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GEMS API Reference

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This document describes all conditions, triggers, and actions available in GEMS (Graphical Environment Management System).

Restriction Scopes

Actions, conditions, and triggers can be restricted to specific contexts:

| Scope | Description |
|--------|--------------------------------------|
| view | Can be used at the view level |
| object | Can be used on objects within a view |
| global | Can be used in global scripts |
| pocket | Can be used on pocket objects |

Triggers

Triggers define events that initiate script execution.

ViewTimePassed

```
ViewTimePassed(Seconds: float)
```

Description: Fires when the specified number of seconds has elapsed since entering the current view.

Parameters:

- Seconds (float): Time in seconds to wait before triggering

Restrictions: view

TotalTimePassed

```
TotalTimePassed(Seconds: float)
```

Description: Fires when the specified number of seconds has elapsed since the environment started running.

Parameters:

- Seconds (float): Total elapsed time in seconds

Restrictions: global

MouseClick

```
MouseClick()
```

Description: Fires when the user clicks on an object or pocket.

Parameters: None

Restrictions: object, pocket

NavLeft

```
NavLeft()
```

Description: Fires when the user clicks in the left navigation area of the view.

Parameters: None

Restrictions: view

NavRight

```
NavRight()
```

Description: Fires when the user clicks in the right navigation area of the view.

Parameters: None

Restrictions: view

NavTop

```
NavTop()
```

Description: Fires when the user clicks in the top navigation area of the view.

Parameters: None

Restrictions: view

NavBottom

```
NavBottom()
```

Description: Fires when the user clicks in the bottom navigation area of the view.

Parameters: None

Restrictions: view

DroppedOn

```
DroppedOn(Object: objnum)
```

Description: Fires when a specific object is dropped onto this object or pocket.

Parameters:

- Object (objnum): The ID of the object that must be dropped

Restrictions: object, pocket

KeyPress

```
KeyPress(Key: key)
```

Description: Fires when the specified key is pressed.

Parameters:

- Key (key): The key to listen for

Restrictions: view, global

Conditions

Conditions are evaluated to determine whether associated actions should execute.

VarValueIs

```
VarValueIs(Variable: varname, Value: value)
```

Description: Returns true if the specified variable exists and equals the given value.

Parameters:

- Variable (varname): Name of the variable to check
- Value (value): Value to compare against

Restrictions: view, object, global, pocket

VarValueIsNot

```
VarValueIsNot(Variable: varname, Value: value)
```

Description: Returns true if the specified variable does not equal the given value (or doesn't exist).

Parameters:

- **Variable** (varname): Name of the variable to check
- **Value** (value): Value to compare against

Restrictions: view, object, global, pocket

VarExists

```
VarExists(Variable: varname)
```

Description: Returns true if the specified variable exists.**Parameters:**

- **Variable** (varname): Name of the variable to check

Restrictions: view, object, global, pocket

ViewTimePassed

```
ViewTimePassed(Seconds: number)
```

Description: Returns true if the specified time has passed since entering the current view.**Parameters:**

- **Seconds** (number): Time in seconds

Restrictions: view, object

TotalTimePassed

```
TotalTimePassed(Seconds: number)
```

Description: Returns true if the specified time has passed since the environment started.

Parameters:

- Seconds (number): Time in seconds

Restrictions: view, object, global, pocket

VarCountEq

```
VarCountEq(Count: number)
```

Description: Returns true if the total number of variables equals the specified count.

Parameters:

- Count (number): Expected variable count

Restrictions: view, object, global, pocket

VarCountGtEq

```
VarCountGtEq(Count: number)
```

Description: Returns true if the total number of variables is greater than or equal to the specified count.

Parameters:

- Count (number): Minimum variable count

Restrictions: view, object, global, pocket

VarCountLtEq

```
VarCountLtEq(Count: number)
```

Description: Returns true if the total number of variables is less than or equal to the specified count.

Parameters:

- Count (number): Maximum variable count

Restrictions: view, object, global, pocket

KeyBufferContains

```
KeyBufferContains(Keys: value, IgnoreCase: bool)
```

Description: Returns true if the key buffer contains the specified key sequence.

Parameters:

- Keys (value): Key sequence to search for
- IgnoreCase (bool): If true, comparison is case-insensitive

Restrictions: view, global

ObjectInPocketByID

```
ObjectInPocketByID(Object: objnum)
```

Description: Returns true if the object with the specified ID is currently in one of the pockets.

Parameters:

- Object (objnum): ID of the object to check for

Restrictions: view, object, global, pocket

ObjectInPocketByName

```
ObjectInPocketByName(Name: value)
```

Description: Returns true if any object with the specified name is currently in one of the pockets, regardless of its ID.

Parameters:

- Name (value): Name of the object to check for

Restrictions: view, object, global, pocket

Actions

Actions are commands that modify the environment state or trigger effects.

PortalTo

```
PortalTo(View: viewnum, VidFile: vidfile = "")
```

Description: Navigates to the specified view. If a video file is provided, plays it as a fullscreen transition before changing views. Right-clicking the video skips to the destination view immediately.

