



WinTAK

Software User Manual

Version: 5.5

19 September 2025



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1 OVERVIEW

The Civilian Windows Team Awareness Kit (WinTAK) is a Government-off-the-Shelf (GOTS) software application and mapping framework for Windows devices. WinTAK has been designed and developed to run on the Windows operating system both in a tactical environment and in a Command and Control environment.

The software application is an extensible moving map display that integrates imagery, map and overlay information to provide enhanced collaboration and Situational Awareness (SA) over a tactical meshed network. WinTAK promotes information flow and communications from the tactical environment to command enterprise locations.

If GPS is enabled, the **Lock-To-Self** feature can be used to lock the map view on the local device's Self-Marker.

Rotate the map by long pressing/right clicking and dragging the map. To return the map to a north up orientation, select the **Compass** in the upper left corner of the map.

Select the + or - icons to zoom by steps or use the mouse wheel to zoom in and out.

The Map Scale adjusts with the map when zoomed in and out. The geographic coordinates of the user's cursor are displayed below the Map Scale. The coordinate system in use can be changed through the preferences located in **Settings > Display Preferences > Unit Display Format Preferences > Coordinate Display**. If Elevation Data (such as DTED, SRTM, Quantized Mesh or other forms) is installed, elevation information will also be displayed.



Notifications and alerts are indicated by the notification flag at the very top of the screen. Select it to display all notifications in list form.

Overview (continued)



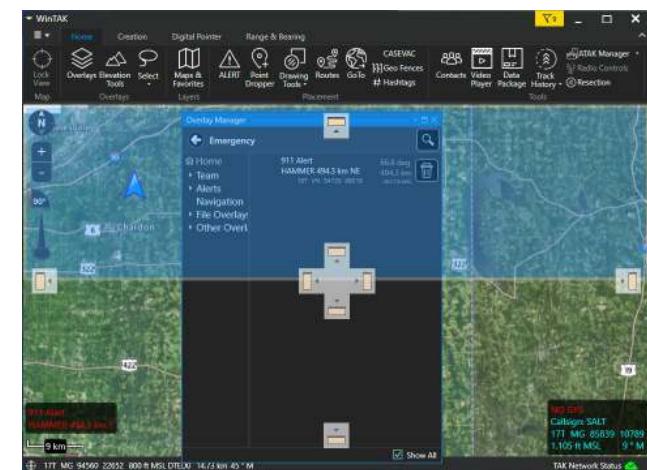
Tool windows that open docked on either side of the map can be manipulated in several different ways. Drag a window away from its docked position, or select the down arrow, to undock it. A window can be re-docked by dragging the window and hovering the mouse cursor over one of the dock positioning icons on the screen. Use the **Pin** icon at the top of a window to hide and pin it to a side for future access. Select the **X** button to close a window.

Emergency Notifications are displayed in the lower left corner of the map interface and can be selected to display in list form in Overlay Manager.

The toolbar runs across the top of the display. To hide and reveal the Toolbar, click the **Arrow** in the upper right corner. Press the F11 key on the keyboard to have WinTAK enter full screen mode. The WinTAK title bar and Windows taskbar will both be unavailable while in full screen mode. The toolbar will also be minimized but can be displayed by selecting the arrow button in the upper right corner.

The Self-Marker Widget displays pertinent information about the Self-Marker. This includes callsign, location, elevation (if Elevation Data is installed) and bearing. The display units can be changed in Settings > Display Preferences > Unit Display Format Preferences. The Self-Marker Widget can be hidden in Settings > Display Preferences > Show Self Location Widget.

When troubleshooting an issue, a technician may request the user to activate greater debug logging. To do so, select the **Application Menu** in the upper left corner, select Support then check the **Log Debug Information** checkbox.



3D View



WinTAK features 3D viewing of terrain and map items (Elevation Data such as DTED, SRTM, Quantized Mesh or other forms is required). To enable 3D view, left click and drag the **Tilt Slider** upwards to the desired viewing angle. As the slider moves, the viewing angle changes as indicated by the tilt view widget. Return the **Tilt Slider** to the 90-degree position, by dragging it downwards, to end 3D View. The angle of tilt can also be adjusted by holding the ctrl key and left mouse button while sliding the mouse either forwards or backwards. While viewing the map from an angle, some map items will appear raised above the map surface, if they have defined elevations and shapes, and will contour to the terrain.



3D Models

WinTAK supports the use of 3D models. OBJ models and other file types from products such as Pix4D can be imported via the Import Manager or dragged and dropped onto the WinTAK main screen. If using Import Manager, browse to the .OBJ file and import only that file or browse to a .ZIP file that contains the .OBJ file (and others) and import only that file. If the 3D model is dragged and dropped, the user will be asked for an import strategy. Select the 3D Model option.



Once imported, a 3D Model icon will appear on the map. Zoom into the area of the icon until the model is projected onto the map. Select the map 3D View **Tilt Slider** and tilt the view angle to see the 3D modeling. The Model Details will also appear.

3D Models (continued)



To resize or rotate the 3D model, select the **Rubber Sheet Tool** icon and follow the onscreen instructions. Select the **Undo** button to reverse any changes.

The model can be adjusted to be either Absolute or Relative to the ground. The model can also be adjusted by using the Altitude slider. Select the **Clamp to Ground** button to place the model directly on the map surface. For 3D models in the ZIP or KMZ file format, any changes made with the Rubber Sheet Tool or the Altitude slider will be saved into the model file.

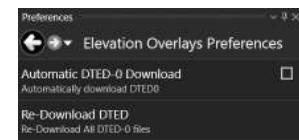
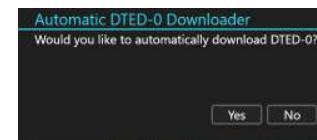


Loaded 3D models will appear as their own category in Overlay Manager and can be toggled on/off or removed from there. The Overlay Manager entry will indicate if the model has been edited after importing with a message including the callsign of the user who updated it.

Elevation Data

WinTAK provides the capability of downloading DTED, the first time WinTAK is launched.

If the initial download request is rejected, or DTED needs to be re-downloaded in the future, it can be accessed via Settings > Tool Preferences > Elevation Overlay Preferences.



Settings



The WinTAK settings menu provides access to customize and conform WinTAK to user and mission specific preferences. Settings are accessed by selecting Additional Tools > Settings.

Settings are grouped as follows: My Preferences, Display Preferences, Network Preferences, Tool Preferences and Control Preferences.

My Preferences

The My Preferences tab allows access to Device Preferences, GPS Preferences, Directory Preferences and Reporting Preferences. Device Preferences include options to change Callsign and Team, Display Type, Role, and to set an email address for WinTAK on that device.

Directory Preferences allow for changing and/or adding additional directories for Imagery, Overlays, GRGs, and DTED. Reporting Preferences allow for customizing the frequency in which the WinTAK device reports position to other devices within a TAK network. Windows Account User ID can also be disabled from the My Preferences menu. Deselecting this option will apply a randomly generated UID for SA messages.



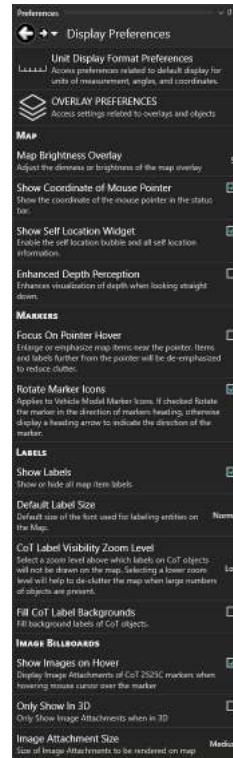
Settings (continued)

Display Preferences

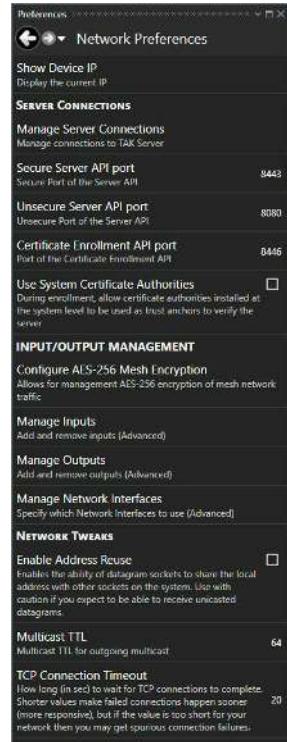
Display Preferences allows for the configuration of units of measurement, maps, overlays and markers. Select Unit Display Format Preferences to change coordinate preferences, all types of display units and to toggle the self-coordinate display.

Overlay Preferences includes radial and off-screen indicator settings. The Map section provides options to control Map Brightness, display coordinates on screen as the mouse is moved, display the self-location widget and enable Enhanced Depth Perception.

The Markers section allows for Focus on Pointer Hover and the ability to rotate non Mil-STD-2525 icons in motion. The Labels section allows for control over how labels display (on/off, size visibility at various zoom levels and turn on a contrasting background/ The Image Billboards section provides control over how images attached to markers/routes are displayed (when hovering, the size of the image and if it should only be displayed in 3D mode.



Settings (continued)



Network Preferences

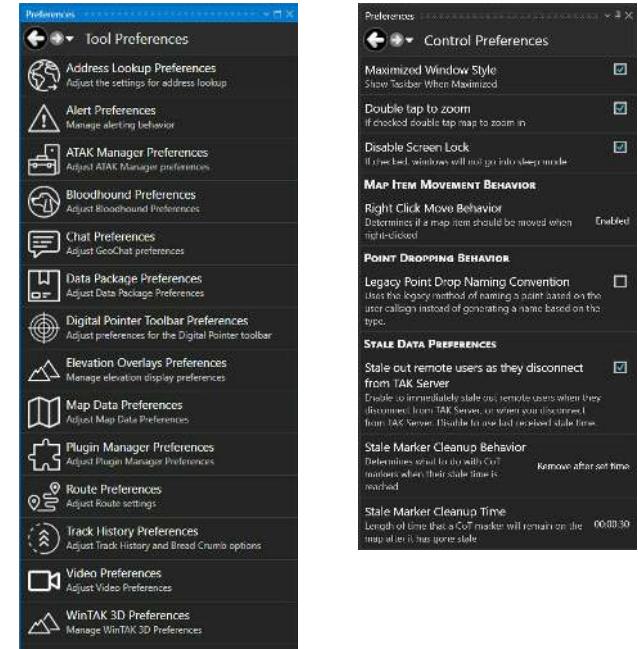
Network Preferences is used to configure network and server connections.

Tool Preferences

Individual tools and plug-ins can be configured in Tool Preferences. Each core feature and any plug-ins that have been installed have individual submenus for configuration options specific to that tool.

Control Preferences

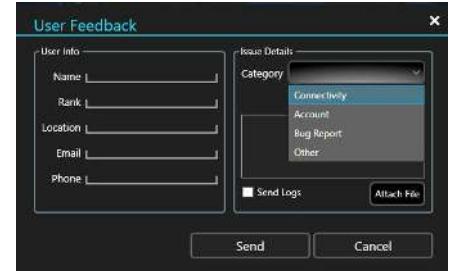
Control preferences allow for UI interaction customization. These include window maximization behavior, double tap, map item movement behavior and marker stale out behaviors.



User Feedback

The User Feedback Tool provides a clear workflow for issue reporting and submitting end user feedback. From the Additional Tools overflow menu select Support > User Feedback to access the form. Enter user information, select a category for the feedback and describe the issue in the text field found under Issue Details.

Log information, as well as external files can also be attached and sent with the feedback. Note that **Send** will only become active after information is entered into the text field.



2 PLACEMENT



Locations of interest can be entered using the Point Dropper Tool. Select the **Point Dropper** icon to access different types of markers to drop on the map, edit the details and share data/information with other network members.

Once any marker is placed, all functions/details can be accessed by selecting the marker to bring up its radial.

The Coordinate Indicator (located in the lower left corner of the map interface) displays the geographic location and elevation of the mouse pointer.



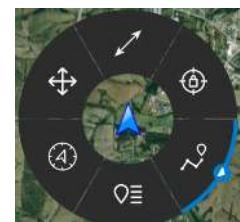
To set coordinate preferences, select Settings > Display Preferences > Unit Display Format Preferences > Coordinate Display and choose an option. Coordinate display options include MGRS, Decimal Degrees, Degrees & Minutes, Degrees, Minutes & Seconds and UTM.

Self Marker



The Self-Marker is displayed as a blue arrowhead at the user's current location. The options available on the Self-Marker radial are: Polar Coordinate Entry, Fine Adjust, Measure, GPS Lock to Self, Breadcrumbs (with access to Track History from sub-radial) and Details.

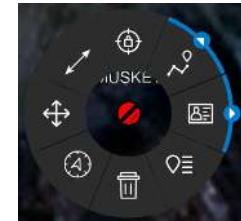
WinTAK supports the following GPS devices, Globalsat USB BU-253S4, Dual Electronics Bluetooth XGPS 160 and the Bad Elf Bluetooth GNSS Surveyor. A Stationary GPS option is also available in Settings > My Preferences > GPS Preferences > GPS Type. This option is useful for operation centers that have machines without built-in GPS capabilities. Use the **Stationary Location** option to set the Self-Marker's location, even after exit and restart. Other options include: External GPS, Internal GPS, Network provided GPS, Route Simulator Location Provider and Off. The Route Simulator Location Provider option allows the user to have their Self-Marker follow a selected route at a specified speed. See the Routes Navigation section for more information on this option.



Self Marker (continued)

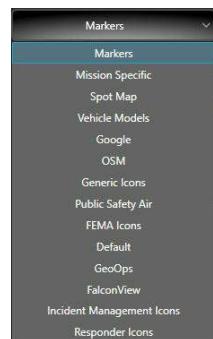
Other TAK users appear on the display as a colored circle. The color of the circle represents the user's Team affiliation, with additional lettering inside the circle to identify the role of the user on the team. Team member markers that include a diagonal line indicate that the GPS location is not available. A solid icon indicates that the team member has GPS reception.

Available roles include: Team Member, Team Lead (designated by a TL in the center of the marker), Headquarters (HQ in center), Sniper (S), Medic (+), Forward Observer (FO), RTO (R) or K9 (K9).



The options available when the user selects another user's Self-Marker are: Delete, Polar Coordinate Entry, Fine Adjust, Measure, GPS Lock on Friendly, Breadcrumbs, Contact Card and Details.

Point Dropper



Select the **Point Dropper** icon to open the Point Dropper Tool panel. Select from the icon sets and individual markers within that set to add them to the map. Move between icon sets by selecting the left or right arrows next to the set name. Select the down arrow next to an icon set name for a drop-down menu of all available icon sets.

The Marker icon set affiliations are: Unknown, Neutral, Red and Friendly. Select the affiliation then tap a location on the map interface to drop the marker.

When placing markers, WinTAK will use a default naming convention. To change the standard naming convention of CoT Markers to a custom name, enter text into the Custom Prefix, and/or Index fields and/or an increment value. Text entered into the Custom Prefix field will replace the name of each marker. The index number will begin with the index field entry and subsequent markers will be incremented by the value in the increment field.

