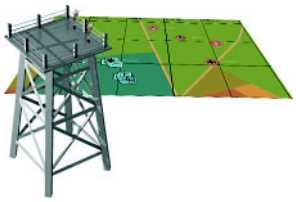

MÄK Plan View Display 2.2-ngc Release Notes

This release note provides the following release-specific information for MÄK Plan View Display 2.2-ngc:

Document ID: PVD-2.2-2-021122

Supported Systems and System Requirements

Plan View Display 2.2 is being released for:

- PCs with Windows 2000/XP/NT 4.0
- Linux
- SGI IRIX.

If you are using the Plan View Display API, application code must be built with the indicated compilers in order to link to Plan View Display libraries.

Table 1: Platforms supported

Platform	Compiler
SGI IRIX6.5	MipsPro7.3 C++ compiler (available from SGI)
Linux 7.2	GNU C++ (GCC) 3.0.2
PC with Windows NT 4.0 SP6 or Windows 2000 SP2	Microsoft Visual C++ 6.0, Service Pack 5

MÄK Product Compatibility

To use the Plan View Display API, you must link with VR-Link 3.7.3-ngc. If you are building for HLA and want to link with the MÄK RTI, use MÄK RTI 1.3.7-ngc or later. This release is compatible with MÄK RTI 2.0-ngc.

MÄK Plan View Display 2.2 is a parallel release to MÄK VR-Forces 3.2-ngc.

Qt Release Compatibility

If you want to do development using the Plan View Display API, you need to use Qt, a cross-platform GUI toolkit. The Plan View Display GUI was built with Qt release 3.0.5. A Plan View Display developer's license includes a Qt development license. MÄK provides you with a Qt license key. However, you must download the correct version of Qt from www.trolltech.com.

System Requirements for PCs

To install the Plan View Display on a PC, you must have a system with the following minimum requirements:

- Processor: Intel Pentium 400 MHz or equivalent.
- RAM: The minimum required for your operating system, plus:
  - 32 MB for DIS exercises
  - 64 MB for HLA federates

Depending on the size of your terrain databases, you may need more RAM.

- Hard disk space - Approximately 170 MB. Most of this is for the terrain databases shipped with the Plan View Display. You may need considerably more space depending on the databases you plan to use.
- Two or more multiples of the amount of RAM for virtual memory. Running the Plan View Display in HLA may require increased amounts of virtual memory.

Online Help

The online help is in HTML format and uses the default browser for your computer. For all online help features to work, you must enable Javascript in your browser.

Network Compatibility

HLA only

Plan View Display 2.2 was built against VR-Link 3.7.3-ngc and is compliant with:

- RPR-FOM 1.0 and a subset of 2.0 (draft 6)
- MÄK RTI 1.3.7-ngc and 2.0-ngc
- DMSO RTI NG 4.0, and 6.0.

Plan View Display 2.2 is compatible with applications that use earlier versions of VR-Link if they support versions of the RPR FOM listed above.

DIS only

Plan View Display 2.2 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.

RTI Support

The MÄK RTI is included on all MÄK product CDs. It is link-compatible with the DMSO RTI NG. Plan View Display 2.2 has been tested with DMSO RTI NG 4.0 and 6.0.

If you use the MÄK RTI, be sure that the Plan View Display can find your FED file, and optional *rid.mtl* file, by putting them in the directory from which you are running, or by setting the environment variable RTI_CONFIG to the directory that contains them.

FOM Support

Plan View Display 2.2 has built-in support for versions 0.5, 0.7, 0.8, 1.0, and 2.0 of the RPR FOM. It also supports VR-Link's ability to support alternative FOMs through the FOM Mapper. By default, Plan View Display 2.2 uses RPR FOM 1.0.

The keywords for specifying different versions of the RPR FOM are:

- RPR FOM 0.5: `vlRPR05`
- RPR FOM 0.7: `vlRPR07`
- RPR FOM 0.8: `vlRPR08`
- RPR FOM 1.0: `vlRPR10`
- RPR FOM 2.0: `vlRPR20`.

For information about FOM mapping and selecting the correct FOM mapper, see Startup Options for HLA Federations in Chapter 3, "Getting Started", in *MÄK Plan View Display User's Guide*.

New Features and Changes

This release has the following new features and changes:

- Support for line-of-sight (intervisibility) displays.
- Support for CTDB v7 databases.
- Improvements to DFAD import.

Intervisibility

See "Displaying Intervisibility", on page 6.

Support for CTDB v7 Databases

Previous releases of Plan View Display were able to import CTDB v4 (.c4b) databases. Plan View Display 2.2 can also import CTDB v7 (.c7b) databases.

