



IADS Terrain Installation User Guide

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1. Installing the IADS Situational Awareness (SA) Terrain Data

1.1. Overview

The IADS SA Terrain Package is added to an existing IADS (or GS Works) installation package. This package contains three-dimensional terrain and texture information for use with the Situational Awareness (SA) display.

The SA display allows the user to show one or more aircraft accurately positioned over terrain data that is divided into 1°x1° latitude/longitude regions. Using the standard IADS drag and drop interface, parameter information such as latitude, longitude, altitude, yaw, pitch and roll are applied to each aircraft to present users with real time situational awareness capability.

1.2. The Installation Process

The account performing the installation must have Administrative privileges. At this time, installation under Windows Server 2008, Windows Vista or Windows 7 requires a Right-Click Run as Administrator Option. To enable this option execute the “MSIRunAsAdmin.reg” file on the root of the installation CD.

Steps to install:

- 1) Execute the **IADS Terrain.msi** via insertion of the CD or by direct execution of the file.
- 2) Click the **Next** button.
- 3) Click the **I accept the terms in the license agreement** checkbox and click the **Next** button.
- 4) At the *Custom Setup* screen click the **Change** button to install the terrain data at a location other than C:\Program Files\IADS\ or click **Next** to install at this location.
- 5) Click **Install**.
- 6) When prompted insert disk: 2 and click **OK**. Windows may popup a dialog that shows the files on the CD, just close this.
- 7) When *InstallShield Wizard* has successfully installed the IADS Terrain click **Finish**.

If error indications occur during the installation process, please contact Customer Support at the IADS support line 661-273-7003 x210 or via email at iadssupport@symvionics.com. Please note that individual facilities may have provided different installation procedures for use at their own facilities (such as network distribution using the extensions provided by the Windows Installer framework). The instructions below assume direct access to official installation media.

2. The Situational Awareness (SA) Display

2.1. To add the SA Display icon to the Display Builder

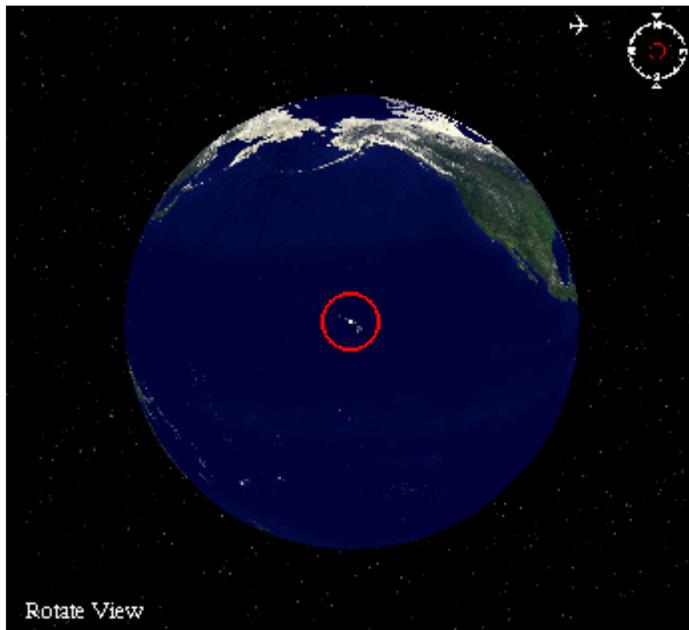
- 1) Click the **Display Builder** dashboard button.
- 2) Click on the **ActiveX Controls** tab on the Display Builder.
- 3) Right-click the mouse inside the tab.
- 4) Click the **IadsSA.IadsSAControl** check box.
- 5) Click **OK**.