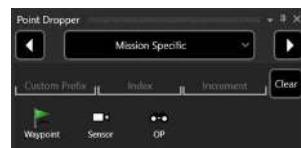


Point Dropper (continued)

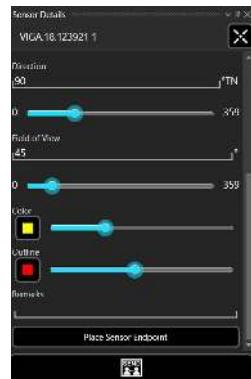
Select the **Location** drop-down arrow to manually enter a position for a marker to be placed on the map. WinTAK supports six formats for location entry: MGRS, Degrees, DM, DMS, UTM or Street Address. Select the **Map** icon to fill the fields using the current center of the map display. Elevation information for the marker can be manually entered or can be added by selecting the **Pull from DTED** button (when DTED is imported). Select **OK** to place the marker.



The recently added display lists the latest markers and provides quick access to **Send**, **Edit** or **Delete** those markers. Select any marker in the list to pan to it on the map display.



The Mission icon set allows the user to place mission specific markers including Waypoint, Sensor and Observation Point (OP). The Sensor marker allows the user to place a marker and then modify the Field of View (FOV) directly from the radial. The radial options are: Measure, FOV Width, FOV Range Length, Play Video (if configured), Sensor Details (with quick send from sub-radial) and Delete.



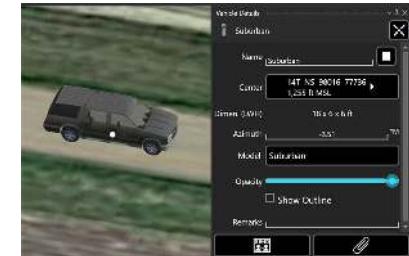
Select the details radial menu icon to open the Sensor Details panel. From this window, open the Fine Adjust feature to make changes to the coordinates. The Direction and Field of View of the sensor can be updated by entering the desired detail or by using the slider bar. The color of the FOV and FOV outline can be adjusted. Remarks can be added and a Sensor End Point can be added. Additionally, the sensor details can be sent to team members.



Point Dropper (continued)



The Vehicle Models icon set provides to-scale 3D models of the selected icon. The available radial options are: Fine Adjust, Polar Coordinate Entry, Opacity, Measure, Change Heading, Edit, Labels On/Off, Breadcrumbs (with access to Track History from sub-radial), Details (with quick send from sub-radial), and Delete. Select the Vehicle Model details radial to modify the color, manually change the location, azimuth, model, opacity, add an outline and add remarks.



In addition to placing points manually through the Point Dropper tool, points can also be imported into WinTAK from a .csv or .xlsx formatted file. This capability can be used in conjunction with the GRG Builder Plug-in to import points that mark buildings, rally points, etc.

Within the Spot Map icon set, select **Import Points** to open a Windows file explorer window that can be used to select the desired .csv or .xlsx file to be imported. The .csv and .xlsx files can also be imported by dragging and dropping them into WinTAK. The .csv and .xlsx files need to be formatted in a specific way to ensure the import is successful.

Name (e.g., Callsign, Tag), Prefix (e.g., Callsign Prefix, Tag Prefix) and Location (e.g., Lat., Long., MGRS) columns are required for .csv and .xlsx file imports. The Elevation, Remarks, Color, and Type columns are optional attributes that can be applied to the markers being imported. If an imported marker is assigned the type b-m-p-s-m it will be imported as a spot marker, or a colored spot marker if a color is specified.

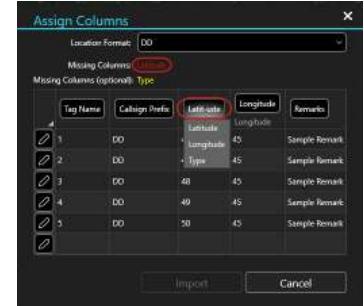
Name	Prefix	Lat.	Long.	Elev.	Remarks	Color	Type
Sample1	A	33.3937103	-104.522933	100	Remark A		Friendly
Sample2	B	37.2939821	-115.8008981	250	Remark B		Unknown
Sample3	C	33.059772	-97.504713	450	Remark C	Red	b-m-p-s-m

The Name and Prefix columns support alphanumeric characters. The Location column(s) supports coordinates, such as Lat and Long, in separate columns, or unified as one under the Location header. Latitude/Longitude supported formats are DM, DMS and DD. Coordinates can be formatted with or without white space in-between (ex. 45°45'45" vs 45° 45' 45"). MGRS coordinates are also supported.

Point Dropper (continued)

If issues with the .csv file are detected during the import, an Assign Columns window will appear. This window can be used to clarify location formats and alter marker types for the import. If the location format used doesn't match an option listed in the drop-down, 'Any' will be the ideal selection to use.

Click a column header to choose the appropriate option that matches the location format or select the **Edit** option beside a row to change the marker type.



Use the **Settings** button at the bottom-right of the Point Dropper panel to open the Iconset Manager and display a list of installed icon sets to **Send** or **Delete** from the device.

Select the **+** icon to select and import a new icon set for use. Valid icon sets become immediately available in the Point Dropper Tool.

The options available for Unknown and Neutral Object Markers are: Delete, Polar Coordinate Entry, Fine Adjust, Measure, Breadcrumbs (with access to Track History from sub-radial) and Details (with quick send from sub-radial).



Point Dropper (continued)

The options available for Red Object Markers are: Delete, Polar Coordinate Entry, Bullseye, Fine Adjust, Measure, Breadcrumbs (with access to Track History from sub-radial) and Details (with quick send from sub-radial).

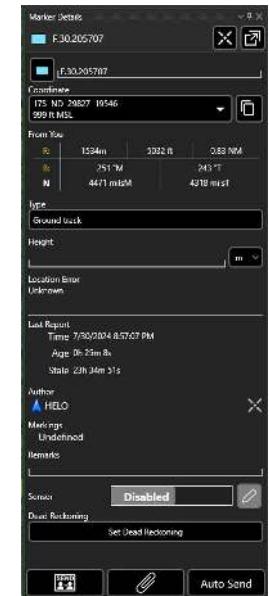
The options available for Friendly Object Markers are: Delete, Polar Coordinate Entry, Fine Adjust, Measure, Lock-On Friendly, Breadcrumbs (with access to Track History from sub-radial), and Details (with quick send from sub-radial). Enabling the Breadcrumb option generates a track, which can be reviewed using the Track History tool.



Select **Details** on the marker radial menu to make modifications that include: Name, Coordinate Location, Elevation, Marker Type, Height and Remarks. Selecting Marker Type opens a dialog box that provides additional categories to choose from. The Markings field displays classification information from Mil-STD-6090 CoT messages. Set the Sensor field to **Enabled** to display an FOV and configure a video alias for the marker.

Select the **Attachments** (paperclip) icon to attach files, including images, to the marker. Select the **Send** icon and choose individual marker recipients or **Broadcast** to send to all network members. Select the **Auto Send** option to broadcast the marker to other TAK users on the network and the information of the marker will be automatically resent about once every 60 seconds.

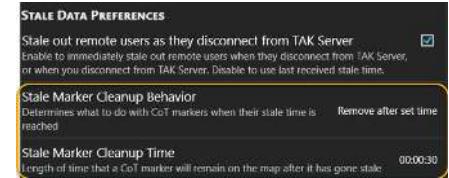
Dead Reckoning can be set for the marker from the Details panel. Please see the Range & Bearing section for more information on the Dead Reckoning feature.



Stale Marker Handling

Stale marker behavior can be adjusted in Preferences. Select Settings > Control Preferences > Stale Data Preferences to specify when stale markers are removed from the map.

Preferences include removing markers immediately, after a specified time or left on the map. If **Remove after set time** is selected, the time interval in the Stale Marker Cleanup Time setting must be set.



3 RESECTION



The Resection Tool provides a capability to users without a GPS signal to estimate their location from known points/landmarks on the map. Two or more reference points on the map are needed to provide a more accurate estimate of the user's location. To use, select the **Resection** Tool from the main toolbar.



From their position, the user identifies and places a series of landmarks on the map. Landmarks are placed using the **Add Landmark** icon from the Resection tool, then selecting the landmarks on the map. Once the landmark is placed, the bearing relative to the user's position can be adjusted by selecting the desired landmark entry and modifying the bearing value.

As landmark points are placed, the intersection continues to be updated in the **Intersection** field. To plot the intersection location at any time, select the **Plot Intersection** icon and the current intersection point will be placed on the map.

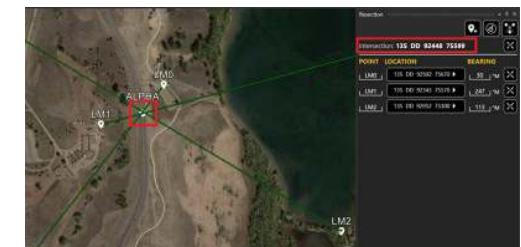
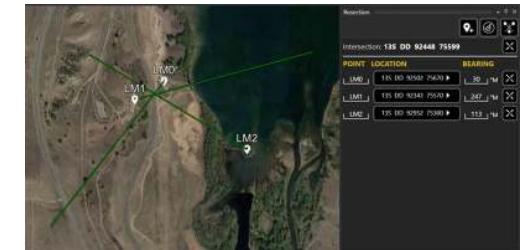
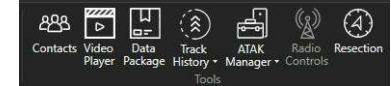


If additional landmark points are added, the intersection point will be updated and the Plot Intersection icon can be selected again, and an updated intersection point will be placed on the map.

To move a landmark point, right-click the point on the map and then select another location for the point. To remove an individual landmark point, select the landmark point on the map to bring up the radial and select the **Delete** radial option. Other landmark point radial options include: R&B Line, Polar Coordinate Entry, Fine Adjust and Details.



To delete all landmark points that have been placed on the map, select the **Clear Landmarks** icon and confirm deletion of all landmark points.



4 RANGE AND BEARING



The Range & Bearing (R&B) tool set provides access to Range & Bearing functionality. Range and Bearing capabilities include tools to measure distances, monitor Digital Pointers and track objects.

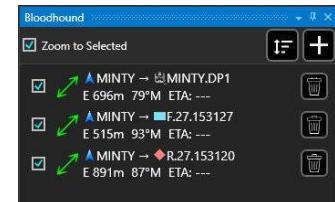
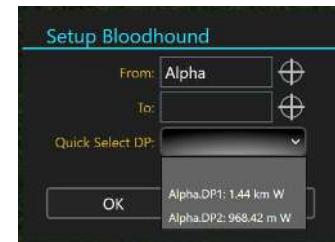
Bloodhound Tool



The Bloodhound Tool provides support for tracking and intercepting multiple map items simultaneously. When using Bloodhound, a text widget in the lower left hand of the map will display Range & Bearing information for the Bloodhound with the soonest ETA. A projected point of intercept will also be visible on the map based on the parameters assigned to each map item using ETA calculations.

Select the **Bloodhound** icon to open the Bloodhound Tool. A window will open, prompting to choose where to start **From:** and where to bloodhound **To:**. Select the first reticle to change the default Self-Marker callsign to another map item. Select the second reticle to choose a map item to Bloodhound to. Select **OK** and Bloodhound will be activated. While Bloodhound is active additional Bloodhounds can be created from within the Bloodhound panel. Established Bloodhounds can also be deleted here. If either point of a Bloodhound moves, the widget will show the updated information. The Bloodhound panel will also keep track of any updates.

Information in the Bloodhound panel can be sorted based on ETA or Range. By default, Breadcrumbs are active for both the tracker and the target. This can be disabled from within Bloodhound Preferences at any time. The **Zoom to Selected** option available in the Bloodhound panel ensures that the selected Bloodhounds always remain in view. This option is enabled at the top of the Bloodhound panel and individually for each Bloodhound by checking their respective boxes.



Bloodhound Tool (continued)



To initiate navigation to another object from the user's Self-Marker, select the **Compass** icon in the drop-down menu under **Bloodhound**, then select the map object or a **Quick Select SPI**. Select **OK** to confirm the selection. A Range & Bearing line will appear between the Self-Marker and the selected map item, and a navigation panel will open.



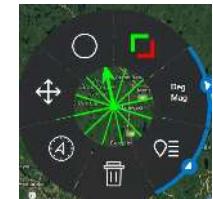
Bullseye Tool



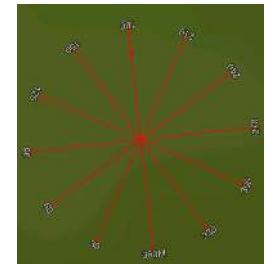
The Bullseye Tool is a Range and Bearing option that gives more information than the standard R&B Line or R&B circle.

To place a Bullseye, select the **Bullseye** icon, tap on the map to place the Bullseye center, and then again for the outer edge.

The Bullseye Radial options are: Delete, Polar Coordinate, Fine Adjust, Range Rings, Change Direction, Units and Details (with quick send from sub-radial).



The Bullseye Details panel allows for configuration of the location, direction, units, size, rings and ability to send. The Bullseye points to either Magnetic, Grid or True North and displays additional lines every 30 degrees. The Bullseye is green when the direction is outward (egress), and red when the direction is inward toward the center (ingress).

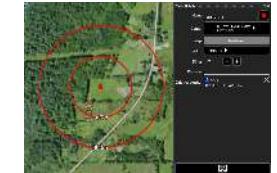


Range & Bearing Circle



The R&B Circle Tool allows drawing concentric circles, at a fixed radius, around a point. Select the **Circle** icon on the toolbar to create. Select the map to place the center location and drag outward to the desired radius.

Click anywhere on the circle to open its radial. Options available for the center point are: Delete, Fine Adjust and Details (with quick send from sub-radial). Select **Details** on the radial to open the Details panel where modifications to the name, color, location, radius and remarks can be made. Rings can be added to the circle as well. The R&B Circle can be shared by selecting **Send** and then selecting a Contact(s). Long press/right click the center of the circle to move it.



Dynamic Measure



The Dynamic Range & Bearing Line places a line on that map that can easily be repositioned while updating its R&B information. When the desired location is established the pin icon on the radial can be used to place a static R&B line copy of the current Dynamic R&B line onto the map.

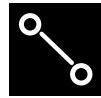


The pinned R&B Line will show the azimuth, distance and depression or elevation degree between the two points. To reposition an anchor point, click/touch and drag on either end of the bearing line. The line will be moved to the new location with an adjusted distance and azimuth.

The radial options available for the Dynamic Range & Bearing Line are: Delete, Edit, Depression or Elevation Degree, Fine Adjust, Change Mils/Degrees, Change Distance Units, Pin, Lock Distance, Details (with quick send from sub-radial) and Clamp to Ground. Select **Dynamic R&B Line** again to disable and remove from the map.



