating cloud services, both to add functionality and to simplify the process of staying current

Providing unmatched flexibility and control

Continually improving security, reliability, and performance

Simplifying deployment and management
Challenges with remaining current before Windows 10

Customer Complexity & Cost
- Individual servicing patches
- Expensive deployment & auditing

Ecosystem
- Platform fragmentation
- Inconsistent approach to patching

Reduced Quality
- Not running what Microsoft tested
- No consistency in the ecosystem
Traditional Enterprise Servicing of Windows

What customers are running

Typical Windows 7 PC: Selectively Patched

What Microsoft is testing

Windows 7 Test Lab PC: Fully Patched
Traditional Enterprise Servicing of Windows

Microsoft Update Release
- Monthly update release ("Patch Tuesday")
- Innovation delivered at Service Pack
- Long service pack release cycle
- Long vNext cycle

Monthly Update Cycle

Corporate Deployment
- Selective deployment of updates
- Selectivity justified by AppCompat, bandwidth, others
- App remediation typically "shelved" and updates never applied

Update and Innovation Gap
- Accepted short-term risk increase
- Insidious long-term risk
- App portfolio ages
- Out-dated system baselines
- Costly to operate non-homogenous estate
- Hidden remediation cost - "remediate" before an upgrade

Overview
Branches
Operate
Integrate
Plan
Introducing Windows as a Service

Consumer devices:
Up to date with feature and security updates as they arrive

Business users:
Faster access to new technology with time to test and deploy in a business environment

Specialized systems:
Enterprise class support for your mission critical systems keeping you in control
Windows as a Service – Servicing Windows

Quality Updates

A single cumulative update each month
Security fixes, reliability fixes, bug fixes, etc.
Supersedes the previous month’s update
No new features
Try them out with Security Update Validation Program (SUVP), other

Feature Updates

Very reliable, with built-in rollback capabilities
Simple deployment using in-place upgrade, driven by existing tools
Try them out with Insider Preview
Branches

Overview

Windows Insider Preview Branch

Current Branch

Current Branch for Business

Long-Term Servicing Branch
Windows as a Service Branches

Engineering builds

Broad Microsoft internal validation

Microsoft Insider Preview Branch

Current Branch

Current Branch for Business

Building Windows

Deploying Windows

Users

10’s of thousands

Several Million

Hundreds of millions

*Conceptual illustration only
Overview

Pre-release Windows 10 builds and features

Requirements

- Deployment is managed by Microsoft through Windows Update
- Offers Slow or Fast adoption cadence:
  - Fast
  - Slow
  - Release Preview
- Available only through the Windows Insider Program.
- Individuals should use a Microsoft Account to enroll in the program
- Updated Preview ISOs will be released to coincide with the Slow release

Benefits

- Early access to new releases
- Preview developer tools for applications
- Evaluate new features as they are being developed
- Incubate the future of Windows in your organization
- Help shape the future of Windows, participating in the Windows Insider community
Windows Insider Preview Branch

Customer Experience

- Windows Insiders stay up to date with preview features as they are released
- Opportunity for enterprise customers to preview upcoming features and influence product development
- Security updates and fixes are delivered regularly via Windows Update

*Conceptual illustration only
Windows Insider Preview Branch Adoption

The benefits of the Windows Insider Preview Branch can be used to:
- Expedite and simplify rapid adoption of Windows innovation
- Create new technology opportunities
- Provide feedback to Microsoft

Considerations

Recommended Usage
- Non-Production (lab) environment
- Second Device
- Technically adept users
- Test new features
- Performance testing
- Developer enhancements
- Developer tool enhancements
- Forward planning
Current Branch

Overview
- Public release of new features
- Release cadence is slower than the Preview Branch
- Validation by millions of Windows Insider Program users prior to release
- Feature set is considered ready by Microsoft for broad adoption

Requirements
- Existing Windows 10 systems on the Current Branch
- In-place upgrade supported for down-level Windows Operating Systems
- Release performs an upgrade of the existing Windows 10 installation

Benefits
- Latest innovation for Windows coming as feature updates
- Release cadence is expected to be 2 times per year
- Monthly updates will be released as cumulative packages
Current Branch
Customer Experience with Windows Update

- Features are released to broad market
- Customers are up to date with features as they are released after broad preview validation
- Opportunity for enterprises to test and validate new features
- Security updates and fixes are delivered regularly
Current Branch Adoption

Considerations
- Microsoft will release the Current upgrade
- Select and deploy current branch upgrades to systems currently in service
- Deployment is managed using existing tools
- New ISO media release each new upgrade

