

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

July 9, 2020

Attachment 9 –American Airlines Flight Operations Bulletin 17-007B

OPERATIONAL FACTORS/HUMAN PERFORMANCE

DCA20CA043

Installation and Set Up

Purpose

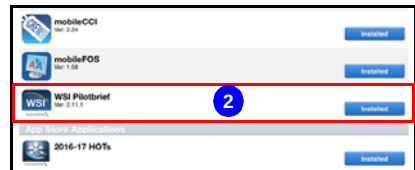
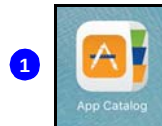
This bulletin is a *reprint* of bulletin 17-007a with updates identified by change bars. This version of WSI Pilotbrief® Optima for iPad provides a new, vertical profile view for active flights.

1.1 Installation and Set Up

1.1.1 Installation

Connect to a WiFi signal prior to set up.

1. Open the App Catalog application by clicking on the App Catalog icon.
2. Check to see if WSI Pilotbrief is installed.
 - a. Select Install or Update as required.



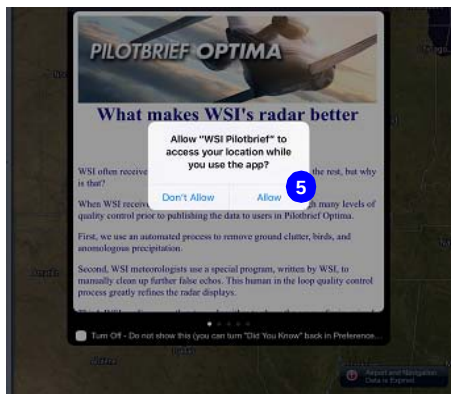
1.1.2 Set Up

3. Open the WSI Pilotbrief application by clicking on the WSI Pilotbrief icon.
4. Sign in using the following information and click on Sign In:
Username: AA123456 (use six-digit employee number)
Password: american (all lower case)



Installation and Set Up

5. Allow location services.



6. Tap the Downloads tool bar button.

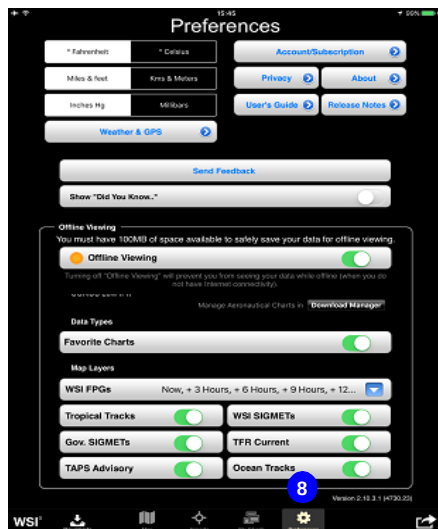
Download all maps and databases by pressing all available green arrows.



7. Tap the Airport and Navigation Data is expired popup to update database information. See also paragraph 1.2.3 Update Airport and Navigational Database.

8. Select Preferences

Turn on all desired preferences. If not sure, turn them all on.



Preflight

1.2 Preflight

1.2.1 Preparation

Connect to a WiFi signal prior to flight to avoid overusing the iPad cellular data plan and excessive flightdeck WiFi bandwidth.

• **Note** •

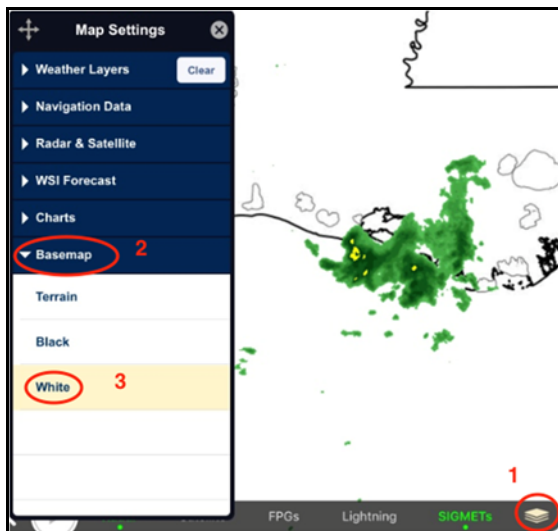
Limit use of the cell data plan to *off gate* delay situations.