Measure

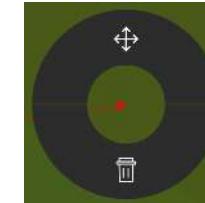


The **Measure** icon places a static Range & Bearing line on the map. The line can be used to calculate the distance between points, markers or users on the map. Select the **Measure** icon to open the tool. Place the first point on the map and drag to place the second point. The Range & Bearing line will now show the azimuth bearing and distance between the two points.

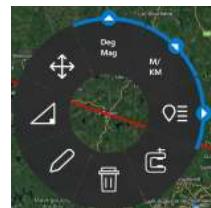


To reposition an anchor point, long press/right click on either end of the bearing line, then click or tap another location. The line will move to the new location with an adjusted distance and azimuth bearing.

Select either end of the bearing line to display the Measure Radial. The options available are: Fine Adjust and Delete.



To make fine adjustments to either end of the line, select the **Fine Adjust** icon on the radial. Crosshairs appear and the area is magnified. Drag or click and drag inside the magnified area to precisely position the end of the bearing line. To delete the bearing line, select **Delete**.



Select any part of the line to bring up the radial which gives additional options: Delete, Edit, Display Depression or Elevation Degree, Fine Adjust, Change Mils/Degrees, Change Distance Units, Details (with quick send from sub-radial) and Clamp to Ground.



To change the settings of the line, tap the **Details** icon on the radial. Select the **Elevation Profile** button to open an elevation profile graph (elevation data required). Move along the elevation profile by sliding the blue tracking circle forward in the elevation profile window. A viewshed can be displayed by checking the **Show Viewshed** checkbox in the elevation profile window.

Measure (continued)

Both Measure and Dynamic Measure tools have an edit option. This opens the R&B Editor tool which allows the ability to modify the Range, Bearing and Inclination of the measure line.

Slew To and **Auto Zoom** checkboxes will zoom the map to the new endpoint location or zoom to include the start point and new endpoint.



Drifter



Drifter assigns a speed and bearing value to an otherwise static marker that has been placed. This can be useful to simulate the observed movement of a person or vehicle that the user does not have the capability to track as a DP. Drifter can be accessed on the Range & Bearing tab. Selecting the **Drifter** icon will open a panel containing a list of any markers that currently have a Drifter speed and bearing assigned to them.

A universal pause/play button is available at the top of the Drifter panel to control all active drifters. Select **Simulate Time Delay** to simulate either a positive or negative time interval for all active drifters to be affected by. Select **Simulate a Drift Along a Route** to choose a marker and a route to simulate its traversal. Selecting the + will prompt for the selection of a marker from the map. Selection options are restricted to only allow markers created by the local device. Once a marker is chosen, an Edit Drifter window will appear with options to assign Speed and Bearing values.



Once Drifter is set on a marker, the marker's location will be updated once every 5 seconds as if it had been moving at the speed and direction set. The marker will display a small arrow that indicates direction of travel. If WinTAK is shut down and restarted, the drifter markers will update their positions as if they had continued moving while WinTAK was not running. Select **Return to Start** (back arrow) to return the marker back to the map position where it first started drifting. Select **Edit** to adjust the marker's bearing and speed. Select **Delete** (trash can icon) from the Drifter panel, or from within the marker's Details, to remove the drifter values and disable the automatic movement.



5 ROUTE PLANNING AND NAVIGATION



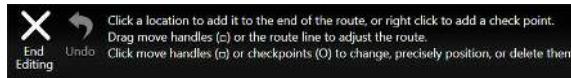
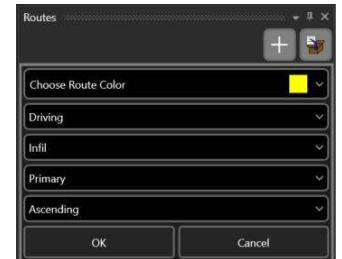
The Routes Tool provides the capability to create, view or modify existing routes. Select the **Routes** icon to activate the Route tool. Existing routes will be listed with the following options: Details, Navigate, Edit and Delete.



To import a route, open the Routes Tool and select the **Import** icon. Navigate to the location of the saved routes (in KML, KMZ or GPX format) and select the desired route. The route will be imported and displayed on the map.

To create a new route, open the Routes Tool and select the **+** button. Enter the initial parameters: color, method of movement (driving, walking, etc.); Infil or Exfil, Primary or Secondary; and Ascending or Descending Checkpoints.

Select **OK** and follow the onscreen instructions for route creation starting by selecting a location on the map to begin the route. Long press/Right click to create Checkpoints along the route, left click or single tap for vertices.



Select **Undo** to reverse any changes. When finished, select **End Editing**. Once the **End Editing** button is selected the route details panel opens. Checkpoints will be listed in a table showing the distances to each Checkpoint.

Routes (continued)



Add route cues to a checkpoint by selecting the button to the left of the **Delete** button for that checkpoint row.

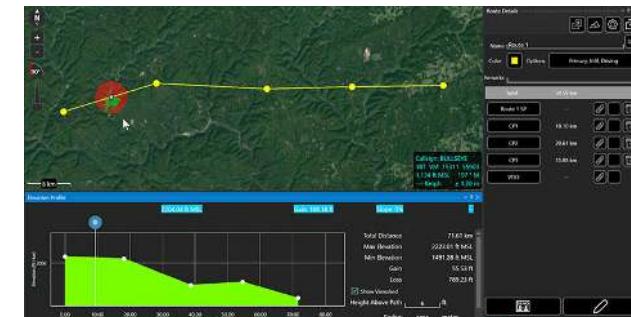
Add attachments to a checkpoint by selecting the **Attachments** (paperclip) icon to the left of the route cue button. A navigation window appears to browse files. Images attached to a checkpoint will trigger the billboard pop-up feature during navigation of the route.

Note: If other file types besides images are attached to a checkpoint, there is no visible indication of these types of attachments while navigating. If an image is attached to a CP when navigating a route, once the Self-Marker is within the defined bubble radius for the type of route being navigated, the image will pop-up and then be removed once the Self-Marker moves past the checkpoint.



Further explanation of this feature is described in the Billboard Pop-Up Feature section.

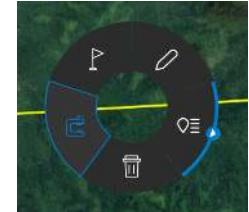
To display the route elevation profile, select the **Elevation Profile** button in the upper right corner of the route details panel. This tool displays the route elevation profile details if DTED is available. Information such as Total Distance, Max Altitude, Min Altitude, Gain and Loss are displayed in the profile. Check the **Show Viewshed** checkbox to place a viewshed indicating line of sight visibility along the route. Moving the blue slider dot along the Elevation Profile moves the viewshed along the route on the map, indicating visibility from that location.



Routes (continued)

WinTAK supports route exports in KML, KMZ or GPX file formats. Selecting the **Export** button exports the file to the “/Documents/WinTAK/Export” folder. Exported routes can be sent to selected recipients on the network or broadcast to all available recipients.

The route radial menu options are Delete, Clamp to Ground, Navigate, Edit and Details (with quick send from sub-radial). To enter editing mode, select the **Edit** button from the route details panel or the route radial menu.



While in edit mode, select and drag a portion of a route segment to create a new vertex. Click a checkpoint or vertex to see radial options for those points. Delete, Fine Adjust, Range and Bearing, Enter Coordinate, Add Checkpoint and Add Cue are available radial options. A deleted checkpoint will become a vertex. A vertex can be changed into a checkpoint.

Routes can be customized in Settings > Tools Preferences > Route Preferences or by selecting the **Adjust Route Settings** icon at the top of a route details panel.

Navigation



To start navigation, select **Route Navigation** from the listing in the Route tool window. This will open the Navigation window and draw a range and bearing line from the Self-Marker to the starting point of the route. Navigation information will be updated as progress is made toward the specified location on the map.



Select the **Navigation Flag** icon from the route radial menu to start navigation at the beginning of the route. The **Navigation Flag** can also be selected from a checkpoint's radial menu to begin navigation to that checkpoint rather than the beginning of the route.



Navigation (continued)



The Auto Zoom feature within the Navigation panel continually sets the map zoom to keep the Self-Marker and the next checkpoint within view. Select the **Auto Zoom** icon to toggle the feature on or off. If the map is manually zoomed in or out during navigation, the Auto Zoom feature will be toggled off automatically.



The order in which the checkpoints are being navigated can be reversed during navigation by selecting the **Reverse** icon.

To modify the checkpoint currently being navigated to, select the navigation flag on the specific checkpoint panel. The panel will be highlighted, and the navigation will switch to the selected checkpoint. Each checkpoint panel contains information about that specific checkpoint including: Route Cue, Range, Bearing, ETA and attached image.

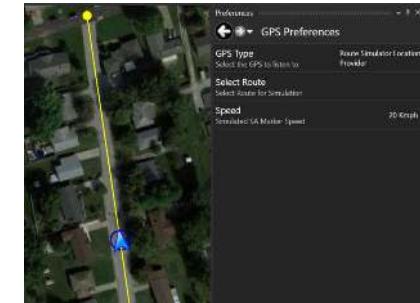


Once the Self-Marker reaches a checkpoint, route navigation will indicate that the checkpoint has been reached, will automatically switch to the next checkpoint on the map and will highlight the next checkpoint in the navigation panel. To end navigation simply close the navigation panel.

Route Simulator Navigation

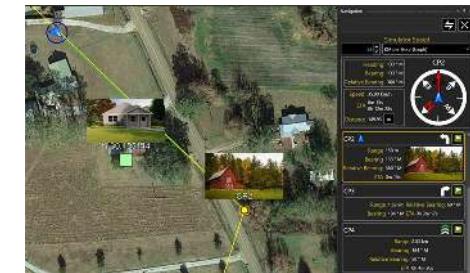
The Self-Marker can be set up to simulate following a route by selecting the Route Simulator Location Provider option available in Settings > My Preferences > GPS Preferences > GPS Type. Select the Route Simulator Location Provider option, select **OK**, then select a route on the map to follow and enter a simulated speed.

If the simulated Self-Marker reaches the end of the selected route, it will loop back to the beginning of the route. The simulation will continue, even after an exit and restart, until the GPS Preferences > GPS Type is changed.



Billboard Pop-up Feature

While navigating a route, the billboard feature displays images associated with any markers and checkpoints along the route that have attached images. As the Self-Marker approaches a marker or checkpoint with an attached image, the image associated with that marker or checkpoint will pop up once the Self-Marker is within the defined bubble radius for the type of route being navigated. The bubble radius distances can be viewed or changed in Settings > Tool Preferences > "Route Type" Checkpoint Navigation Bubble Radius preferences. The image remains displayed until the Self-Marker has passed the marker.



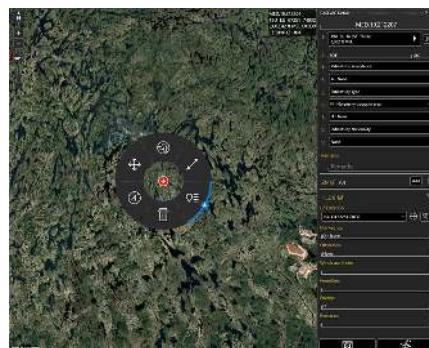
To use the simulation in conjunction with the billboard feature, navigate to Settings > My Preferences > GPS Preferences > GPS Type, select **Route Simulator Location Provider**, then select **OK**. Use **Select Route** to choose the route that will be simulated and then set the speed. Using the Routes tool, or by locating the route on the map, launch route navigation with the route currently being simulated. The Self-Marker will move at the selected speed along the route and billboard pop-ups will appear.

6 CASEVAC

The casualty evacuation (CASEVAC) Tool is used to denote any casualties/injuries in the field. The tool follows Appendix G of the JFIRE 2016 publication and can be used for either CASEVAC or the more restrictive MEDEVAC.

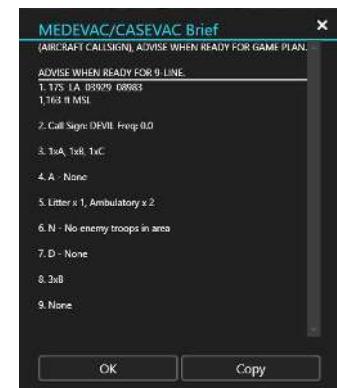


A CASEVAC marker is placed on the map by selecting the **CASEVAC** icon, then clicking a location on the map. The available options, located on the CASEVAC radial are: Delete, Polar Coordinate Entry, Fine Adjust, Bloodhound, Range & Bearing Line and Details (with quick send from sub-radial).



When the CASEVAC window is opened, a prompt will appear to fill out the required nine lines of information, the ZMIST (ZAP number, Mechanism of Injury, Injury Sustained, Symptoms and Signs, Treatment Given) report and the Heli Landing Zone (HLZ). Once all the applicable information has been entered, the CASEVAC may be sent or broadcast to available users by selecting **Send**.

Users can choose to be notified of received CASEVACs by enabling the Settings > Display Preferences > Notify CASEVAC's Received option. When enabled, a toast message is displayed when a CASEVAC is received.



Select the **MEDEVAC/CASEVAC Brief** icon to display the brief which can then be copied and used elsewhere. Multiple ZMIST reports can be included in one CASEVAC. Select **Add** next to the initial ZMIST heading and section to add a new ZMIST. Select **Delete** at the beginning of an individual ZMIST report to remove it.

7 EMERGENCY BEACON



Select the **ALERT** icon to open the Emergency Beacon Tool.

The Emergency Alert (beacon) allows the user to indicate their location and need for assistance by selecting one of the following: Alert, Ring The Bell, Geo-fence Breached and In Contact.



Once the Emergency type has been selected and both switches have been enabled, the TAK Server broadcasts the announcements to all network contacts. Even if the user's device is turned off, the beacon will continue. Only when the user returns to the Emergency Beacon Tool and turns off the switches, will the beacon be canceled and removed.



8 MAPS AND FAVORITES

The Maps & Favorites Tool allows the ability to view and download supported map and imagery data that has been loaded into WinTAK.



Choose from any of the categories available: IMAGERY, MOBILE and FAVS. Select the **IMAGERY** tab to view imported imagery files. Select the **MOBILE** tab to view or download map layers of a desired area. Select the **FAVS** tab to access frequently used and saved map views.

Saving a Map Layer

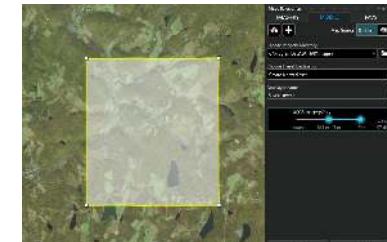


To save a local (offline) copy of a section of an online map, select the **MOBILE** tab and verify that Map Source is toggled to Online. Choose the desired map source from the list and select the **Download** button in the top-left corner. A drop-down will appear presenting three options for map area selection: Rectangle, Polygon or Existing Shape. The Rectangle option uses the top left and lower right corners to denote the area to be downloaded.



The Free Form option creates a custom area to be downloaded by selecting different points on the map until the shape is complete, or the end button is selected. Existing Shape allows for an already existing shape to be chosen as the area intended to be downloaded. Drag the map source slider end points to select the resolution for the tileset. The number of tiles to be downloaded will be indicated.