Recommended Usage
- New devices & Consumer systems
- IT Pro – Primary system
- IT Developer – Primary system
- Systems used for application testing/validation
- Early adopters and change enablers
- Target groups should provide feedback to Corporate IT
Updates to the Current Branch

**Cadence**
- Urgent Security fixes will be released immediately, or on 2\textsuperscript{nd} Tuesday of each month
- Non-security & non-urgent security fixes available in a Current Branch release
- Updates will apply to the last Current Branch release, and will be superseded by the next Current Branch release

**Tools**
- Windows Update
- Windows Update for Business
- Windows Server Update Services
- System Center Configuration Manager integrated with Windows Server Update Services
- Mobile Device Management such as Microsoft Intune

**Considerations**
- Reference system images
- Existing systems
- Applications
Current Branch for Business

Overview
- Deferred Current Branch
- Current Branch is validated by millions of users prior to update release
- Validation by selected business systems in your organization

Requirements
- Deferred Current Branch installation
- Deployment is managed by WU, WUB, WSUS, MDM or Configuration Manager
- WSUS or Configuration Manager updated to support feature update deployment

Benefits
- Ready for broad corporate adoption
- Businesses are able to stay up to date but at a slower pace to allow for internal validation
- Ability to stage internal deployment
Current Branch for Business
Customer Experience with Windows Update for Business*

- Business customers can start testing as soon as preview features are released via Windows Insider Program
- Business customers can wait to receive feature updates for an additional period of time, testing and validating in their environment before broad deployment
- Within the deferral period, you can flight these features and updates in your organization and provide feedback
- Security updates and fixes are delivered regularly

*Customers can also use WSUS for managing delivery updates
Current Branch for Business Adoption

**Considerations**
- Select and deploy current branch for business updates to systems currently in service
- Quality criteria
- Quality improvement and fixes
- Promotion Ring definition

**Recommended Usage**
- Configure systems to defer feature upgrades
- Systems configured to defer the installation will delay until the installation is mandatory
- Target groups should provide feedback to Corporate IT
- Microsoft will release updated media periodically
Long Term Servicing Branch

Overview

- There will be a specific media for Long-Term Servicing Branch
- First Long-Term Servicing Branch aligns with the release of Windows 10 build 1507 (RTM)
- Second Long-Term Servicing Branch follows the release of Windows 10 build 1607
- Approx. 3-6 month notification prior to releasing a Long-Term Servicing Branch

Requirements

- Only for Windows 10 Enterprise Edition
- Requires Enterprise and Software Assurance Agreements

Benefits

- Release cadence is longer than Current Branch for Business
- Innovation delivered only at next Long-Term Servicing Branch release
- In place upgrade from one Long-Term Servicing Branch to another
- Ability to skip one Long-Term Servicing Branch release
Long Term Servicing Branch

Customer Experience with Windows Update for Business*

- Security updates and fixes are delivered regularly
- Customers on Long Term Servicing Branch receive security and critical fixes only for ten years
- Customers can move from one Long-Term Servicing Branch to the next one via in-place upgrade and can skip one Long-Term Servicing Branch as well
- Customers manage updates via WSUS

*Customers can also use WSUS for managing delivery updates
Long Term Servicing Branch Adoption

**Considerations**
- Updating a system from one Long-Term Servicing Branch to another is considered an upgrade process
- Mission-critical workloads demand rigorous app testing
- Device drivers for peripherals
- Release cadence 2-3 years
- Limited features and capabilities (i.e. Edge and Windows Store)

**Recommendations**

**New systems**
- Create a reference system image using the Long-Term Servicing Branch media
- Re-install the device

**Existing systems**
- In-place upgrade from supported operating systems
- Possible to skip 1 Long-Term Servicing Branch upgrade i.e. install alternate Long-Term Servicing Branch upgrades
- Deployed using WSUS or from updated media
Long Term Servicing Branch

**Current Branch for Business**

- **LTSB2**
  - 5 years mainstream support
  - 5 years extended support

- **LTSB1**
  - 5 years mainstream support
  - 5 years extended support

- **Mission critical systems may remain on an Long-Term Servicing Branch installation for the life of the specific Long-Term Servicing Branch.**
- **Each Long-Term Servicing Branch has:**
  - 5 years of mainstream support AND
  - 5 years of extended support
- **After 10 years, the specific Long-Term Servicing Branch is no longer supported by Microsoft.**
- **In-Place upgrade supported from one Long-Term Servicing Branch to the next.**
- **Monthly security updates are available for the life of the specific Long-Term Servicing Branch.**
- **Limited support for future chip sets.**
Windows as a service: establishing a rhythm

