



MÄK VR-Forces 3.5.1 Release Notes

This release note contains the following release-specific information for VR-Forces Release 3.5.1:

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Overview

VR-Forces 3.5.1 is a maintenance release for VR-Forces 3.5. It fixes problems in the VR-Forces 3.5 release. All of the information in *MÄK VR-Forces 3.5 Release Notes* applies to this updated release. Therefore this release note only documents bug fixes and documentation corrections for release 3.5.1.

Systems Supported



If you run the VR-Forces front-end on IRIX in 8-bit color mode (the default), performance may be severely compromised. To run on IRIX, set the color depth to 24-bit mode.

New Features and Updates

This release has the following new features and updates:

- ♦ The *DtTerrainDatabase* class has a new member function, *terrainHeight()*. This function allows you to get the altitude at a specified location or latitude and longitude.
- ♦ Release 3.5 changed the way that geometric features from CTDB databases were added to the terrain. Release 3.5.1 reverts to the way features were added in release 3.4. Geometric feature data is, once again, stored in the terrain group node of the terrain database.
- ♦ New entries in *vrf.ent*:
 - HMMWV w/ M2 object type 1 (1 1 225 6 1 7 0)
 - HMMWV w/ Shelter object type 1 (1 1 225 6 1 14 0)
 - HMMWV w/ Avenger 1 (1 1 225 4 14 0 0)
 - C-130 Hercules object-type 1 (1 2 225 4 1 0 0))
 - MIM-104_Patriot_Launcher_System object type 1 (1 1 225 28 2 2 2)
 - Enemy Combatant object type 1 (3 1 222 4 1 0 0).
- ♦ New entries to *vrfSim.opd*:
 - C-130 object type 1 (1 2 -1 4 -1 -1 -1)
 - HMMWV with Avenger object type 1 (1 1 225 4 14 -1 -1)
 - MIM-104-Patriot-Launcher-System object type 1 (1 1 225 28 2 2 2)
 - MIM-104-Patriot-missile object type 1 (2 1 225 1 16 2 -1).

Documentation Updates

This section contains updates to *MÄK VR-Forces 3.5 Release Notes* and to the *MÄK VR-Forces 3.5* manuals.

Changes to the GUI API

This section contains changes to the GUI API that were not included in *MÄK VR-Forces 3.5 Release Notes*.

Changes to Existing Classes

The `myCurrentObjectType` member variable of the *DtCreationHandler* class has been changed from a `DtObjectType` to a `DtEntityMapperKey`. If you used to use the `matchPattern()` member function of `DtObjectType`, you can now use a similar function in `DtEntityMapperKey`.

If you want to match the pattern against a `DtObjectType`, you can call the `matchPattern()` member function on `myCurrentObjectType` as follows:

```
myCurrentObjectType.matchPattern(DtEntityMapperKey(-1,
    object.superType(), object.kind(), object.domain(), object.country(),
    object.category(), object.subCategory(), object.specific(),
    object.extra()));
```

Deprecated Objects

- ♦ *DtPvdMiniMap*
- ♦ *DtRouteConfigWidget*.

Creating Overlay Objects

The following information about overlays and overlay objects was not included in *MÄK VR-Forces User's Guide*:

- ♦ If you add an overlay object to the map without creating an overlay, VR-Forces automatically creates an overlay called Default Layer, and places the overlay object on the Default Layer.
- ♦ If you create an overlay and do not place any objects on it, it does not get saved.

Entity Parameters

In Table 8-5 in *MÄK VR-Forces Configuration Guide*, the `zero-collective-lift-acceleration` parameter applies to rotary-wing entities. The `print-to-file` parameter is not valid.

Terrain API

The following code in section 12.3 of *MÄK VR-Forces Developer's Guide* is incorrect:

```
if (terrainDb->intersect(chord, intersectRecord, DtGdbNodeIRT_POINT |  
    DtGdbNodeIRT_INORMAL ))
```

It should read as follows:

```
DtGdbNodeDtIntersectRecordType flag =  
    (DtGdbNodeDtIntersectRecordType) (DtGdbNodeIRT_IPOINT |  
    DtGdbNodeIRT_INORMAL);  
  
// Try to intersect the terrain to get the left triangle  
if(!terrainDb.intersect(chord, intersectionRecord, flag))
```

Bug Fixes

This release fixes the following problems in VR-Forces 3.5:

