



MÄK Stealth 5.2 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
- ♦ SGI IRIX.

Stealth for PCs

The Stealth for PCs 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, Red Hat Linux 8.0.
- ♦ 800 MB of disk space. 550MB is for terrain databases, model files, and other data files.
- ♦ 256 MB of RAM, 512 MB if you plan to use the complete dismounted infantry models.

Requirements for Creating Plug-Ins

To create a Stealth plug-in, you must install VR-Link 3.9.1 for Windows or Linux, 3.9.1a for IRIX. See the VR-Link Release Notes for compiler requirements for your operating system.

Vega Prime Compatibility

Stealth 5.2 was built with Vega Prime 1.2.1.

3D Video Boards Supported

In general, Stealth 5.2 should support any board that claims to support OpenGL 1.2. The Stealth has been tested with NVidia GeForce graphics cards.

Java Support for Model Mapper

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

Online Help Browser Requirements

The online help system included with this release of the Stealth is an HTML-based system. To view online help, you must have a web browser installed that supports JavaScript, which must be enabled.

Network Compatibility

HLA only

Stealth 5.2 was built against VR-Link 3.9.1 and is compliant with:

- ♦ RPR-FOM 1.0 and a subset of 2.0 (draft 6, 14, and 17)
- ♦ MÄK RTI 2.1
- ♦ DMSO RTI NG v6.

Stealth 5.2 is compatible with applications that use earlier versions of VR-Link if they support versions of the RPR FOM listed above.

DIS only

Stealth 5.2 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 5.2 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 5.2 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`.

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

New Features and Product Updates

Stealth 5.2 has the following updates and new features:

- ♦ Plug-in API
- ♦ Support for the HLA 1516 specification (Windows and Linux only)
- ♦ New directory structure
- ♦ Support for FLEXlm 9.2
- ♦ Support for the Blueberry 3D module
- ♦ Context-sensitive menus
- ♦ Display of intervisibility lines
- ♦ Support for geocentric databases
- ♦ Support for multichannel displays
- ♦ Improved ability to select entities in the 3D display
- ♦ Pivot view mode
- ♦ Support for localization of Stealth menu text using Qt Linguist
- ♦ Inset views
- ♦ Display of hazard clouds
- ♦ Changes to startup options
- ♦ New configuration options
- ♦ The option to set the reference ellipsoid through the GUI has been removed
- ♦ Support for loading ACF files at startup
- ♦ The Detonation List toolbar has been removed
- ♦ The Object Statistics toolbar has been added
- ♦ Display of marking text in the Object Hierarchy
- ♦ Broadcast mode is the default behavior
- ♦ GUI procedures have changed:
 - New entity attachment procedures
 - Save and restore of views
 - View group creation
- ♦ Database Information dialog box.

The new features are documented in online help and the PDF version of *MÄK Stealth User's Guide* provided with this release.

Support for the Stealth Plug-in API

Stealth 5.2 restores support for the plug-in API. Most plug-ins created with prior versions of the Stealth should work unchanged, but you will need to recompile them. You do not need a Vega Prime developer's license to use plug-ins created with the plug-in API. However, if you have Vega Prime, you can use the plug-in API to make Vega Prime calls.

The following changes have been made to the API:

- ♦ The `lookForPlugin` MTL parameter has been renamed `EnablePlugins`. The syntax is:
`setq EnablePlugins {0 | 1}`
- ♦ You cannot modify the scene graph using the plug-in API. (However, you can use Vega Prime to modify the scene graph.)
- ♦ The `mode()` and `setMode()` member functions for setting and getting the overlay mode have only two options, on and off.
- ♦ The ability to add spherical and cylindrical volumes to the scene is now available in all versions of the Stealth.

Support for the HLA 1516 Specification (Windows and Linux only)

The Stealth supports the SISO Dynamic Link Compatibility HLA API Product Development Group (HLA API PDG, <http://www.sisostds.org/index.cfm>) draft 1516 API. This API is an alternative mapping of the 1516 specification to C++. It supports dynamic link compatibility between different RTI implementations.

New Directory Structure

The Stealth directory structure has changed (to support HLA 1516). The `binRPR` directory has been replaced with `./binHLA13` and `./binHLA1516`, for the executables for the HLA 1.3 specification and HLA 1516 specification.

