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# Quick Start Guide

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# Chapter 1


## SIMDIS Quick Start

### *How do I get SIMDIS up and running?*

Starting the SIMDIS application is not a difficult task. However, familiarization with the application can be a bit daunting. This chapter is also included as a stand-alone Quick Start guide in the SIMDIS distribution.

### 1.1 Starting SIMDIS

There are plenty of ways to start SIMDIS:

- Run the executable from the folder specific to the platform in `$(SIMDIS_DIR)\bin`
- Double-click the SIMDIS icon  on the desktop
- Type **simdis** in command prompt

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**NOTE:** For the **SIMDIS Core Build**, there are no desktop icons nor application **path**. You can start SIMDIS by running the batch file **startSIMDIS.bat**. See [Figure 1.1](#)

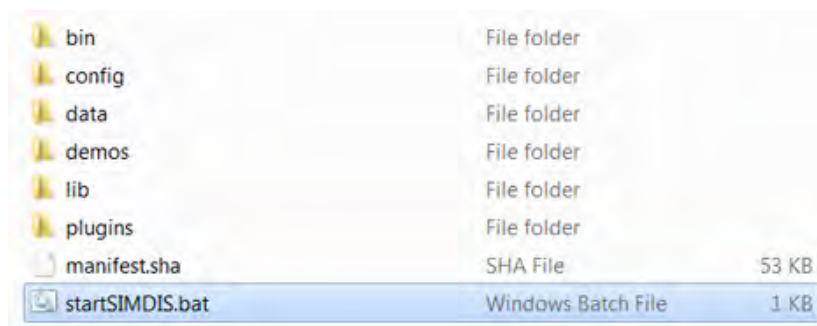


Figure 1.1: Core Install Directory

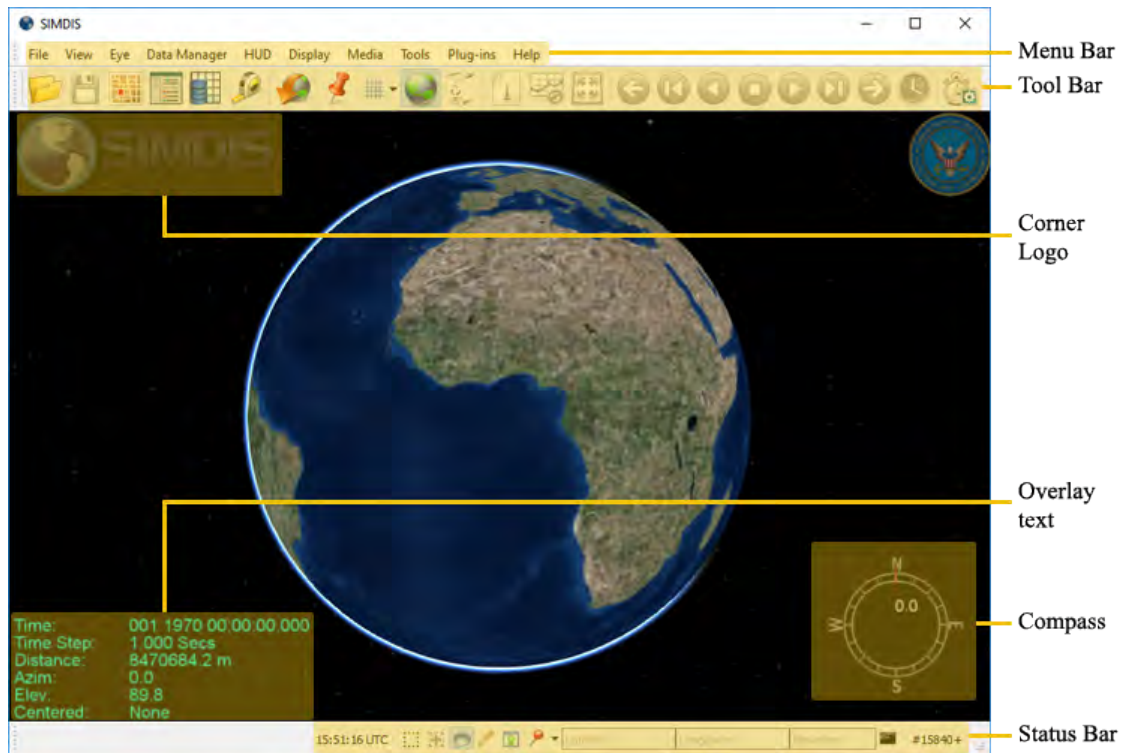



Figure 1.2: SIMDIS Display





## 1.2 SIMDIS Display

Figure 1.2 identifies many of the key components in the main display of SIMDIS.