1.2.2 Basemap Settings

WSI defaults to the terrain basemap when not connected to the internet. If connected at a lower bandwidth and prior to flight origination, change the basemap to white or black to improve performance.

Change the Basemap to white or black background as follows:

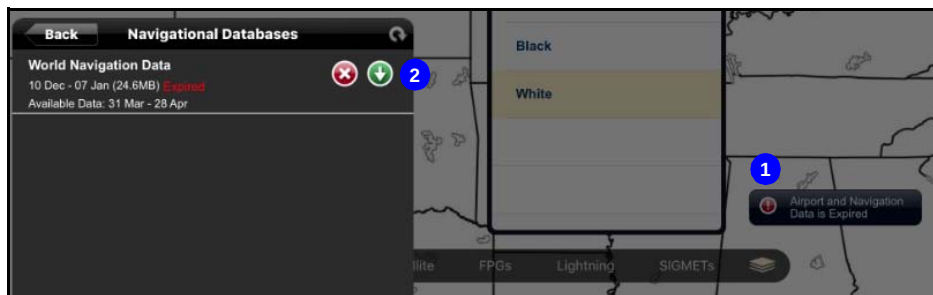
1. Tap on the Layers icon on the Map tool bar.
2. Tap on Basemap to display a drop down menu.
3. Tap on White (or Black).



Preflight

1.2.3 Update Airport and Navigational Database

If required:



1. Tap the red-circled exclamation point (!).
2. Tap the green-down arrow to begin the update. Allow it to complete.
3. Tap anywhere outside the Navigational Databases popup to close the download manager.

1.2.4 Flight Plan Search

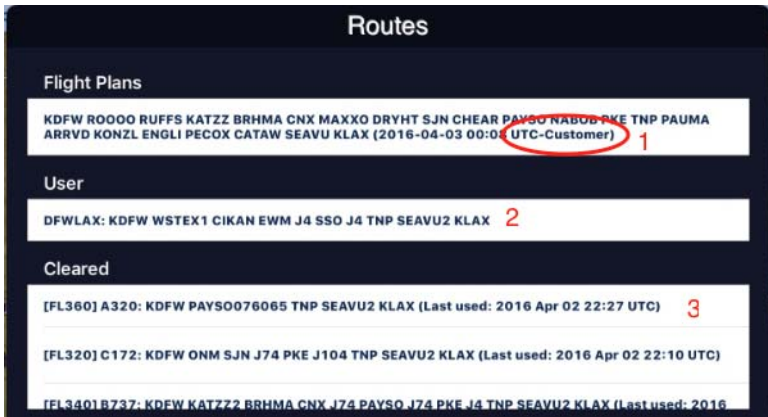


1. Type in AAL + your flight number (e.g., AAL1104) in the search window.
2. Tap Search on the keyboard.

Preflight

Route Results

Tap one of the following options that best matches your route, manually type in your route or choose a direct routing:



- Customer denotes exact flight plan search match from dispatch.
- Other options are CDR (coded departure routes), Preferred routes, and Direct route.

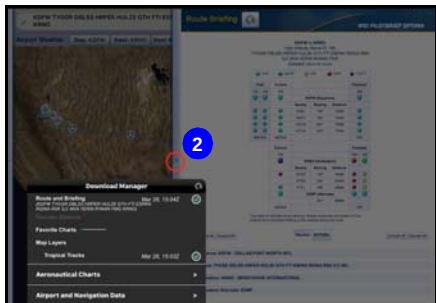
Route Briefing Download

1. Tap Briefing.
2. Close the Briefing window when complete.



Note: This will download route information, save your favorite weather charts for off-line viewing and save favorite airport information.

Allow the rest of the weather picture to download and display, if required.



Weather Map

1.3 Weather Map

1.3.1 Map Tool Bar



Use the map tool bar to display desired weather: Radar, FPGs, Lightning, etc. Green font (e.g., Radar, FPGs, and Lightning in the example above) denotes selected to display.

