



Windows Media Center Customized Product Requirements

February 11, 2009

Abstract

This paper provides information about Windows® Media Center customization for the Windows family of operating systems. It provides guidelines for developers to customize the user experience.

This information applies for the following operating systems:

- Windows 7
- Windows Server® 2008
- Windows Vista®
- Windows Server 2003
- Windows XP
- Windows 2000

For the latest information, see:

http://www.microsoft.com/whdc/device/broadcast/pbda/WMC_Prodreq.mspx

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Introduction

The Windows® Media Center Additional Qualification Checklist is used to evaluate a Windows Media Center (WMC) application to meet the requirements for the Additional Qualification (AQ). You should use this checklist during envisioning, planning, and developing the application to evaluate progress, generate test cases, and verify functionality of the user interface (UI) for the application.

We designed this checklist to help you:

- Ensure that the application is correctly adapted for users of WMC.
- Establish consistency with other applications for WMC.
- Take advantage of established best practices of applications for WMC.
- Ensure that users can use the application in an intuitive way.
- Avoid common errors that designers and developers make while developing applications for WMC.

Each section deals with a different aspect of an application for WMC.

How to Use the Checklist

Answer every question on the checklist during each phase of your schedule:

- **Planning.**
Complete each section during the planning phase to make sure that the application meets the requirements
- **Design**
Use questions to evaluate designs, screens, and site maps.
- **Prototyping.**
Test the prototypes for usability by using the checklist questions.
- **Development.**
Use the checklist to keep development on track with the requirements.
- **Quality Assurance.**
Use the checklist as part of your regular test passes:
 - Use high standards to evaluate the experience. If end users find the application difficult to use, they are unlikely to buy it or keep it.
 - If possible, check "Yes" or "N/A" (Not applicable) for each question.
 - If you are uncertain of the correct answer, check "No" and make comments for follow-up or further investigation.
 - Use this checklist to verify the application on PCs that have Windows Media Center.

Special Requirements

Applications for Blu-ray

For the WMC AQ, applications for Blu-ray player that are included with PC systems or with Blu-ray drives must follow the guidelines in section “9. Applications for Blu-ray Player” of the checklist. This ensures a positive user experience when users start the application from WMC.

PBDA-Based Devices

For devices that are based on Protected Broadcast Driver Architecture (PBDA) and implement extensibility pages for TV setup, man-machine interface (MMI) dialog boxes, and diagnostic pages, an additional set of guidelines are listed in section “10. PBDA-Based Devices.”

Windows Media Center Additional Qualification Checklist

1. Readability

This section covers readability for television display and distance viewing.

ID	Question	Yes	No	N/A ¹	Comment
1.1	<p>Is all text readable and is all iconography easily distinguishable on a 20-inch, standard-definition TV from a distance of at least 10 feet?</p> <p><i>Usually this requires at least 20-pt type. Large, readable type and iconography are essential for a comfortable, user-friendly Windows Media Center (WMC) experience. During the design phase of the product, be sure to give this concern sufficient consideration. Do not use too much text, and avoid using "san serif" fonts. For large amounts of text, provide scrolling functionality or move some content to subsequent pages.</i></p>				
1.2	<p>Can the color palette for the application "TV safe" be seen on a standard-definition TV (National Television System Committee—NTSC or phase alternating line—PAL)?</p> <p><i>Use light gray instead of white. Avoid highly intense colors.</i></p>				
1.3	<p>Is the application free of design elements that produce a flicker on some standard-definition TVs (such as single-pixel lines)?</p> <p><i>Be sure to test the application on a standard CRT TV and an LCD TV. All elements should be clear and discernable.</i></p>				

¹N/A = Not applicable.

2. Page Layout

This section covers layout design concerns of applications for WMC.

