

# Smart Range Tool Plug-In

March, 2013

The Smart Range Tool plug-in is designed to provide an automatic updating dynamic view into the relative positions of entities of interest in a scenario. This plug-in is particularly useful for tracking range and bearing between a particular asset and other entities as the asset maneuvers.

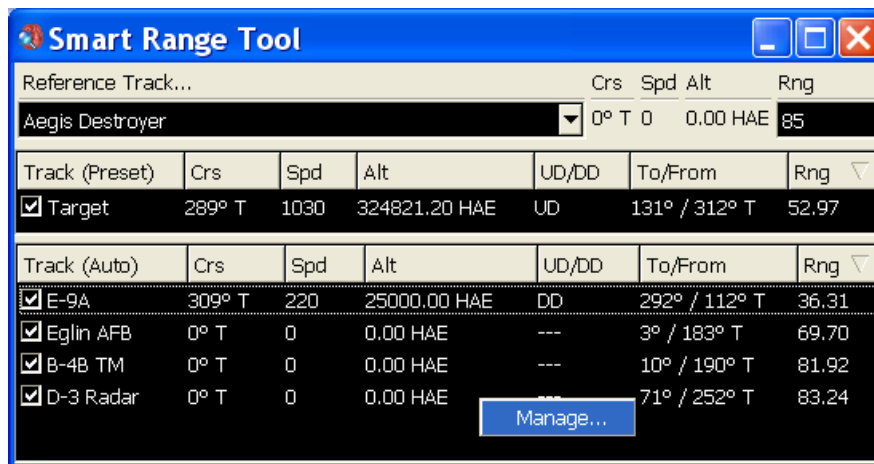


Figure 1 Main Dialog

The plug-in is configured by selecting a set of platforms that can be chosen for the reference track of interest. There can only be one reference track shown at any given time; the user can select several platforms to populate the list representing the reference tracks. This allows the operator to quickly switch between different platforms at runtime.

The operator is also able to enter a range in user specified units for a geofence operation. Any platform within the specified range from the track of interest is automatically added to the auto list. This list is automatically populated and updated at regular intervals. If the track of interest is changed by the operator, then the auto list is updated with new platforms within the given range of that new track of interest. The auto list provides a read-out of the track name, its current course, speed, and altitude as well as Doppler, bearing, and range relative to the track of interest. The auto list can be sorted by any column. Note the display shows the course of the platform and not its orientation or yaw. Additionally, the operator is able to specify a separate list of platforms to always display in the preset list. This list contains the same data as the auto list -- name, course, speed, Doppler, bearing, and range -- but does not add or remove tracks dynamically.

The tool requires up-front configuration to select the reference tracks of interest, any desired tracks for the preset list, and filters for the auto list. The configuration dialog is shown when the plug-in is first displayed through the Plug-in Tools menu, and can be recalled by right-clicking on the plug-in display and selecting **Manage...** from the pop-up window.

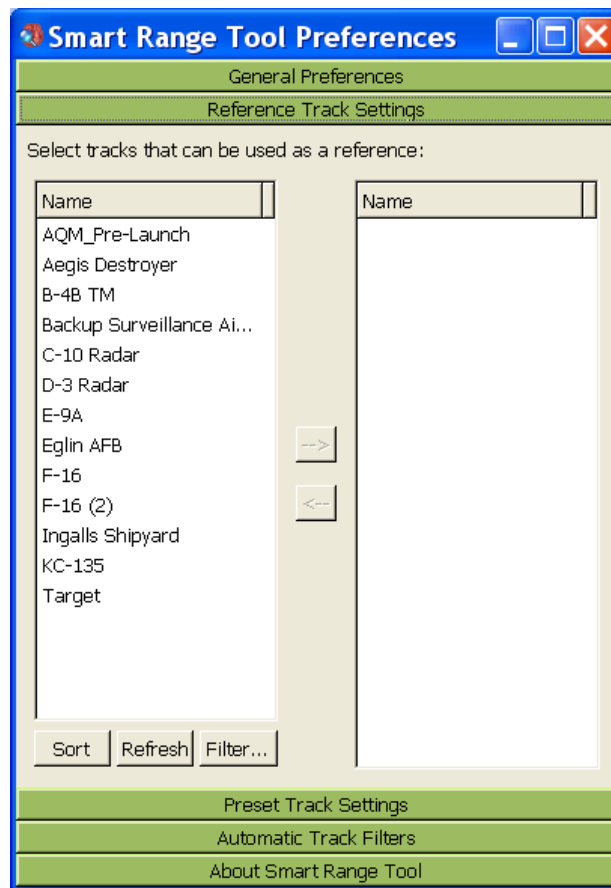


Figure 2 Configuration

The reference track frame and preset frame contain similar widgets for selecting tracks. Platforms can be moved from the left side to the right side by using the arrow buttons in the middle. Platforms on the right side are chosen for the particular list, and platforms on the left side are not. Standard filters on name and category data can be applied to make selection easier.

