

VR-Vantage 3.1 Quick Reference Card

VR-Vantage Command-Line Options

Table 1. VR-Vantage command-line options

Option	Description
(-- --ignore_rest)	Ignore all of the command-line options that are listed after this argument.
--antiAliasing <i>level</i>	Set the anti-aliasing level (0, 2, 4, 8, or 16). Default: 4.
--appCacheDir <i>directory</i>	Use --appCacheDir to specify a directory for the cache. This allows you to run multiple remote display engines (RDEs) or other instances of VR-Vantage from the same installation.
--appDataDir <i>directory</i>	Specifies the location of application data.
--autoReconnectPeriod <i>period</i>	Specifies the amount of time, in seconds, to wait before trying to attach to disconnected remote displays.
(-B --bindObservers) "observer1,...,observern,..../saved_views_file" "../terrain_file"	If you load a scene that has multiple observers, this command assigns the views in the specified saved views file to the specified observers. You must specify a terrain database for this command to work. You would ordinarily also specify a display configuration that contains the observers with --dispSetting.
(-c --showConsole)	Display a console window.
(-C --autoConnect) {filepath connector_name}	Automatically connect to the network using the specified connector.
--dataDir <i>directory</i>	Specifies the location of the application's data directory.
--depthBits <i>bits</i>	Sets the depth of graphics to 24 bits or 32 bits. The default is 24,
--disableBufferClearUsesCompute	Do not use this option unless directed to do so by MAK technical support.
--disableDynamicTerrain	Disables the dynamic terrain engine.
--disableErrorDialog	Prevents error messages from displaying. Errors print to the console instead.

Table 1. VR-Vantage command-line options (continued)

Option	Description
<code>--disableIndirectEntities</code>	Disables indirect rendering of entities.
<code>--disableIndirectExternalRenderer</code>	Disables the indirect external renderer, which minimizes state changes by default. When this is used, state changes are not minimized.
<code>--disableModelSets "model-set-number"</code>	Disables one or more model sets. Model set numbers are: • 0 - 3D Model Set • 1 - Colorized Models Model Set • 4 - Minimap • 5 - 2D Icons Model Set To disable multiple model sets, separate them with commas. For example: <code>--disableModelSets "0, 1"</code> disables the 3D and XR model sets <code>--disableModelSets "0, 1, 5"</code> disables all model sets
<code>--disableNvidiaBindlessFix</code>	Do not use this option unless directed to do so by MAK technical support.
<code>(-z --disableReverseZBuffer)</code>	Disables use of reverse Z buffering, which is enabled by default. Leaving reverse Z buffering enabled can reduce Z-fighting when viewing the terrain from a distance.
<code>--disableTerrainObserverViews</code>	Disables the loading of terrain observer view files. Loading a terrain does not clear the observer views and the terrain's observer views do not load.
<code>--discoveredModelPreloadFileName <i>filename</i></code>	Specifies a file to which the list of models discovered during a session that were not preloaded is written.
<code>--displayEnginePort <i>port</i></code>	Specifies the display engine port used by a remote display engine. Used only if <code>--slave</code> is specified.
<code>--dispSetting <i>filename</i></code>	Specifies the display engine configuration to load.
<code>--enablePersistentShadowTechnique</code>	Use this command-line option to enable persistent shadows.

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Table 1. VR-Vantage command-line options (continued)

