

# **Chapter 1**

# **Look Inside**

# **Overview**

## 1.1 Introduction

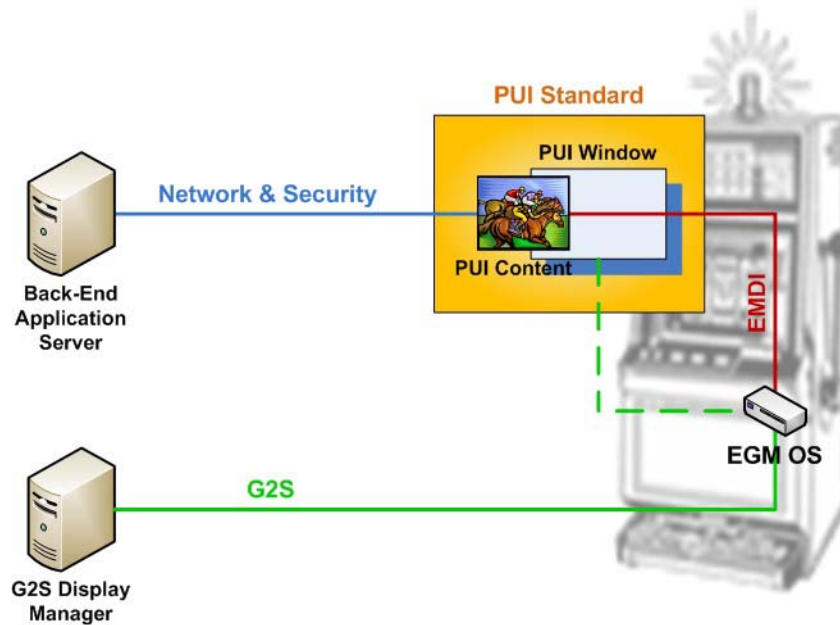
The Gaming Standards Association has developed the Player User Interface Standard to provide EGM operators and manufacturers with a set of requirements that can be used to consistently implement the player user interface (PUI) across a wide variety of platforms. The standard includes requirements for implementing browsers that render PUI content as well as a series of common templates that establish the size, position, and other operational characteristics of PUI windows. From time to time, it is expected that this standard will be extended to include additional topics and templates.

The PUI environment is supported by four GSA standards, including the Player User Interface Standard. Each standard is important to the successful operation of the PUI.

1. **Game-to-System (G2S) Protocol** — Host systems use G2S to configure PUI windows and then control which content is displayed in those windows and when that content is displayed.
2. **EGM Media Display Interface (EMDI)** — PUI content uses EMDI to communicate through a local interface with the EGM. This allows the content to react to actions taking place on the EGM. It also allows the content to direct the EGM to take specific actions related to the PUI window.
3. **Network & Security Specification** — The requirements in the Network & Security Specification establish a secure environment for PUI content to communicate with back-end application servers.
4. **Player User Interface Standard** — The PUI Standard sets the requirements for browsers that render PUI content. It also describes a series of common PUI templates that can be used to consistently display content across a wide range of platforms.

The following diagram illustrates the roles and relationships between the four standards. The exact implementation in the EGM may vary from manufacturer to manufacturer. Various hardware-based and software-based solutions are possible.

Figure 1.1



# **Chapter 4**

# **Look Inside**

# **Templates**

## 4.1 Introduction

This section includes a series of common templates that can be used to implement a player user interface on an EGM. The templates are the result of careful analysis and the actual experience of operators and manufacturers. The templates are not intended to provide an exhaustive list of all possible templates. Instead, the templates are intended to provide a base set of templates that addresses the majority of needs encountered by operators. It is expected that this set of templates will be customized and extended from time to time to meet unique requirements found in certain environments.

Each template defines a PUI window that can be used to display content to players (or employees) at an EGM. Some windows are intended to be displayed on the primary screen of the EGM, while other windows are intended to be displayed on auxiliary screens, such as the top glass. The content can be provided by the manufacturer, operator, or third-party application developers. Some windows are intended to be static, while other windows are intended to be touch-sensitive. When touch-sensitive, players can interact with the content, as well as the applications driving the content. It is expected that a content management system will be used by the operator to manage the activation of windows and the display of the content to the player.