2.2. To create an SA display

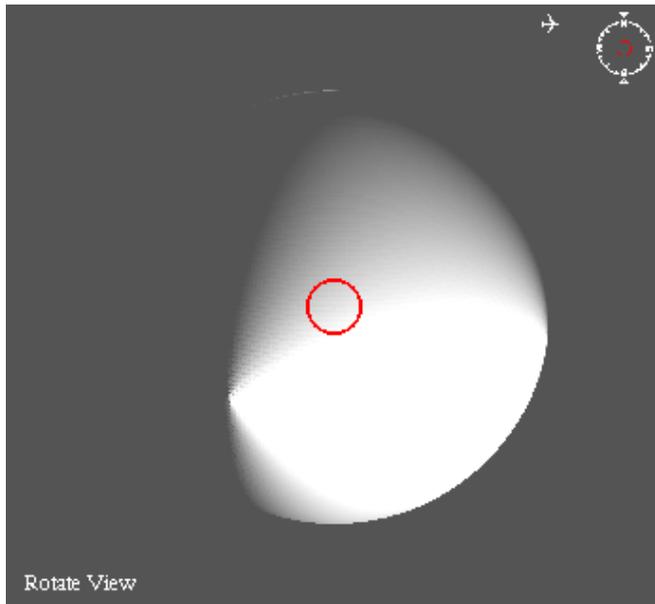
- 1) Drag and drop the  control onto the Analysis Window.
- 2) Double-click in the display to maximize it.

Note: When you create the display, the default location of aircraft1 is over the Hawaiian Islands (as shown below). A control without the Earth textures (grayed out as in Figure 2 below) has no data. Check that the *Data Directory* in the property sheet is pointing to the correct location on your machine where the terrain data is installed.

SA Display Load Textures Successful



SA Display Load Textures Failure



2.3. To resize an SA display:

- Double-click in the display to maximize/minimize.

- Or -

- Un-lock  the Analysis Window and grab the edge of the display with the mouse and drag it to the desired size

2.4. To change the view mode:

- Press the C key to cycle through the view modes: Chase View, Target View, Follow View, Leading View, Cockpit View or Rotate View (with your cursor in the display, hold down the left mouse button to rotate the view).

2.5. To save a preset view:

- 1) Press Shift+1 to set the first view, Shift+2 for the second, and so on.
- 2) To go to the first view, press the 1 key, to go to the second view press the 2 key, and so on.

2.6. To add an aircraft to the display:

- 1) On the Dashboard, click the Parameter Tool button.
- 2) Drag and drop the Aircraft 1 Latitude parameter onto the display and select the Latitude1 property in the parameter drop popup menu.
- 3) Drag and drop the Aircraft 1 Longitude parameter onto the display and select the Longitude1 property in the parameter drop popup menu.

- 4) Drag and drop the Aircraft 1 "Heading" parameter onto the display and select the Yaw1 property in the parameter drop popup menu.
- 5) Repeat as necessary for Altitude1, Pitch1, and Roll1.
- 6) Repeat steps 3-5 to add additional aircraft (up to 10) to the display.
- 7) Adding/Viewing additional aircraft to the display will require you to activate them (Active2 property = Yes).

2.7. To select an aircraft (has focus on the display):

- Press the [or] key to cycle to the desired aircraft.
- Or -
- Press Ctrl+1, Ctrl+2, etc... keys to select the aircraft for main focus.

2.8. To view/change aircraft properties:

- 1) Right-click in the display.
- 2) Click Properties.

2.9. To select a target:

- 1) Right-click in the display > Properties.
- 2) Set the view mode to Target View (press the C key to cycle through the view modes or set the CameraViewMode property).
- 3) Set the CameraSelectTarget property to the desired aircraft.

2.10. To zoom in and out:

- 1) Lock  the Analysis Window.
- 2) With your cursor in the display, press the right-mouse button and move forward and back to zoom in and out.

Note: The display may take a few seconds to update when changes are made to display coordinates.

2.11. To rotate in any direction:

- 1) Lock  the Analysis Window.
- 2) Press the C key to cycle to the Rotate View Mode (View Mode displayed in bottom left corner of the display).
- 3) With your cursor in the display, press the left-mouse button and move your cursor to rotate in any direction.

2.12. To enable Free Roaming mode (deselect an aircraft):

- 1) With your cursor in the display hold down both the left and right mouse buttons to pan back and forth (window must be locked).
- 2) Click the + or - keys to zoom up or down.
- 3) Press the C key to put the focus back on the aircraft.