Option	Description
<code>(-e --extraArgs) <i>string</i> "<i>string1</i> ... <i>stringn</i>"</code>	Allows you to send arbitrary strings to the initializer, which can be queried for by plug-ins. This option works around the restriction on adding new command-line arguments. It can take one argument or multiple arguments. Multiple arguments must be wrapped in double quotes.
<code>(-E --entTypeMap) <i>filename</i></code>	Load the specified object type mapping file. The filename extension determines the type of mapping.
<code>--enableDofConstraints</code>	Enables the use of degree(s) of freedom constraints on simulation object models.
<code>--enableTracyProfiling</code>	Enables the Tracy Client when you launch the application.
<code>--enableVSync</code>	Turns on VSync.
<code>--entDispSetting <i>filename</i></code>	Specifies the entity display setting to load.
<code>--entityDefsDir <i>directory</i></code>	Loads the <i>.hier</i> and <i>.leaf</i> files in the specified directory to the entity element definition manager.
<code>--entityGridCellSize <i>x y z</i></code> <code>--entityGridCellSize <i>x,y,z</i></code> <code>--entityGridCellSize <i>integer</i></code>	Use this option for debugging, particularly looking for bottlenecks in the code. You can specify three values or one, for example: • 2000 2000 2000 • 2000 • -1 -1 -1 (one cell, infinite cell size) • -1 (one cell, infinite cell size)
<code>--envSetting <i>filename</i></code>	Specifies the environment configuration file to load.
<code>--factoryRootDir <i>directory</i></code>	Set the root directory used to restore settings to factory defaults.

Table 1. VR-Vantage command-line options (continued)

Option	Description
<code>--forceTextShaping</code>	Force all text to use HarfBuzz shaping. Use this option if you need support for right-to-left languages. It may affect performance.
<code>(-F --frameRate) <i>rate</i></code>	If <i>rate</i> is 0, the frame rate is variable. Otherwise, specifies a fixed frame rate for rendering.
<code>--fullScreen</code>	Start with the window in full screen mode.
<code>(-G --locale) <i>language</i></code>	Specifies the locale (for localization).
<code>--guiWindowRectangle "<i>width height x y</i>"</code> <code>--guiWindowRectangle <i>width,height,x,y</i></code>	Specifies the window size and location at startup.
<code>(-h --help)</code>	(Display command-line usage information.)
<code>--highestPriority</code>	Changes the priority of the application and the main render thread to the highest available priority. This command may starve other processes.
<code>(-K --disableKDTrees)</code>	Disable creation of KD trees for intersections.
<code>(-l --logFileName) <i>filename</i></code>	Specifies the log file name.
 Use the texture limiting command-line options to limit and debug the memory usage and then observe the total GPU memory used.	
<code>--limitEarthSplattingTextures "<i>width and height</i>"</code>	Restricts the size of an earth file's splatting textures to the specified resolution. The width and height must be a power of 2, for example, "16". If you do not enter a power of 2, VR-Vantage converts it to the next highest power of 2.
<code>--limitEarthTerrainTextures "<i>width and height</i>"</code>	Restricts the size of an earth file's terrain textures to the specified resolution. The width and height must be a power of 2, for example, "16". If you do not enter a power of 2, VR-Vantage converts it to the next highest power of 2.

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Table 1. VR-Vantage command-line options (continued)

Option	Description
<code>--limitEarthVegetationTextures "width and height"</code>	Restricts the size of an earth file's vegetation textures to the specified resolution. The width and height must be a power of 2, for example, "16". If you do not enter a power of 2, VR-Vantage converts it to the next highest power of 2.
<code>--limitEntityTextures "widthheight"</code>	Uses only mipmap levels at or below the resolution for entities. Use two integers for the maximum width and height of the texture mipmap to use, for example, "1024 1024" or "2k 2k". To turn off the texture limit function, use <code>--limitEntityTextures "-1 -1"</code> .
<code>--limitTerrainTextures "width height"</code>	Uses only mipmap levels at or below the resolution for terrain. Use two integers for the width and height, for example, "1024 1024" or "2k 2k".
<code>--limitGpuMemoryPercentage integer</code>	Set the cutoff percentage as a value between 0 and 100. (Typical values are between 85 and 100.) Beyond the specified percentage, VR-Vantage does not make new textures or buffers as a percentage of the available video RAM.
<code>--mainScreenNum num</code>	Specifies the display that the main window should use. The screen number can be a number from 0 to the number of screens -1. This number matches the screen number used in the Display Engine Configuration Editor for a window.
<code>--mergeEntityTypeMap {directory filename}</code>	Merges all entity type mapping files (*.metx) in a directory or individual entity type mapping files. Can be used multiple times. See note below.
<code>--mergeHierarchyEntityDef {directory filename}</code>	Merges the .hier files in the specified directory or the individual .hier file into the default hierarchy. Merging is additive.