Each template is intended to display a specific type of content on a specific area of a screen. For example, there is a template to display player service applications on the left or right side of the primary screen. In some cases, an EGM may not be equipped with the type of screen needed to display a specific type of content. For example, a spinning-reel game may not have a primary screen. In such cases, alternate templates may be provided so that the specific type of content can be displayed on other screens supported by the EGM. For example, an alternate template is provided so that player service applications can be displayed in a window on a special screen installed below a spinning-reel mechanism. As the need arises, additional templates may be added to this standard.

## 4.2 Template Names

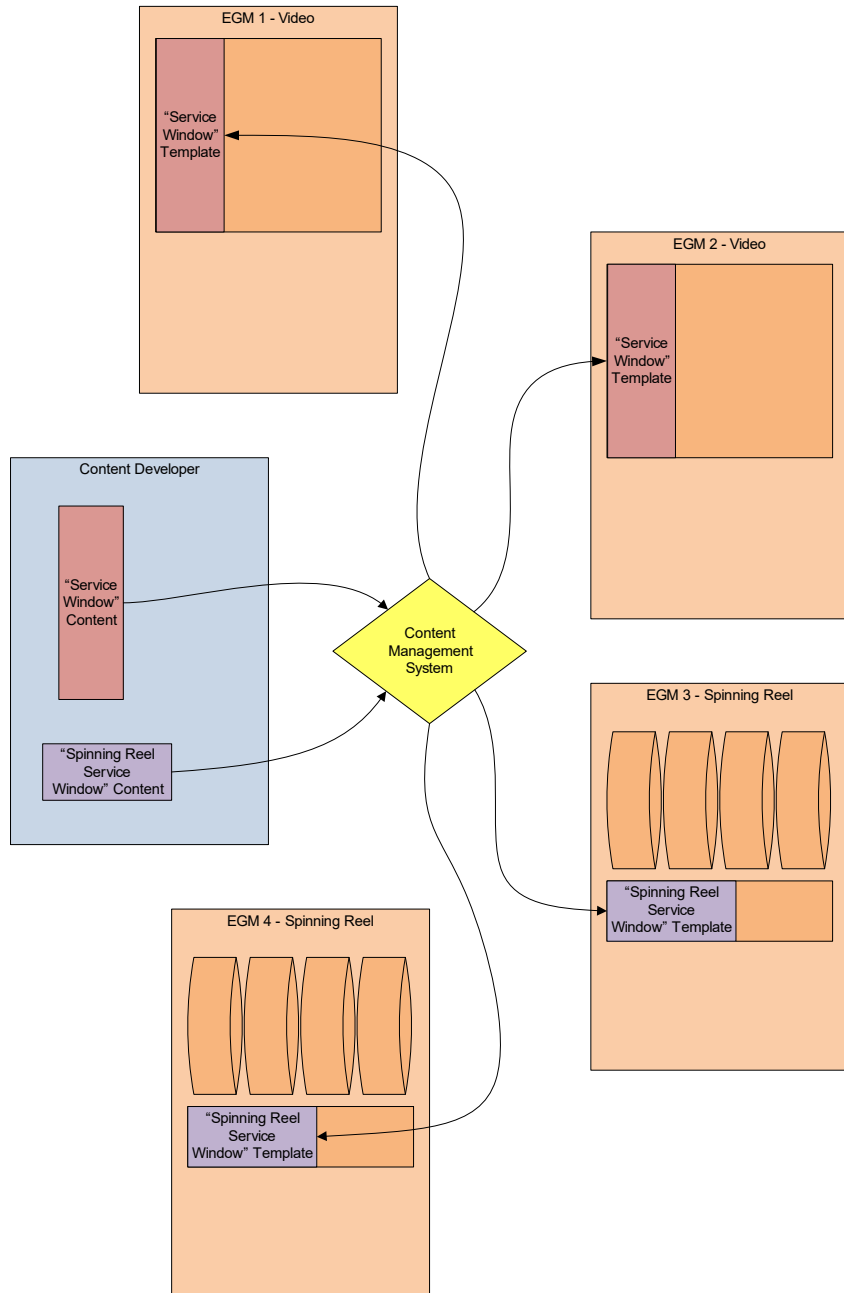
For interoperability purposes, each template is given a unique name. It is expected that content management systems will recognize the template names and will be able to direct the correct content to the correct screens based on the template names. It is expected that operators, in conjunction with manufacturers and third-party application developers, will provide appropriate content for each of the templates that they plan to use. And, it is expected that EGMs will expose the correct templates to the content management system for the types of screens that they support.

