



MÄK Stealth 5.4.1 Release Notes

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Systems Supported and System Requirements

This section describes platform support and system requirements for the MÄK Stealth. For the most up-to-date information about systems supported, see the Product Versions page on the MÄK web site at: http://www.mak.com/product_version.htm.

The Stealth is available for the following operating systems:

- ♦ Microsoft Windows XP and 2000
- ♦ Red Hat Linux 8.0 running on Intel-compatible PCs.

Stealth for Windows

The Stealth for Windows requires the following:

- ♦ A Pentium-class PC (or higher) with minimum 1GHz processor
- ♦ An OpenGL 1.2-compliant graphics card.
- ♦ Windows 2000 SP2, Windows XP, or Red Hat Linux 8.0.
- ♦ 860 MB of disk space.
- ♦ 256 MB of RAM, 512 MB if you plan to use the complete dismounted infantry models.

Compiler Compatibility on Windows

The HLA versions of the Stealth must run with an RTI compiled with Visual C++ 6.0.

Requirements for Creating Plug-Ins Using the Stealth Control Toolkit

To create a Stealth plug-in or use the Stealth Control Toolkit, you must install VR-Link 3.9.3 for Visual C++ 6.0. See the *VR-Link Release Notes* for compiler requirements for your operating system.

Vega Prime Compatibility

Stealth 5.4.1 was built with Vega Prime 1.2.2.

3D Video Boards Supported

In general, Stealth 5.4.1 should support any board that claims to support OpenGL 1.2. The Stealth has been tested with NVidia GeForce graphics cards.

Java Support for the Model Mapper

The Model Mapper is a Java application. To use it, you must install Java 1.4.1 or later.

Network Compatibility

HLA only

Stealth 5.4.1 was built against VR-Link 3.9.3 and is compliant with:

- ♦ RPR-FOM 1.0 and a subset of 2.0 (draft 6, 14, and 17)
- ♦ MÄK RTI 2.4.

DIS only

Stealth 5.4.1 supports DIS 2.0.4, IEEE 1278.1, 2.1.4, and IEEE 1278.1a, and can therefore interoperate with DIS applications of any of these versions.

FOM Support

Stealth 5.4.1 has built-in support for versions 0.5, 0.7, 0.8, 1.0, and 2.0, drafts 6, 14, and 17, of the RPR FOM. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper. By default, Stealth 5.4.1 uses RPR FOM 1.0.

The keywords for specifying different versions of the RPR FOM with the `-f` startup option are:

- ♦ RPR FOM 0.5: `v1RPR05`
- ♦ RPR FOM 0.7: `v1RPR07`
- ♦ RPR FOM 0.8: `v1RPR08`
- ♦ RPR FOM 1.0: `v1RPR10`
- ♦ RPR FOM 2.0 draft 6: `v1RPR20006`
- ♦ RPR FOM 2.0 draft 14: `v1RPR20014`
- ♦ RPR FOM 2.0 draft 17: `v1RPR20017`.

If you want to use the Stealth with VR-Forces 3.9 or later and RPR FOM version 2, draft 17, use the *VR-Link20017-1.fed* file.

For information about FOM mapping and specifying the FOM version to use, see *MÄK Stealth User's Guide*.

New Features and Product Updates

Stealth 5.4.1 has the following new features and updates:

- ♦ Support for additional mirroring PDUs
- ♦ Ability to enable and disable mirroring of options
- ♦ Support for transparent, configurable logo graphics on the overlay
- ♦ Performance and scalability improvements
 - Only load models for entities close to the eyepoint
 - Avoid doing unnecessary work for closed windows and disabled features
 - Improved overlay drawing performance
 - Only load detonation and fire effects close to the eyepoint
- ♦ Options for data filtering through subscription (HLA only)
- ♦ Synchronous terrain loading from MTL
- ♦ Change to setting StealthXR sky color
- ♦ Limited DDM support (support MC02 DDM regions only)
- ♦ New configuration parameters to support the new features
- ♦
- ♦ You can now enable Asynchronous IO for DIS in *params.mtl*
- ♦ Saved views are keyed to marking text and entity identifier.

Mirroring Display Options

Stealth 5.4.1 lets you enable or disable mirroring of display options that you toggle on the Options menu. You enable mirroring of options on the Preferences dialog box, Broadcasting tab. The Stealth supports mirroring PDUs for the following options:

- ♦ Sound toggle
- ♦ Channel options
 - Texture toggle
 - Clouds toggle
 - Overlay toggle
 - Fog toggle
 - Sky dome toggle
 - Time of day
 - Date
- ♦ DIS/HLA
 - Smooth period
 - Smoothing toggle

- ♦ Label toggles
 - Entity
 - Clustering
 - Tactical graphics
- ♦ Trajectory histories
- ♦ Tactical graphics toggle
- ♦ Ground clamping toggle
- ♦ Ground clamp range
- ♦ Trailing effects toggle
- ♦ Load terrain - only absolute paths get sent
- ♦ StealthXR
 - XR/Normal toggle
 - Height above terrain labels (entity only)
 - Current model set
 - Object scale
 - Terrain scale.