- The Set Location task did not work in release VR-Forces 3.5 in plans created in VR-Forces 3.4 or earlier.
- VR-Forces crashed when you opened the Echelon View if the MÄK Stealth was broadcasting.
- Under certain circumstances, the working object cursor was not displayed while creating an overlay object. This is fixed.
- Ground vehicles did not always come to a stop when they completed a movement task. Now they do.
- VR-Forces no longer crashes if you try to open a GDB file that does not exist.
- MGRS coordinates were not being calculated to enough decimal places.
- Geodetic databases are now converted to geocentric properly when loaded through the GUI or converted using tdbtool.
- When you loaded a *.map* file that referred to multiple terrain files, only the first file was displayed. Now, all files are loaded correctly.
- Converting GDB files from the release 3.4 format to release 3.5 format resulted in lost terrain. Files are now converted properly.
- If you ran tdbtool with `-s 0,0` or `-s 0,0,0`, it did not delete any existing spatial indexes as it implied. Now, if the GDB file has a spatial index, it will be deleted if you specify `-s 0,0` or `-s 0,0,0`.
- Dismounted infantry entities now pivot and take a few seconds to raise their rifles before firing. This behavior is observable in a stealth 3-D viewer. Previously, they would aim and fire almost instantly, making it difficult to see the behavior in a stealth.
- Follow entity behaviors now work correctly.
- Lifeform entities now orient themselves along the direction of gravity when in standing, running, or walking postures. For all other postures, they are aligned along the normal to the terrain as before.

- ♦ In ground vehicle pivot behavior, entities always had some translation associated with the pivot. Now ground vehicles that can pivot truly pivot in place.
- ♦ Miscellaneous corrections to the *vrfSim.opd* file.
- ♦ The *vrf.ent* file has been updated, as follows:
 - Changed the entity type enumeration for the Guided Missile Frigate (hostile) from <1 3 222 6 0 0 0> to <1 3 222 6 1 0 0> so it will match up with a more specific entry in the object parameters database.
 - Changed the entity type enumeration for the Aircraft Carrier from <1 3 225 1 0 0 0> to <1 3 225 1 1 0 0> so it will match up with a more specific entry in the object parameters database.
 - Removed wildcards (-1) from several entity type enumerations. Wildcards should not be used in this file. (Use zeros for unspecified fields in the enumeration instead.)
- ♦ Replaced incorrect wildcards (-1) with zeros in subordinate-objects entity type specifications in aggregate entries in the object parameters database. Because these entity types are to be published over the network, they should not contain wildcards.
- ♦ The task assumption mechanism (the handover of responsibility for carrying out a task in an aggregate when a member is destroyed) works correctly.
- ♦ The second entity in an aggregate now receives the follow task for aggregate movement.

Known Problems

VR-Forces Release 3.5.1 has the following known problems:

- ♦ Using large filled polygons, such as minefields, in overlays can degrade performance.
- ♦ Surface entities are not configured to fire weapons. You can customize the object parameters database entries to enable this.
- ♦ The component descriptions in Appendix C of *MÄK VR-Forces Developer's Guide* have not been updated to reflect changes made in recent releases of VR-Forces. In particular references to port interfaces are obsolete and the component descriptions do not reflect the use of process state repositories. Fixed-wing and rotary-wing components may be significantly incorrect.
- ♦ You cannot give a helicopter a Set Altitude request that places it at less than the starting height value.
- ♦ Plans stop executing if they encounter a task that they cannot execute. For example, if the plan for a rotary-wing entity includes Turn To Heading, which is not a valid task for rotary-wing entities, the plan stops executing.
- ♦ The More section of the Entity Information dialog box is not editable, even when some states can otherwise be set through the GUI.

- ♦ If you delete an entity that has a plan and create a new entity with the same name as the deleted entity, the old plan is displayed in the new entity's Edit Plan window. However, the new entity cannot execute that plan.
- ♦ Missiles get initialized at their maximum velocity. They do not accelerate to maximum velocity.
- ♦ Torpedoes ignore a polygon with soiltype water, but the intervisibility fan does not. So it does not show an accurate representation of who can see who.
- ♦ When a subsurface entity gets destroyed it jumps to altitude 0.
- ♦ If you task a rotary-wing entity to fly to a waypoint on the ground, it will land when it gets to the waypoint. If opposing force trucks get within range of the rotary wing it will fire. Since the rotary-wing entity is at a slight incline, it will fire directly into the ground and explode.
- ♦ If an entity is given a Wait task while it is avoiding a collision, the Wait task does not immediately stop the entity. It continues with its collision avoidance behavior.