2.13. To use a keyboard key in the SA display:

With your cursor in the drawing area (not the title bar) press the desired keyboard key.

Many of the following key hits are applicable to the aircraft that is selected (has focus on the display). Use the [or] keys to cycle to the desired aircraft.

Key Function

- Shift+A** Toggle altitude line
- B** Toggle region borders
- C** Cycle view mode: Chase View, Target View, Follow View, Cockpit View or Rotate View (with your cursor in the display hold down the left mouse button and rotate the view)
- Ctrl+C** Toggle on/off compass ring
- D** Toggle distance lines between you and another aircraft
- Shift+D** Toggle distance information (set the *InfoShow* property of the aircraft to other than None, or use the **I** key hit to cycle through the options)
- E** Cycle through envelope show modes
- Shift+E** Toggle envelope information
- Ctrl+E** Toggle show/hide envelope altitude cut lines
- G** Toggle lat/long earth grids (zoom out to Earth view to see grids)
- H** Show help menu on display (set the *TextColor* property for optimal viewing)
- I** Toggle current aircraft information on display
- Shift+I** Toggle current aircraft information location on display
- L** Toggle map labels
- Ctrl+L** View log file information
- M** Toggle current aircraft marker
- N** In **Rotate** view mode, sets the view to North.

In **Target** view mode, sets the target (*CameraSelectTarget* property) to the nearest aircraft.
- Shift+N** Toggle Night/Day mode
- O** Resets OpenGL settings
- P** Toggles flight path trail options
- Shift+P** Toggle flight path trails (set *ShowFlightPath* property for aircraft to True,

or use the **P** key hit to cycle through the options)

- Ctrl+P** Reset (clear) flight path trails
 - R** Toggle runway lines
 - S** Toggle aircraft shadows (set the *ColorMarker* and *ShadowSpacing* properties for optimal viewing)
 - Shift+S** Toggle display satellite images
 - T** Toggle display terrain images
 - V** Cycle viewing distance modes Short, Medium or Far (the *Visibility* property)
 - X** Decrease camera distance to aircraft - zoom in
 - Z** Increase camera distance to aircraft - zoom out
 - [** Cycle to previous vehicle
 -]** Cycle to next vehicle
 - Shift+[** Cycle to previous target (target view only, press **C** key to cycle through view modes)
 - Shift+]** Cycle to next target (target view only, press **C** key to cycle through view modes)
 - Ctrl+1..9** Select the applicable aircraft if active
 - Shift+1..9** Assign current view mode to a key number 1-9 (for example, 1 = Cockpit View)
 - 1-9** Set view to assigned view
 - 0** Go to default view mode (Rotate view)
 - ~** Displays the regions of the earth that do have image data. For details, press the **C** key to cycle to Rotate view. Hold down the right mouse button and zoom out. Hold down both mouse buttons to pan back and forth.
- (Shift+1)**

3. Situational Awareness (SA) Display Properties

Note: When entering a value, click out of the property or hit the Enter key to accept the change. You can dynamically drive most properties in the control by adding a parameter.

In properties with boolean fields, select from the drop down menu or double-click in the property to switch to the other value.

Active Aircraft:

Active 1-10 - Sets the active status for the aircraft on the display *Yes* or *No*. You must have at least 1 active aircraft.

Only Update Active - Sets a timer (*OptimizeTimer* property) for memory optimization to free map regions that have not been viewed in more than three minutes.

Aircraft:

Note: The following aircraft properties require the status of the aircraft set to Active to view on the SA display. Set the Active property for the applicable aircraft to Yes)

Altitude 1-10 - The vehicle's altitude (units defined by the *AltitudeUnits* property).

Color Aircraft 1-10 - Click the drop down to select a color for the aircraft (set the *ModelFileName* property to select an aircraft type).

Color Marker 1-10 - Click the drop down arrow to select a color for the marker (set the *InfoShow* property to other than None).

Color Path 1-10 - Click the drop down arrow to select a color for the path (set the *ShowFlightPath* property to True).

Crosshair Color 1-10 - Click the drop down to select the crosshair color (set the *CameraViewMode* property to Cockpit View).