Improvements to DFAD Import

The latest version of the tdbtool makes easier to look up information in DFAD databases by providing additional attributes for DFAD specifications. The new attributes are:

- "DtFeatureName" - the string with the FID number and description in the dfad_sedris_map.
- "DtSedrisCodes" - returns the number of descriptions the specification has. This attribute is an integer. Zero (0) means no additional descriptions.
- "SEDRISCODE#" - returns the SEDRIS code for the specified description. It is a string attribute, where # is a number from 1 to DtSedrisCode answer.
- "<the sedris code>" - returns the description of the SEDRIS code. It is a string.

```
int codes;
   DtString sname;

   spec.lookupStringAttribute("DtFeatureName", sname);
```

```
spec.lookupIntegerAttribute("DtSedrisCodes", codes);

DtString sedirs;
DtString scode;
DtString sdesc;

for ( int i = 1; i <= codes; i++)
{
    sedris = "SEDRISCODE";
    sedris += i;
    spec.lookupStringAttribute(sedris, scode);
    spec.lookupStringAttribute(scode, sdesc);
}
```

Bug Fixes

- This release supports the DMSO RTI.

Known Problems

This section lists problems that we have identified, but which do not interfere with overall use of the Plan View Display:

- On IRIX, icons may appear discolored or grainy unless color depth is set to 24-bit.
- Changing the measurement unit does not change the measurement unit for contour lines.
- Using **minMaxLatitude** and **minMaxLongitude** in DTED *.map* files does not work. As a workaround, do not specify these variables in your *.map* files.
- True Type fonts are not supported in SGI IRIX. Use bitmaps for entity icons.
- If you are using Plan View Display in a DIS exercise you may experience problems with dropped packets and entities may time out. In HLA, you can avoid dropped packets by configuring the MÄK RTI to use asynchronous IO.
- 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.
- A DtedMetafileRecord that does not have a valid File entry hangs the Plan View Display.
- The Qt translation files (in *./translations*) for built-in Qt-level GUI items do not work properly. The translation files for Plan View Display work correctly.
- If you are using TrueType fonts, the symbols for air aggregates are incorrect.
- Subsurface entities use incorrect icons.
- If all members of an aggregate entity are destroyed, the aggregate icon does not show the destroyed symbol.
- If you open new VR-Forces windows, the Entity List dialog box created from one of these windows only shows newly created entities.

Displaying Intervisibility

You can display intervisibility (line-of-sight) between points, within areas, and between a point and all entities in a defined area. Intervisibility displays can be transient or permanent. Permanent intervisibility displays are objects. You can resize them and move them around the map. Intervisibility objects can be tied to a particular entity.

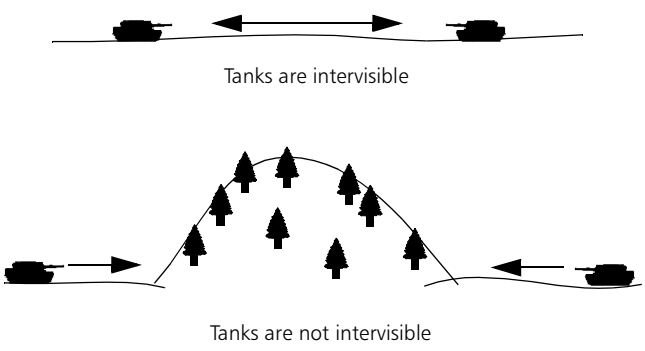

Figure 1. Intervisibility

You can configure parameters for intervisibility objects, such as the height above the terrain from which intervisibility is calculated. You can also change the colors used to display intervisibility.

By default, intervisibility between entities is calculated from the center of their bounding volumes. The entities in the exercise you are observing may not calculate line-of-sight from the same point. For example, in MÄK VR-Forces, the target detection sensor uses an offset which is often above the center of the entity. Unless you change the Origin LOS Elevation value in the Intervisibility Options dialog box to use the same offset as the simulated entities, you might notice entities shooting at targets with which they do not appear to have LOS.

Types of Intervisibility

Plan View Display supports the following types of intervisibility:

- Point-to-point
- Intervisibility fan
- Intervisibility grid
- Entity intervisibility.

The intervisibility fan and grid, and entity intervisibility, are all displayed as a circular area. However, intervisibility calculations are made within a cylindrical area extending above and below the terrain, so that intervisibility calculations can be made for air platform entities and subsurface entities.

Point-to-Point Intervisibility

Point-to-point intervisibility (Figure 2) shows the line-of-sight between any two points. The portion of the line that is visible from the starting point is green. The portion that is not visible is red.