### 1.2.1 Display Modes

SIMDIS has two display modes: Overhead and Perspective. Figure 1.3 shows an example of each mode. The default display mode is the **Perspective (3D)** mode. Toggle the **Overhead** mode via the  button on the Toolbar or the hot key **Ctrl** + **O**.

**Overhead Mode** - orthographic projection pointing North, 2D view of the Earth.

- The **Eye** can pan and zoom around the Earth but cannot pitch, roll, or rotate.
- The  or  keys will pan the display either West or East.
- The  or  keys will pan North or South.

**Perspective Mode** - a 3D view of the Earth.

- The **Eye** can pitch, roll, rotate, pan, and zoom.
- The  or  key will control the azimuth angle of the view.
- The  or  keys will affect the elevation angle.

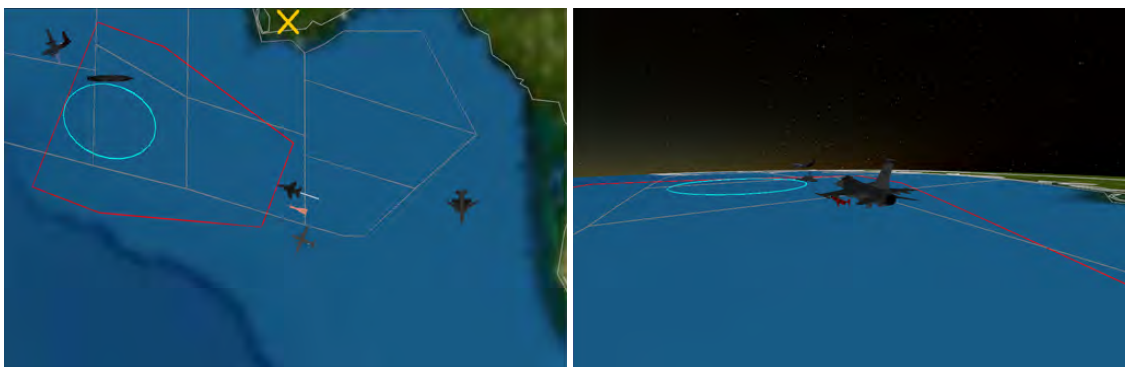


Figure 1.3: Overhead Mode vs. Perspective Mode

**NOTE:** Entities that are on the edge of the viewing field and far behind the view may not be visible in some extreme cases (e.g. satellites with high altitude) in **Overhead** mode.

## 1.3 Mouse and Keyboard Controls

### 1.3.1 Mouse Navigation Modes

SIMDIS has three mouse navigation modes: [SIMDIS Classic](#), [GIS Mode](#), [Builder Mode](#).

- **SIMDIS Classic** - allows mouse controls similar to previous versions of SIMDIS. By default, mouse navigation mode is set to **SIMDIS Classic**.
- **GIS Mode** - allows mouse controls similar to popular GIS applications such as ArcGIS or Google Earth.
- **Builder Mode** - allows mouse controls similar to U.S. Naval Research Laboratory's Interactive Scenario Builder tool (see <https://builder.nrl.navy.mil/>).

To change the mouse navigation mode go to: **Tools > Settings > Main Window > Mouse > Navigation**. The [Table 1.3](#) is a quick reference guide for mouse and keyboard controls in SIMDIS.