Crosshair Type 1-10 - Click the drop down to select *None*, *Type 1*, *Type 2*, *Type 3*, *Type 4*, *Type 5*, *Type 6* or *Type 7* (set the *CameraViewMode* property to Cockpit View).

Flight History 1-10 - Select the flight history draw mode *No Path*, *Points*, *Line*, *Altitude*, *Rails* or *Ribbon*.

Flight Path Length 1-10 - the flight path length in samples from 1 - 1000 (set the *FlightHistory* property to other than No Path).

Info Position 1-10 - Select the vehicle information position *Upper Left*, *Upper Right*, *Lower Left* or *Lower Right* (set the *InfoShow* property to other than None; select a color at the *ColorMarker* property).

Info Show 1-10 - Show the vehicle information on the display *None*, *Name Only*, *Position*, *Position and Altitude* or *Altitude*.

Latitude 1 - 10 - Latitude in decimal degrees for each vehicle.

Longitude 1-10 - Longitude in decimal degrees for each vehicle.

Marker Shape 1-10 - Select the vehicle marker shape *None*, *Circle*, *Triangle*, *Diamond*, *Square* or *Hexagon*.

Model File Name 1-10 - Full path to the model file name for the vehicle.

Model Scale 1-10 - Scales the model (vehicle) by a factor of 1.

Name 1-10 - The name of the vehicle on the display (set the *InfoShow* property to other than None).

Number of Shadows 1-10 - Number of vehicle shadows to display (properties must be set as follow: *Active* = yes, *NumberOfShadows* > 0, *ShadowSpacing* > 0).

Offset Altitude 1-10 - Allows for GPS drift adjustment. Enter altitude offset in meters.

Offset Latitude 1-10 - Allows for GPS drift adjustment. Enter latitude offset in decimal degrees.

Offset Longitude 1-10 - Allows for GPS drift adjustment. Enter longitude offset in decimal degrees.

Pitch 1-10 - The vehicle's pitch angle in degrees.

Radar Alert Color 1-10 - The color of the radar when alerted (set the *RadarShow* property to True and set the *RadarAlertMode* property). Click the drop down arrow to select a color from the palette.

Radar Alert Mode 1-10 - Click the drop down to select the action when the radar is alerted *No Alerts*, *Color Change*, *Flash* or *Color Change and Flash* (set the *RadarShow* property to True).

Radar Azimuth 1-10 - The radar azimuth angle (set the *RadarType* property to Sweep). Not applicable to Cone radar type.

Radar Azimuth Min Max 1-10 - The min/max of the radar azimuth (set the *RadarType* property to Sweep). Not applicable to Cone radar type.

Radar Beam Width 1-10 - The radar cone angle (set the *RadarType* property to Cone). Not applicable to Sweep radar type.

Radar Color 1-10 - The color of the radar (set the *RadarShow* property to True). Click the drop down arrow to select a color from the palette.

Radar Elevation 1-10 - The radar elevation angle (set the *RadarType* property to Sweep). Not applicable to Cone radar type.

Radar Elevation Min Max 1-10 - The min/max of the radar elevation (set the *RadarType* property to Sweep). Not applicable to Cone radar type.

Radar Offset Pitch 1-10 - The radar pitch angle (set the *RadarShow* property to True).

Radar Offset Rotation 1-10 - The radar rotation angle (set the *RadarShow* property to True).

Radar Range Scale 1-10 - The radar's range in nautical miles (set the *RadarShow* property to True).

Radar Show 1-10 - Set to True to show the radar on the display.

Radar Show Limit Area 1-10 - Click the drop down to select *None*, *Outlines*, *Filled* or *Outline and Fill* (set the *RadarShow* property to True).

Radar Show Radar Intersections 1-10 - Set to True to view the radar to radar intersection between vehicle (set the *RadarShow* property to True).

Radar Show Terrain Intersections 1-10 - **Caution this will result in slow display performance.** Set to True to view the radar to terrain intersection (set the *Radar Show* property to True).

Radar Type 1-10 - Click the drop down to select *Cone* or *Sweep* (set the *RadarShow* property to True).

Roll 1-10 - The vehicle's roll in angle degrees.