Parameters:

- View (viewnum): ID of the destination view
- VidFile (vidfile): Optional video file for transition effect

Restrictions: view, object, global, pocket

ChangeViewImages

```
ChangeViewImages(View: viewnum, Foreground: picfile = "", Background:  
picfile = "")
```

Description: Changes the Foreground and/or Background images for the specified view. Only valid image file paths will be applied. This is intended to alter images for a view the user may travel to subsequently - if the specified view is the current view, no refresh occurs.

Parameters:

- **View** (viewnum): ID of the view to modify
- **Foreground** (picfile): Optional new foreground image file
- **Background** (picfile): Optional new background image file

Restrictions: view, object, global, pocket

PlaySound

```
PlaySound(SoundFile: sndfile, Asynchronous: bool = True, Volume: 01float  
= 1.0, Loop: bool = False)
```

Description: Plays the specified audio file. Asynchronous playback (the default) returns control immediately; synchronous playback blocks until complete.

Parameters:

- **SoundFile** (sndfile): Path to the audio file
- **Asynchronous** (bool): If true (default), plays without blocking
- **Volume** (01float): Volume level (0.0 to 1.0), default 1.0
- **Loop** (bool): If true, loops the audio continuously (default false)

Restrictions: view, object, global, pocket

PlayBackgroundMusic

```
PlayBackgroundMusic(SoundFile: sndfile, Volume: 01float, Loop: bool)
```

Description: Plays the specified audio file as background music. Only one background music stream can play at a time - calling this while music is playing stops the current music first. Background music persists across view changes and is not affected by StopAllSounds.

Parameters:

- **SoundFile** (sndfile): Path to the audio file
- **Volume** (01float): Volume level (0.0 to 1.0)
- **Loop** (bool): If true, loops the music indefinitely

Restrictions: view, object, global, pocket

StopBackgroundMusic

```
StopBackgroundMusic()
```

Description: Stops the currently playing background music.

Parameters: None

Restrictions: view, object, global, pocket

StopSound

```
StopSound(SoundFile: sndfile)
```

Description: Stops playback of the specified sound file if currently playing.

Parameters:

- **SoundFile** (sndfile): Path to the audio file to stop

Restrictions: view, object, global, pocket

StopAllSounds

```
StopAllSounds()
```

Description: Stops all currently playing sound effects. Does not affect background music.

Parameters: None

Restrictions: view, object, global, pocket

PlayVideo

```
PlayVideo(VidFile: vidfile, Start: number, Left: number, Top: number,  
Volume: 01float, Loop: bool)
```

Description: Plays a video file at the specified position. Right-click to close the video.

Parameters:

- **VidFile** (vidfile): Path to the video file
- **Start** (number): Start time in seconds
- **Left** (number): X position
- **Top** (number): Y position
- **Volume** (01float): Volume level (0.0 to 1.0)
- **Loop** (bool): If true, loops the video

Restrictions: view, object, global, pocket

PlayVideoWithin

```
PlayVideoWithin(VidFile: vidfile, Start: number, WithinObject: objnum,  
Volume: 01float, Loop: bool)
```

Description: Plays a video within the bounds of a specified object. The video is scaled to fit the object's dimensions.

Parameters:

- VidFile (vidfile): Path to the video file
- Start (number): Start time in seconds
- WithinObject (objnum): ID of the object to play within
- Volume (01float): Volume level (0.0 to 1.0)
- Loop (bool): If true, loops the video

Restrictions: view, object, global, pocket

StopVideo

```
StopVideo(VideoFile: vidfile)
```

Description: Stops playback of the specified video file.

Parameters:

- VideoFile (vidfile): Path to the video file to stop

Restrictions: view, object, global, pocket

StopAllVideos

```
StopAllVideos()
```

Description: Stops all currently playing videos.

Parameters: None

Restrictions: view, object, global, pocket

ShowImage

```
ShowImage(ImageFile: picfile, Left: number, Top: number, Duration:  
float, Clickthrough: bool)
```

Description: Displays an image at the specified position for a given duration.

Parameters:

- **ImageFile** (picfile): Path to the image file
- **Left** (number): X position
- **Top** (number): Y position
- **Duration** (float): How long to display (seconds), 0 for permanent
- **Clickthrough** (bool): If true, clicks pass through the image

Restrictions: view, object

ShowImageWithin

```
ShowImageWithin(ImageFile: picfile, Left: number, Top: number, Duration:  
float, Clickthrough: bool, WithinObject: number, HideTarget: bool,  
Stretch: bool)
```

Description: Displays an image within the bounds of a specified object.

Parameters:

- **ImageFile** (picfile): Path to the image file
- **Left** (number): X offset within the object
- **Top** (number): Y offset within the object
- **Duration** (float): How long to display (seconds)
- **Clickthrough** (bool): If true, clicks pass through
- **WithinObject** (number): ID of the object to display within
- **HideTarget** (bool): If true, hides the target object
- **Stretch** (bool): If true, stretches image to fit object bounds

Restrictions: view, object

ShowObject

```
ShowObject(0bject: objnum)
```

Description: Makes a hidden object visible.