For example, if an operator plans to display service windows on primary screens as well as special purpose spinning-reel screens, it is expected that the operator will provide appropriate service window content for each type of screen; it is expected that EGMs will properly expose the service window templates that they support to the content management system based on the types of screens that they support; and, it is expected that the content management system will deploy the correct content to the correct EGMs based on this information. Note that the following diagram shows a single content management system. This is a logical representation of the content management system. The content management system may be implemented as a single system or as multiple systems, each managing one or more templates.

In this way, content can be developed once for a specific template with a high degree of confidence that the content will function properly on all EGMs that support the template. Content developers can produce content to a well-known set of specifications. EGMs can be built and tested for the specific template. And, content management systems can easily match content to EGMs.

As the need arises, new templates can be added to EGMs and assigned new unique template names. New content can be developed for the new templates. And, content management systems can be upgraded to recognize the new template names and deploy content to EGMs that support the new templates. If desired, the new templates can be submitted to the GSA and, if approved, included in a new version of this standard.

Figure 4.1 Content Management Example



## 4.3 Overlaying and Scaling Windows

Windows can be introduced onto a screen in two ways. The base game can be scaled out of the way so that the new window can be displayed. Or, the base game can be overlaid by the new window.

Typically, when the base game is scaled, the game is still playable. Touch-screen events can still be routed to the base game. On the other hand, when the base game is overlaid, the base game is typically not playable. Touch-screen events are routed to the topmost window only. However, it is possible that other user inputs, such as button-panels, can still be used to interact with the base game.

When implementing this standard, the base game should remain playable when it is scaled. The base game should be locked when it is overlaid by a window. The base game should be unlocked once the overlaying window is removed from the screen. However, as described below, the exact behavior will be determined by the content management system. For example, if the overlaying window uses a transparent background such that the base game is still visible and playable, the base game might not be locked.

Since the base game may not be aware that it is being overlaid, ultimately, the content management system is responsible for locking the base game. The EGM itself should not lock the base game except as directed by the content management system. In many cases, this may be a moot point because user input will be directed to the overlaying window rather than the base game. For example, touch-screen events will be routed to the overlaying window rather than the base game and, thus, the base game will be effectively locked. However, other user inputs, such as button panels, may still be active, especially when the base game itself is overlaid. In such cases, the content management system may need to lock the base game (and possibly other content) to assure that only the overlaying window is enabled.

When the base game is scaled to accommodate a new window, two methods can be used to scale the game. The game can be scaled proportionately or non-proportionately.

When scaled proportionately, the aspect ratio of the base game is preserved. The existing base game is not distorted by the scaling process. However, as a result of this process, gaps, which contain no content, may appear around the base game.

When scaled non-proportionately, the aspect ratio of the base game is not preserved, but gaps can be avoided. The base game is stretched horizontally or vertically by the scaling process to fill any gaps.

This standard does not dictate which method to use. The choice of proportional or non-proportional scaling may be determined by the EGM manufacturer. However, if proportional scaling is used by a manufacturer, the manufacturer is responsible for filling any gaps that may result. Neither the content nor the content management system is responsible for filling any gaps that may appear due to proportional scaling of the base game.

Besides the base game, other windows may be present on a screen when a new window is introduced. For example, a banner may already be present when a service window is activated. In such cases, the same general rules should be applied. Existing content should remain enabled when it is scaled. Existing content should be locked when it is overlaid by another window. Existing content should be unlocked once the overlaying window is removed from the screen. However, as described above, the exact behavior will be determined by the content management system.

When other windows are scaled, the choice of proportional or non-proportional scaling is the responsibility of the EGM manufacturer. If proportional scaling is used by the manufacturer, the manufacturer is responsible for filling any gaps that may result. Neither the content nor the content management system is responsible for filling any gaps that may appear due to proportional scaling of the windows.