Mouse Controls		
 +  Rotate/Tilt View	 +  Zoom In and Out	 +  Grab and Pan
Keyboard Controls		
 +  Full Screen	 Center on next available platform	
 +  Overhead Mode	 Dynamically scale all platforms	
 +  Top Down North		

Table 1.3: Basic Mouse and Keyboard Controls

By default, the **Mouse Navigation Modes** on the status bar are hidden. You can enable this feature via **Tools > Settings > Main Window > Mouse > Nav Modes on Status Bar**.

## NOTES:

- You will need to restart SIMDIS to display additional mouse navigation modes on the status bar.
- Not all basic controls from [Table 1.3](#) apply to **Overhead Mode**.

### 1.3.1.1 Box Zoom

Holding **Ctrl** + **Shift** key while dragging the mouse with the left mouse button pressed will draw a box from the originally clicked position to the cursor's current position. When the mouse button is released, the display will translate to the center of the box and the range will zoom to display the contents of the box.

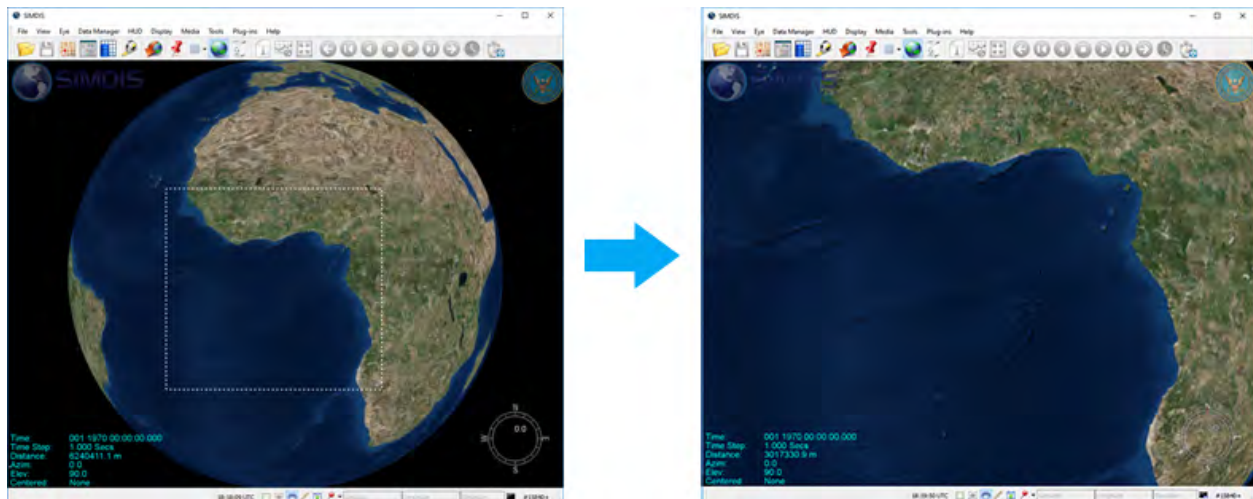


Figure 1.4: Box Zoom


### 1.3.1.2 SIMDIS Classic Mouse Navigation in Perspective (3-D)

Table 1.4 below is a quick reference for mouse controls in Perspective Mode for **SIMDIS Classic** mouse navigation mode.

Left Button		Scroll/Middle Button		Right Button	
Action	Operation	Action	Operation	Action	Operation
Double Click	Re-center Display	Scroll	Zoom in or out	Click and Drag	Drag and Drop Globe
Click and Drag	Tilt or Rotate	Click and Drag	Glide in or out	Click on track	Track Functions

Table 1.4: SIMDIS Classic Mouse Navigation in Perspective

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**NOTE:** Holding the  key while pressing the left mouse button will recenter the display at the mouse pointer location.

### 1.3.1.3 GIS Mode Mouse Navigation in Perspective (3-D)

Pressing the left mouse button and moving the mouse or pressing arrow keys will pan or rotate the Earth. Table 1.5 below is quick reference for mouse controls in Perspective Mode for **GIS Mode** mouse navigation.