Table 1. VR-Vantage command-line options (continued)

Option	Description
<code>--mergeHierarchyTacticalGraphicsDef {directory filename}</code>	Merges the specified <i>.hier</i> file(s) into the default hierarchy. Merging is additive only. No nodes in a previously loaded hierarchy are replaced. Can be used multiple times.
<code>--mergeHierarchyUnitDef {directory filename}</code>	Merges the specified <i>.hier</i> file(s) into the default hierarchy. Merging is additive only. No nodes in a previously loaded hierarchy are replaced. Can be used multiple times.
<code>--mergeLeafEntityDef {directory filename}</code>	Merges the leaf files in the specified directory or the individual leaf file into the default entity element definitions. Can be used multiple times.
<code>--mergeLeafTacticalGraphicsDef {directory filename}</code>	Merges the leaf files in the specified directory or the individual leaf file into the default tactical graphics element definitions. Can be used multiple times.
<code>--mergeLeafUnitDef {directory filename}</code>	Merges the leaf files in the directory or the specified individual leaf file into the default unit element definitions. Can be used multiple times.
<code>--mergeModelDefs {directory filename}</code>	Merges all model definition files (*.ommx) in the specified directory or individual model definition files. Can be used multiple times.
<code>--mergeTacticalGraphicsTypeMap {directory filename}</code>	Merges all tactical graphics type mapping files (*.mtgx) in a directory or individual tactical graphics type mapping files. Can be used multiple times. See note below.
<code>--mergeUnitTypeMap {directory filename}</code>	Merges all unit type mapping files (*.magx) in a directory or individual unit type mapping files. Can be used multiple times. See note below.

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Table 1. VR-Vantage command-line options (continued)

Option	Description
 The options for merging type maps (--mergeEntityTypeMap, --mergeTacticalGraphicsTypeMap, and --mergeUnitTypeMap) allow you to merge your type mapping with those that already exist. By default, that does not overwrite the existing mappings. Your merged mappings will exist alongside those that were already loaded. If you want to overwrite the existing ones, use the merge option alongside the --overwriteMappingsOnMerge command-line option.	
--modelPreloadFileName <i>filename</i>	Specifies a file that has a list of models to preload.
(-n --notifyLevel) <i>notification_level</i>	Specifies the notification level for application messages, where <i>notification_level</i> is a number from 0 through 4.
--noAppDataEntityDefs	Do not load the entity element definitions in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .
--noAppDataEntityTypeMap	Do not load entity type mappings in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .
--noAppDataModelDefs	Do not load model definitions in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .
--noAppDataTacticalGraphicsDefs	Do not load the tactical graphics element definitions in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .
--noAppDataTacticalGraphicsTypeMap	Do not load tactical graphics type mappings in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .
--noAppDataUnitDefs	Do not load the unit element definitions in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .
--noAppDataUnitTypeMap	Do not load unit type mappings in <i>./SharedData/18/latest/ModelData/Configuration/Definitions</i> .