- Note •

A WiFi signal is required to display live weather.

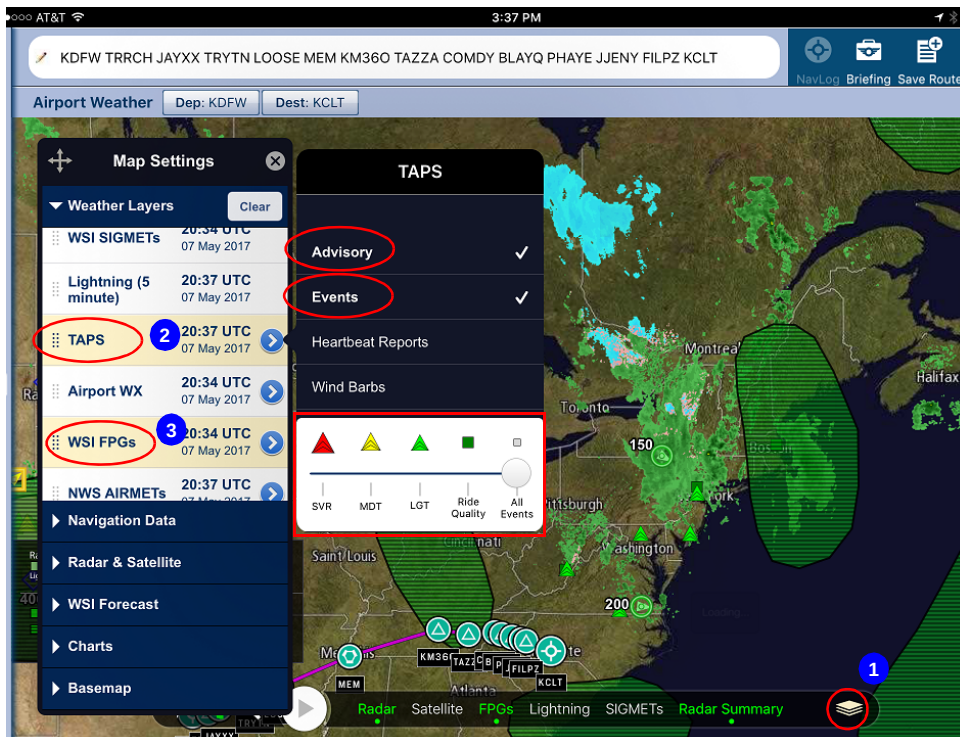
Screen Shots

Take screens as required to brief your crew outside of WiFi connectivity. Access your screen shots in the Photos application.



Weather Map

1.3.2 Available Map Layers



1. Tap the Layers icon.
2. Tap Weather Layers, then TAPS, then select Advisory and Events (turbulence reports) to enable the display of data from TAPS enabled aircraft.

• Note •

Leave the slider set to All Events.

3. WSI FPGs will display WSI flight plan guidance alerts based on turbulence, convective and icing condition forecasts.

• Note •

Tap the displayed area to reveal information about the guidance area.

Turbulence

1.4 Turbulence

1.4.1 Turbulence Auto-PIREP System (TAPS)

The Turbulence Auto-PIREP System provides turbulence data directly from a TAPS-equipped aircraft for standardized reporting.

Ride Quality Reports

Either a:

- square for a *normal* ride report
- triangle for a turbulence report



RMSG Values

RMSG values are as follows:

0 to 0.099 (Blue): Smooth ride.

0.1 to 0.2 (Green): LGT turbulence at lower values. Upper end may produce occasional moderate. Expect seat belt sign on at higher values. Seat belts have been called for by pilots experiencing RMSG values as low as .03 in the B737. We are currently validating the scale to ensure reports accurately reflect the potential for pilot action at the depicted locations based on the type of aircraft reporting and later encountering.

0.21 to 0.3 (Yellow): MDT turbulence and a rough ride, seat belt sign on.

Above 0.3 (Red): SVR turbulence.