Problems with Aggregate Entities

- ♦ Aggregates composed of fixed-wing entities do not carry out tasks as an aggregate.
- ♦ When you aggregate a set of aggregates into a higher-echelon aggregate using the "Aggregate As" menu item, make sure that the aggregates being combined have been collapsed to their highest level. Failure to do so will aggregate the entities at the level they are currently displayed. For example, suppose that you want to aggregate two teams of two tanks each into a platoon. If at the time of the "Aggregate As" operation, one of the teams is expanded, displaying its constituent tanks, while the other team is collapsed, displaying a single team icon, the resulting platoon will be composed of two individual tanks and a team, instead of two teams.
- ♦ The Set Formation request does not work properly on aggregate entities that are subordinate members of larger aggregate units.
- ♦ The order in which you create plans for aggregate units and individual members of aggregate units affects how the plans are implemented. If you create a plan for an aggregate member and then create a plan for the aggregate, the aggregate plan overrides the individual plan. If you create a plan for an aggregate and then create a plan for a member of the aggregate, the member plan is executed.
- ♦ Nested aggregates do not always follow the leader (the superior aggregate).
- ♦ Aggregates that have members simulated on multiple back-ends do not always act correctly. Remote subordinates do not break formation when they are independently tasked and do not report tasks for assumption if they get destroyed.
- ♦ If you assign a plan to an aggregate, remove the leader (via drag/drop in echelon view), retask the leader and run the simulation, the subordinates follow the old leader on its new task.

Problems with Terrain Databases

- ♦ Fixed-wing take-off, landing, and taxiing behaviors may be difficult to configure through the front-end when simulating on geocentric terrain databases. This is because VR-Forces use a different projected terrain database in the front-end when simulating on a geocentric terrain database in the back-end. Correlation errors in terrain elevation between the two databases must be small (on the order of meters) when placing waypoints or routes on the ground to support fixed-wing ground behaviors. Either use high resolution terrain databases (minimizing the elevation error between the front-end and back-end databases) when configuring these behaviors, or restrict your scenarios to fixed-wing flying behaviors.
- ♦ Using the `tdbtool` 's balancing option (`-b br,lf`) to balance certain terrains may cause the generated `.gdb` file to display incorrectly. This has to do with a draw ordering bug that is not currently corrected for all terrains. The resulting GDB file will still give correct intersection information, so it will still be suitable for simulation purposes.
- ♦ Balancing larger terrain databases can take an extremely long time.
- ♦ You cannot load vector data with geocentric databases. Vector data works only with geodetic or UTM databases.
- ♦ Do not set the spatial index Z value to be greater than 1. This can cause incorrect intersections.

Problems with Fonts and Icons

- ♦ On IRIX, icons may appear discolored or grainy unless the color depth is set to 24-bit.
- ♦ True Type fonts are not supported on SGI IRIX. Use bitmaps for entity icons.
- ♦ True Type fonts may not display properly until you reboot your computer. If entity icons are displayed as question marks, @ signs, or letters, reboot your computer to properly install the fonts.
- ♦ Uninstalling VR-Forces in Windows via InstallShield uninstalls the entity fonts. If you have another application that uses these fonts, such as the MÄK Plan View Display, the correct entity icons would not be displayed. You must manually install the fonts from their location in the other application that needs them.

Configuration and Protocol Problems

- ♦ If you are using VR-Forces in a DIS exercise, you may experience problems with dropped packets and entities may time out. To avoid this problem, you can use asynchronous I/O by starting with the `-I` parameter.
- ♦ If you are running VR-Forces on Linux with the DMSO RTI, you cannot run in combined mode. Start the GUI and back-end separately.

- ♦ If you run a MÄK Logger recording of a VR-Forces simulation and the site:application number for the back-end is the same as the site:application number of the back-end used to create the recording, VR-Forces may crash. To avoid this problem make sure that you run VR-Forces with different site:application numbers, or just run the front-end and use it as a plan view display to view the recording.
- ♦ The Qt translation files (in *./translations*) for built-in Qt-level GUI items do not work properly. The translation files for VR-Forces work correctly.