Table 1. VR-Vantage command-line options (continued)

Option	Description
--noGui	Start without the graphical user interface.
(-O --hasNTPSync)	Enables the synchronization of all time-based features between different VR-Vantage applications, such as other instances of VR-Vantage or the VR-Forces front-end. Note that system clocks must be synchronized.
--overwriteMappingsOnMerge	Any mapping merge specified on the command line overwrites mappings in the default files. Use in conjunction with the command-line options for type maps (above).
--plugin <i>filename</i>	Load the specified plug-in. Can be used multiple times.
--pseudoFullScreen	Use pseudo full screen for full screen mode. This may improve performance when using dynamic ocean.
(-s --slave)	Run as a remote display engine.
(-S --suppressHatIntersectionOnAttach)	Suppress the periodic HAT intersection when attached.
--sharedDataDir <i>directory path</i>	Use this to specify the location of the shared data directory.
--sharedDataRoot <i>directory root</i>	Specifies the location of the shared data root.
--sharedDataStem <i>directory stem</i>	Specifies the location of the shared data stem.
--stencilBits <i>bits</i>	Sets the number of stencil bits (0 or 8). Default: 0.
--tacticalGraphicsDefsDir <i>filename</i>	Loads the <i>.hier</i> and <i>.leaf</i> files in the specified directory to the tactical graphics element definition manager.
--tcpSendTimeout	Sets the timeout (in seconds) for the master display engine to wait for a remote display engine before giving up on a send. Default: 30 seconds.

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Table 1. VR-Vantage command-line options (continued)

Option	Description
<i>(terrain_MTF_file scene_MSF_file)</i>	Specifies a terrain (MTF) or scene (MSF) file to load. By default, VR-Vantage looks in the expected data location for terrain or scene files in either the default location, <i>C:\MAK\SharedData</i> , or the one specified by the environment variables <i>MAK_SHARED_DATA_ROOT</i> and <i>MAK_SHARED_DATA_STEM</i> . (If the file is in another location, the path must be a relative path from <i>./bin64</i> to the file, for example, <i>../myTerrains/MTF_file</i> .)
<i>--unitDefsDir filename</i>	Loads the <i>.hier</i> and <i>.leaf</i> files in the specified directory to the unit element definition manager.
<i>--unplug filename</i>	Do not load the specified plug-in. Can be used multiple times.
<i>--userDataDir directory</i>	Specifies the location of user data directory.
<i>(-v --version)</i>	Displays version information.
<i>(-w --withDisplayEngine) port@netAddress ,displayConfigFilename</i>	Connect to a display engine running on another computer. Can be used multiple times.
<i>(-Z --ignoreZoomForSpeedtreeLod)</i>	Disable zoom for SpeedTree LOD.

Mouse Button Mappings

Table 2. Mouse Button Mappings

Navigation Action	Mouse Action	Context
Attach to entity.	Shift +left-click	Entity.
Attach to prop.	Ctrl + Shift +left-click	Prop.
Deselect all.	Left-click	Terrain or sky.
Drag terrain.	Left-click+drag	Terrain or prop.
Object selected, others unselected.	Left-click	Selected entity or prop.
Select entity or prop.	Ctrl +left-click	Unselected entity or prop.

Table 2. Mouse Button Mappings (continued)

Navigation Action	Mouse Action	Context
Select object and unselect all others	Left-click	Unselected entity or prop
Teleport to location	Shift +left-click	Terrain
Teleport to prop	Shift +left-click	Prop
Teleport to entity	Ctrl + Shift +left-click	Entity
Unselect	Ctrl +left-click	Selected entity or prop
Display context-sensitive menu	Right-click	Entity or prop
3D Only		
Drag the view	Middle mouse button drag	All
Drag heading and pitch (mouse look)	Right Drag	All
Orbit drag	Ctrl +left-click+drag	Terrain or prop
Zoom in (magnification)	Ctrl + mouse wheel forward	All
Zoom out (magnification)	Ctrl + mouse wheel backward	All
Reset magnification	Middle mouse button	All
Move observer forward	Mouse wheel forward	All
Move observer back	Mouse wheel back	All
Move observer level observer forward	Shift +mouse wheel forward.	All
Move observer level observer backward	Shift +mouse wheel backward.	All
Move flashlight beam	Right mouse button drag	All
Expand flashlight beam	Alt +mouse wheel forward.	All
Contract flashlight beam	Alt +mouse wheel backward.	All
2D Only		
Rotate terrain	Right-click + drag	All. Orient North disabled.
2D Zoom in	Mouse wheel forward; Middle button + drag	All
2D Zoom out	Mouse wheel backward; Middle button + drag	All

Keyboard Mappings

In keyboard mappings, K = numeric keypad (K8 means press Keypad 8). To use the numeric keypad for navigation, NumLock must be on.