Support for FlexLm 9.2

The Stealth requires Flexlm 9.2. If you have not already updated your FlexLm directory as part of installing another MÄK product, you must update the license server.



If this is the first time you are installing a MÄK product, just follow the steps for installing license management that are in *MÄK Stealth User's Guide*.

To update your *flexlm* directory:

1. If the license server is running, shut it down with *lmdown*.
2. Back up the files in the *flexlm* directory on the license server (*C:\flexlm* on Windows, typically */usr/local/flexlm* on UNIX). (For example, to *flexlm.old*.)
3. Copy all of the files in *stealth/flexlm92* to the *flexlm* directory on the license server.
4. Copy your license files (*.lic* or *.dat*) from the backup directory to the *flexlm* directory.
5. Start the license server.
6. Run the Stealth and verify that it is checking out a license.

FlexLM is backwards compatible, so you do not have to change your license file, and MÄK applications built with earlier versions of FlexLM will continue to work with FlexLM 9.2. If you have any problems or questions, contact MÄK support at support@mak.com.

Support for Blueberry 3D Module

The Stealth supports the Blueberry 3D module for Vega Prime. This means it can display terrain databases created with Blueberry 3D. You can load Blueberry 3D terrain databases through the GUI or by specifying them in configuration files.

Support for Context Sensitive Menus

The Stealth has context sensitive menus that you can display by clicking the middle and right mouse buttons. The middle mouse button displays a menu that replicates the options on the File, View, and Options menus. The right-click menus vary depending on the context, as follows:

- ♦ If you right-click on the terrain, you can enter Pivot view mode.
- ♦ If you right-click an individual entity, you can show information, create an inset view, manage view group membership, and manage attachment to the Stealth.
- ♦ If you right-click after selecting several entities, you can create a view group or show information.

The right-click menu is available when you select entities in the Object Hierarchy.

Support for Intervisibility Lines

The Stealth support the display of intervisibility (line-of-sight) lines between entities.

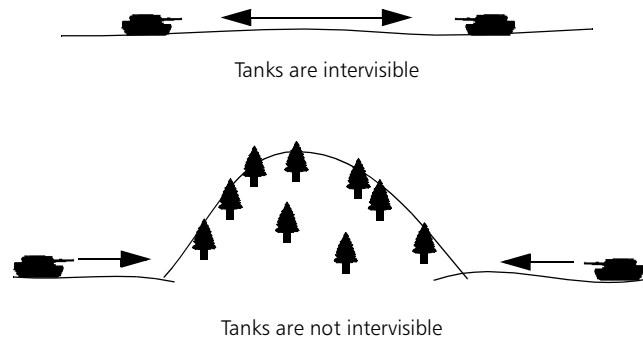


Figure 1. Intervisibility

To enable or disable display of intervisibility for an entity:

1. Right click the entity.
2. On the popup menu, choose Show Intervisibility. Intervisibility lines radiate from the selected entity ([Figure 2](#)).

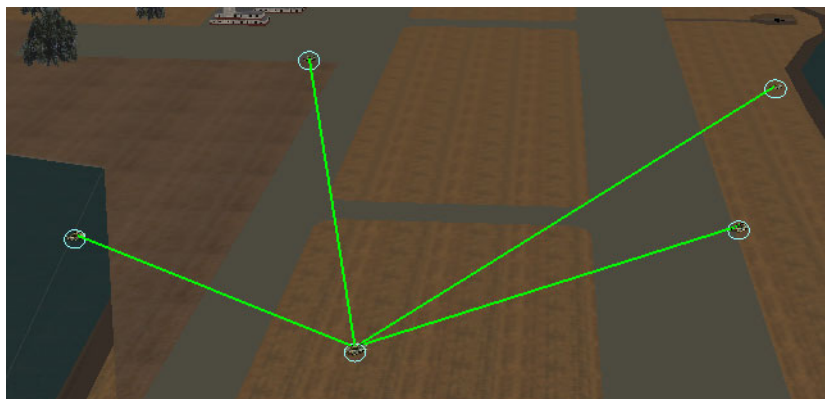


Figure 2. Intervisibility lines

Support for Geocentric Databases

All databases that ship with the Stealth use UTM coordinates. However, the Stealth also supports MultiGen-Paradigm databases that use geocentric coordinates.