Turbulence

1.4.2 RPM Forecast Turbulence

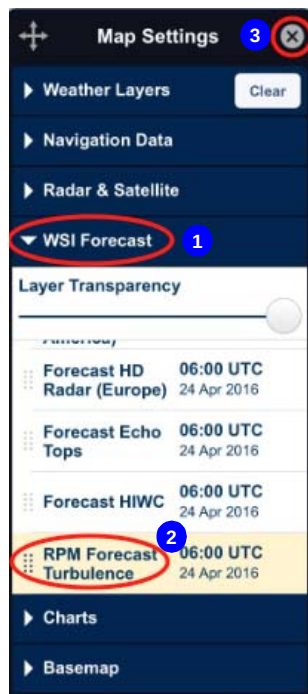
If not already done, tap on the Layers icon to get the Map Settings window, then:

1. Tap WSI Forecast.
2. Tap RPM Forecast Turbulence to display the same turbulence models used by dispatch for flight planning.

Note: Selecting RPM Forecast Turbulence will **deselect** Radar (i.e., Radar and RPM Forecast Turbulence cannot be displayed at the *same* time).

3. Tap the “X” to close the panel.

Note: These forecasts are a **prediction**, not a display of *actual* conditions. Mountain wave and convective turbulence are not included.



Turbulence

4. Tap the Play button in the map tool bar to view the forecast for the next several hours.



5. Move the slider to display the predicted turbulence at that level. In the above example, FL 120 is displayed.
6. Tap the small green triangle to get TAPS data sent from a TAPS-equipped aircraft reporting in that location to compare nearby TAPs reports to validate the predictions.

In the example above, there is a cluster of 6 light turbulence reports in a light to occasional moderate turbulence area. The predicted turbulence is for FL120. An A319 is reporting on the high side of light turbulence at FL103 (10,300) and a B737-800 is reporting light turbulence at FL095.

Use of WSI Enroute

1.5 Use of WSI Enroute

1.5.1 Flightdeck Connectivity

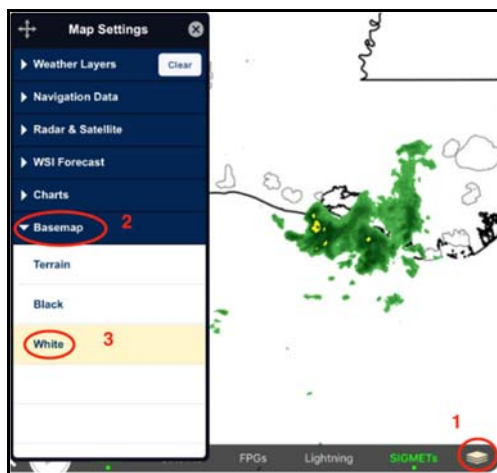
iPad will automatically connect to AA-Flight Deck Wi-Fi. If WSI remains offline, check iPad Settings >Wi-Fi and ensure AA-Flight Deck is active. If GoGo Inflight is the active network, you must tap the circled “I” and choose Forget this network. Then verify AA-Flight Deck activates.

Narrow body GoGo equipped aircraft do not have service over water greater than 50 nm from shore. Wide body, Panasonic equipped aircraft will not have service above 70°N latitude. Other atmospheric conditions or geographic locations may also hinder service quality. The B787 is known to have weak signal strength on the flight deck. These crews will need to coordinate WSI updates with crew rest periods until this is rectified.

1.5.2 Basemap Settings

WSI defaults to the terrain basemap when not connected to the internet. Change the basemap to white or black to improve performance as follows:

1. Tap on the Layers icon on the Map tool bar.
2. Tap on Basemap to display a drop down menu.
3. Tap on White (or Black).



VERTICAL PROFILE

1.5.3 Monitoring

• Note •

The pilot monitoring should perform WSI updates airborne.

It may take a minute or two for WSI to fully connect. Do not leave WSI open and active continuously. The Company recommends updating on the hour similar to a destination ATIS update as a starting point to avoid unnecessary data and battery usage. Use WSI more frequently *only* when the situation dictates (i.e., in turbulence, weather, etc.)