A new tileset can be created or the tileset can be added to an existing one. Enter the name to be applied to the chosen layers and select **OK**. A status indicator will appear to show the download progress. Cancel a download-in-progress by clicking the **Red X** at the bottom right. Multiple tilesets from different map sources can be downloaded simultaneously. To download additional tilesets once the initial download has started, select the desired map source, select the **Download** button and repeat the process used for the first downloaded tileset. Each tileset's download progress will be listed at the bottom of the Maps & Favorites panel.



Adding Online Map Sources

WinTAK supports WFS and WMS data sources. From within the Mobile tab, select the +, enter a URL, and select **OK** to add an online source (WFS/WMS).



After a valid URL has been entered, choose which WFS/WMS layers to import. WFS/WMS layers can be filtered by using the filter field at the top of the selection window. Imported WMS layers are located under the Maps & Favorites Mobile tab, while WFS layers are located under the WFS category in Overlay Manager.



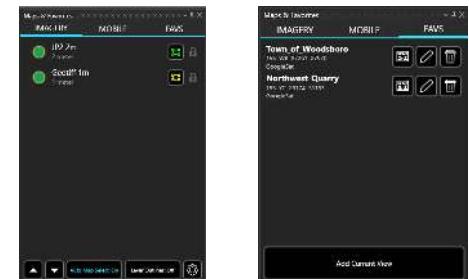
When Map Source is toggled to **Local** from the **MOBILE** tab a listing of the downloaded imagery layers within the current map view appears. Selecting **Show All** will display all downloaded imagery layers.

Selecting **Outline** will toggle the outline layer for imagery on/off. Selecting a layer from the list will display the corresponding map source data on the map.



Specific imagery type files can be added directly into the \ProgramData\WinTAK\Imagery folder, imported into WinTAK via Import Manager (drag and drop), or by mapping to an imagery directory in the Directory Preferences. These files can be found under the **IMAGERY** tab.

To save the current view, select the **FAVS** tab and **Add Current View**. Enter a name for the view and select **OK**. Select the **SEND** icon to send the saved view to a Contact, select the **Edit** icon to edit a favorite's name and select the **Delete** icon to delete the view from the list. Select a saved view to pan the map to its location.

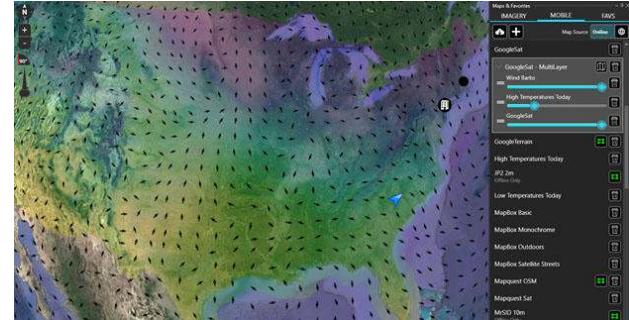


Creating a Multi-Layer Source



Multiple imported online map sources can be combined into one layer by right clicking an individual source within the Mobile tab and selecting **Create Multi-Layer**. After the new multi-layer map source entry has appeared, select the **Add Layer** icon to choose other imported map sources to combine into the same map layer.

The transparency of each map source within the multi-layer can be adjusted by using the slider that appears beside them. Individual map sources within the multi-layer, and the multi-layer itself, can be deleted by selecting the **Delete** icon.



9 OVERLAY MANAGER

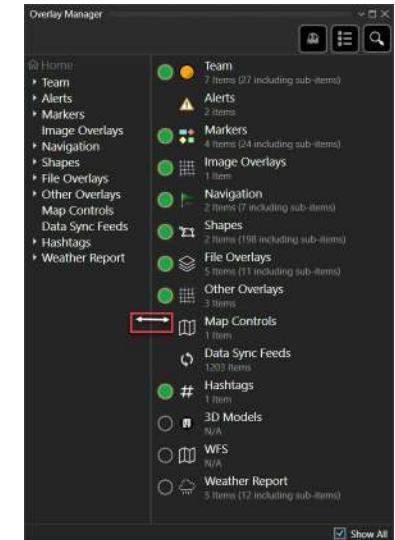
Overlay Manager organizes map objects, files and overlays into categories and subcategories providing a common location to control their visibility on the map.



Select the **Overlay Manager** icon to open the list of categories. These include: Teams by color, Alerts, Markers, Image Overlays, Navigation, Shapes, File Overlays, Other Overlays, Hashtags, 3D Models, and Web Feature Services (WFS). Plug-in specific overlays are appended to the end of the list when the plug-in is installed.

The Overlay Manager is shown in a tree view on the left side of the screen. Selecting a category opens a detailed listing of the items available in that category. The available items within each category are annotated on the menu entry, allowing the sub-menu to be referenced. The Overlay Manager panels can be adjusted by hovering the mouse over the middle of the panels until the left-right arrow appears, then click and drag to the left or right as desired.

When a displayed item in a specific category is selected, the map view will pan to that item and its radial will open.



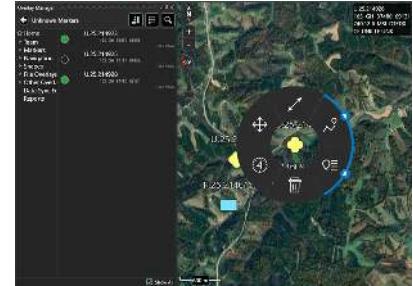
Overlay Manager (continued)



Right clicking a specific item and selecting **Details** will open the item's details panel on the right side of the map without panning the map to that item.

Category and item visibility is toggled on and off with the circular radio buttons. When the circle appears green, the corresponding layer objects are visible. A hollow circle corresponds to a category, along with its subcategories, that are not visible.

When the **Show All** checkbox is unchecked, the map items listed will be filtered based on the current map view.



Search



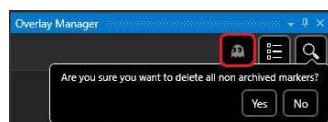
Specific overlays and items can be searched for by selecting the **Search** icon in the main Overlays pane. Select specific categories of overlays to narrow search results.

Sort



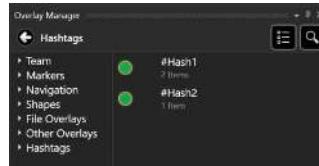
The Sort feature is accessible at the lowest level of a category if it contains multiple items. Sort selected overlays within a given category either alphabetically or by proximity to the Self-Marker.

Common Operating Picture (COP) Refresh

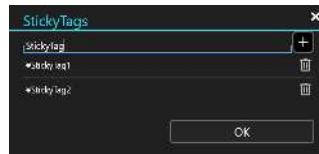


Selecting the **Common Operating Picture Refresh** button will remove all temporary items from the map. This includes Self-Markers and SPIs from other users, and ADSB Aircraft Tracks.

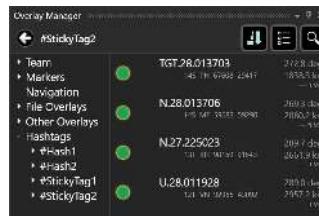
Hashtags and Sticky Tags



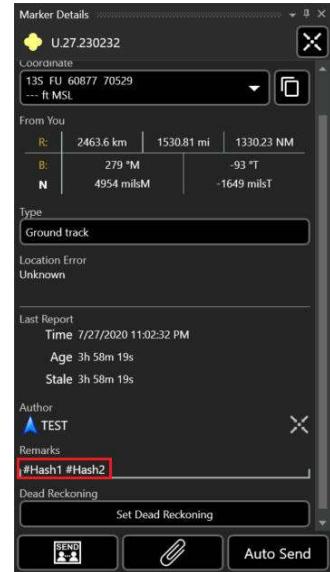
Hashtags and Sticky Tags can be added to map items to aid in categorizing and searching for items.



Hashtags can be added to map items in the Remarks field of the Details window.



To add a sticky tag, select the **hashtag icon** located in the Placement section of the toolbar. Enter a name and select **+** to add that sticky tag to all subsequently placed map items. More than one sticky tag may be added. To discontinue adding a particular sticky tag to subsequent items, select the **hashtag icon** again, then select the **Delete** icon associated with the sticky tag.



To view map items that have hashtags associated with them, select the Hashtag category within the Overlay Manager. Select the desired hashtag and all tagged items will be listed. If one of the tagged items is selected, the map will pan to that item and its radial will display. Right-clicking an item and selecting **Details** will display that item's details panel without panning to the item on the map.

Multi-Select Export and Delete



The Multi-Select Tool provides the ability to export overlays in multiple file formats. Following the export, the file may then be sent to one or more TAK users. This tool is also the primary method to delete objects, attachments and files.

Export Files

Overlay items can be exported in several file formats that are saved in C:\Users\username\Documents\WinTAK\Export\. This location can be changed as well. Supported file formats include GPX, KML, KMZ, and SHP.

Items exported as a Data Package will be saved in C:\Users\username\AppData\Roaming\WinTAK\Data Packages\.

In addition, items can be exported directly to an ATAK device through ATAK Manager by selecting the **Push to ATAK Device** option. If a Cloud or FTPS Server is configured, items can be uploaded to the server by selecting **Upload to Cloud** option.

To export Overlay items, select the **Multi-Select** icon and choose the items to include. After the selections have been made, select **Export** and choose a file format from the drop-down menu. A system navigation window will open asking to enter a file name. Enter a name and select **Save** to create the file which will be followed by a notification that the file was successfully exported. Select **Send** to send the file to one or more TAK users or **Done** to close the window.

Send Previously Exported Files

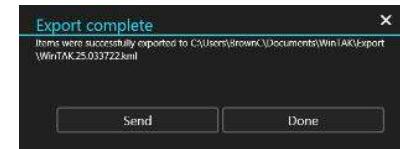
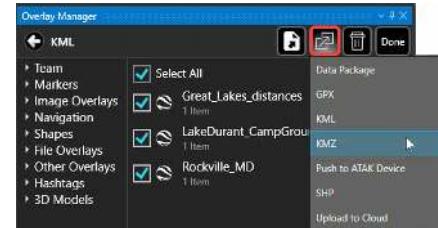


To send a previously exported file, select the **Export Previous File** icon. Choose the desired file from the list and **Open**. Select the network recipients in the Contacts window and then **Send**.

Delete Overlay Items



To delete an existing overlay item, select the **Multi-Select** icon. Items may be selected as a category (Markers, Shapes, etc.) or individually. Select the **Delete** icon to remove all items selected.



Create KML/KMZ

KML/KMZ files that have been imported into WinTAK can be modified to create new KML/KMZ files.

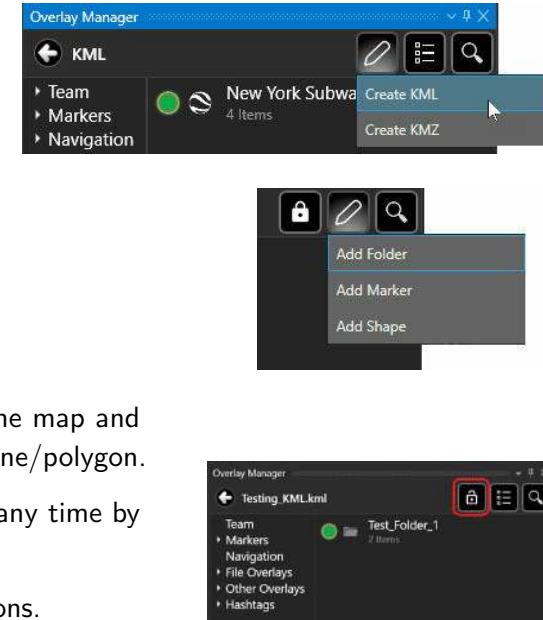
New KML or KMZ files can be created by selecting Overlays > File Overlays > KML. Select the **Edit** (pencil) icon and choose to either create KML or create KMZ. Once the format type has been selected, enter the name of the file, select **Save**, then select the file name that appears in the list in Overlay Manager and select **Edit** to begin editing.

While editing, marker/shapes can be placed directly on the map or folder(s) can be created to organize the data added to the map. KML placemarks can be added to new or existing KML/KMZ files by navigating to the Overlay Manager > File Overlays > KML and selecting an existing KML/KMZ file. An edit button will be available. Selecting it will present a drop-down with options to **Add Folder**, **Add Marker** or **Add Shape**.

Selecting **Add Folder** will launch a prompt to name the new folder. Select **Add Marker** to place a marker on the map and **Add Shape** will begin the shape creation process that is similar to the Drawing Tools controls for creating a polyline/polygon.

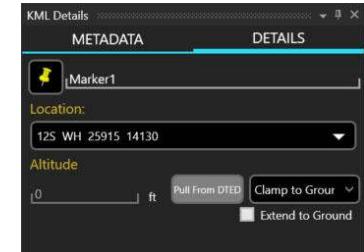
Note: The asterisk next to the file name denotes that there are unsaved changes. The changes can be saved at any time by selecting the **Save** (floppy disk) icon.

Once the KML has been saved it will be locked from editing. Select the **Unlock** button to make more modifications.



Edit KML/KMZ

KML placemarks can be moved or edited when the KML is unlocked for editing. Right click on an existing marker, then click an alternate location on the map to relocate the marker. Fine Adjust movement is also available on the radial menu. To change the styling of a marker, select the **Details** option on the marker's radial. From the DETAILS tab, the marker's icon and name can be modified. Markers can be clamped, relative or absolute to the ground. If relative or absolute is chosen, altitude can be added from DTED (if installed) or entered manually. If the **Extend to Ground** checkbox is checked, a line will be added from the marker to the ground. To remove a marker, select the **Delete** option on the marker's radial option.

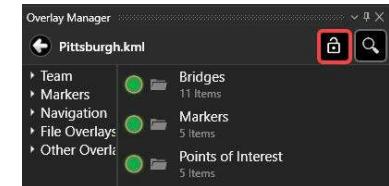


Shapes can also be modified while in edit mode. Select the **Edit** option on the shape's radial menu and dragable movement handles will appear that can be used to move a vertex of the shape. Open the Shape's DETAILS tab to modify the shape's name, color and opacity (for closed polygons). To remove a shape, select **Delete** on the shape's radial.

KML/KMZ with Lasso Tool

The Lasso Tool can be used to either capture map items and export them into a new file or to remove items from an existing KML/KMZ.

An existing KML/KMZ file can be modified using the Lasso Tool. To begin editing an existing KML or KMZ select Overlays > File Overlays > KML, select the desired KML/KMZ to be modified and select the **Unlock** icon.



KML/KMZ with Lasso Tool (continued)

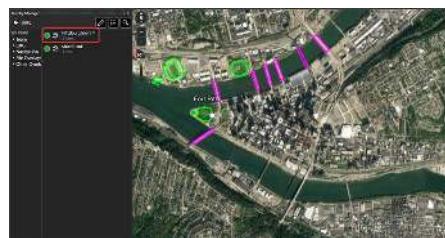
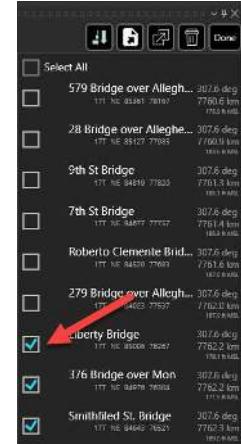


After unlocking, select the Lasso Tool and circle the desired items on the map.