You can specify a geocentric coordinate system in the Database Information dialog box, or in an MTL file for the database. To specify a geocentric coordinate system from MTL, set the DatabaseType to "Geocentric":

```
(setq DatabaseType "Geocentric")
```

Your geocentric database should also be accompanied by an offset "origin".

Specifying an Offset for A Geocentric Terrain Patch

If a database uses true geocentric coordinates (that is, its origin corresponds to the center of the Earth), then the terrain being represented would be located a great distance from the origin. The platforms on which the Stealth runs cannot maintain the necessary level of accuracy over such great distances. Therefore, to reduce the distances used in the calculations, the Stealth works only with geocentric databases that are built within a local coordinate system whose origin is much closer to the location of the actual terrain (within 100km). The axes of this local coordinate system must be aligned to the axes of the geocentric frame.

You can specify an offset in the Database Information dialog box, or in an MTL file for the database. Specify the offset between the terrain's local origin and its geocentric position in an MTL file as follows:

```
(setq DatabaseOrigin "1843515.810292,4930762.483055,3593725.261248")
```

Support for Multichannel Displays

The Stealth now supports multiple channels. A channel is a particular view of a scene. If your graphics card supports multiple monitors, the view can be displayed on the monitors to create cockpit-style side views.

You can configure channels in the ACF file. You can also specify display of 2 or 3 channels with the -c startup option. To display two channels, use -c 2; to display 3 channels, use -c 3. If you use these commands with one monitor, the Stealth shows the channels within the single Stealth window.



Multichannel support is not the same thing as multipipe support. Pipes are software objects that process and display a view.

Improved Ability to Select Entities in the 3D Display

You can now select entities in the 3D display by drawing a selection box around them. If you select multiple entities, you can group them.

Pivot View Mode

Pivot mode specifies a point in the terrain, at ground level, around which the display pivots using the position and orientation controls.

To specify pivot mode, use one of the following methods:

- ♦ Shift-click the point in the terrain around which you want the display to pivot.
- ♦ Click the pivot point in the terrain, then on the right-click menu, select Pivot Terrain.
- ♦ If you have previously set a pivot point using one of the first two methods, choose View Mode → Set Current → Pivot, or in the View Mode Information toolbar, select Pivot in the Current View Mode list. The Stealth changes to Pivot mode using the most recently selected pivot point.

Displaying the Pivot Point

You can display the location of the pivot point ([Figure 3](#)). If you do not want to use the pivot point model supplied with the Stealth, you can provide your own model and specify it in the `PivotGraphicModel` parameter in *params.mtl*.

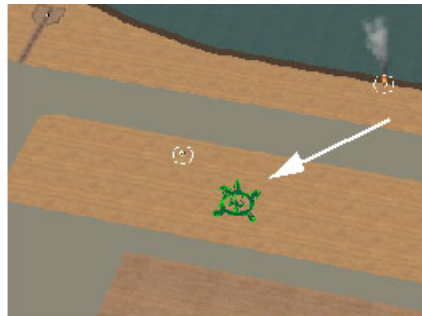


Figure 3. Pivot point model

- To enable or disable display of the pivot point, choose View Mode → Show Pivot Model, or press Shift + P.

Specifying the Coordinates of the Pivot Point

To specify the coordinates of the pivot point:

1. Choose View Mode → Pivot Point. The Set Pivot Point dialog box opens ([Figure 4](#)).

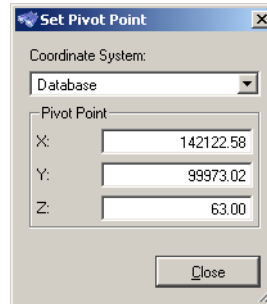


Figure 4. Set Pivot Point dialog box

2. Choose the coordinate system you want to use.
3. Enter the X, Y, and Z coordinates, or the Latitude, Longitude, and Altitude values (depending on the coordinate system chosen) for the pivot point.
4. Click Close.