ID	Question	Yes	No	N/A ¹	Comment
2.1	<p>Does the layout provide room at the lower-left for Shared Viewport when appropriate?</p> <p><i>Be sure to consider this during the design phase. Users expect to be able to navigate to the application without interrupting the current media playback experience (unless you are auto-playing some other media content). The window at the lower-left should be visible, and it should be integrated smoothly with the design, without obscuring any important elements in the UI.</i></p>				
2.2	<p>Is the layout on each page optimized for a 16:9 ratio wide-screen display and also acceptable on 4:3 ratio displays?</p> <p><i>Most end users have wide-screen TVs, so you should optimize the layouts for this ratio. For users on 4:3 displays, the experience should still be usable and attractive.</i></p>				
2.3	<p>Does the layout scale proportionally when users view it at different resolutions or when they resize it in a window?</p> <p><i>For HTML applications, use the OnScaleEvent event to automatically scale for different resolutions or window sizes. For a correct implementation of this, see the "BasicFunctions.js" file from the SDK HTML templates.</i></p>				
2.4	<p>Does the background color (MediaCenter.BGColor) that is defined for the areas behind Shared Viewport and mouse navigation and transport controls integrate smoothly or complement the application background?</p> <p><i>For BGColor, choose a flat color that complements the background of the design. BGColor must be a flat color. You cannot use gradations, patterns, or images.</i></p>				

¹N/A = Not applicable.

3. Element Focus

Users of WMC interact with the UI by moving the “focus” among selectable elements and selecting them. This section deals with interactive focus movement and visual feedback.

ID	Question	Yes	No	N/A ¹	Comment
3.1	<p>When each page loads, is it focused on a logical element?</p> <p><i>When the page loads, the focus should by default be on a logical element, such as the first element in a menu or an element that forms the first step in a task.</i></p>				
3.2	<p>Is the focus highlight always on only one element?</p> <p><i>To avoid confusing users, one and only one element at a time should be highlighted to indicate focus.</i></p>				
3.3	<p>Is a consistent style (such as color) used to indicate focus throughout the application?</p> <p><i>Users can become confused if you use more than one color or style for highlighting elements to indicate focus.</i></p>				
3.4	<p>Does the application reserve the visual style for highlighting exclusively for the element that has the focus and refrain from using a similar style on elements that do not have the focus?</p> <p><i>Users should be able to easily distinguish which element on the page has the focus, so the highlighted element should have a unique appearance.</i></p>				
3.5	<p>Is the visual treatment for highlighting the focus consistent among similar types of focusable elements (such as pictures or buttons)?</p> <p><i>A picture may be highlighted in a different way from a button, but similar focusable elements should be highlighted in a consistent way.</i></p>				
3.6	<p>Does the visual design for highlighting the focus provide sufficient contrast with other elements on the page?</p> <p><i>Users should be able to tell at a glance which element has the focus.</i></p>				

ID	Question	Yes	No	N/A ¹	Comment
3.7	<p>Does the focus always move intuitively, logically, and consistently between focusable elements (that is, up, down, left, and right)?</p> <p><i>Users should be able to predict how the focus will move in response to their pressing the arrow keys on the remote control. Generally, the focus should always move to the nearest focusable element in the chosen direction. If no focusable elements are available in that direction, the focus should remain where it is.</i></p>				
3.8	<p>Can users move the focus on and off Shared or Custom Viewport by using the keyboard or remote control?</p> <p><i>The viewport must be focusable so that users can select it to move to full-screen. Because Shared Viewport appears by default when users navigate to the application while they are playing media content, be sure to test the application while media content is playing.</i></p>				

¹N/A = Not applicable

4. Navigation

This section deals with navigation between pages or views in the application.

ID	Question	Yes	No	N/A ¹	Comment
4.1	<p>Do obvious location cues appear as users navigate more deeply into the application?</p> <p><i>These are typically known as “bread crumbs.” An application that has a complex structure or many pages should provide cues to let users know their location in the UI.</i></p>				
4.2	<p>Can users return to the home page of the application easily from anywhere in the application?</p> <p><i>A simple way to achieve this is to include a Home button on each page or view.</i></p>				
4.3	<p>Does the Back button always return users to the previous location in the application?</p> <p><i>Throughout the WMC experience, users expect the Back button on the remote control to return to the previous view.</i></p> <p><i>If you use an interstitial HTML/MCML page to auto-forward users to another page, be sure to leave this interstitial page out of the backstack. Otherwise, if users reach the interstitial page by using the Back button, they are bounced forward to the page they started from (in other words, stuck in a loop). For navigation, use “location.replace” from the interstitial page</i></p> <p><i>If you use a Flash movie on a single HTML/MCML page for the UI, remember that the Flash movie does not automatically create its own backstack in the same way that the browser does. Users perceive the different views in the Flash movie as separate “pages” and expect the Back button to take them through these views in an intuitive way. To accommodate this concern, you will likely be required to maintain a custom backstack Flash movie.</i></p>				
4.4	<p>For lists that span multiple pages, are users informed which page they are on and how many pages are in the list (as in “Page 4 of 12”)?</p>				