Overlay Manager will then present a screen listing the items included in the Lasso selection.

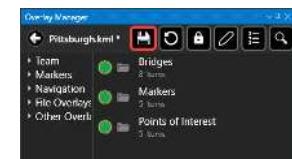
At this point, the items can either be exported into a new file or can be deleted from the existing KML.

To export the selected items into a file, select the **Export** icon, choose the format for the new file, enter a file name and then select **Save**. The file will be saved in the desired location and can also be sent to other users.



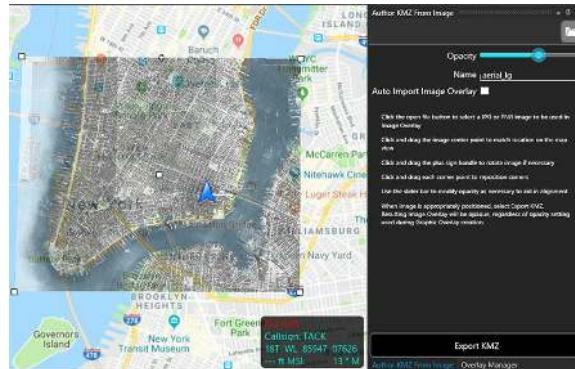
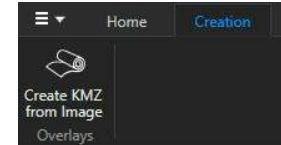
To remove the selections from the existing KML after using the Lasso, select the **Delete** icon and confirm the deletion.

The listing will show an asterisk next to the name. Select the KML name to drop into the options and **Save** the KML. Choose either **Save** to overwrite the original file or **Save As** to save to a new KML file.



KMZ from Image

Create a KMZ from imagery by selecting Overlays > Image Overlays. Select the **Edit** (pencil) icon, then select **Create KMZ from Image**. For convenience, this function can also be accessed from the main WinTAK toolbar under the Creation tab.



Once the Author KMZ From Image screen is opened, select the **Folder** icon in the upper right corner. Use the file explorer to navigate to an image and then select an image to import (JPEG or PNG formats are supported). The images are placed at the current center position on the map. Adjust the image by dragging the corners and adjust the opacity of the image by using the slider.

When the image is appropriately positioned, select the **Export KMZ** button to create the saved KMZ from image file. Regardless of the opacity setting used during the adjustment of the image, the resulting Image Overlay KMZ file will be opaque.

If the **Auto Import Image Overlay** checkbox is selected, the KMZ file that was exported will be processed and appear on the map. The KMZ will be listed in Overlays > Image Overlays.

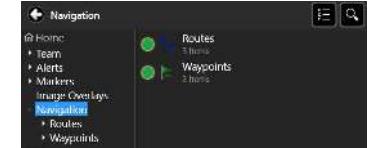
Alerts



The Alerts category contains Geo Fence alert notifications and Emergency alerts. Geo Fence alerts can be edited or deleted. Emergency Alerts can be deleted.

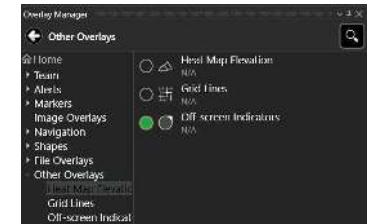
Navigation

The Navigation category lists Routes and Waypoints that are created from the Point Dropper > Mission Specific > Waypoint option. Selecting a Route or Waypoint pans the map to that item.



Other Overlays

The Other Overlays Category allows Heat Map Elevation, Grid Lines and Off-Screen Indicators to be enabled or disabled on the map display.



10 LASSO TOOL



The Lasso Tool provides the ability to select several map objects at the same time. Selected items can then be moved, exported or deleted.



Select the **Lasso** icon and then click and drag to draw a freehand lasso around the items intended to be selected.

Selecting the drop-down below the Lasso Tool provides access to the Rectangle and Ellipse lasso options. Select the **Rectangle Select** icon, then click, drag and release to create a rectangular zone around the items intended to be selected.

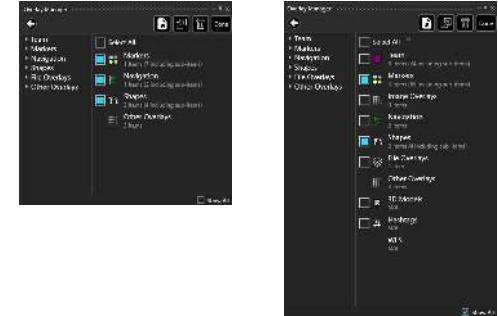


Select the **Ellipse Select** icon, then click, drag and release to create an elliptic zone around the items intended to be selected.



Lasso Tool (continued)

Once the Lasso has been created, Overlay Manager opens and the objects selected by the lasso are indicated by check boxes. If the **Show All** option is unchecked, only the categories that are included in the lasso will be shown. If it is checked, all Overlay Managers categories will be shown. The objects can then either be exported or deleted using the Overlay Manager Tool.



In addition to the export and deletion options, all selected items can have their elevation values adjusted or their physical positions on the map altered. After items have been selected with the Lasso, an Adjust Elevation widget will appear. Use either the slider or select the elevation field to enter in a value manually. Once elevation changes have been confirmed, select **Change Elevation**. Elevation values can also be reverted back to their original values by selecting (Revert to Original Altitude).

To alter the positions of the selected items, click and drag the crosshair located at the center of the Lasso. To confirm the new location for the items, select **Move Items** on the toolbar. Items can be moved back to their previous location by selecting **Undo**. Once all changes have been completed, select **Done** or close the Overlay Manager.



11 DATA PACKAGE



The Data Package Tool gives the data planner the ability to bundle map items (e.g., routes, placed markers, shapes and imagery) and external files from the device's file system to send to other users on the network. Select the **Data Package** icon to download, create, edit or send Data Packages.



Select **Download** to view a list of Data Packages stored on a connected TAK Server. Sort and search for any Data Packages stored on the server and download a copy to the local device.

Select the **+** button to create a new Data Package. Enter a name for the Data Package and then select **Build**. Select the **Quicksend** button, to quickly create and send a Data Package that contains one or more files selected from the device's file system.

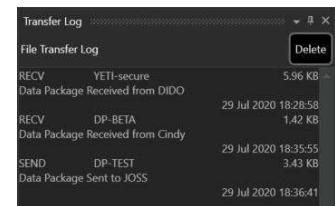


Select **Open Transfer Log** to view a history of all Data Packages that have been sent/received, on the local device.



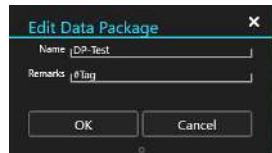
Select the **Open Packages Folder** icon to see a list of all Data Packages stored on the local device.

After a Data Package has been created or received, an entry for it will be visible in the Data Packages tool.



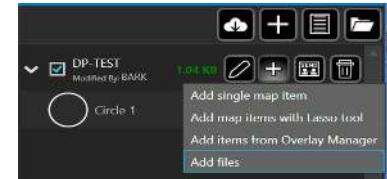
Select the drop-down arrow on the left side to reveal the contents of the Data Package. The checkbox indicates the visibility status of the content and can be toggled on/off at any time. The file size and callsign of the user that last modified the Data Package will also be visible. Options are available to Edit, Add To, Send or Delete the Data Package.

Data Package (continued)

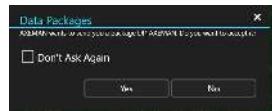


Select **Edit** to alter the name or apply remarks (hashtags) to the items within the Data Package.

Select **+** to add more content to a Data Package. Add a single map item by selecting it on the map; add multiple items using the Lasso Tool; add items through the Overlay Manager, allowing for multiple selections via checkboxes; or add saved files via the file browser interface.



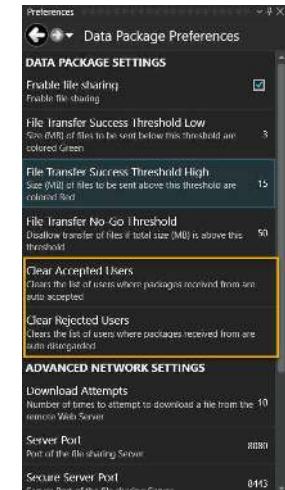
Any file attachments associated with map items will also be added to the Data Package when those items are added. Select **Send** to send the Data Package to another user or upload it to the TAK Server. Select **Delete** to remove the Data Package from the local device.



When a Data Package is received, a dialog window will appear with options to accept or decline the package. Checking the **Don't Ask Again** box will save the option selected for that user and disable the dialog box from re-appearing when a Data Package is received from them in the future.

The list of accepted/rejected users can be reset on the Data Package Preferences screen.

Additional Data Package settings can be customized in Settings > Tool Preferences > Data Package Preferences.



12 CONTACTS



Text-based Geochat messages may be sent to active network users by using the Contacts Tool. Select the **Contacts** icon to reveal the contact list.



Users currently on the same local network and TAK Server can be seen in the contact list. At the top of the Contacts window are options to sort (alphabetically or by user status), create chat groups and delete chat groups.

To create a chat group, click on the **Add Group** icon. This will open the group configuration screen. Enter a name for the group and select the checkboxes beside the contacts to be added to the group. All selections can be confirmed by clicking **OK**. If a parent group is being created, no contacts need to be added at this level.



To add a nested group, right click the parent group and select **New Group**, enter a name for the subgroup and select the **Edit** icon to add contacts to it. Groups may be managed at any time using the **Edit** option to add or delete contacts within a group or sub-group. Right-click a group, or sub-group, and select **Delete** to remove the desired group from the contact list. Groups can also be deleted by selecting the **Delete Group** icon.



Chat messages can be sent to both individuals and groups. Chat messages can be sent to an individual by selecting the **Communication** icon beside their callsign. When sending a message to an individual, a delivered icon will appear above the message (indicated with a checkmark). When the recipient reads the message, the icon will fill in, indicating it has been seen.

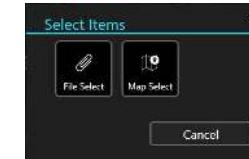


Selecting the **Pan To** icon to the right of the callsign, at the top of an individual chat window, will pan the map interface to that user's location.

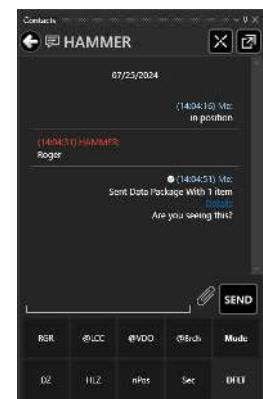
Contacts (continued)



Selecting the Attachment icon, beside Send, allows for the selection of files or map items to be sent directly to an individual as a data package. A chat message will be logged that a data package was sent, and the hashtag of items it contains. Selecting **Details** shows the contents of the data package. Selecting the folder icon next to a file name displays the file (images), other file types can be imported or an external application opened to display the file.



To send a chat message to a group, select the group name from the contact list. By default, the groups that always exist within the contacts list are: All Chat Rooms, Teams (by color), and Role (user assigned role). When the **All Chat Rooms** group is selected, messages can be sent/received from all users on the local network and TAK Server. If a GeoChat message is sent from the top level of Teams, it will be sent to all contacts, similar to All Chat Rooms. When the **Team** category is expanded and the team is selected, messages are only sent to the user's Team.



When a parent group is chosen, messages are sent to all members of the parent group, as well as all members of the sub-groups beneath it. When a sub-group is chosen, messages are sent only to members of the sub-group.

Pre-defined messages are located at the bottom of the chat area. These pre-defined messages can be used to quickly create a message to send. Select **Mode** to scroll through the six different menus of messages, including: Default (DFLT), Assault (ASLT), Reconnaissance (Recon), Low Visibility (Low Vis), Jump Master (JM) and User messages. These pre-defined messages present an easy way to transmit a brief message to other network members concerning position or message understanding. To change the text of any of the pre-defined messages, long press/right click on the button and modify the preview text and corresponding button text. The predefined buttons can be disabled for additional space in the Chat window. The setting to enable/disable the buttons is located at Settings > Tool Preferences > Chat Preferences > Show Chat Buttons.

Contacts (continued)



There are additional options available when communicating with an individual, depending on how the sending and receiving devices have been configured. Selecting the drop-down beside the Chat icon will reveal these additional communication methods. Supported options are VoIP (SIP), GeoChat, XMPP (TAK Chat Plug-in) messaging or e-mail.

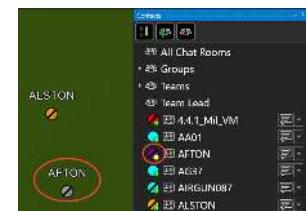


When receiving messages, the Chat icon will display a counter for the number of unread messages that have been received. When the contact list is opened, the number of unread messages will be visible beside the individual or group that contains the messages. Select the **Chat** icon, or group, to open the window with the chat dialog. Chats can also be accessed by selecting the **flag** located near the upper right corner of WinTAK.

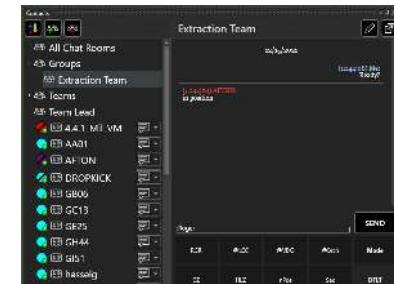


When examining individuals within the contact list, a status icon associated with the user marker icon is displayed. If a user is online and active, a green status icon is displayed. If a user is no longer online, it will be indicated by changing the status associated with that user to yellow. The user marker associated with that contact will also display gray on the map.

As more time elapses, the marker will be removed from the map and the contact's status will change to red. Messages sent to a user while they are offline will not be received.



While using the Contacts Tool, the width can be expanded by clicking and dragging the left side of the contact's window. In this expanded view, the contact list and the chat messages of the selected group or individual can be seen at the same time. This view makes it easier to create, edit and delete chat groups.



13 ENCRYPTED MESH

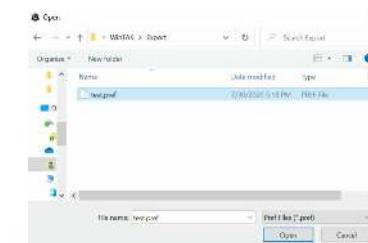
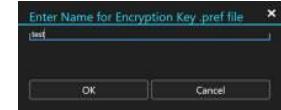
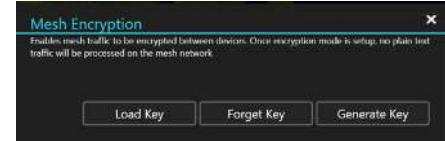
Enhanced security can be configured for all communications on a mesh network. An AES-256 encryption key is generated on one device and is then shared with the other devices that require encrypted communications. Once enabled, encrypted devices can securely communicate with one another and exchange SA, Chat, Data Packages, etc. Encrypted devices cannot communicate on the mesh network with non-encrypted devices and vice versa. This feature provides an additional level of security for advanced users.