Shadow Spacing 1-10 - Number of samples between vehicle shadows.

Show Altitude Line 1-10 - Set to True to show the altitude line from the vehicle to Earth.

Show Flight Path 1-10 - Set to True to view the vehicle's flight path trail (set the *FlightHistory* property to other than None, and the *FlightPathLength* > 0).

Show Shadows 1-10 - Set to True to show the vehicle's shadows on the display (set the *NumberOfShadows* > 0, and the *ShadowSpacing* > 0).

Show Shadow Spacing 1-10 - Set to True to show the shadow spacing for the vehicle's flight path (set the *FlightHistory* property to other than None, and the

Show vehicle Marker 1-10 - Set to True to view the vehicle's marker on the display; visible when the SA display is zoomed out (set the *Active* property to yes).

Yaw 1-10 - the vehicle's yaw angle in degrees.

Behavior:

Demo Mode - Click the drop down arrow and select True to animate the display (for demonstration purposes only).

Freeze State - The freeze state of the display. Normal will freeze the display only when the Analysis Window is frozen. Never will never freeze the display, even when the Analysis Window is frozen. Always will pause the displays update without regard to the Analysis Windows state. Click the drop down to select a state.

Hint - If applicable, the popup text that appears when the cursor lingers on the display.

Layer - Layer level of control.

Update Rate - Update rate (per second) of display; 0 = as fast as possible.

Visible - Set to True to view the SA display on the Analysis Window.

Z Order - The stacking order of the display on the Analysis Window.

Camera:

Camera Pitch - The pitch (angle of degrees) of the camera's view of the model

Camera Rotation - Rotation of the camera's view (in degrees) of the model.

Camera Select Main - Click the drop down to select the main vehicle (focus) on the display. If this vehicle is not active (set the *Active* property to Yes) the next active vehicle will be displayed. You can also use the Ctrl+1, Ctrl+2, etc... keys to select the desired vehicle number for focus; or use the [] key to cycle through the vehicle.

Camera Select Target - Click the drop down to select an active vehicle as the target. Only applicable when the *CameraViewMode* property is set to Target View. If this vehicle is not active (set the *Active* property to Yes) the next active vehicle will be displayed.

Camera View Mode - Click the drop down to select *Rotation View*, *Chase View*, *Target View*, *Follow View*, *Leading View* or *Cockpit View*.

Earth:

Equator Color - The color of the equator line. Click the drop down arrow to select a color from the palette.

Lat/Lon Grid Spacing - The lat/lon grid spacing on the display *1x1 Degree, 5x5 Degrees, 10x10 Degrees, 45x45 Degrees* or *90x90 Degrees*.

Map Label Color - The color of the map labels. Click the drop down arrow to select a color from the palette.

Night Alpha - The transparency of the night time alpha (0...1). **Shift+N** will toggle the display into night mode.

Prime Meridian Color - The color of the prime meridian line. Click the drop down arrow to select a color from the palette.

Satellite Directory - The path to the satellite images. Click the  button to navigate to the directory containing the satellite images. IADS does not provide satellite images.

Satellite Texture Alpha - The satellite texture alpha blending value (0...1).

Show Day or Night Mode - Click the drop down to select *Day* or *Night*.

Show Equator - Set to True to view the equator line on the display.

Show Lat/Lon Grids - Set to True to view the lat/lon grids on the display.

Show Map Labels - Set to True to view the map text labels on the display.

Show Prime Meridian - Set to True to view the Prime Meridian line on the display.

Show Satellite Textures - Set to True to view the satellite image texture maps.

FlightPathLength > 0).

Show Terrain Textures - Set to True to view the terrain textures on the SA display that are in the Terrain Images directory ...\\iadsSA_Data\Textures\Terrain Images.

Visibility - Click the drop down to select *Short, Medium* or *Far*.

Envelopes:

Envelope Files - Lists loaded envelope(s) file names if applicable. Clicking in the cell displays the file path of the envelope(s) and will also allow you to open a navigation box to select envelope(s). Holding down the Ctrl key in the desired directory will allow you to select more than one envelope.

Envelope Line Width - Thickness of the envelope line.