Support For Localization Of Stealth Menu Text Using Qt Linguist

You can now localize the text on Stealth menus. See [“Localizing the Stealth Interface,”](#) on page 2-15, in *MÄK Stealth User’s Guide* for details.

Inset Views

You can display inset views of individual entities ([Figure 5](#)). You can change the eyepoint in an inset view using keyboard controls. You cannot make any other changes to the view.

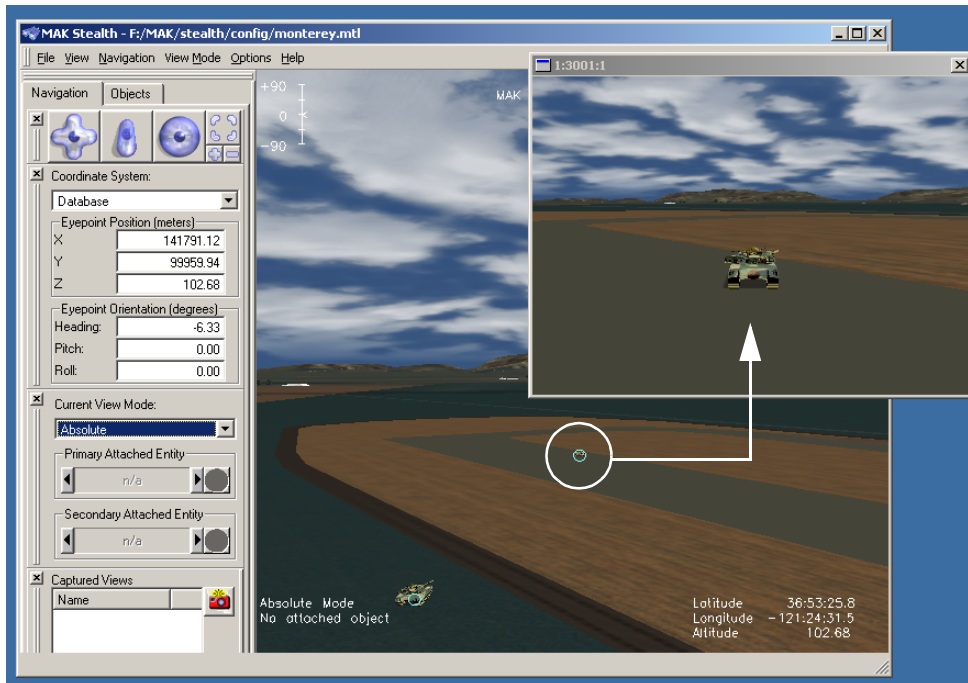


Figure 5. Inset View

Support for Display of Hazard Clouds

The Stealth can display chemical and biological hazards, such as vapor clouds and liquid spills, in response to environmental process PDUs or HLA interactions. You can enable and disable display of specific supported hazard types.

For each hazard type, you can specify:

- ♦ Sigma – the extent of dispersion to display, from 1 to 10
- ♦ Time Out – the length of time to display the hazard
- ♦ Opacity – the extent to which you can see through the hazard (from 0 - 100)
- ♦ Display of the hazard's bounding volume
- ♦ The color of the hazard.

For details, see “[Displaying Chemical and Biological Hazards](#),” on page 8-11, in the PDF version of *MÄK Stealth User's Guide*.

New and Changed Startup Options

Stealth has the following changes to startup options:

- ♦ `-b` has been removed. Broadcast mode is now the default. You can still configure broadcast mode with the `EnableStealthBroadcast` parameters in *params.mtl*.
- ♦ `-acf filename` loads the specified ACF file.
- ♦ `-F` starts the Stealth in fullscreen mode.
- ♦ `-G locale` specifies the language that the Stealth uses.
- ♦ `-hidegui` specifies that the Stealth run without any GUI features enabled.

New MTL Configuration Parameters

The Stealth has the following new MTL parameters:

- ♦ `EnableFullscreen`
- ♦ `IntervisibilityRange`
- ♦ `EnablePivotGraphic`
- ♦ `PivotGraphicModel`
- ♦ `ViewTurnRate`
- ♦ `ViewStepSize`.