Left Button		Scroll/Middle Button		Right Button	
Action	Operation	Action	Operation	Action	Operation
Double Click	Glide in	Scroll	Zoom in or out	Click and Drag	Zoom in and out
Click and Drag	Rotate	Click and Drag	Tilt	Click on track	Track Functions

Table 1.5: GIS Mode Mouse Navigation in Perspective

### 1.3.1.4 Builder Mode Mouse Navigation in Perspective (3-D)

Pressing the left mouse button and moving the mouse or pressing arrow keys will pan the Earth. [Table 1.6](#) below is quick reference for mouse controls in Perspective Mode for **Builder Mode** mouse navigation.

Left Button		Scroll/Middle Button		Right Button	
Action	Operation	Action	Operation	Action	Operation
Double Click	No Action	Scroll	Zoom in or out	Click and Drag	Rotate
Click and Drag	Pan	Click and Drag	Zoom in or out	Click on track	Track Functions


Table 1.6: Builder Mode Mouse Navigation in Perspective

### 1.3.2 Overhead Movement

**Overhead** mode has the same controls as in other modes except the ability to **Tilt** the elevation view angle.



## 1.4 SIMDIS Console

The SIMDIS Console displays text message alerts from SIMDIS. The operator may filter the display using the dropdown menu at the left of the tool bar. Console display behavior may also be modified using the Console Settings button .

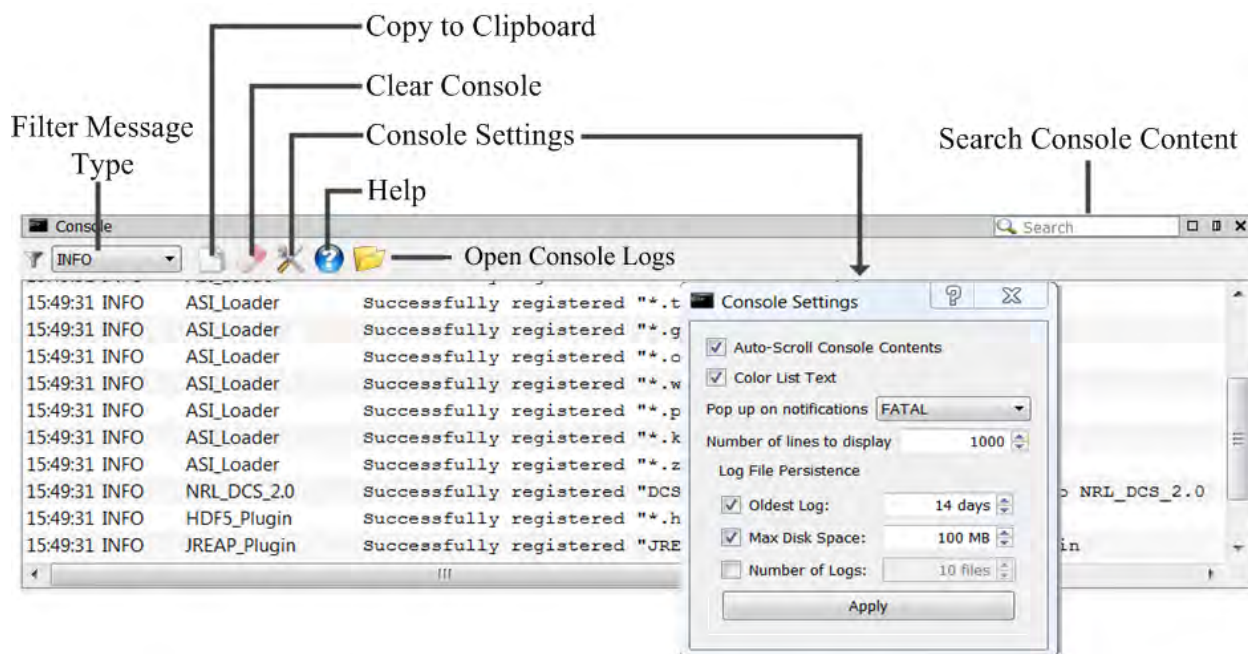


Figure 1.5: SIMDIS Console

## 1.5 Loading Scenario Data


A scenario in SIMDIS is a collection of data that exists between specific timeframe.

- It consists of time, space, and position information (TSPI) data
- Platforms such as aircraft, boats, buildings, and or vehicles.
- It can contain maps, 2D vector graphics, media, preferences, and viewing positions.