Envelope Transparency - Select a transparency level from 0 to 1 (invisible).

Show Envelope Altitudes - Displays the envelope's bounding box at the vehicle altitude (the vehicle that has focus) .

Show Envelope Info - Set to True to display the envelope information in left corner of display.

Show Envelopes - Click the drop down to select *None, Lines, Lines and Shaded* or *Shaded*.

Graphics:

Auto Info Position - Set to True to automatically re-position information boxes so they do not overlap.

Clip Wild Points - Set to True to edit out wild points (more than 100 kilometers off) from the flight path . This option is display based only and has no association with the Wild Point Editing options in the Configuration Tool.

Data Directory - Displays the file path to the IadsSA_Data Directory. Clicking in the to open a navigate to select a specific directory.

Data Valid - Data valid flag - 0=No, 1=Yes.

Max Texture Size - The maximum texture size (NxN pixels) determined by the system. For information only.

Optimize Memory Use - Remove map regions that are not being viewed (improves performance).

Optimize Timer - Sets a timer (in seconds) for memory optimization (set the *OnlyUpdateActive* property to True).

Show Compass - Set to True to view the compass rings on the display.

Show Distance Info - Set to True to view the distance information text on the display.

Show Distance Lines - Set to True to view the distance lines on the display.

Show View Mode - Set to True to view the camera view mode icon at the top right corner of the display (toggle the camera view modes using the **C** key).

Smooth Lines - Set to True to antialias the draw lines. Note: Turning this option off may increase graphics card performance.

Text Color - The color of the help menu text (press the **H** key). Click the drop down arrow to select a color from the palette.

Misc:

Missing Data - Set to True, if a parameter is attached to a property on the display that has missing data, the model will show a red X on the display (the Identify Displays with Missing Data option must be enabled at the Dashboard).

Name - The unique display name. For example, this name is called in the equation: `GetValue("displayname", "propertyname")`.

On Key Press - Not applicable.

On Left Click - When the display is clicked this value is True.

On Right Click - When you right-click in the display this value is True.

Position:

Height - The height of the display in pixels.

Left - The left position (X coordinate) of the display on the Analysis Window.

Top - The top position (Y coordinate) of the display on the Analysis Window.

Width - The width of the display in pixels.

Texture Overlays:

Opaque Texture Overlays - Override opaque value for all texture overlays [0..1]. 0 = Use file values.

Show Texture Overlays - Set to True to view the overlay textures defined in the *TextureOverlayFiles* property on the display.

Texture Overlay Files - Click the  button to navigate to the Overlays directory containing the texture overlay text file ...\IadsSA_Data\Textures\Overlays

Units & Measures:

Altitude Display Units - The vehicle's altitude unit of measure, shown on the display in *Feet* or *Meters* (set the *InfoShow* property to *Altitude*, or *Position and Altitude*).

Altitude Units - The altitude parameter's unit of measure in *Feet* or *Meters*.

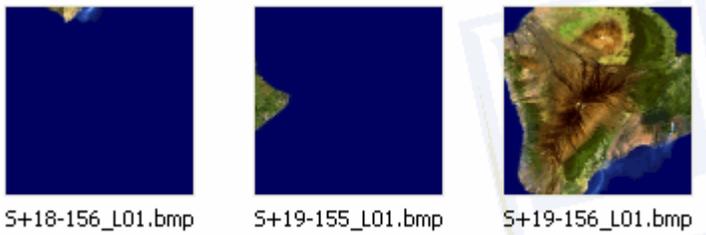
Distance Units - Click the drop down to select *Kilometers* or *Miles*.

Latitude/Longitude Display Units - The lat/lon units to show on the display *Decimal Degrees* or *Degrees, Minutes and Seconds*.

4. Situational Awareness (SA) Texture Images

The SA display's default terrain images are elevation color gradients. Each image covers a 1x1 degree latitude-longitude region corresponding to the Earth's surface. When a new SA display is created, the location of Aircraft1 (Active by default) is over the Hawaiian Islands. These terrain images are included with the IADS Installation located at \IADS\ClientWorkstation\IadsSA_Data\Textures\Terrain Images. This directory contains default terrain images that should not be removed or modified by the user. By default, the display will show satellite images if they are available; otherwise terrain images.