To configure encryption, navigate to Settings > Network Preferences > Configure AES-256 Mesh Encryption.

Select the **Generate Key** button to create an encryption key, then enter the desired file name. The encryption key is saved in the C:\Users\username\Documents\WinTAK\Export folder and can be added to a Data Package to be shared with other users (prior to enabling encryption on the device) or can be preloaded onto the devices. At the time the key is generated, the option is given to have the key loaded immediately.

To load an encryption key, select the **Load Key** button and navigate to the location of the key file, then select **Open**. Select the **Forget Key** button to unload the key and revert to unencrypted traffic.

A lock icon will appear at the bottom right of the screen to indicate when AES-256 Encrypted Mesh is in use.



14 VIDEO PLAYER



The Video Player supports playing a variety of video streams and files. The menu allows the ability to add, edit, delete, play, download from a TAK Server or send videos to other network users. Select the **Video Player** icon to open the Video Player.



To play a stored video file, select the **Open Video File** icon, use the file explorer to locate the video and then select it to begin playing the video. Alternatively, manually place video files in C:\Users\username\Videos\WinTAK to have them automatically show up in the list of available videos. Pause and play control icons appear on the running video screen when the mouse is hovered over it.



To save a screenshot of the current video, select the **Screenshot** (camera) icon. The image will be saved in C:\Users\username\Pictures\WinTAK\Video Screenshots\ folder.



To start the recording of a video stream, select the **Record** icon, then select **Record** again to conclude the recording. This feature is currently only supported by UDP streams but offers the ability to record segments of a stream and view those recordings at a later time. Recorded stream segments can be accessed in the C:\Users\username\Videos\WinTAK\Video Recordings\ folder.



To rebroadcast an incoming video stream, select the **Rebroadcast** icon. Select the **Rebroadcast** icon again to stop rebroadcasting. Currently only UDP and RTSP streams are available to rebroadcast onto the TAK Network. To change/set rebroadcast settings, navigate to Additional Tools > Settings > Tool Preferences> Video Preferences.



The video display window can be undocked by dragging and dropping it away from the map window. Multiple video files can be played by selecting the **Open video in new window** icon which is located in the upper right corner of the currently playing video.



Adding a Video Stream

To add a video alias, select the **+** button and enter a new video alias manually. Enter the Alias Name and select the Protocol (UDP, RTSP, RTMP, RTMPS, TCP, RTP, SRT, HTTP, HTTPS, RAW) along with the necessary streaming information including, IP address (leave IP blank to listen on your own IP), Port Number, file name (if appropriate), Network Timeout, Buffering and Buffer Time. Selecting buffering along with a buffer time will provide a small amount of buffering of input video flow to help smooth video streams. Adding buffering will increase latency. When done, select **Save**.

A video alias can also be added to a **Sensor Point** from the **Mission Specific** icon palette within the Point Dropper Tool. Open the Sensor Point's details window to add or edit the video URL. View the video by selecting **Video** from the Sensor Point's details window or radial menu. When the Sensor Point is sent to other users, the associated video URL will be automatically included.



Select the **Add Video From Server** icon to download an alias from the TAK Server.



Video aliases may be sent to other network members by right-clicking the video listing, then selecting **Send**. Multiple video aliases can be sent by selecting the **Select Multiple Videos** icon, checking all videos to be sent and then selecting the **Send** icon. One or more members may be selected. Click the **Send** button to send to the intended recipients.

To edit an existing Video Alias, right-click it and select **Edit** to access the same options as shown for the **Add Video Alias** option. During editing, the video alias can be renamed or redirected to a new address and port combination.

To delete an existing video, right-click it and select the **Delete** icon to the right of the desired video alias and confirm deletion.



Select **Search** to search for a specific video alias. After entering text into the provided field, the list of available video aliases will be filtered to match the search terms.

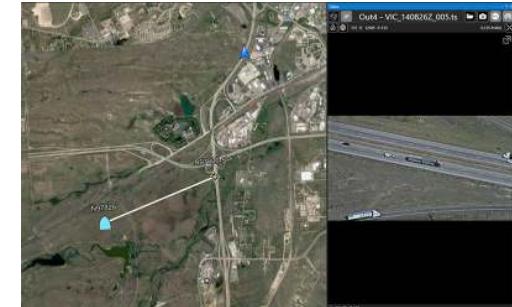
Viewing KLV

If a video includes KLV location data, corresponding markers will automatically be displayed on the map. These markers indicate the map location of the sensor or other points of interest at the corresponding time viewed within the video player.

The DP marker will indicate the center of view corresponding to that sensor as the video plays. Zoom to the DP or CoT Marker by selecting the **Zoom To** icon on the video controls or lock onto the sensor by selecting the **Lock** icon on the radial.



Videos with KLV location data have access to Bloodhound and Compass Navigation options which utilize the Digital Pointer (DP) produced by the video stream. These features are discussed in the Range and Bearing section of this document.



Live Video Map Display



Video files or video streams that contain metadata for the four corners of the video can be projected onto the map. Connect the video alias or open the video file, then click the **Globe** icon in the upper left corner of the video window, turning the globe green. Then select the **Lock** icon to pan to the video projected onto the map. The video will overlay upon any current imagery displayed.



15 GO TO



The GoTo Tool can be used to pan to and place markers at specific locations on the map. Select the **GoTo** icon to launch the GoTo interface.

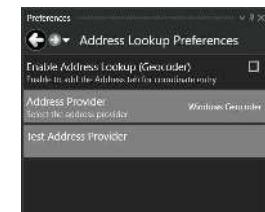
Select either **MGRS** (Military Grid Reference System), **Deg** (decimal degrees), **DM** (degrees-minutes), **DMS** (degrees-minutes-seconds), or **UTM** (Universal Transverse Mercator).

Location information from the map center can be pulled to automatically populate MGRS and UTM fields by selecting the **Autofill** icon to the right of the location field. Select the **Pull from DTED** button to auto fill the elevation value based on imported elevation data. Select a desired marker type (point, unknown, neutral, hostile, or friendly) to be placed at the entered coordinates. If **No Point** is selected, the map will pan to the location but will not add a point.



GoTo also supports an address function, but requires a Bing (Microsoft) or Mapquest license key before it can become active.

The address provider service can be configured in Settings > Tool Preferences > Address Lookup Preferences. Once the key has been entered, select Test Address Provider to ensure that the connection is successful.



16 DRAWING TOOLS



Drawing Tools allow for the creation of different shapes on the map. Select the **Drawing Tools** icon to reveal the list of tools. Options include: polyline, rectangle, circle, ellipse, freeform, telestration and manual. The manual option provides an additional way to create a polyline using specific coordinates. After a closed shape has been created, a Geo Fence may be added. Geo Fenced areas can alert users when markers matching the parameters configured in the Geo Fence Tool enter or exit the defined area.



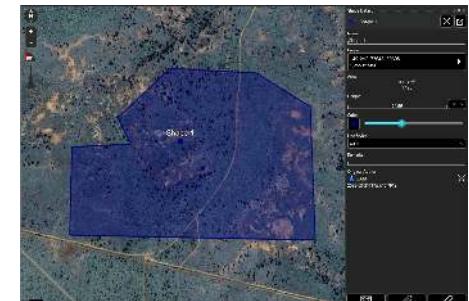
Create a Shape

Polyline



To create a polyline/polyshape, select **Polyline** and then a location on the map to place the first vertex of the shape. Continue to place vertices by selecting different map locations.

Select the **Undo** button to remove the last action in sequence. Close the shape by selecting the initial vertex or select **End Shape** to end with an open shape. Once the shape has been created, the Shape Details menu appears. Details that can be changed include: Name, Center Point Location, Elevation, Height, Color, Opacity, Line Style, and Remarks. After a shape has been created, select **Send** to send the shape to another user, select **Attachment** to attach a file(s) to the shape, or select **Edit** to make changes to the shape's position and size on the map.



Create a Shape - Polylines (continued)

Select the shape on the map to open the shape's radial menu. Options available include: Delete, Fine Adjust, Range and Bearing (R&B) Line, Clamp, Geo Fence, Edit and Details (with quick send from sub-radial). Geo Fencing is addressed in the next section. While an option is toggled on, such as Clamp, its radial section will be highlighted blue. Select **Edit** on the radial menu to launch editing mode, which makes the vertices selectable/moveable.

Move a vertex to a new location by selecting, holding and dragging. Click a vertex to access a radial menu with options for Fine Adjust, Coordinate Entry, MGRS Entry, and Delete. Long press/right click on a line to add a vertex, which can then be moved to a new location. Select **Undo** to reverse changes in sequence. Select **End Editing** to save all changes and end edit mode. The entire shape can be moved by long pressing/right clicking on the shape center point and selecting a new location.

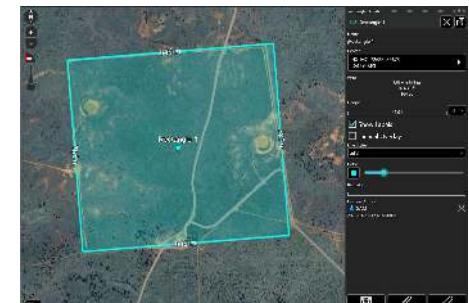


Rectangle



To create a rectangle, select the **Rectangle** icon from the Drawing Tools menu. Select the location of the first corner on the map and then drag and release to position the opposite corner.

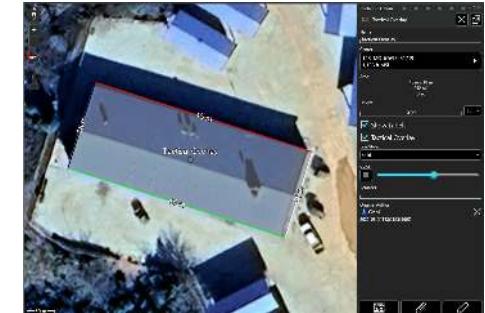
Once the rectangle has been created, the Rectangle Details menu appears. Details that can be changed include: Name, Center Point Location, Elevation, Height, Show Labels, Tactical Overlay, Line Style, Color, Opacity and Remarks. After a rectangle has been created, select **Send** to send the rectangle to another user, select **Attachments** (paperclip) to attach a file(s) to the rectangle, or select **Edit** (pencil) to make changes to the rectangle's position and size on the map.



Create a Shape - Rectangle (continued)

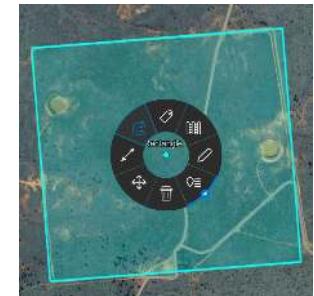
Select the Tactical Overlay option to enable tactical color coding for a structure being outlined. This can establish a common set of terms for operational coordination. The white side of the rectangle represents the front, while black represents the back of a structure. The green side of the structure appears clockwise from the front, while the red side appears counter-clockwise.

Create the rectangle and when the details menu is displayed, select the **Tactical Overlay** checkbox to apply the color coding. If the color coding is not correct, resize and rotate the rectangle to have the colors fall appropriately on the structure.



Select the rectangle on the map to open the rectangle's radial menu. Options available include: Delete, Fine Adjust, R&B Line, Clamp, Show Labels, Geo Fence, Edit and Details (with quick send from sub-radial). While an option is toggled on, such as Show Labels or Clamp, its radial section will be highlighted blue. Select the **Edit** icon on the radial menu to launch edit mode.

Move a corner to a new location by selecting, holding and dragging. Click a corner vertex to access a radial menu with options for Fine Adjust, Coordinate Entry, and MGRS Entry. Select, hold and drag + on a side to rotate the rectangle. Select **Undo** to reverse changes in sequence. Select **End Editing** to save all changes and end edit mode. The entire rectangle can be moved by long pressing/right clicking on the rectangle center point and selecting a new location.



Create a Shape - Circle



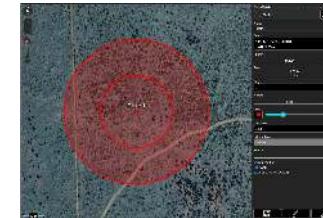
To create a circle, select the **Circle** icon. Select a location on the map for the circle center and drag to determine the radius. Once the circle has been created, the Circle Details menu appears.

Details that can be changed include: Name, Center Location, Elevation, Radius, Number of Rings, Height, Color, Opacity, Line Style, and Remarks. Circles also support an extrusion mode when displayed in 3D, with Clamp turned off. Specify a height and the desired extrusion type (ConeDown, ConeUp, Cylinder, Dome or Sphere) and then shift into 3D to view the extrusion.

After the circle has been created, select **Send** to send the circle to another user, select **Attachments** (paperclip) to attach a file(s) to the circle, or select **Edit** (pencil) to make changes to the circle's position and size on the map.

Select the circle on the map to open the circle's radial menu. Options available include: Delete, Fine Adjust, R&B Line, Clamp, Show Labels, Geo Fence, Edit and Details (with quick send from sub-radial). While an option is toggled on, such as Show Labels, its radial section will be highlighted blue. Select the **Edit** icon on the radial menu to launch edit mode. Move the circle center by selecting it and then a new location on the map for the circle to be placed.

Change the circle radius by selecting the circle edge and then a new location on the map for the radius. Select **Undo** to reverse changes in sequence. Select **End Editing** to save all changes and end edit mode. The entire circle can be moved by long pressing/right clicking on the circle center point and selecting a new location.



Create a Shape - Ellipse



To create an ellipse, select the **Ellipse** icon from the Drawing Tools menu. While the Ellipse Tool is active, click a location to place an edge and then adjust the shape of the ellipse by moving the mouse. Click again to confirm the shape of the ellipse.

Once the ellipse has been created, the Ellipse Details menu appears. Details that can be changed include: Name, Center Location, Elevation, Width, Length, Heading, Height, Color, Opacity, Line Style, and Remarks.

After the ellipse has been created, select **Send** to send the ellipse to another user, select **Attachments** (paperclip) to attach a file(s) to the ellipse, or select **Edit** (pencil) to make changes to the ellipse's position and size on the map.



Select the ellipse on the map to reveal the ellipse's radial menu. Options available include: Delete, Fine Adjust, R&B Line, Clamp, Show Labels, Geo Fence, Edit and Details (with quick send from sub-radial). While an option is toggled on, such as Show Labels or Clamp, its radial section will be highlighted blue.

Select the **Edit** icon on the radial menu to launch edit mode. Move an edge to a new location by selecting, holding and dragging. Click an edge vertex to access a radial menu with options for Fine Adjust, Coordinate Entry, and MGRS Entry. Select **Undo** to reverse changes in sequence. Select **End Editing** to save all changes and end edit mode. The entire ellipse can be moved by long pressing/right clicking on the ellipse center point and selecting a new location.