ID	Question	Yes	No	N/A ¹	Comment
4.5	<p>Is the previous focus position retained on each page when users navigate backward through lists of content that spans pages?</p> <p><i>In HTML/MCML, when users return to a page in the backstack, the browser automatically places the focus on the same element as when users left that page. This helps them to efficiently navigate back and forth among categories and subcategories.</i></p>				
4.6	<p>If the experience includes HTML pages that are not designed for WMC, are users given the option to open these in a separate browser window?</p> <p><i>To give users the option to view the page in a standard browser window, use the CreateDesktopShortcut method. For WMC Extender users, include additional directions to users to tell them that Extender cannot open a browser window outside WMC and that users must access the page from their PC.</i></p>				
4.7	<p>Can users navigate away from the application without interrupting a long-running task?</p> <p><i>If the application involves tasks that take more than a minute to complete, such as downloading media content, users should be able to leave the application while the tasks continue to run in the background.</i></p>				

¹N/A = Not applicable

5. Input Devices

This section covers user interaction with the application by using remote control, keyboard, or mouse.

ID	Question	Yes	No	N/A ¹	Comment
5.1	<p>Can users switch seamlessly between mouse, keyboard, and remote control for interaction?</p>				
5.2	<p>Can users interact with the application by using only a mouse?</p> <p><i>Users should be able to move the focus to focusable or selectable elements by moving the mouse pointer over them and to select those elements by clicking them.</i></p>				

ID	Question	Yes	No	N/A ¹	Comment
5.3	<p>Can users interact with the application by using only a keyboard?</p> <p><i>The keyboard arrows and Enter keys should have the same focus and navigation functionality as the arrows and OK buttons on the remote control.</i></p>				
5.4	<p>Can users interact with the application by using only a remote control?</p> <p><i>Users should be able to complete all available tasks (except for installing components) by using only the remote control.</i></p>				
5.5	<p>Can users navigate scrollable elements by using any of the input devices (mouse, keyboard, or remote control)?</p> <p><i>Be sure to provide a mechanism for scrolling with the mouse, such as clickable arrow images.</i></p>				
5.6	<p>Are actionable UI elements positioned so that they are not hidden behind the mouse navigation and transport controls at an 800x600 resolution?</p> <p><i>When users move the mouse, certain WMC mouse controls appear at the top and bottom of the screen. At lower resolutions, the space occupied by these controls is larger than the elements in the UI. It is important not to position clickable elements so that they are hidden by WMC mouse controls, or users will be unable to click them by using the mouse.</i></p>				
5.7	<p>Can users navigate scrollable elements by using the Channel Up and Channel Down buttons on the remote control (or the Page Up and Page Down buttons on the keyboard)?</p> <p><i>For expedience, users should be able to use these buttons to scroll several elements at once.</i></p>				

¹N/A = Not applicable

6. User Experience

This section addresses several concerns that are specific to users of WMC.

ID	Question	Yes	No	N/A ¹	Comment
6.1	<p>Does the application enable users to add the experience to the Extras Gallery or Extras Library and other appropriate entry point categories?</p> <p><i>You should provide a button that asks users for confirmation to add a link to the application in the Extras Library. The application should also add the link in other entry points as appropriate. To achieve this, use the RegisterApplication method.</i></p>				
6.2	<p>Does the application refrain from automatically asking users to register or add the service to Extras Library?</p> <p><i>You should not automatically call the RegisterApplication method when the page loads. You should wait for users to request this by selecting the Add To Extras Library button in the application's UI.</i></p>				
6.3	<p>Does the application provide clear visual cues to indicate scrollable elements?</p> <p><i>If elements are scrollable, the application should display up and down arrow images to indicate this.</i></p>				
6.4	<p>Are non-text visual cues (iconography) used in a standard and consistent way?</p>				
6.5	<p>Does the application provide progress feedback for processes that take more than 20 seconds?</p> <p><i>WMC provides a "wait" indicator (a spinning arrow icon) for most processes, but if a process takes more than 20 seconds, the application should provide additional progress feedback.</i></p>				
6.6	<p>Does each page show a visual progress indicator if the page takes more than 4 seconds to load?</p> <p><i>Pages that take more than 4 seconds to load should show an indicator of progress to let users know that navigation has not failed.</i></p>				