## 4.4 Content Size versus Window Size

Two sizes are specified for each template - the content size and the window size. The content size indicates the size in pixels for the content itself. This is the size at which the content should be created for the template. The content size is fixed and never varies for a template. The window size indicates the size in pixels at which the content is rendered on a specific screen. The window size may be the same as the content size or it may be different.

When content is loaded, the content management system will indicate whether the content should be scaled by the EGM to the window size. If the content management system indicates that the content should be scaled, the EGM **MUST** scale the content to the window size. If the content management system indicates that the content should not be scaled, the EGM must display the content at its native resolution - that is, the EGM **MUST NOT** scale the content to the window size.

When content is not scaled, the content is expected to adjust itself to the window size. The content may accomplish this by loading additional content that is designed specifically for the window size, or through other techniques.

Note that the presence of other windows on a screen may cause a particular window (and its content) to be scaled by the EGM even though the content management system indicated that the content should not be scaled. See [Section 4.3, Overlaying and Scaling Windows](#) for more details.

Many templates are designed to be used with screens of varying aspect ratios. For example, a template may be designed to be used with screens that have an aspect ratio of 16:10 or 16:9. In such cases, a separate window size may be specified for each screen aspect ratio. The specified window size may cause proportional scaling of the content - the aspect ratio of the content may be retained. Or, the specified window size may cause non-proportional scaling of the content - the content may be stretched horizontally or vertically as necessary to fill the window.

The specified window sizes have been designed to help minimize the number of templates in this standard, while still maintaining an acceptable level of quality for the content. For a specific template, manufacturers should select the window size that matches the aspect ratio of their screens. If the resolution of the screen differs from the base resolution used to define the template, the window size should then be scaled proportionately to match the resolution of the screen. Content developers should create content at the specified content size.

For example, if the base screen size used to define a template was 1280x800, but the actual monitor resolution was 1440x900, a window size of 200x800 should be proportionately scaled to 225x900.

For each template, the window size is calculated based on the intended content size and the resolution of the target screen. When the EGM receives content to display, when appropriate, the EGM will scale the content from the base content size to the proper window size and then display it.



## 4.5 Display Priority

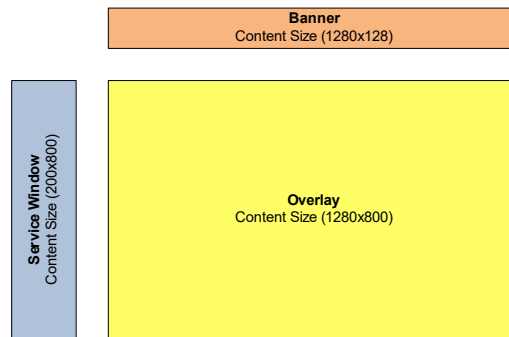
Scaled content is prioritized against other scaled content that is displayed on the same screen. The content with the highest priority (1) is not scaled at all. That content is rendered at the window size specified for the template. Other content is scaled out of the way to make room for content with a higher priority. The scaling may be proportional or non-proportional as described above. Game content always has the lowest priority. However, when necessary, the game content may take priority over all other content while games are being played. When game play is complete, any affected content should be restored.

## 4.6 Scaling Examples

The following examples are designed to demonstrate the affects of scaling on content. For the purposes of these examples, three templates are used. The content size is based on a full screen size of 1280x800:

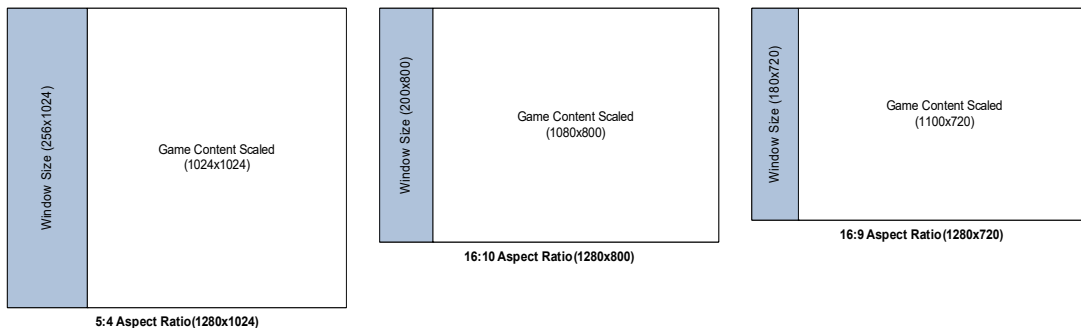
- Service Window - content size 200x800,
- Banner - content size 1280x128, and
- Overlay - content size 1280x800