1.6 VERTICAL PROFILE

The Vertical Profile provides a view of the vertical airspace with observed and forecast weather conditions for a selected route. It displays TAPS, WSI FPGs, and RPM Forecast Turbulence along the flight route so you can see when and where the aircraft may encounter severe weather.

To watch a video of the Vertical Profile feature, see: <https://wsi.wistia.com/medias/wpbwqzt10e?wvideo=wpbwqzt10e>.

To display the vertical profile for the selected route, tap **Vertical Profile** in the top panel.

Active and disabled Vertical Profile button



If the button is disabled, tap  for an explanation. Routes currently being edited cannot be used to generate a vertical profile, and you must also be online to generate the vertical profile. Once it has been calculated, it is available offline.

Tap the VERTICAL PROFILE button to display the Vertical Profile Settings window.

VERTICAL PROFILE

Customizing the vertical profile

Provide the following information, if necessary:

- **ETD** – Enter the estimated time of departure in coordinated universal time. This time may be in the past, but the flight must end in the present or future to display its vertical profile.
- **Duration** – Enter the estimated length of the flight.
- **Dep Date** – Check the date of departure for the flight (based on coordinated universal time). This date can be yesterday, today, or tomorrow.
- **Planned FL** – Select the cruising flight level.
- **Max FL** – Select the maximum flight level you want to display on the y-axis of the vertical profile graph.
- **TAPS Radius** – Select the radius around the flight for which you want to display TAPS events and heartbeats. If this setting is not displayed, your company does not subscribe to the TAPS service plan.

These settings can be modified any time by tapping  on the vertical profile. Your changes to the vertical profile settings are saved as long as the flight is displayed on the map. Your changes are not saved if you start over and select another route or flight.

Tap **Show Vertical Profile** to display the Now tab of the flight's vertical profile. WSI Pilotbrief® Optima's top panel is collapsed automatically to maximize screen real estate.

VERTICAL PROFILE

Displaying the Vertical Profile's Now tab (left) and Forecast tab (right)



The vertical profile graph displays altitude on the y-axis. The x-axis displays time. The position of the waypoints on the x-axis correlates to the relative distance between them.

The vertical profile header displays TAPS, WSI FPGs and RPM TURBULENCE layers. Those are the only weather products available in the vertical profile. The associated weather is displayed when the layer name is blue and turned off when the layer name is gray. Touching the layer name will turn the weather product on and off when it is available. In the above examples TAPS and WSI FPGs are displayed in the left graphic displaying current weather (NOW). WSI FPGs and RPM TURBULENCE are displayed in the right graphic (FORECAST).

• Note •

WSI SIGMETS are not currently available in the vertical profile

The vertical profile flight progression is always from left to right, even when the overhead view flight progression is right to left.

Pinch and spread the graph to zoom in and out of the vertical profile graph. Pinch and spread the flight levels to view more or fewer flight levels.

VERTICAL PROFILE

1.6.1 Viewing Current Information In The Vertical Profile

Tap the Now tab to display observed TAPS events and WSI FPGs that are currently valid for the route on the graph. You can tap a WSI FPG or TAPS event to display its details on the map.

Above the graph is a toolbar you can use to toggle the display of the weather data. You can:

- Tap a layer name in the toolbar to show or hide the layer data.
- Tap  to view a legend for RPM Turbulence and WSI FPGs.
- Tap the **Vertical Profile** tab to collapse the view to the bottom of the map. Tap again to expand it.

Each weather layer in the toolbar has a progress bar that indicates that data is being downloaded. Once downloaded, each control displays a timestamp for its data. If you are offline, as the data ages, the timestamp will display in yellow, then in red. “No data” is displayed if the data is unavailable.

When you are online, weather data updates automatically. The following table shows how frequently Pilotbrief® Optima can update each layer (that is, when new data is available on the server for download) and the time after which the timestamp is displayed in yellow or red on the toolbar.

Table 1.1 Update frequency and warning times (in minutes) for layer data

Layer	Update Frequency	Caution	Warning
TAPS	5	15	30
WSI FPGs	5	15	30
RPM Turbulence	Dependent on model run; can be variable		

When you are viewing the vertical profile, the Altitude slider on the map is hidden to prevent confusion.