ID	Question	Yes	No	N/A ¹	Comment
6.7	<p>Does the application provide functionality for sorting, filtering, or grouping for large lists of data?</p> <p><i>Large lists of data (more than 40 or 50 elements) should appear in manageable and coherent subsets.</i></p>				
6.8	<p>Can users easily tell what each actionable element does before they select it?</p> <p><i>Each button label should be written clearly and accurately to reflect the button's functionality.</i></p>				
6.9	<p>Does the application implement parental controls for content that is unsuitable for minors?</p> <p><i>WMC has parental controls functionality to help parents keep minors from accessing content that is inappropriate for their age group. If the application has content that is inappropriate for all ages, it should implement parental controls.</i></p>				
6.10	<p>If CreateDesktopShortcut is used to open a browser window or if any non-WMC elements (such as security dialog boxes) appear during an installation, does the application exit DirectXExclusive mode to keep the window or other elements from being hidden behind WMC?</p> <p><i>When the application is in DirectXExclusive mode, you can hide UI elements that are not part of WMC behind the WMC UI so that users do not know that the elements are there.</i></p>				
6.11	<p>Does the application use only WMC "10-foot" dialog boxes (and not Windows "2-foot" alert dialog boxes)?</p>				
6.12	<p>Are all instructions written clearly and accurately so that they lead to the desired result?</p>				
6.13	<p>Is the Help area free of any information that applies only to the non-WMC version of the application?</p> <p><i>If you want to adapt Help material from a non-WMC version of the application, edit it carefully to ensure that all the information applies to the WMC version.</i></p>				

ID	Question	Yes	No	N/A ¹	Comment
6.14	Does the application run without causing any instability in the WMC environment, such as hanging, crashing, script time-outs, or session terminations?				
6.15	Does the application detect the version of WMC that users are running and make the appropriate API calls? <i>It is important to distinguish programmatically between different versions of WMC and ensure that the code works in each version.</i>				

¹N/A = Not applicable

7. Text Entry

This section covers any remote control text entry solution in the application, including “triple-tap” (TT) or on-screen keyboard (OSK).

ID	Question	Yes	No	N/A ¹	Comment
7.1	Can users enter text if they only have a remote control? <i>This is required in any applications for WMC that require text entry. Many users of WMC do not have access to a keyboard and mouse. For routine tasks such as entering a user name and password, the application should offer a way to enter the information by using a remote control. The most common mechanism for this is an on-screen keyboard.</i>				
7.2	Does the text entry device provide a complete set of characters for text entry, including non-alphanumeric characters if needed? <i>This is especially important for entering “strong” passwords that may contain non-alphanumeric characters.</i>				
7.3	Is it clear where text that is entered by using an OSK will be entered on-screen? <i>In pages that include one OSK for several text boxes, users must be able to tell which text box will receive the characters that they enter.</i>				

ID	Question	Yes	No	N/A ¹	Comment
7.4	<p>Can users switch seamlessly among all available input paradigms (keyboard and mouse or remote control with OSK or TT)?</p> <p>Users who find it cumbersome to enter text by using the remote control might want to switch to a keyboard and mouse in the middle of the process.</p>				
7.5	<p>If several elements of text entry are required, can users move the focus through the elements in sequence by using the Tab key on the keyboard?</p> <p>Users who want to enter text by using the keyboard typically use the Tab key to move to each element in sequence. You might be required to set the TABIINDEX property for the text entry boxes to ensure that the sequence is correct.</p>				
7.6	<p>If users enter text, does the text still appear when they return to the page by using the Back button?</p> <p>If a process occurs over more than one page and requires text entry, the application should let users return to a previous step without erasing their text entries on that page.</p>				
7.7	<p>Does the application obfuscate password characters appropriately?</p> <p>Text entry that is performed by using a remote control is not perfectly private from other viewers because users must be able to see what character they are entering. In an OSK, the characters should be obscured as they appear in the text entry box. In a TT mechanism, all except the current character should be obscured.</p>				

¹N/A = Not applicable

8. Installation

If implemented, this section deals with any installable components. Installing components on the PC can be difficult for users of WMC. It is important to make the experience as user friendly as possible.