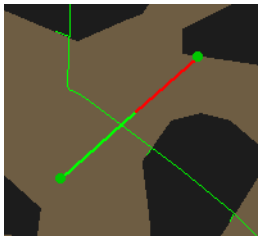

Figure 2. Point-to-point intervisibility

Intervisibility Fan

An intervisibility fan (Figure 3) shows a series of lines radiating from the center of a circle to its outer edge. Each ray shows intervisibility along its path from the origin to the circumference. You can configure the distance between rays. See "Configuring Intervisibility", on page 11.

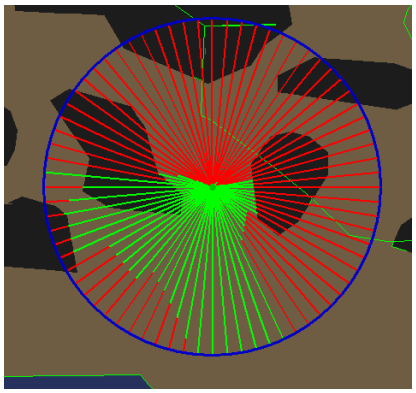

Figure 3. Intervisibility fan

Intervisibility Grid

The intervisibility grid (Figure 4) shows visible areas as unobstructed terrain and areas that are not visible are overlaid with a grid. The information provided by the intervisibility grid differs from the information provided by the intervisibility fan in that the rays of the fan only show visibility up to the first point at which they are blocked, while the grid shows all areas that are visible. For example, if a portion of terrain is visible past an initial blocking point, say due to changes in terrain, a fan does not show this, but a grid does. You can configure the resolution of the grid. See "Configuring Intervisibility", on page 11.

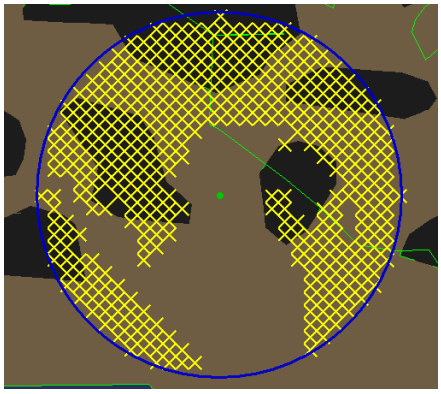

Figure 4. Intervisibility grid

Entity Intervisibility

Entity intervisibility (Figure 5) shows which entities are visible from the center of a defined area and whether or not the entities can see the center point. If you center the intervisibility circle on a point on the terrain, you can see which entities can see that point. If you lock the circle to an entity, you can see which entities can see that entity and which it can see. You can configure the display of intervisibility from the origin (Who can I see?) and to the origin (Who can see me?). See "Configuring Intervisibility", on page 11.

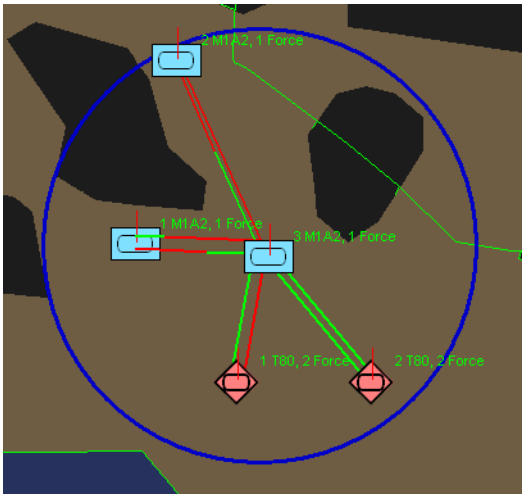

Figure 5. Entity intervisibility

Intervisibility Objects can be Transient or Permanent

You can configure intervisibility objects to be transient or permanent. See "Configuring Intervisibility", on page 11. A transient intervisibility object displays intervisibility from the origin point (defined by a mouse click) to wherever you move the cursor. If you click the mouse again, you reset the origin. You cannot use the mouse for other actions until you exit intervisibility mode (by right-clicking.) This mode is convenient when you want to quickly check intervisibility but do not want to keep intervisibility objects in the display.

A permanent intervisibility object stays in the display after you create it. You can resize the object, edit drawing options, and move it around the display.

Displaying Transient Intervisibility

To display transient intervisibility:

1. Choose Intervisibility → *intervisibility_type*. The cursor changes to select mode.
2. Click on the map to set the origin of the intervisibility display.
3. Move the cursor around the map to expand and contract the display. For point-to-point intervisibility, moving the cursor also changes the direction of the line.
4. To change the origin of the intervisibility display, click another location on the map.
5. Right-click to cancel intervisibility mode.