For descriptions of the parameters, see the comments in *params.mtl* or “[The params.mtl File](#),” on page A-4 of *MÄK Stealth User’s Guide*.

Support for Loading ACF Files at Startup

Stealth 5.2 supports loading ACF files at startup. To specify an ACF file, use the `-acf` startup option, in the following format:

`-acf filename`

The Detonation List Toolbar has been Removed

The Detonation List toolbar has been removed from the GUI.

The Reference Ellipsoid Cannot be Changed Through the GUI

You can no longer set the reference ellipsoid through the GUI. You can still set it in the *.acf* file.

New Object Statistics Toolbar

The Object Statistics toolbar has been added. It lists all entities, aggregates, and emitters in the scene at any given point.

Display of Marking Text in the Object Hierarchy

The Object Hierarchy now displays marking text for the listed entities. You can enable and disable the marking text column, as well as the Object ID column. For details, see [“Identifying Entities,”](#) on page 3-2, in the PDF version of *MÄK Stealth User’s Guide*.

Broadcast Mode is the Default Behavior

The Stealth now runs in broadcast mode by default. The `-b` startup option has been removed.

GUI Procedure Changes

Several procedures for using the GUI have changed or been augmented, as follows:

- You can attach the Stealth to entities from the context-sensitive popup menu.
- The Save/Restore View toolbar is easier to use. You can restore a view by selecting it in the list. The listed views are more informative.
- You can create a view group by selecting entities in the scene. You can add an entity to the view group from its context-sensitive menu. You can select entities in the Object Hierarchy and group them.

Database Information Dialog Box

In Stealth 5.1, you could edit a database’s origin in the Edit Database Origin dialog box. This feature was not previously documented. This dialog box has been replaced with the Database Information dialog box which provides additional information about the database. For details, see [“Editing Database Information,”](#) on page 4-9, in *MÄK Stealth User’s Guide*.

Documentation Updates

The PDF version of *MÄK Stealth User’s Guide* included with this release documents all new features, as does the online help.

The printed version of *MÄK Stealth User’s Guide* does not include an explanation of how to turn the display of clouds on or off. The procedure is as follows:

To enable or disable the display of the cloud layer:

1. Choose Options → Preferences. The Preferences dialog box opens.
2. Select the Environment tab.
3. To enable the cloud layer, check the Show Cloud Layers check box. To disable the cloud layer, clear Show Cloud Layers. The change takes effect immediately.

Fixed Bugs

This release fixes the following bugs or restrictions that were present in Stealth 5.1-ngc:

- ♦ The trajectory histories parameter in *stealth.mtl* was not working. It now works correctly.
- ♦ The emissions color mode was not getting set from the MTL file.
- ♦ You can now set the cloud layer from the MTL file.
- ♦ The model mapper preview was broken in Stealth 5.1.
- ♦ On some configurations, license management did not work. This has been fixed.
- ♦ Group mode used to 'cut off' edge entities when the entities were too far apart. This has been fixed.
- ♦ It is now possible to set the notify level.
- ♦ Turning off fog no longer interferes with aggregate and emitter system transparency.
- ♦ The Stealth was not choosing the closest trail mapping when creating trails for entities.
- ♦ Viewing information for an entity would crash if the entity's ID matched an ID that had previously been removed from the exercise.
- ♦ Filtering view control interactions by ID now works correctly.
- ♦ The Stealth no longer attaches to entities when you hold and drag the mouse.

Known Problems and Product Restrictions

- ♦ If you have sound enabled and your PC does not have a sound card, the Stealth may crash.
- ♦ Sometimes an error dialog box is displayed stating that the Stealth cannot load a terrain database, even though it has successfully loaded the database.
- ♦ If you try to use *vaportrail.flt* or *dusttrail.flt*, they do not rotate properly. Event 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.
- ♦ Clouds and the sky dome are not supported in geocentric mode.
- ♦ Inset windows are not supported on UNIX.
- ♦ Sound is not supported on UNIX.
- ♦ You cannot load Open-Flight files directly on UNIX. 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.
- ♦ The Stealth Options menu includes commands for remote graphics. These options prototype Stealth support for display of graphical objects based on remote control PDUs or HLA interactions. For details, contact MÄK support.