Figure 4.2 Template Examples



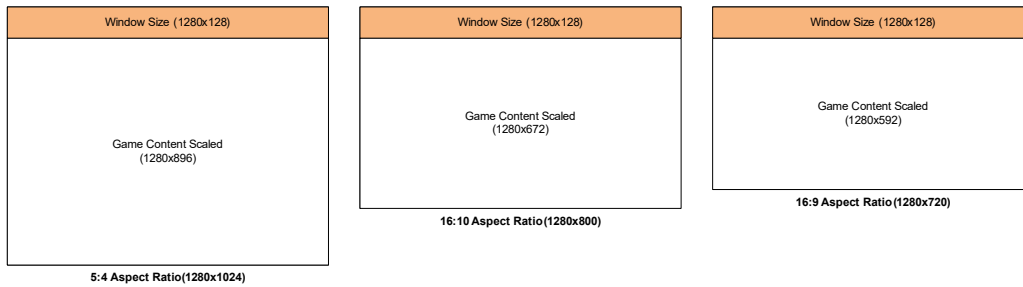
In the first example, the Service Window is displayed proportionately to retain the aspect ratio of the template content on all screens. In this case, the template content is scaled horizontally and vertically to retain the aspect ratio of the template content — the template content is not distorted. However, due to the varying aspect ratios of the screens, the percentage of horizontal space taken up by the template content varies. The game content is scaled out of the way to make room for the Service Window.

Figure 4.3 Example 1: Service Window Displayed Proportionately



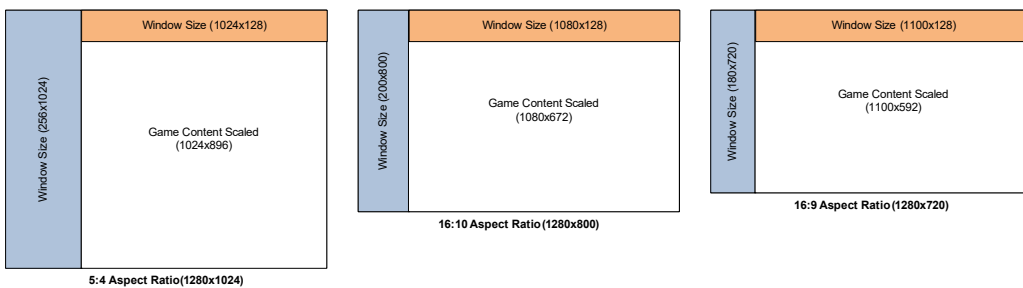
In the second example, just the Banner is displayed. It also displayed proportionately on all screens. Since the width of the template content and the width of the windows are the same, no scaling is required. The aspect ratio of the template content is retained without scaling. However, the percentage of vertical space taken up by the template content varies. The game content is scaled out of the way to make room for the Banner.

Figure 4.4 Example 2: Banner Displayed Proportionately



In the third example, both the Service Window and the Banner are displayed. The Service Window has a higher priority so it is displayed proportionately like the first example. Since the Banner has a lower priority, the Banner is scaled non-proportionately to make room for the Service Window. In this case, the width of the banner is reduced. The game content is also scaled out of the way to make room for both the Service Window and the Banner.

Figure 4.5 Example 3: Service Window (Proportionately and Banner (Non-Proportionately) Displayed



In the final example, a full-screen Overlay is displayed. The Service Window, Banner, and game content are overlaid. At this point, the content management system may have to lock the EGM to prevent games from being played while the game content is overlaid. The Overlay is scaled non-proportionately to fill the full width and height of the screens.

Figure 4.6 Example 4: Full-Screen Overlay Displayed Non-Proportionately