There are two methods of data input:

- **File-based:** Recorded data stored in a compatible format that can be read by SIMDIS.
- **Network-based:** Data is streamed from a source, whether if it is live or simulation.





### 1.5.1 File-based Scenario Data

To load a file based scenario, click the **Open Data File** button  in the tool bar. The following are the common file formats that SIMDIS can load directly:

1. (**.asi**) **SIMDIS ASCII** - Native ASCII Scenario Input file format.
2. (**.discn**) **SIMDIS Data Initialization Scenario** - Live scenario configuration file.
3. (**.csv**) **SCORE and PMRF Comma Separated Value** - Range data input based on the Naval Undersea Warfare Command (NUWC) Tsunami CSV file format.
4. (**.tle**) **NORAD Two-Line Element** - Satellite propagation track input file.
5. (**.gpx**) **GPS Exchange Format** - XML based GPS data input file (topographix.com).
6. (**.otg**) **OTG-D Format** - ASCII file based on Over-the-Horizon (OTH) Gold Revision D message format.
7. (**.pet**) **PET Format** - ASCII file format from the Corona Performance Evaluation Tool (PET). Typically these files have a .csv extension, but are renamed to correctly parsed by SIMDIS.
8. (**.wam**) **WAM Format** - ASCII file format from the Warfare Assessment Model (WAM) program.
9. (**.zip**) **ZIP Archive** - ZIP archive of the supported file formats.

## 1.6 Data Entity Types

Data loaded into SIMDIS falls into one of several entity types. The entity type will define a specific behavior as well as how the data is stored and retrieved from a file or over the network.

	<p><b>Platform:</b> is the fundamental type that describes the “who, what and where” of an entity.</p> <ul style="list-style-type: none"> <li>■ Entities in SIMDIS are jets, missile, tanks, or ships.</li> <li>■ Valid entity must contain a timestamp and a position.</li> </ul>
	<p><b>Beam:</b> A child entity of a <b>Platform</b>, an optional entity in SIMDIS.</p> <ul style="list-style-type: none"> <li>■ Describes a Radio Frequency (RF) emission based on time, range and angle.</li> <li>■ Can also be used to portray other non-RF data based entities such as cameras or IR sensors</li> </ul>
	<p><b>Gate:</b> is a child of a <b>Beam</b>, an optional entity in SIMDIS.</p> <ul style="list-style-type: none"> <li>■ Describes the range and angle of where a RF emitter is looking during a specified time interval.</li> <li>■ The term gate comes from method in which pulsed signals are measured, i.e. gated.</li> <li>■ A gate entity can also be used to show a field of view (FOV) for EO/IR sensors as well as search fences for Radars</li> </ul>
	<p><b>Laser:</b> is a child of a <b>Platform</b>, an optional entity in SIMDIS.</p> <ul style="list-style-type: none"> <li>■ Describes a device that emits light via a focused source.</li> <li>■ A laser is similar to a beam; however it is drawn as a narrow line instead of having horizontal and vertical extents that spread over distance</li> </ul>
	<p><b>Lines of Bearing (LOB):</b> is a child of a <b>Platform</b>, an optional entity in SIMDIS.</p> <ul style="list-style-type: none"> <li>■ Represent receiver detections from an electromagnetic emission on a specified bearing at a given instant in time</li> </ul>
	<p><b>Projector:</b> is a child of a <b>Platform</b>, an optional entity in SIMDIS.</p> <ul style="list-style-type: none"> <li>■ Represent imagery projection from a perspective (e.g. from a video camera) into the 3D scene.</li> <li>■ SIMDIS require the position, orientation, Field of View (FOV), and imagery of the projector to display in the manner similar to a video projector; projecting an image onto a screen.</li> </ul>

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**Custom Rendering:** can be either a stand-alone entity or a child of a **Platform**, an optional entity in SIMDIS.



- Represents custom specific graphics, as defined by a Renderer.
  - Originally created for showing Error Ellipses and Ellipsoids, but are flexible to allow for alternate applications.
  - Renderers are implemented in SIMDIS Extensions, see the documentation on Renderers for more information.
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