Two releases supported in market

- **1507**
  - Plan and Prepare
  - Pilot: 4 months
  - Deploy / Use: 12 months
  - (done)
  - 60 days

- **1511**
  - Plan and Prepare
  - Pilot: 4 months
  - Deploy / Use: ~20 months
  - 60 days

- **1607**
  - Plan and Prepare
  - Pilot: ~8 months
  - Deploy / Use: ~16 months
  - 60 days

- **Example 2017 release**
  - (Hypothetical date)
  - Plan and Prepare
  - Pilot: ~8 months
  - Deploy / Use: ~4 months
Deferring Feature Updates

**Overview**
- Defer the installation of a feature update for up to 8 months with Windows Update for Business
- Defer the installation of a feature update for supported life of the release with WSUS and System Center Configuration Manager

**Applies to**
- Windows 10 Professional or Enterprise, Build 1511

**How?**
- Manually configured in the Windows 10 Settings application
- Centrally configured using Group Policy for domain-joined systems
- Centrally configured using OMA-DM for MDM-enrolled systems - OMA-URI for the CSP: `/Vendor/MSFT/Update/DeferUpgrade`
- Centrally managed for domain-joined systems with WSUS or System Center Configuration Manager

---

**Evaluate**
- 6+ months active development

**Pilot**
- ~4 months

**Deploy/Use**
- 12+ months

**Grace**
- 60 days

**Windows Update for Business**
- 8 month deferral limit

**WSUS & CM**
- Additional deferral time

16+ months to validate, deploy, and use each release
Scenario: Current Branch

Scenario
Windows 10 feature update stops a critical application from working on Current Branch device

Option 1
Stay on CB
- Device remains on Current Branch for testing
- Log problem with Microsoft / ISV
- Test app against future Windows 10 Current Branch updates
- Recommended when device can accommodate application downtime

Option 2
Move to CBB
- Device requires application to be functional asap / device incorrectly placed on Current Branch
- To move to current branch, device must be rebuilt – wipe & load
- Test app against future Windows 10 releases on specific test devices
- Recommended when device must return to operation to run application

Option 2 – MOVE BACK TO CURRENT BRANCH FOR BUSINESS

Wipe & Load
Application to be fixed in supported window
Scenario: Current Branch for Business

Windows 10 feature update stops a critical application from working on a Current Branch for Business device

**Option 1**  
**Revert to previous CBB**
- Log problem with Microsoft / ISV first
- Confirm application works with previous version of CBB and previous version of CBB in support
- Requires wipe and load of device, but does enable device to run application
- Reduced time to fix application problem before support windows ends

**Option 2**  
**Move to CB**
- Log problem with Microsoft / ISV first
- Device is upgraded using in-place upgrade
- Test app against future Windows 10 releases on specific test devices
- Recommended when device must return to operation to run application
Update Windows 10 Reference Image

**Overview**
System images require updating to ensure that systems are deployed with the latest updates

**System Image Creation**
- Monthly security updates can be added to an image using offline servicing
- Feature updates cannot be installed into a Windows 10 image using offline servicing
- For feature updates, a new system image must be created
- Obtain the latest volume license media and recreate the reference system image

**Considerations**
- New image can be created after new media is available
- Validation of branch update is performed prior to creating new image. *Quality-based release*
- Recommend new image created when Ring 2 release is ready
- Device driver updates may be required to leverage new features
# Moving Branches

<table>
<thead>
<tr>
<th>Starting From</th>
<th>Going to</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insider Preview</td>
</tr>
<tr>
<td>Insider Preview</td>
<td>In-Place Upgrade as new builds are released</td>
</tr>
<tr>
<td>CB/CBB</td>
<td>In-Place Upgrade after signing up</td>
</tr>
<tr>
<td>LTSB</td>
<td>Not Available for LTSB installs (wait for release)</td>
</tr>
</tbody>
</table>

Wipe and Load – Windows 10 deployment and solution to migrate data/settings
Integrating Windows as a Service into the Enterprise

- Adoption
- Managing WaaS
- Implementing
Too much time, money and effort to reach deploy decision
Reduced time, money, and effort to reach deploy decision
Increased confidence, greater agility

**Pre-Deployment Readiness Preparation**
- OS Preparation
- Network Readiness
- Application Compatibility
- User Training
- Driver Update Policy

**Deploy & Use**
- Servicing management tooling
- Rollout process & methods
- Bandwidth
- Driver servicing
- Update scheduling, offline constraints
- Installation audits & reporting
Adoption Planning