SA Display 'Custom' Satellite Images



Users can create their own satellite images for use with the SA display. Actual satellite images are not provided with the IADS installation package; some demo satellite images of Hawaii are included for "show" when a new display is created. The default satellite image directory is located at \IADS\ClientWorkstation\IadsSA_Data\Textures\Satellite Images. More than one custom image directory can be created by the user. The display's *SatelliteDirectory* property is used to select the input path to the directory that contains the desired "set" of custom images.

Satellite Images can be in Windows Bitmap (.bmp) or JPEG Image (.jpg) formats. If files exist in the directory with identical coordinates but different formats (Bitmap and JPEG), the JPEG will supersede the Bitmap and load first. The user's format preference will depend on system performance as Bitmaps load quicker but are much larger files whereas JPEG images are much smaller but take longer to load. The size of the image must have a pixel dimension of a power of 2 (for example 256x256, 512x512) up to the maximum texture size allowable for your system.

Name	Size	Type	Dimensions
S+18-156_L01.bmp	3,073 KB	Bitmap Image	1024 x 1024
S+19-155_L01.bmp	3,073 KB	Bitmap Image	1024 x 1024
S+19-156_L01.bmp	3,073 KB	Bitmap Image	1024 x 1024

4.1. To determine the maximum texture size for your system:

- 1) Right-click in the SA display > Properties.
- 2) Scroll down to the MaxTextureSize property. This value is read-only and not editable.

4.2. To add your own satellite image:

- 1) Name the file as S+/-<two digit lat>+/-<three digit lon>_L01. For example, S+18-156_L01.bmp; the lower left corner of the 1x1 degree region is +18 latitude and -156 longitude. The L01 denotes a land region expanding across 1 area only (not subdivided).
- 2) Add the new file to the Satellite Images directory or replace an existing file (if applicable).

4.3. To turn off satellite images:

- 1) Right-click on the SA display > Properties.
- 2) Set the ShowSatelliteTextures Property to False.

4.4. Troubleshooting

- Region is white? Make sure your image pixel dimensions is not larger than the maximum texture size for your system; pixel dimension must be a power of 2.
- Verify the image files are in the correct directory (terrain or satellite).
- Verify the DataDirectory property (SA data files; includes the Terrain Images folder) and the SatelliteDirectory Property (satellite images) are pointing to the location(s) where the images files are stored on your machine/network.

5. Situational Awareness (SA) Envelopes

After a Situational Awareness display has been created, the user has the option to display envelopes. This information is stored in a text file. Envelope line width, transparency, altitude and "show" properties can be customized in the SA Property Sheet.

5.1. To add an envelope to the SA display:

- 1) Right click on the SA display.
- 2) On the popup menu click Properties.
- 3) Click the Categorized tab.
- 4) Scroll down to Envelopes.

- 5) Click in the EnvelopeFiles cell.
- 6) Click the  button to navigate to the desired envelope files.
- 7) Click on the envelope (hold down the Ctrl key to select more than one envelope file).
- 8) Click Open.

5.2. To create an envelope:

- 1) Open Notepad on your computer.
- 2) For each envelope enter label,type,string,color,behavior,min (altitude),max (altitude),lat1,lon1,lat2,lon2...latN,lonN (latitude and longitude coordinates need to be in degrees format - see example below).
- 3) Save the file.

Note: Latitude and longitude coordinates need to be in decimal degrees. Polygons are NOT implicitly closed. To create a closed polygon, the last point value needs to be the same as the first point.

Envelope file descriptions:

Label – Name of envelope.

Type – Polygon.

String – Not implemented in this version.

Color - Hexadecimal value "0xBBGGRR" (blue, green, red format) or integer value.

Behavior - Set to 1 will make the envelope react when inside the envelope area; set to -1 will make the envelope react when outside the envelope area, set to 0 for no reaction to being inside or outside the envelope.

Min - Minimum altitude for envelope.

Max - Maximum altitude for envelope.