Freeform shapes can be drawn on the map in one of two ways. To start a freeform shape, select the **Freeform** icon from the Drawing Tools dropdown. The user can either click the map, move the mouse to draw the shape and then click the map again to finish the shape or left click + hold the mouse while drawing the freeform shape on the map and release to finish the shape.

Once the freeform shape has been created, the Shape Details will appear with options similar to that of the Polyline. The Name, Center Location, Height, Color, Opacity, Line Style, and Remarks can be edited.

Select **Send** to send the shape to another user, select **Attachment** to attach a file(s) to the shape, or select **Edit** to make changes to the shape's position and size on the map.

Select the freeform shape on the map to reveal its radial menu. Options available include: Delete, Fine Adjust, R&B Line, Clamp, Geo Fence, Edit and Details (with quick send from sub-radial). While an option is toggled on, such as Clamp, its radial section will be highlighted blue. Select the **Edit** icon on the radial menu to launch edit mode.

In edit mode the outline of the freeform shape will be populated with vertices that can be selected and dragged to a new location to refine the shape. Click a vertex to access a radial menu with options for Fine Adjust, Coordinate Entry, MGRS Entry, and Delete.

Right clicking a segment between vertices will insert a vertex at that point. Select **Undo** to reverse changes in sequence. Select **End Editing** to save all changes and end edit mode. The entire shape can be moved by right clicking on the center point and selecting a new location.



Create a Shape - Telestrate



To create a telestration, select the **Telestrate** icon. While the Telestration Tool is active map scrolling is disabled, allowing for free form drawing with a mouse or stylus on the map.



Select the **Color Palette** icon to open a drop-down palette of colors from which to choose. Once a color is selected, draw upon the map with the left mouse button or stylus. Several lines of various colors can be part of a single telestration. Select **Undo** to remove the most recent activity.

Select **End** to end the current telestration session and save all activity as a multi-polyline shape. The entire telestration can be moved by long pressing/right clicking near the center of the telestration and selecting a new location.

Selecting a telestration will open the Radial menu. Options available include: Delete and Details (with quick send from sub-radial). Select **Details** to change the Name or Height of the telestration, enter Remarks, Change Line Color, Line Style, Delete Lines or Add Lines.

After the telestration has been created, select **Send** to send the telestration to another user or select **Attachments** (paperclip) to attach a file(s) to the telestration.



Create a Shape - Manual



To create a manual polyline, select the **Manual** icon.

The Creating Polyline window will appear with tabs at the top to choose between the supported coordinate formats. Each coordinate entry represents a point in the polyline. Additional points can be added by selecting the + (Add Coordinates) button at the bottom of the window. If a set of coordinates has been previously copied, selecting **Paste Coordinates** will add a point for each coordinate entry in the set.

A point can be removed by selecting the - (Remove Coordinate) button that appears beside a coordinate entry. Select **Auto-Fill** to update a coordinate entry to use the coordinates of the map's center. A minimum of three points are needed to create a manual polyline. Select **Finish** to plot the polyline on the map.



3D shapes



Closed polylines, circles, rectangles, ellipses and freeform shapes with heights can be rendered as solid 3-dimensional objects when the map is in 3D View. Selecting the clamp option from the radial will clamp/unclamp the shape, allowing it to be viewable while 3D mode is active.

Line Styles

All shape types support four different line styles, solid, dashed, dotted and outlined. These line styles are accessible from a shape's details and are selected using the available drop-down.



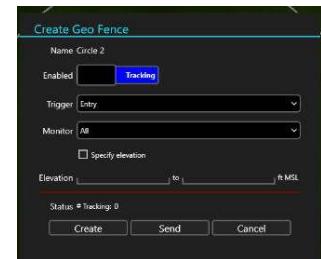
GeoFencing



The Geo Fence Tool creates a virtual fence that triggers entry/exit notifications if map items of interest cross the virtual boundary lines. A Geo Fence can be added to any closed Drawing Tool shape (circle, rectangle, closed polygon, ellipse, freeform).

To create a new Geo Fence, select the **Geo Fence** icon from the radial. The icon will not be highlighted and the tooltip will display “Create Geofence.” The Create Geo Fence window will open with options to configure the new Geo Fence. A previously created Geo Fence can be edited from its radial by selecting the **Geo Fence** icon (the icon will now appear highlighted and a tooltip will display “Edit Geofence”). Selecting the Edit Geo Fence radial option will open the Geo Fence tool which can be edited as needed.

The Enabled Field slider will move to Tracking by default when the Create Geo Fence window is opened. Toggle the slider between Tracking and Off to enable/disable the Geo Fence. Use the Trigger field to define which types of Geo Fence breaches to monitor. Choose between Entry, Exit or Both. Use the Monitor field to define which entities the Geo Fence will track. Choose between TAK Users, Friendly, Reds, Custom or All. Check the **Specify Elevation** box to enable the Elevation field, where elevation boundaries for the entities being tracked can be defined. Select **Create** to finish creating the fence. Select **Send** to send the shape with the active Geo Fence to another user. Select **Cancel** to close the Create Geo Fence window and discard changes.



The default radius for monitoring users (filtered within the “Monitor” field) outside the Geo Fence is set at 75 km. This means the total area monitored begins at the farthest point from the center of the shape plus 75 km.

When a Geo Fence breach has been detected, an alert widget will appear in the lower left of the map display and a notification will be listed in the WinTAK notification list. Select the **Notifications Flag** in the upper right corner of the window, to view the notification list, or select the **Geo Fences** icon in the Toolbar. Geo Fence alerts may be deleted from either location.



17 TRACK HISTORY



When GPS is available, WinTAK will track user movements, creating track paths. These track paths can be viewed on the display, exported to a file or uploaded to a server. A GPS position must be established before tracking can begin. Track History can be configured in Settings > Tools Preferences > Track History Preferences.

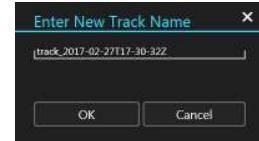


The Track History Tool controls the storage and display of track paths. Select the **Track History** icon from the toolbar to open it. The options include **New Track**, **Track User List** and **Clear Tracks**.

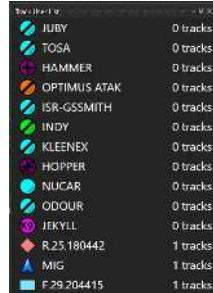
New Track

Select **New Track** to create a new track. Accept the default track name or enter a custom name, then select **OK** to begin the new track. GPS location data will be recorded as breadcrumbs in the track database.

Select the **Clear Tracks** option to remove any tracks from the map.



Track User List



Select **Track User List** to view track information that has been previously saved locally or on a TAK Server. The Track User List displays information about tracks stored on the local device. Select the user of interest, even if no local tracks are available. Selecting them makes the server search function available. Any local tracks that are available will appear.

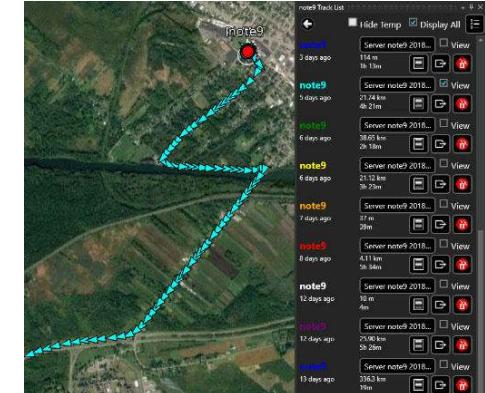
Select any track to display it and pan the map to its location. Multiple tracks can be visible on the map at the same time, and visibility can be toggled on and off by checking/unchecking the **View** box.

Select **Details** to modify the name, color or style of a selected track, as well as to view additional information. Access the Elevation Profile Tool from the Details menu by selecting the **Elevation** icon in the upper right.

Remove tracks from the list and map by clicking the **Delete** icon present in the Track List. Tracks can be exported as a KML, KMZ or CSV file, or to TAK Server by selecting the **Export** icon found in the Track List or within Track Details. Exported tracks are exported to the C:\Users\username\Documents\WinTAK\Export\ folder. Select **Done** to dismiss the Export feature or **Send** to send the track to another TAK user.

To retrieve track information from a TAK Server, ensure a TAK Server connection is available, select a desired user from the list, then select **Continue Search on Server**. Select the desired TAK Server from the drop-down list, use the slider to specify the desired time range, ensure Online is chosen, then select **Search**.

The tool will search the track database for matches against the specified time range and user callsign. The matching tracks are displayed as a list and are navigated in the same manner as local tracks. Tracks pulled from a TAK Server are identified as such in the track name.

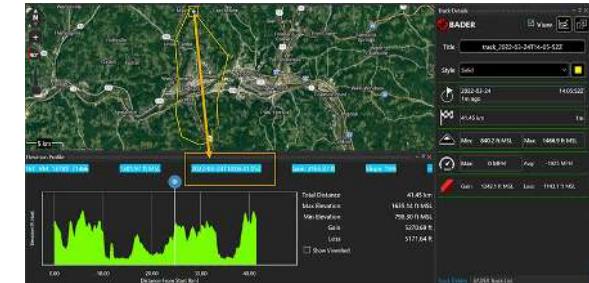


Track Replay



Tracks can be reviewed by selecting the **Elevation** icon from the track details page.

Selecting the elevation view opens the track history window. Dragging the blue dot displays the elevation profile of the track, as well as the date/time group for each point along the track.



18 DIGITAL POINTER TOOL

The Digital Pointer Tool provides access to several tools: Mark Tool, Digital Pointers (DP), Place Reds and Local DP.



The Mark Tool provides a quick way for discerning the coordinates and elevation of a location on the map. Select the **Mark** icon on the toolbar to open the Red X Tool. The icon turns blue to indicate that it is in the movable state. Each time the map is clicked the Red X will move to that location. The Red X position, elevation (if elevation data is installed) and Range & Bearing information is displayed in the widget at the upper right of the display.



Select the **Mark** icon again to pin the Red X to its current location. The pinned state is indicated by a lock that appears on the icon. The icon remains blue to indicate that the tool is active.



Select the Red X to open its radial. The options available are: Delete, R&B Line to Self (w/ sub-radial Place Bullseye), Fine Adjust, R&B Line and Place a Marker. Long press/right click the **Mark** icon on the toolbar to disable and remove the X.

Note: The Red X is not persistent. When WinTAK is closed and then reopened, the X will no longer be present.



Digital Pointer



Select one of the three **DP** icons on the toolbar to toggle the tool into a movable state. Select the desired location on the map and a DP indicator will appear at that location.



Select another location to move the indicator. Select the **DP** icon on the toolbar again to pin the DP and right click or long press to disable the DP. If other team members are on the same network, the DP markers will automatically be sent to them as notification messages.

The options available from the DP Marker radials are: Delete, Fine Adjust, Polar Coordinate Entry, Pair to Self (w/ sub-radial Place Bullseye), R&B Line and Place Marker.

The options available from other users' DP Marker radials are: Lock View, Delete, Bloodhound, Polar Coordinate Entry, Pair to Self (w/ sub-radial Place Bullseye), R&B Line, Breadcrumbs (w/ sub-radial Track History) and Place Marker.



Place Reds



Select the **Place Reds** button to quickly place multiple red markers. When toggled on, any click on the map will create a new red marker at the selected location.

Local DP



Select the **Local DP** button to place a local DP marker at specified coordinates.

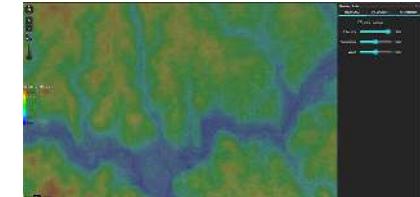


19 ELEVATION TOOLS



Select the **Elevation Tools** icon to open the Heatmap, Viewshed and Contour Lines functionality. The Heatmap shows elevation data on a color scale with lower elevations represented by blue and higher elevations in red.

The Intensity, Saturation, and Value can be modified to user preference. Elevation data needs to be imported for the heatmap to be visible.



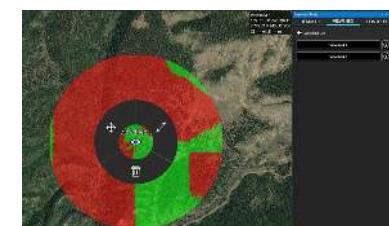
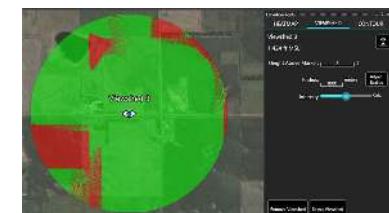
Viewshed

The Viewshed Tool allows the ability to choose a position on the map interface and determine visibility from that location based on the surrounding elevation data. Select the **Set Viewshed Marker** (eye) icon, then select a location on the map or a map marker. An eye marker will appear on the map interface. **Note:** If zoomed out too far, the user will only see the Eye View icon and will need to zoom in further to see the viewshed.

A circle will display with green representing areas visible to the viewer and red representing areas that are obstructed from view. The user can modify the viewshed radius. The Height Above Marker can be altered to reflect how far above ground level the viewshed should calculate. Intensity can be increased or decreased using the slide bar. Select **Remove Viewshed** to delete the viewshed from the map. Press **Select Viewshed** to show a list of all created viewsheds. Select an individual viewshed name to pan to it on the map. Select the details icon **i** to view or modify the current viewshed parameters.

The viewshed radial will open by selecting the **Eye** icon from the map. Available options are Delete, Fine Adjust and R&B Line.

Settings for Elevation Tools can be changed by navigating to Settings > Tool Preferences > Elevation Overlays Preferences.



Elevation Contour Lines

The Contour Lines Tool allows the ability to generate contour lines on the map in the area within the current map view. Select the **Contour** tab within the Elevation Tools screen. The **Generate** button becomes active when the map is zoomed to the correct scale (Scale varies based on screen resolution). Modify any of the fields desired and then select the **Generate** button. A progress bar and the percentage complete will appear to give feedback on the contour line generation.

Major Lines, Minor Lines and Labels can be toggled on or off without having to generate the contour lines again. Line color and Major Line Width can be changed after the lines have been generated. If the Interval or units (meters or feet) are modified, select the **Generate** button to regenerate the contour lines with the new values.

DSM Support

Digital Surface Modeling (DSM) imagery is supported in combination with the elevation heat map and the Mark tool. The Imagery files with DSM data can be manually placed in the C:\ProgramData\WinTAK\DSM folder for ingestion. When ingested, no actual imagery will be shown on the map, but it will provide height data for buildings and trees.

Pan to the location of the imagery file, turn on the heatmap and place a Red X in the highlighted area. The Red X will show additional information including Terrain Elevation and Surface Elevation. If Elevation Data is installed, estimated height will also be shown.