The auto-populated list can only be filtered by name and category. This can be useful if you only want to see specific types of tracks – aircraft and buoys for example -- in the auto list.

Various settings relevant to the Smart Range Tool display can be accessed in the General Preferences section of the management window. Preferences that can be set include:

*Draw Lines for Each Association* When enabled, stippled lines will be draw on the 3D display connecting the track of interest to each platform on the pre-populated list and the auto list. This simulates the SIMDIS Range Tool display.

*Include Altitude Text* When enabled, the altitude component of the calculation is shown in the 3D display.

*Include Vertical Datum Text* When enabled, the vertical datum reference (HAE or MSL) is shown in the 3D display.

*Stipple Color 1 and 2* Stipple pattern colors to use when drawing the association lines.

*Text Color* The association lines include a text read-out of the range and bearing between the two platforms. This setting affects the color of that text.

*Font* The SIMDIS font to use when drawing the overlay text on the 3D display.

*Use Magnetic Heading* When enabled headings are displayed as magnetic otherwise they are referenced to True North.

*Use MSL Altitude* When enabled altitude values are referenced to Mean Sea Level (MSL), otherwise they are referenced to height above the WGS-84 ellipsoid (HAE).

*Precision* Floating point precision for display of range calculations.

*Range Units* Units for the range calculations.

*Altitude Units* Units for the altitude display.

*Always on Top* When checked, the Smart Range Tool dialog is always on top of the SIMDIS display. When false, the SIMDIS display can obscure the Smart Range Tool dialog.

*Text Color* Color of the text in the Smart Range Tool dialog lists.

*Background Color* Background color for the Smart Range Tool dialog lists.

*Font* System font name and size for the Smart Range Tool dialog.

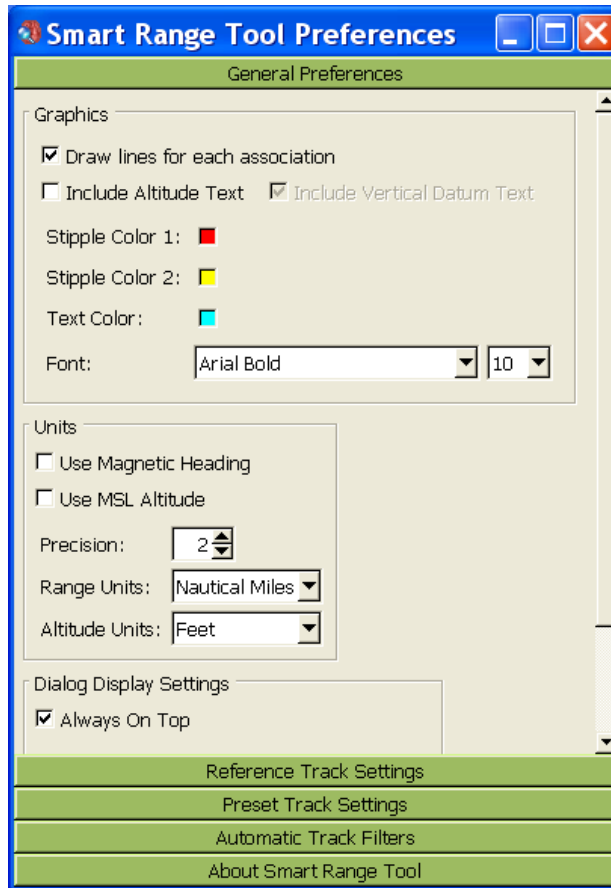


Figure 3 Preferences

The preferences are saved to the file \$(SIMDIS\_HOME)/SmartRangeTool.prefs. The file format is command equals value. An example file is:

```
[SETTINGS]
TextColor=Cyan
ListSplit=50
AltitudeUnits=24
WindowOntop=true
UseMslAlt=false
IncludeAltitude=true
UseMagVar=false
ColWidthPreTrack=90
DistanceUnits=29
Stipple2=Yellow
Stipple1=Red
ColWidthAutoUDDD=60
ReferenceCallsign=
DialogFont=Segoe UI,90,normal,regular
```

ColWidthAutoTrack=90  
Range=4.3744532  
ColWidthPreCrs=40  
ColWidthAutoToFrom=80  
ColWidthPreSpd=45  
IncludeVerticalDatum=true  
DialogTextColor=Gray100  
ColWidthPreUDDD=60  
ColWidthAutoCrs=40  
ColWidthPreToFrom=80  
ColWidthAutoSpd=45  
DrawLines=false  
ColWidthAutoAlt=40  
ColWidthAutoRng=50  
Font=arialbd.ttf 10  
Precision=3  
HotKey=  
ColWidthPreAlt=40  
ColWidthPreRng=50  
DialogBackgroundColor=Black

The "ReferenceCallsign" can be used to configure a single Reference Track. When a platform with a call sign that matches the "ReferenceCallsign" value is added to the scenario, the platform is automatically added to the Reference Track drop down box.