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Table 3. Observer Keyboard Mappings

Observer Movement	Observer	Level Observer	Laptop	2D Level Observer
Move forward	W	unmapped	W	unmapped
Move back	S	unmapped	S	unmapped
Move left	A	unmapped	A	unmapped
Move right	D	unmapped	D	unmapped
Move up	Q, Ctrl+Q	unmapped	Q, Ctrl+Q	unmapped
Move down	E, Ctrl+E	unmapped	E, Ctrl+E	unmapped
Move forward level observer	unmapped	W	unmapped	W
Move back level observer	unmapped	S	unmapped	S
Move left level observer	unmapped	A	unmapped	A
Move right level observer	unmapped	D	unmapped	D
Move up level observer	unmapped	Q, Ctrl+Q	unmapped	unmapped
Move down level observer	unmapped	E, Ctrl+E	unmapped	unmapped
Move attached context forward	Shift+W	Shift+W	Shift+W	Shift+W
Move attached context back	Shift+S	Shift+S	Shift+S	Shift+S
Move attached context left	Shift+A	Shift+A	Shift+A	Shift+A
Move attached context right	Shift+D	Shift+D	Shift+D	Shift+D
Move attached context up	Shift+Q	Shift+Q	Shift+Q	unmapped
Move attached context down	Shift+E	Shift+E	Shift+E	unmapped
Level yaw left	K 4	K 4	Left arrow	Left arrow
Level yaw right	K 6	K 6	Right arrow	Right arrow
Level pitch up	Shift+J	Shift+J	Shift+J	unmapped
Level pitch down	Shift+K	Shift+K	Shift+K	unmapped
Level roll right	Shift+I	Shift+I	Shift+I	unmapped
Level roll left	Shift+M	Shift+M	Shift+M	unmapped
Yaw left	Shift+H	Shift+H	Shift+H	Shift+H
Yaw right	Shift+L	Shift+L	Shift+L	Shift+L
Pitch up	K 8	K 8		unmapped
Pitch down	K 2	K 2	-	unmapped
Roll right	K 9	K 9	K 9	unmapped
Roll left	K 3	K 3	K 3	unmapped

Table 3. Observer Keyboard Mappings (continued)

Observer Movement	Observer	Level Observer	Laptop	2D Level Observer
Orbit right	Ctrl+D , right arrow key	Ctrl+D , left arrow key	Ctrl+D , left arrow key	unmapped
Orbit left	Ctrl+A , left arrow key	Ctrl+A , left arrow key	Ctrl+A , left arrow key	unmapped
Orbit up	Ctrl+W , up arrow key	Ctrl+W , up arrow key	Ctrl+W , up arrow key	unmapped
Orbit down	Ctrl+S , down arrow key	Ctrl+S , down arrow key	Ctrl+S , down arrow key	unmapped
Look up	Ctrl+K 8	Ctrl+K 8	Ctrl+K 8	Ctrl+K 8
Look down	Ctrl+K 2	Ctrl+K 2	Ctrl+K 2	Ctrl+K 2
Look left	Ctrl+K 4	Ctrl+K 4	Ctrl+K 4	Ctrl+K 4
Look right	Ctrl+K 6	Ctrl+K 6	Ctrl+K 6	Ctrl+K 6
Look tilt left	Ctrl+K 3	Ctrl+K 3	Ctrl+K 3	Ctrl+K 3
Look tilt right	Ctrl+K 9	Ctrl+K 9	Ctrl+K 9	Ctrl+K 9
Zoom in	unmapped	unmapped	unmapped	Ctrl + E
Zoom out	unmapped	unmapped	unmapped	Ctrl + Q
Suppress constrain to terrain	X	X	X	X
Water impact	unmapped	unmapped	unmapped	unmapped
Reset observer: In absolute mode, go to the center of the scene. If attached, reset the attach position and orientation.	Space	Space	Space	Space
In absolute mode, go to the center of the scene. If attached, reset the attach position and orientation.				
Toggle speed scaling mode (MSL or AGL)	unmapped	unmapped	unmapped	unmapped
Level observer	K 5	K 5	Shift +Space+⁻	K 5
Toggle force north orientation	unmapped	unmapped	unmapped	unmapped
Toggle orient to target constraint	unmapped	unmapped	unmapped	unmapped
Toggle flashlight	F	F	F	F
Reset the camera	K 0	K 0		K 0
Increase view magnification	=	=	=	unmapped
Decrease view magnification	-	-	-	unmapped