Improved Performance and Scalability

Stealth 5.4.1 has the following changes to improve performance and scalability in normal mode (that is, not in StealthXR):

You can now specify a cap on the maximum number of entity models that are loaded at one time. This will help Stealth stay within memory limits. Stealth will make sure that models closest to the eyepoint are always loaded. The default limit is 100 models and can be configured from *params.mtl*.

You can now specify ranges for visuals (1.5 km), detonation/fire effects (2 km), and sounds (500 m). Visuals and sounds out of range are not updated. The default visual and explosion ranges can be set from *params.mtl*. The sound range can be specified in *sound.mtl*.

You can further disable computationally expensive features.

You can set **UpdateHiddenTrajectories** to 0 in *params.mtl* to save processing time when trajectory histories are disabled. The side effect of this is that histories will reset every-time they're enabled.

You can set **SaveEntityDataAcrossFrames** to 0 in *params.mtl* to avoid saving entity information for labels and the entity locator. When this parameter is 0, entity labels in the main channel and in the entity locator will not display. You can also set the maximum number of labels. If the max number is less than the total number of entities, the labels closest to the eyepoint will be drawn first.

You can disable HLA subscription for object and interaction classes you don't need to display.

Filtering Data

Stealth 5.4.1 has the following new options for filtering data:

- ♦ FOM subscription filtering
- ♦ Limited DDM support (support mc02 DDM regions only)

The MC02 DDM space (HyperSpace) for HLA 1.3 has limited support in the Stealth. The dimension 'subspace' is subscribed to completely, and the dimensions 'one' and 'two' are used as geographic (lat/long) filtering of entities along that range.

Synchronous Terrain Loading

Terrains can be loaded synchronously. Loading synchronously is faster than loading asynchronously, especially when using VSB files. To load terrains synchronously, add the following line to the terrain configuration file:

```
(setq LoadAsynchronous 0)
```



When you load terrain synchronously, the Stealth does not respond to user input while the terrain loads.

StealthXR Sky Color

The XR sky color no longer needs to match the normal mode sky color. To set an alternate color, set **XrSkyColor** in *params.mtl*. The new default is dark grey.

Transparent, Configurable Logo

You can now display a bitmap image, such as a company logo, on the overlay. You enable or disable display of an image with the **EnableOverlayLogo** parameter in *params.mtl*. You specify the image to display with the **OverlayLogoFile** parameter.

New Configuration Parameters

The Stealth has the following new configuration parameters in *params.mtl*:

UpdateHiddenTrajectories – Allows you to update trajectory histories while they are hidden. When histories are not updated, the history is cleared when it is turned off.

SaveEntityDataAcrossFrames – For label drawing, entity information is stored in a frame-safe way so that the Stealth can run in multithreaded pipeline modes. However, this can hurt the frame rate when there are many entities. The feature can be disabled to help performance. When data saving is off, entity labels in the main screen and in the entity locator are not displayed.

MaxNumberOfEntityLabels – Specifies the maximum number of entity labels to draw. If this number is fewer than the total number of entities and delayed models loading is enabled, the closest loaded models are drawn first. Otherwise, labels are drawn in the order in which entities are discovered.

Entity Model and Special Effects Loading

The default Stealth behavior is to load a model immediately for every remote entity discovered. If the number of remote entities is large, the Stealth can run out of memory and crash. (On Windows, processes usually have a 2Gb limit. On Linux, processes usually have a 4 Gb limit. To avoid running out of memory, the terrain and loaded models must fit into the process's memory limits and the machine's RAM limits).

To stay below memory limits, the Stealth can delay loading entity models until the entity is close to the eyepoint. To configure delayed loading, you can specify a maximum number of models and a display range. In addition to improving scalability, delayed model loading can improve performance. Only loaded models are updated for effects, trails, histories, and labels. The parameters to configure model and special effects loading are:

EnableDelayedModelLoading – Enable (1) or disable (0) delayed model loading.

MaxNumberOfEntityModels – Specifies the maximum number of loaded models. If more than N models fit within the desired range, the Nth closest are displayed.

MaxLoadedEntityModelDistance – Specifies the radius around the eyepoint, in meters, in which models will be loaded.

FireDetonateVisualsRange – Specifies the radius around the eyepoint, in meters, in which explosions and flak are displayed for detonate and fire interactions.