Lat, Lon - Latitude and longitude coordinate pairs up to N points in decimal degrees.

Copy and paste the following into Notepad to get started

```
Kahoolawe,polygon,,0x0000FF,1,0.0,30000.0,20.6027,-156.503,20.6445,-
156.5928,20.574,-156.7467,20.4568,-156.7552,20.4958,-156.4996,20.6027,-156.503
```

Note: More than one envelope can be defined in the envelope file; the delimiter between envelopes in the envelopes file is a new line in the text file. // preceding any line will be commented out of the input file.

6. Situational Awareness (SA) Overlay Images

After a SA display has been created the user has the option to add overlay images to the terrain; for example, to emphasize a runway on the display. This information is stored in a text file and references bitmaps in the same directory at \Program Files\IADS\ClientWorkstation\IadsSA_Data\Textures\Overlays. Only one texture overlay file can be selected at a time. An overlay text file can have multiple overlays defined in it.

Overlays in the file you do not want to display can be commented out with double hash marks //.

6.1. To create an overlay file:

- 1) Open Notepad on your computer.
- 2) For each overlay enter Lat1, Lon1, Lat2, Lon2, Alpha, File.
- 3) Save the file in the Overlays directory referenced above.
- 4) Add the bitmap or jpeg files referenced in the text file to the Overlays directory also.

File properties:

Lat1 - The latitude coordinate for the bottom edge.

Lon1 - The longitude coordinate for the left edge.

Lat2 - The latitude coordinate for the top edge.

Lon2 - The longitude coordinate for the right edge.

Alpha - The opaque value for the drawing image.

File - The image file name; bmp or jpg.

Note: Latitude and longitude coordinates need to be in decimal degrees. An opaque value of 1.0 is solid, 0.0 is invisible.

Overlay file example

```
//34.865, -117.92298, 34.9475, -117.84046, 1.0, red.bmp  
34.875, -117.88172, 34.90625, -117.85046, 1.0, blue.bmp  
34.90625, -117.88172, 34.9375, -117.85046, 1.0, green.bmp  
34.875, -117.91297, 34.90625, -117.88171, 1.0, orange.bmp  
34.90625, -117.91297, 34.9375, -117.88171, 1.0, yellow.jpg
```

Note: To comment out a line in the overlay file insert double hash marks // before the text.

6.2. To show a texture overlay on the display:

- 1) Right-click on the SA display.
- 2) Click Properties.
- 3) At the Texture Overlay Files property, click the  button to navigate to the Overlay directory that contains the text file (and associated bitmap) and select it.
- 4) Set the Show Texture Overlays property to True.

7. Situational Awareness (SA) Articulated Models

The ability to articulate aircraft model surfaces in the Situational Awareness display is available for aircraft models that have an associated .pvt file. The pvt file must have the same name and reside in the same directory as the 3DS file, for example, C:\Program Files\IADS\ClientWorkstation\IadsSA_Data\Models\F-18.3DS and F-

18.pvt. When you select a 3DS (*ModelFileName*) in the SA Control property sheet, if there is an associated pvt file it will load automatically.



7.1. To add parameters to aircraft model properties:

- 1) Click on the desired aircraft to give it focus.
- 2) Press the Tab key. The aircraft model will be displayed in its own window.
- 3) Use your cursor to move the aircraft around to the desired area. The surfaces that can be articulated are shown in green. When you put your cursor over an area it will highlight in blue to show the property name and value (ShowAfterBurner = 0).
- 4) Drag and drop your parameter onto the desired property (highlighted blue). You will not see the articulation take effect until you exit this mode and are back in the SA display.
- 5) Press the Tab or Esc key to exit this mode.

7.2. To delete a parameter from a model property:

- 1) Click on the desired aircraft to give it focus.
- 2) Press the Tab key.
- 3) Move your cursor over the desired property until it is highlighted in blue.
- 4) Press the Shift key and click the left mouse button simultaneously.
- 5) A white box will append the "property = value" field. Put your cursor in the white box and use the Backspace key to remove the associated parameter then press the Enter key.
- 6) Repeat steps 3-5 as necessary.
- 7) Press the Tab or Esc key to exit this mode.