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Table 3. Observer Keyboard Mappings (continued)

Observer Movement	Observer	Level Observer	Laptop	2D Level Observer
Reset view magnification	0	0	0	unmapped
Increase view resolution	unmapped	unmapped	unmapped	=
Decrease view resolution	unmapped	unmapped	unmapped	-
Detach	z	z	z	z
Toggle hide model on attach	unmapped	unmapped	unmapped	unmapped
Attach to the next entity allowed by the attachment filter	Period (.)	Period (.)	Period (.)	Period (.)
Attach to next entity or prop	>	>	>	>
Attach to the previous entity allowed by the attachment filter	Comma (,)	Comma (,)	Comma (,)	Comma (,)
Attach to previous entity or prop	<	<	<	<
Set mimic attach type	unmapped	unmapped	unmapped	unmapped
Set tether attach type	unmapped	unmapped	unmapped	unmapped
Next attach mode	Shift+Z	Shift+Z	Shift+Z	Shift+Z
Increase linear speed	K 7	K 7	K 7	K 7
Decrease linear speed	K 1	K 1	K 1	K 1
Increase orbit speed	K +	K +	K +	K +
Decrease orbit speed	K -	K -	K -	K -
Increment rotation speed gain	unmapped	unmapped	unmapped	unmapped
Decrement rotation speed gain	unmapped	unmapped	unmapped	unmapped
Toggle speed scaling on or off	K *	K *	K *	K *
Toggle prop transparency	T	T	T	T
Toggle terrain scaling	unmapped	unmapped	unmapped	unmapped
Increment terrain scale	unmapped	unmapped	unmapped	unmapped
Decrement terrain scale	unmapped	unmapped	unmapped	unmapped
Toggle track histories	unmapped	unmapped	unmapped	unmapped
Toggle entity labels	L	L	L	L
Toggle rotate entity symbols	unmapped	unmapped	unmapped	unmapped
Toggle tactical graphics	Shift+G	Shift+G	Shift+G	Shift+G

Table 3. Observer Keyboard Mappings (continued)

Observer Movement	Observer	Level Observer	Laptop	2D Level Observer
Toggle entity height above terrain lines	unmapped	unmapped	unmapped	unmapped
Toggle tactical graphics HAT lines	unmapped	unmapped	unmapped	unmapped
Toggle entity height above terrain mode	unmapped	unmapped	unmapped	unmapped
Toggle tactical graphics height above terrain mode	unmapped	unmapped	unmapped	unmapped
Toggle constrain to terrain on or off	/	/	/	/
Toggle constrain to center	U	unmapped	unmapped	unmapped
Clear the current movement mode. This key is an escape mechanism if keys are not behaving as you expect. This is typically due to a loss of the window context.	C	C	C	C
Next observer mode	]	]	]	]
Previous observer mode	[	[	[	[
Toggle view controls on or off	Shift+C	Shift+C		Shift+C
Clear all trajectory histories	unmapped	unmapped	unmapped	unmapped
Toggle framerate statistics	F2	F2	F2	F2