Lab Systems
- IT Pro
- IT Dev
- 2nd PC

IT Pro
- IT Dev
- Primary PC

IT Pro
- IT Dev
- Early Adopters
- Change Agents

Limited Corporate Systems

Broad Corporate Systems

Windows Insider Preview Branch

Current Branch

Current Branch for Business Ring 0

Current Branch for Business Ring 1

Current Branch for Business Ring 2

4 Months (minimum)

12 Months (minimum)

16 month deployment (minimum)
## Windows as a Service Strategy Example

<table>
<thead>
<tr>
<th>Branch</th>
<th>Ring</th>
<th>Onboarding</th>
<th>Opt Out</th>
<th>Deferral</th>
<th>% of devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIP</td>
<td>N/A</td>
<td>MSA</td>
<td>User</td>
<td>N/A</td>
<td>&lt;1</td>
</tr>
<tr>
<td>CB</td>
<td>A</td>
<td>Domain Join MDM Enrollment</td>
<td>Admin</td>
<td>Move to CBB</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>CBB</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

![Graph showing percentage of devices over time]

- E.g. 2 months
- E.g. 6 months
- E.g. 10 months
## Managing Windows as a Service

<table>
<thead>
<tr>
<th>Method</th>
<th>Branch</th>
<th>Content</th>
<th>Content Source</th>
<th>Configuration Method</th>
</tr>
</thead>
</table>
| Cloud (Windows Update for Business) | ▪ Current Branch  
▪ Current Branch for Business | ▪ Quality Updates  
▪ Feature Updates* | ▪ Windows Update | ▪ Group Policy, MDM or User |
| On-Premises | ▪ Current Branch  
▪ Current Branch for Business  
▪ Long Term Servicing Branch | ▪ Quality Updates  
▪ Feature Updates | ▪ Windows Server Update Services (WSUS)** | ▪ Group Policy  
▪ WSUS Console |
| | | | ▪ Task Sequence  
▪ File Share  
▪ Distribution Point | ▪ Microsoft Deployment Toolkit  
▪ System Center 2012 Configuration Manager SP2 & above*** |
| | | | ▪ Software Update Point | ▪ System Center Configuration Manager*** |

Each option explored in upcoming slides
# Windows Update for Business

<table>
<thead>
<tr>
<th>Overview</th>
<th>Keep Windows 10-based devices always up to date by directly connecting devices to Microsoft’s Windows Update service</th>
</tr>
</thead>
</table>
| Quality Updates | - Provides option to delay for 0-4 weeks using Group Policy or MDM  
- ‘Pause update and upgrade’ option available if problems discovered during test or rollout |
| Feature Updates | - Provides option to defer feature updates (upgrades) from 0-8 months using Group Policy or Mobile Device Management  
- MAK activated devices supported for feature update |
| Use When | - Feature update infrastructure does not exist or support Windows 10  
- Devices can connect to Windows Update |
Implement with Windows Update for Business

Choose how updates are installed

Automatic (recommended)

Keep everything running smoothly. We’ll restart your device automatically when you’re not using it. Updates won’t download over a metered connection (where charges may apply).

- Give me updates for other Microsoft products when I update Windows.

- Defer upgrades
  Learn more

Computer Configuration -> Administrative Templates -> Windows Components -> Windows Update

This setting configures Windows Update. WSUS and Configuration Manager settings are not impacted.
### Windows Server Update Services

<table>
<thead>
<tr>
<th>Overview</th>
<th>Enables administrators to manage the distribution of Microsoft product quality and feature updates that are released through Microsoft Update</th>
</tr>
</thead>
</table>
| Quality Updates                              | - Process unchanged from previous operating systems  
- Select Windows 10 product in administrative console to synchronize updates |
| Feature Updates                              | - Supported on Windows Server 2012 and Windows Sever 2012 R2 Platform  
- Requires a patch to WSUS to enable feature update  
- MAK and KMS activated devices supported for feature update |
| Use When                                     | - Domain Joined Device  
- System Center Configuration Manager not available |
## Task Sequence (In-Place Upgrade)

<table>
<thead>
<tr>
<th><strong>Overview</strong></th>
<th>Leverage in-place upgrade functionality with platform delivery tooling</th>
</tr>
</thead>
</table>
| **Feature Updates** | - Manually initiated with Microsoft Deployment Toolkit or provisioned with System Center Configuration Manager  
- Provides more administrative options to configure the device before and after the in-place upgrade process  
  - Apps  
  - Drivers  
  - Settings |
| **Use When** | - System Center Configuration Manager 2012 SP2 and above is available  
- In-place upgrade requires custom pre-post installation steps |
Software Update Point