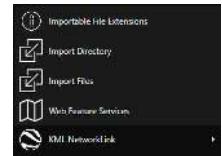


20 IMPORT MANAGER



Use the Import Manager to import supported files into WinTAK. Examples of file types that are supported include: XML, 3D Models, SQLite, MrSid, NITF, GRG, PFPS/RPF, GEOTIFF, GEOPDF, PFI, KML, KMZ, LPT, DRW, GPX, PREF, GML and SHP.

Within Import Manager, select **Importable File Extensions** to see a full list of all supported file type extensions. Files can be imported either by dragging and dropping a file into WinTAK, or by selecting **Import Manager** from the additional tools menu in the upper left corner. When prompted, select an import strategy for the file if necessary.

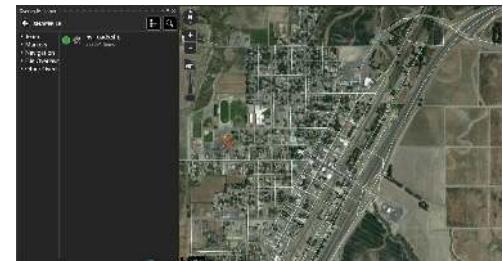


When the import is complete, "All files and folders successfully imported" will display on the screen. Imported DTED files will be placed into C:\ProgramData\WinTAK\DTED. Depending on the file type, most imported files will be accessible via Maps and Favorites, Overlays or Data Package.



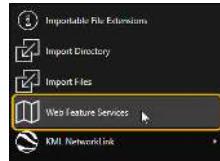
Imported XML and SQLite files are found under the Maps & Favorites' MOBILE tab.

Native type files such as MrSid, NTF, PFPS, GeoTiffs, CIB, and CADRG are found in the Maps & Favorites IMAGERY tab. Only the files that are currently in the map view appear in the IMAGERY tab. Panning the view will change the listing to correspond with the view. Files imported using the Image Overlay File import strategy will appear under the Image Overlays category in Overlay Manager.

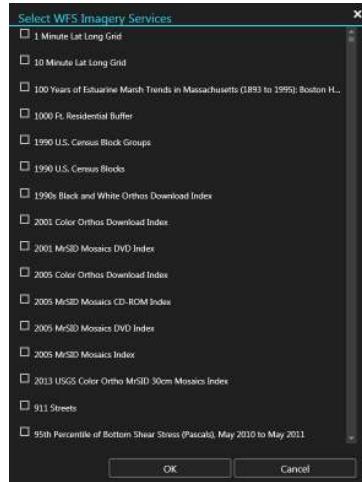


Imported overlay files, such as KML, KMZ, LPT, DRW, GPX, GML and Shapefiles, will be accessible under the File Overlays category in Overlay Manager. Imported Data Package files will be available in the Data Package tool. Imported KML geometry supports altitude and KML specified altitude modes (clamp-to-ground, absolute and relative-to-ground).

Web Feature Service (WFS) Support

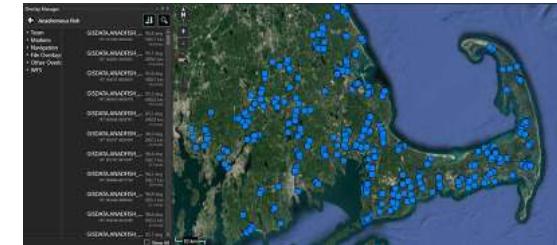


WFS imagery is supported and can be ingested in several different ways. If the user has an existing WFS xml config file, it can be dragged and dropped onto the map. The file can also be manually placed into the C:\ProgramData\WinTAK\WFS folder for ingestion.



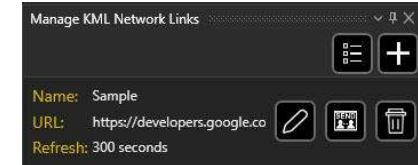
WFS Imagery can also be added by selecting **Web Feature Service** from the Import Manager options and entering a WFS Imagery Service URL. After querying the service, the user will be presented with a list of available Imagery sets.

WFS layers can be filtered using the Filter field at the top of the selection window. Once layers have been checked, select **OK** to import them. Imported WFS layers can be found under the WFS category in Overlay Manager.



KML Network Links

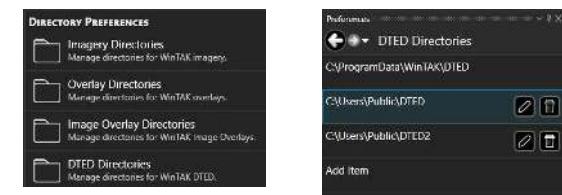
To setup a KML Network link, select **KML Network Link** then **Manage Network Links**. Once in the Manage KML Network Links panel, select **+**, enter a name for the link, a valid HTTP URL or Windows UNC path and a refresh interval. Select **Add** to save the link. The link will be downloaded and added to the map and the Overlay Manager's File Overlays category.



To add more links, or remove existing KML Network links, return to the KML Network Link import option and select **Manage Network Links**. Use the **+** to add more links or select **Delete** to remove an existing link.

Multiple Directories

Multiple directories can be set up to be processed when WinTAK is started. These directories include Imagery, Overlays, Image Overlays and DTED. Select **Settings > My Preferences** and scroll down to the Directory Preferences section. Choose the desired directory then select, for example, **Add DTED Source** to manage which DTED folders will be processed. Select the **Folder** icon, navigate to the location of the DTED folder, then select **OK** twice. WinTAK will now read from that folder for DTED information. Additional folders can be added and WinTAK will process all of them.



21 CLOUD FTP



The Cloud/FTP feature allows users to upload/download files from an external server. The types of servers supported are OWN CLOUD, FTP and FTPS.

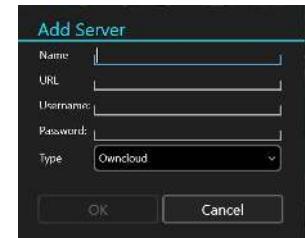
To access, select **Cloud/FTP** from the additional tools' menu in the upper left corner.

From the initial screen the user can add a server, select which server to use, download, upload or delete a file.

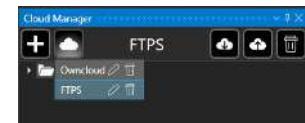


Select the **+** icon to launch the Add Server dialog. Enter the requested server information into the fields and specify the type of server to be defined. When all fields are complete, select **OK** to activate the connection to the server.

An error message will appear at the bottom of WinTAK if there is an issue with the entered credentials.



Select the **Cloud** icon, to display the Select Server options drop-down. If multiple servers are defined, choose the desired server to use for the current operation. Existing server settings can also be edited or deleted here.



Downloading Files

After choosing the desired server, select the **Download Cloud** icon to select files to download from that server. Left click on the folder name in the upper area and the files available in that folder will be presented in the lower area.

If the folder contains additional folders, those will be listed beneath the parent folder in the upper area. Select all files in the lower area that should be downloaded then choose whether the selected files should be downloaded to the local device or imported directly into WinTAK.

If the **Download Selected Files** button is selected, a Windows file explorer window will open to choose where to save the file.

If the **Import Selected Files** button is selected, the file is downloaded and imported into WinTAK. The Overlay Manager can then be opened to navigate to the item.

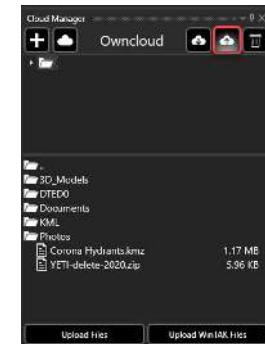


Uploading Files

After choosing the desired server, select the **Upload Cloud** icon, to either browse the file system and upload selected files or to select files from WinTAK Overlay Manager to upload.

To select files with a Windows file explorer window, select the **Upload Files** button. Navigate to the desired folder, select the file(s) for upload then select **OK**. The files will be uploaded to the directory that was selected on the server.

To select files with Overlay Manager, select the **Upload WinTAK Files** button. The Overlay Manager will open to the File Overlays category. Drill down into Overlay Manager to display the files and select a file. The selected file will be uploaded to the server.

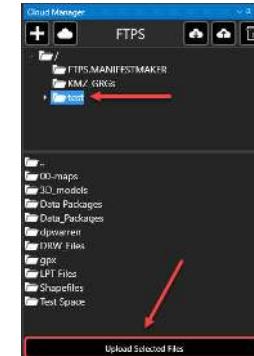


Uploading From Overlay Manager



Cloud/FTP support is also integrated into the Overlay Manager workflow. To initiate an upload from the Overlay Manager, select the **Multiselect** icon, choose the category and file(s) to be uploaded, then select **Export**. From the export drop-down, select the **Upload to Cloud** option.

Once the Cloud Manager window is open, select the server/directory for the upload and then select the **Upload Selected Files** button at the bottom of the window. The selected files will be uploaded to the directory that is selected on the server.



22 ATAK MANAGER



ATAK Manager is launched by selecting the **ATAK Manager** icon from the menu bar. ATAK Manager displays either the serial number of the device or the IMEI code of the device (if a SIM card is installed). This allows the user to quickly identify which device to update if multiple ATAK devices are connected.

The Device Details screen displays which version of ATAK is installed, the amount of space available on internal storage and external storage (if present) and displays a list of file types that can be imported/exported between ATAK and WinTAK. Select **Install** or **Update** next to the ATAK version number to launch a Windows File Explorer window. From this window, select the ATAK .apk file to be installed on the ATAK device. Selecting the APK will push the file to the device and then install it.

The Storage portion of the screen displays the amount of free/used space available on the internal and external (if present) SD cards.

The Files section allows the ability to transfer Imagery, Overlays, DTED, Image Overlays, Videos or Data Packages between ATAK and WinTAK devices.

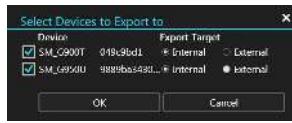
Select the type of data to be transferred and whether to **Export** data from WinTAK to ATAK or **Import** data from ATAK into WinTAK. Files can also be imported from an ATAK device's external SD Card.

Selecting the **Export** option opens a Windows file explorer window to the default WinTAK directory for that data type. Select the file(s) to export and ATAK Manager will copy the files to the correct location in the ATAK directory structure.

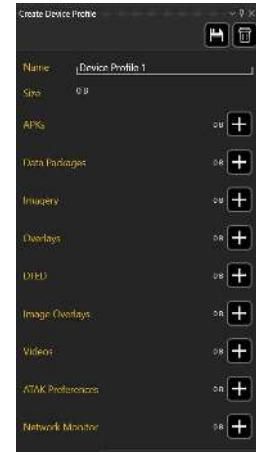
Selecting the **Import** option will display a list of files on the ATAK device matching the selection. Select the desired file(s) and click on the **Import** button. The files will be copied to the default WinTAK directory for that data type.



ATAK Manager (continued)



A device profile can be created to quickly load preset data onto an ATAK device. Under the ATAK Manager Icon, select **Device Profiles**, then the **+** button to create a new profile. This will open the Create Device Profile window. Select the **+** button to add APKs, Mission Packages, Imagery, Overlays, DTED, Image Overlays and Videos to the profile.



This profile can be exported to a single device or to multiple devices at once. The Device Profile can also be exported to either the internal or external (removable) SD card.

23 TOOLBAR MANAGER



Select **Toolbar Manager** from the additional tools menu in the upper left corner to customize the Toolbar. Buttons, groups and tabs can be rearranged, customized and removed here to meet the unique needs of different user groups.

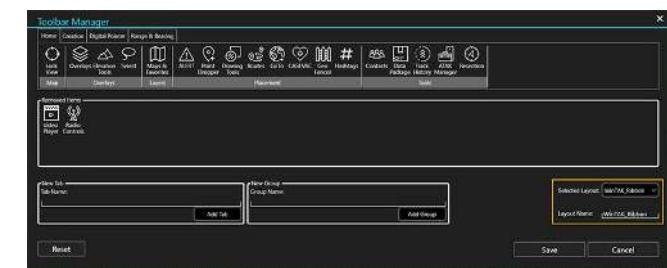
To rearrange individual icons within the Toolbar Manager, drag and drop them to the new desired location. Groups can also be dragged to different areas of the toolbar and Tabs can be dragged to appear in a different order on the toolbar.

To create a new tab, select the **New Tab** window, fill in a tab name and click **Add Tab**. An existing group now may be dragged and dropped into the tab. Once a group has been added to the tab, individual icons can be dragged in. New groups are created in a similar fashion using the **New Group** box.



To hide icons, drag them to the **Removed Items** box. Select **Save** when finished and the Toolbar will reflect the changes. **Reset** will return the Toolbar to its default configuration.

After the changes have been made, they can be saved with a custom layout name. This layout then becomes the default for WinTAK. Several custom layouts can be saved and changed to at any time by returning to Toolbar Manager and changing the selected layout.



24 CLEAR CONTENT



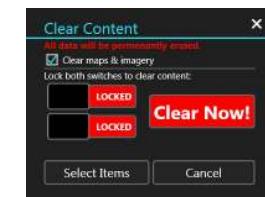
Clear Content removes all user-added content from the Windows Machine. Note that this action will permanently erase all WinTAK content. To access, select **Clear Content** from the additional tools menu in the upper left corner.

Selecting the **Clear maps & imagery** checkbox clears all map and imagery data that has been imported to the Maps & Favorites Tool.

To proceed with the clear content, both lock switches must be selected. This will activate the **Clear Now** button and all content will be removed when selected.



WinTAK will close when the process is complete. Specific items can be removed via the Clear Content tool by choosing the **Select Items** option. This will open the Overlay Manager multi-select tool where the items intended for deletion can be selected.



25 INSTALLING PLUG-INS

Plug-ins for WinTAK may be installed in two different ways: using the Plug-in Manager or by dragging and dropping .wpk files directly into WinTAK.

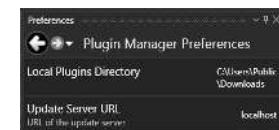
Plug-in Manager



The Plug-in Manager Tool provides a user interface for managing online products and product repositories in WinTAK. This tool streamlines the process of obtaining plug-ins and provides a single location for the user to manage TAK products available across all supported TAK product repositories.

To load/unload plug-ins to the core WinTAK application, select **Plug-in Manager** from the Application Menu. When launched, Plug-in Manager will display the current set of plug-ins installed. Options available are **Refresh** the listing, **Multi-select** and **Settings**.

To configure where Plug-in Manager searches for available plug-ins, select **Settings** in the upper right corner. Support is provided for searching both a Web Server (Update Server) or a directory on a local machine.



When using a Web Server to deliver updates, an admin must run the wpkbuilder utility and create a plugins.json file. Plugins.json defines what plug-ins are available for download. When WinTAK launches, it will automatically install all plug-ins stored in the configured local directory.

From the status window, the following operations can be performed: check the version, description and status of a plug-in; load or unload a single plug-in; or use the multi-select tool and load/unload multiple plug-ins with a single operation.

Note: that the load/unload options are enabled after the user has selected a plug-in(s) to work with.



Drag and Drop Plug-in File

When WinTAK is running, a plug-in WPK file can be dragged and dropped from the Windows File Explorer window onto the WinTAK main screen. The Import Manager recognizes the WPK file, installs and loads it.