VERTICAL PROFILE**1.6.2 Viewing Forecasted Information In The Vertical Profile**

Tap the Forecast tab to display forecasted RPM Turbulence and WSI FPGs (3hr, 6hr, 9hr, 12hr, 15hr, 18hr) for the duration of the flight.

The primary function of the Vertical Profile is for pre-flight planning. As a flight's estimated time of departure moves into the past, the Forecast tab may not display past forecasts for WSI FPG and RPM Turbulence.

The x-axis shows the time in 30-minute increments and the y-axis shows altitude. Distance is shown by the relative position of the waypoints on the x axis. The estimated time of departure is shown near the position of the first airport on the timeline. The destination airport is shown at the estimated time of arrival. A new day is indicated at 0000. ETD is rounded down to the nearest half hour; ETA is rounded up.

Tap on the timeline or drag the slider to display the weather on the map based on the time of the slider on the vertical profile. A matching icon is displayed on the map at the position of the time slider and the map centers on the point you are selecting in the vertical profile.

VERTICAL PROFILE

1.6.3 Modifying The Flight Levels For Your Route

Tap a waypoint on the vertical profile to display its name. Drag the waypoint to create a route that avoids weather events. When you drag the waypoint, all the waypoints after that waypoint in that phase move to the same flight level. The new flight level is displayed with a magenta dashed line, and the previous flight level is displayed in gray.



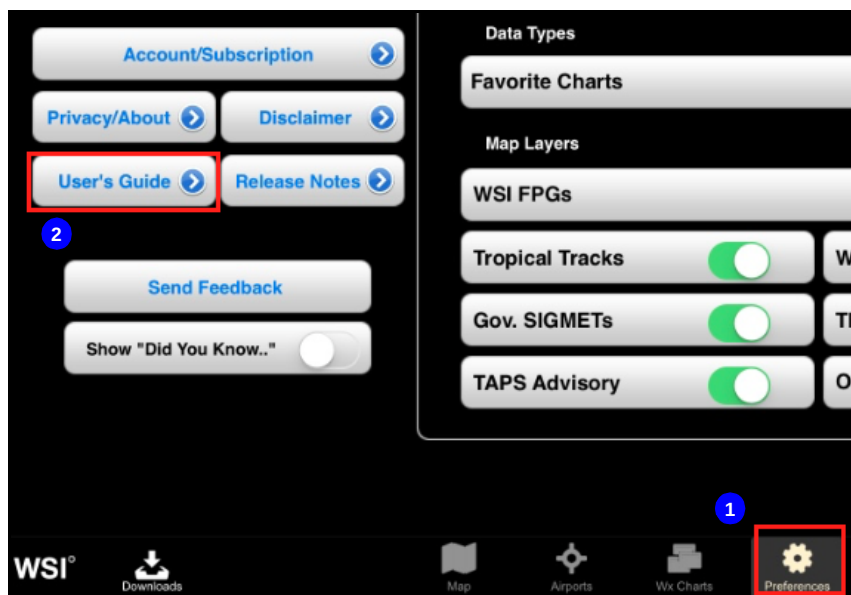
The vertical profile updates dynamically to reflect any valid changes to the route made on the map or to the route string. When you add a waypoint to the route on the map, the waypoint is added at the planned flight level selected in the Vertical Profile Settings window. If you edit the route to replace the departure or destination airport, the vertical profile closes. Tap **Vertical Profile** again to regenerate the vertical profile for the new route.

Your changes to the vertical profile settings and flight level adjustments are saved as long as the flight is displayed on the map. Your changes are not saved if you start over and select another route or flight. Your changes to the vertical profile are only visible to you. To share your work, tap **Snapshot** and select **Email Snapshot**.

WSI User's Guide

1.7 WSI User's Guide

1.7.1 Detailed Information. More detailed information is available inside the WSI application. To access the user guide:



1. Tap the Preferences icon.
2. Tap on User's Guide.