Displaying an Intervisibility Object (Permanent Intervisibility)

To display an intervisibility object:

1. Choose Intervisibility → *intervisibility_type*. The cursor changes to select mode.
2. Click on an entity or on a location on the map where you want the origin of the object to be located. An intervisibility object is displayed. As you move the cursor closer to the origin, or farther away from it, the circle or line contracts and expands. If you are displaying point-to-point, you can rotate the line around the origin before you specify the end point.
3. Click on the map where you want to fix the end point of a line or outer edge of a circle.

Editing An Intervisibility Object

You can change the length of an intervisibility object. You can change the direction of an intervisibility line. You can also change an object's display mode.

➤ To change the length of an intervisibility object, select it, then drag the endpoint towards or away from the origin.

➤ To change the direction of an intervisibility line, select the line, then drag an endpoint in a circular motion around the other endpoint.

Changing An Intervisibility Object's Display Mode

You can change an intervisibility object's display mode, for example, from intervisibility fan to entity intervisibility. If you change a fan, grid, or entity intervisibility display to point-to-point, the line is displayed to the point you clicked when you specified the outer boundary of the object's circle.

To change an intervisibility object's display mode:

1. Select the objects that you want to change.
2. Choose Options → Intervisibility. The Intervisibility Options dialog box opens.
3. Choose a display mode from the list.
4. Click Apply to Selected.
5. Click Close.

Configuring Intervisibility

You can configure the elevation used to calculate line-of-sight, the resolution of fan and grid modes, and the colors used to display intervisibility. You can apply changes to all current intervisibility objects and those to be created, or you can apply changes to selected intervisibility objects. Table 2 describes the configuration options.

Table 2: Intervisibility drawing options

Option	Description
Origin LOS Elevation	The height above the terrain at the origin point from which to calculate intervisibility.
End Point LOS Elevation	The height above the terrain at the end point to use to calculate intervisibility.
Fan Mode Sampling Rate	This distance, in degrees, between each ray in the fan.
Patchwork Mode Sampling Rate	The distance, in pixels, between each line in the patchwork grid.
Display Modes	Specifies the type of display mode for an object. "Keep Mode" (the default) keeps current objects in their existing display modes.
Who Can I See	If checked, display intervisibility from origin to entities within the fan.
Who Can See Me	If checked, display intervisibility between entities within the fan and the origin.
Left Click Makes Objects Permanent	If checked, you can create intervisibility objects that persist in the display. If clear, each left click creates a transient intervisibility display with its origin at the location of the left click.

To change intervisibility options:

1. Choose Options → Intervisibility. The Intervisibility Options dialog box opens (Figure 6).

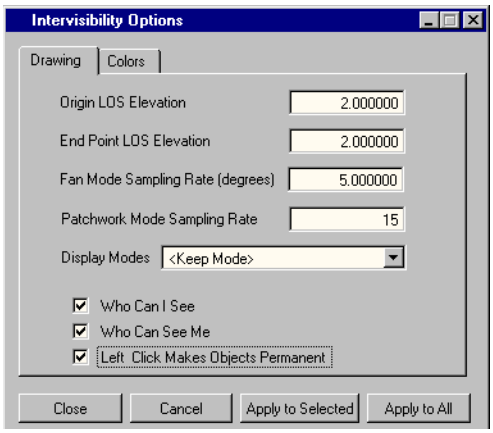

Figure 6. Intervisibility Option dialog box

2. Change the drawing options as desired. The options are described in Table 2.
3. Change the colors used for the intervisibility display, as follows:
   a. Select the Colors tab.
   b. Click the color button for the feature whose color you want to change. A color picker dialog box for your windowing system opens.
   c. Select the color you want to use or create a custom color.
   d. Click OK.
4. To apply the changes to specific intervisibility objects, click Apply to Selected.

! Be careful not to inadvertently apply changes to all intervisibility objects that you only want to apply to specific objects.

   To apply the changes to all intervisibility objects and to objects that you create in the future, click Apply to All.
5. Click Close to exit the dialog box.

Pinning An Intervisibility Object to An Entity

When you pin an intervisibility object to an entity, the intervisibility object moves with the entity and you know that its origin is centered on the entity. Y

To pin an intervisibility object to an entity:

1. Select the entity to which you want to pin the intervisibility object.
2. Choose Intervisibility → *intervisibility_type*.
3. Specify the end point for the intervisibility object.

Alternatively, you can choose an intervisibility command, then click an entity and an end point.

Moving Intervisibility Objects

➤ To move an intervisibility object, select it, then drag it to another location on the map.

Deleting Intervisibility Objects

To delete an intervisibility object:

1. Select the intervisibility object.
2. Choose Intervisibility → Delete.

You can also delete intervisibility objects by selecting them and pressing the Delete key.