ID	Question	Yes	No	N/A ¹	Comment
8.1	<p>Are accurate instructions for installation provided at the beginning of the installation process?</p> <p><i>Installing a program can be a challenging task for users of WMC. The application should provide directions that outline the steps clearly and accurately.</i></p>				
8.2	<p>Is the installation process made up of understandable, easily executable steps?</p>				
8.3	<p>Does the installation process note requirements for using keyboard and mouse?</p> <p><i>When users cannot reliably complete the installation by using a remote control, the application should instruct users to have a keyboard and mouse available.</i></p>				
8.4	<p>Is the installer program digitally signed?</p> <p><i>For security, a digital signature is required for the installer program.</i></p>				
8.5	<p>Does the installation process gracefully exit if users choose not to install or deselects options during installation?</p> <p><i>Test what happens if you end the installation process in several different stages of completion, and ensure that the process exits gracefully without errors.</i></p>				
8.6	<p>Does the installation process register the application (RegisterMCEApp.exe)?</p> <p><i>The installer should register the application so that users can access it through Extras Library, Extras Gallery, or other entry points in the WMC UI.</i></p>				
8.7	<p>Does the installation process inform users when installation is complete and provide instructions for starting the application?</p> <p><i>It is important to conclude the installation process with further instructions.</i></p>				
8.8	<p>Can users uninstall the application completely through Add or Remove Programs?</p>				

¹N/A = Not applicable

9. Applications for Blu-ray Player

This section applies to applications that support Blu-ray playback. In addition to these guidelines, make sure that you review the guidelines from sections 1 through 8 (where applicable).

ID	Question	Yes	No	N/A ¹	Comment
9.1	Does the application for the Blu-ray player play video smoothly without glitches?				
9.2	Is the transition between WMC and the application for Blu-ray player smooth? <i>Smooth transitions include no screen flashing when users start the application for Blu-ray player from WMC and hide the effect of minimizing WMC by bringing the application to the foreground.</i>				
9.3	Does the application for Blu-ray player start from WMC?				
9.4	Does the application for Blu-ray player display all relevant mouse transport control buttons for the experience? <i>Users who have a mouse must see the transport control buttons that let them control the playback experience. Examples of mouse transport control buttons are Play, Pause, Stop, Skip Forward, Skip Backward, Fast Forward, and Rewind.</i>				
9.5	Does the page layout of the application for Blu-ray player allow room in the upper-left for mouse navigation buttons, if appropriate? <i>Mouse navigation buttons may include a Back button that returns users to a previous experience or page and a WMC green button that returns users to WMC. For more specific details, refer to "Page Layout" (Section 2) General Considerations on Page Layouts."</i>				
9.6	Is the response of the application for Blu-ray player to WMC remote control commands consistent with how WMC responds to the remote control commands? <i>For guidance on how to interpret calls from a WMC remote control device, refer to the onRemoteEvent event.</i>				

¹N/A = Not applicable

10. PBDA-Based Devices

This section applies to PBDA-based devices that implement extensibility pages during TV setup, MMI dialog boxes, and diagnostics pages. In addition to these guidelines, be sure to review the guidelines from sections 1 through 8 (where applicable).

ID	Question	Yes	No	N/A ¹	Comment
10.1	<p>Does each MMI dialog box provide branding of the broadcaster?</p> <p><i>MMI dialog boxes that come from a PBDA-based device must show the brand of the broadcaster. This ensures that users can easily identify where the MMI dialog message is coming from.</i></p>				
10.2	<p>Does each MMI dialog box provide at most three buttons?</p> <p><i>Providing too many buttons in an MMI dialog box can confuse users. No more than three buttons should be shown for each MMI dialog box.</i></p>				
10.3	<p>Is the transition between the WMC TV Setup pages and the PBDA-based device's TV Setup pages smooth and consistent?</p> <p><i>The PBDA-based device's TV Setup pages should have a theme that is consistent with the WMC theme and should ensure that users can easily return to the WMC TV Setup pages.</i></p>				
10.4	<p>Is the transition between the WMC Settings pages and the PBDA-based device's Diagnostic pages smooth and consistent?</p> <p><i>The PBDA-based device's Diagnostic pages should have a theme that is consistent with the WMC theme and should ensure that users can easily return to the WMC Settings pages.</i></p>				

¹N/A = Not applicable