HLA-Only Parameters

The following parameters allow you to filter out certain classes by not subscribing to them:

SubscribeToWeaponFire – Subscribe to the *WeaponFire* interaction class.

SubscribeToWeaponDetonate – Subscribe to the *Detonate* interaction class.

SubscribeToAggregate – Subscribe to the *Aggregate* object class.

SubscribeToBaseEntity – Subscribe to the *BaseEntity* object class and its subclasses.

SubscribeToEnvironmentProcess – Subscribe to the *EnvironmentProces* object class.

SubscribeToEmitters – Subscribe to the *EmmitterSystem* and *EmmitterBeam* object classes.

Views Saved by Marking Text and ID

Saved views are now keyed off both the marking text and object identifier. When the Stealth recalls a view, it checks the ID first. If a matching entity cannot be found, the marking text is checked. Many CGFs (including VR-Forces) reassign IDs when a scenario is restarted. This new ability means that saved views will continue to work after a scenario is rewound.

Documentation Updates

All new features are documented in the PDF version of *MÄK Stealth User's Guide*. All changes visible in the GUI are documented in online help.

The `EnableOverlayLogo` parameter, described in “Transparent, Configurable Logo,” on page 1-7, is documented with an incorrect name in *MÄK Stealth User's Guide*.

Fixed Bugs

This release fixes the following bugs or restrictions that were present in Stealth 5.3.1:

- ♦ Setting the default visibility settings for tactical graphic objects in an MTL file did not work.
- ♦ Loading a terrain at startup did not work correctly when using vpDiGuy. The coordinate system would not be initialized correctly in this case.
- ♦ Switching to full screen mode now hides the GUI.
- ♦ Virtual textures did not load unless paths were specified using environment variables.
- ♦ Effect trails now dissipate properly when an entity is removed.
- ♦ The cluster rules file is now parsed correctly for rules having more than one pattern.
- ♦ DI-Guy characters are now positioned correctly on Flat Earth and Lambert projections.
- ♦ In HLA, DI-Guy no longer crashes when an object is deleted and recreated with the same HLA ID.
- ♦ VR-Forces draws a green line between the Stealth icon and an entity to show attachment.
- ♦ Fixed a problem where the Stealth would occasionally grab the pointer when moving using the Navigation widget interface.
- ♦ The file dialog now correctly remembers the last directory that was navigated to.

Known Problems and Product Restrictions

- ♦ If you have sound enabled and your PC does not have a sound card, the Stealth may crash. Under some circumstances, even with a sound card, enabling sound may cause instability.
- ♦ Tracked billboard models sometimes do not load.
- ♦ Inset views must be disabled to load LADBM. If the Stealth detects a MetaFlight database in its ACF file, it disables inset windows for entities.
- ♦ If you try to use *vaportrail.flt* or *dusttrail.flt*, they do not rotate properly. Entity trails configured in the ACF file work correctly.
- ♦ If you use a Blueberry 3D database, the Stealth crashes on exit.
- ♦ The Model Mapper does not support rotation and scale.
- ♦ You cannot select an emitter system from the 3D view.
- ♦ Sound is not supported on Linux.
- ♦ You cannot load OpenFlight files directly on Linux. You must load them through an MTL file.
- ♦ In the Plug-in API, RotOffset() is not supported in *DtModel*.
- ♦ If saved views become invalid, no errors are reported. Saved views may become invalid if the view's attached entities do not exist.
- ♦ Terrain may disappear when selecting a preset view. There are two possible causes for this problem: either the terrain's lowest LOD has no geometry or the terrain does not fit in the current viewing frustum. To work around the problem, try setting the LOD scale to something small (for example, 0.1) and try increasing the far clipping plane. Clouds and fog effects may hide the terrain when zoomed far out.
- ♦ Game controllers, such as joysticks, are not supported on Linux.
- ♦ Stealth licensing does not work in some cases. When running Stealth it is possible to encounter an error regarding a missing *vsg_rtl* license. This error occurs when Stealth is installed as one user, but run as another user having different file permissions (for example, users belonging to different domains or having insufficient file privileges will not be able to run).
- ♦ Stealth will crash on close when using vpDiGuy with an invalid DI-Guy license.
- ♦ DI-Guy characters do not display color correctly for selection and XR mode. Selecting one DI-Guy character will color all DI-Guy characters having the same model. In XR mode, if the same model is used to represent friendly, opposing, or neutral entities, all entities will share the same color.
- ♦ With delayed model loading on, models may not always be visible in inset views.
- ♦ Stealth cannot load MAP files with tiled image sets.
- ♦ Stealth cannot load PNG images as part of a MAP file.
- ♦ In XR mode, the time of day may switch to night when loading a terrain. The time of day can be reset from the preferences dialog (under environment).