**Overview**
System Center Configuration Manager capability to manage, deploy and monitor quality and feature updates

**Quality Updates**
- Process unchanged from previous operating systems
- Select Windows 10 product in administrative console to synchronize updates

**Feature Updates**
- Windows 10 Servicing Node used to manage rings
- Leverages Software Update Point functionality

**Use When**
- System Center Configuration Manager is available
Implement with System Center Configuration Manager

1. View the state of Windows 10 in the environment
2. Create a Windows 10 servicing plan
3. Deploy Windows 10 servicing content to devices
Integrate into Existing Release Management Processes

- Familiar process
- Quality-based release
- Measurable progress
- Clear signoff requirement
- Inherently open to future innovation
Planning Windows as a Service

Overview

Modern service management for Windows 10
Modern Service Management for Windows 10

- Modern Service Management approaches align and support Windows 10 release and patch patterns
- Traditional “process heavy”, manual IT Service Management operations and management models will hinder successful Windows 10 Deployment
- Plan for and formalize “Service Capabilities” rather than “Process Maturity”.
- Organizations already do many of these but not managed as integrated service.
- Microsoft has identified the following “underpinning services” that are enablers of Windows as a Service. Not all required as customer requirements may vary:
Modern Service Management for Windows 10

Windows as a Service
- Governance and Management of Windows 10 “Service”
- Planning and Communication of Updates
- Update Management
- Manage and Respond to Requests and Approvals
- Inventory Management

Windows Deployment
- Deployment services for in-place upgrades from Windows 7 forward as well as bare metal Operating System Deployment

Mobility as a Service
- Windows and Non-Windows mobility
- Mobility Management Services across heterogeneous environments
- Device Inventory

Mobile Data As A Service
- Cloud based Storage
- Provisioning and Management of One Drive for Business or other Mobile Storage services to be

Mobile as a Service
- Management of Configuration, Deployment and Monitoring Tools
- Health and compliance monitoring
- Integration to Service Desk and Portal

Systems Mgmt as a Service
- Efficiently streamlining application rationalization, testing and compatibility mitigation.
- Application Management Services

App Mgmt / Compat Testing
- Security controls and requirements
- Creating an available and efficient client experience, maximizing security

Security as A Service
- Provision and Management of Virtual Desktop environment
- Application Virtualization Services

Virtual Desktop Services
- Governance and Management of Windows 10 “Service”
- Planning and Communication of Updates
- Update Management
- Manage and Respond to Requests and Approvals
- Inventory Management
➢ **Continue your Learning**: aka.ms/ITInnovationResources
   Access online training, demos & try Windows 10 Enterprise for free

➢ **Build on the Skills Learnt Today**: Aka.ms/winlabs
   Access Virtual Labs on the key topics

➢ **Start your own POC**: Aka.ms/winpoc
   Access Windows 10 Enterprise Self-Service POC

➢ **Connect with Microsoft Services/Premier on Services**
   Customers can utilize DPS or Premier hours for these many services:
   - ✓ Windows 10 Enterprise Pilot
   - ✓ Windows 10 Mobility Pilot
   - ✓ Security Assessment
Thank you!
Configuration of Management Tools

Business Store services
Services for Management tools enables synchronization of app purchases and updates
Metadata (App Details, Icons), App Packages (offline), and Licenses (offline) are sync’d
Both Store-managed (Online) and Organization-managed (Offline) licensed apps are supported

Configure Management Tools
Management tools must be an Azure AD application
Management tools must be configured in Store for Business and Azure AD
Azure AD required to authenticate to Business Store services

Additional resources on TechNet
Additional Resources

- Microsoft Edge Developer Center
- TechNet Browser TechCenter
- Microsoft Edge Dev Blog
  https://blogs.windows.com/msedgedev/
- Enabling Site Discovery in Upgrade Analytics
Appendix
Windows 7 Security features

- Windows Update
- Trusted Platform Module
- Windows Firewall
- SmartScreen
- BitLocker Admin and Monitoring
- BitLocker
- BitLocker to Go

Device protection
Threat resistance
Identity protection
Information protection
Breach detection investigation & response
Windows 10 Security on Modern Devices

Virtualization Based Security

UEFI Secure Boot

Windows Trusted Boot

Windows Update

Trusted Platform Module

Device protection

Threat resistance

Identity protection

Information protection

Breach detection investigation & response

Device Guard
Microsoft Edge
Windows Defender

Credential Guard
Windows Hello Companion Devices

Device Encryption
Windows Information Protection
BitLocker Admin and Monitoring

Security Management
Conditional Access
Windows Defender Advanced Threat Protection

BitLocker

BitLocker to Go