Parameters:

- Object (objnum): ID of the object to show

Restrictions: view, object, global, pocket

HideObject

```
HideObject(0bject: objnum)
```

Description: Hides a visible object.

Parameters:

- Object (objnum): ID of the object to hide

Restrictions: view, object, global, pocket

AllowTake

```
AllowTake(0bject: objnum)
```

Description: Allows an object to be picked up and placed in a pocket.

Parameters:

- Object (objnum): ID of the object

Restrictions: view, object, global, pocket

DisallowTake

```
DisallowTake(Object: objnum)
```

Description: Prevents an object from being picked up.

Parameters:

- Object (objnum): ID of the object

Restrictions: view, object, global, pocket

SetVariable

```
SetVariable(Variable: varname, Value: value)
```

Description: Creates or updates a variable with the specified value.

Parameters:

- Variable (varname): Name of the variable
- Value (value): Value to assign

Restrictions: view, object, global, pocket

DelVariable

```
DelVariable(Variable: varname)
```

Description: Deletes the specified variable.

Parameters:

- Variable (varname): Name of the variable to delete

Restrictions: view, object, global, pocket

VarIncrease

```
VarIncrease(Variable: varname)
```

Description: Increases the value of the specified variable by 1. If the variable does not exist or has a non-numeric value, it will be created and set to 1.

Parameters:

- Variable (varname): Name of the variable to increment

Restrictions: view, object, global, pocket

VarDecrease

```
VarDecrease(Variable: varname)
```

Description: Decreases the value of the specified variable by 1. If the variable does not exist or has a non-numeric value, it will be created and set to 0.

Parameters:

- Variable (varname): Name of the variable to decrement

Restrictions: view, object, global, pocket

ClearKeyBuffer

```
ClearKeyBuffer()
```

Description: Clears all accumulated keystrokes from the key buffer.

Parameters: None

Restrictions: view, object, global, pocket

TextBox

```
TextBox(Message: value, Left: number, Top: number, Duration: float,  
FontColor: fgcolor, BackColor: bgcolor, FontSize: fontsize, Bold: bool)
```

Description: Displays a text box with the specified message and styling.

Parameters:

- **Message** (value): Text to display
- **Left** (number): X position
- **Top** (number): Y position
- **Duration** (float): How long to display (seconds)
- **FontColor** (fgcolor): Text color
- **BackColor** (bgcolor): Background color
- **FontSize** (fontsize): Font size
- **Bold** (bool): If true, uses bold text

Restrictions: view, object, global, pocket

TextDialog

```
TextDialog(Message: value)
```

Description: Displays a modal dialog box with the specified message.

Parameters:

- **Message** (value): Text to display

Restrictions: view, object, global, pocket

InputDialog

```
InputDialog(Prompt: value, Variable: varname)
```

Description: Displays a dialog prompting the user for input. The entered value is stored in the specified variable.

Parameters:

- **Prompt** (value): Text prompt to display
- **Variable** (varname): Variable to store the input

Restrictions: view, object, global, pocket

SayText

```
SayText(Message: value)
```

Description: Uses text-to-speech to speak the specified message.

Parameters:

- **Message** (value): Text to speak

Restrictions: view, object, global, pocket

ShowURL

```
ShowURL(URL: value)
```

Description: Opens the specified URL in the default web browser.

Parameters:

- **URL** (value): URL to open

Restrictions: view, object, global, pocket

RunProgram

```
RunProgram(Application: exefile, Parameters: value)
```

Description: Launches an external application with the specified parameters.

Parameters:

- Application (exefile): Path to the executable
- Parameters (value): Command-line parameters

Restrictions: view, object, global, pocket

ChangeCursor

```
ChangeCursor(Cursor: cursor)
```

Description: Changes the mouse cursor to the specified style.

Parameters:

- Cursor (cursor): Cursor style identifier

Restrictions: (no restrictions)

HideMouse

```
HideMouse()
```

Description: Hides the mouse cursor.

Parameters: None

Restrictions: view, object, global, pocket

ShowMouse

```
ShowMouse()
```

Description: Shows the mouse cursor if hidden.

Parameters: None

Restrictions: view, object, global, pocket

HidePockets

```
HidePockets()
```

Description: Hides all pocket UI elements.

Parameters: None

Restrictions: view, object, global, pocket

ShowPockets

```
ShowPockets()
```

Description: Shows all pocket UI elements.

Parameters: None

Restrictions: view, object, global, pocket

Quit

```
Quit()
```

Description: Terminates the GEMS environment.

Parameters: None

Restrictions: view, object, global, pocket

Parameter Types

| Type | Description |
|----------|---------------------------|
| viewnum | View ID selector |
| objnum | Object ID selector |
| value | Text string |
| varname | Variable name |
| number | Integer value |
| float | Decimal number |
| 01float | Float between 0.0 and 1.0 |
| bool | Boolean (True/False) |
| sndfile | Audio file path |
| vidfile | Video file path |
| picfile | Image file path |
| exefile | Executable file path |
| fgcolor | Foreground color |
| bgcolor | Background color |
| fontsize | Font size |
| cursor | Cursor style |
| key | Keyboard key |