



# **ATD-2 Integrated Arrival/ Departure/Surface (IADS) System Software Version 6.x Releases and Notes**

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# 1 Purpose

Below is the release schedule and release notes for the 6.x series of releases. The release notes list all changes versus the previous version. The software spreadsheet lists JIRA issue which impacts the stakeholders with a short Release Note about what the impact was. The Release Notes for Distribution is meant to be even more readable by stakeholders.

Release	Release Date	DFW Deployment Date	Notes
V6.0.0	31 Mar 2021	05 Apr 2021	Parsing of AFPs Parsing of FCAs and mark intersecting CDRs as unavailable TOS Tower-Center approvals Other TOS enhancements
V6.0.1	17 May 2021	19 May 2021	TOS bug fixes
V6.0.2	24 Jun 2021	28 Jun 2021	TOS bug fixes
V6.1.0	08 Jul 2021	12 Jul 2021	TOS Web-based Table
V6.1.1	30 Jul 2021	02 Aug 2021	Terminal Scheduler logging bug fixes TOS Web-based Table improvements
V6.1.2	20 Aug 2021	24 Aug 2021	TMI updates to FCA processing TOS Web-based Table improvements

## 2 Release 6.0.0

### 2.1 Overview

This document describes the changes to the ATD-2 software baseline for version 6.0.0. Version 6.0.0 was deployed on 5 April 2021 to DFW only.

### 2.2 Adaptation

- Updated TRACON maps.
- Updated CDR and NFDC data corresponding to Chart Change Updates.

### 2.3 NAS-Model

- Created the initial services and models based on Machine Learning. The models were developed and trained for DFW and DAL, but are capable of running anywhere in the NAS. Although initially deployed at the same time as the STBO release, it is not part of the core ATD-2 system, but instead will be running on a parallel shadow system.

### 2.4 STBO Client

- Split the single D10-ZFW combined Client into two separate Clients, one for D10 and the other for ZFW. All user preference files have been distributed to the appropriate Client.
- Added the Proposed Off Block Time (POBT) to the Flights Table and TOS Departure Table, and to the TOS Departure Table's filters.

- Added the TOS Approval status to the Client's main toolbar. The status is used to indicate whether the Tower or the Center has TOS Approval authority.
  - The status is a toggle:
    - "DFW-ZFW" for DFW, AAL, and ENY
    - "DAL-ZFW" for DAL and ZFW
    - a pair of toggles "DFW-ZFW" and "DAL-ZFW" for D10 and ZFW.
  - This toggle is editable for Tower and Center users and view-only for the TRACON and Flight Operator users.
  - The toggle will display the facility which has TOS Approval authority in green; the non-approving facility will be displayed in white. The toggle also has a tool tip which clearly states which facility has approval authority when the mouse is hovered over it.
  - A notification will be posted in the Client's Notification Window when the TOS Approval authority changes.
  - The TOS Alerts dialog will only display for the ATC facility that has TOS Approval authority. For example, if a Flight Operator submits a route request when the Tower has approval authority, the TOS Alerts dialog will only display at DFW; there will be no alert displayed at ZFW.
  - TOS visual alerts have been turned on by default in all ZFW user preference files. For ZFW users, this setting is only applicable when the Center has TOS Approval authority. The display of the TOS Alerts dialog can be turned off by accessing the Toolbar -> Settings -> TOS Alerts and de-selecting the Visual Alerts checkbox.
  - The TOS Alerts tab has been removed from the Settings window for the TRACON user since the TRACON user does not have TOS Approval authority and so will never need the alerts.
- Reset the TOS Approval authority to the Tower every night during the nightly TMI reset.
- Added "Time to Expiration" in the TOS Departure Table and its associated filters and color alerts. The value depends on whether the Tower or Center has TOS Approval authority:
  - Tower: "N/A" for flights with Candidate/Potential Eligibility State.
  - Center: Rounded minutes until the TOS will be expired for flights with Candidate/Potential Eligibility State, or "0" once the Eligibility State for the TOS is Expired (see the TOS Service for notes on when a TOS becomes Expired).
- Blocked the ability for a Flight Operator to submit a TOS route request when a flight's TOS is Expired (see the TOS Service for notes on when a TOS becomes Expired).
- Enhanced the TOS Scratch Pad to facilitate communication between ATC and Flight Operators.
  - The Show/Hide checkbox was removed from the Scratch Pad dialog.
  - A history of all scratch pad messages for a flight was added to the Scratch Pad dialog.
  - If a new scratch pad message is received for the flight, it is highlighted with light green in the TOS Departure Table. This is non-configurable.
  - The new message highlight can be cancelled either by opening the Scratch Pad dialog or by using a new "Mark as Read" right mouse menu option.
- Removed "RMNT" and "Top RMNT" from the TOS Departure Table, the TOS Flight Menu, and their associated filters and color alerts.

## 2.5 Terminal Scheduler

- Added the Arrival Departure Window (ADW) separation for 35L and 31R at DFW.
- Added a convergence tolerance of 1 second, such that, if the time been iterated on is within 1 second, it is assumed the iteration has converged. The tolerance is specified in the property file.

## 2.6 TMI Service

- Added the parsing of Airspace Flow Program (AFP) messages from TFM Flow.
- Added the parsing of Flow Constrained Area (FCA) messages from TFM Flow.

- When an FCA is processed through the TMI Service, it is now included in the CDR availability logic so that intersecting CDRs are marked 'not available'.
- FCA-related reroutes are displayed in the STBO Client's DCC Advisories panel in the TM Actions window.

## 2.7 TOS Real-Time Metrics Display

- Added the ability to save graph settings in a user profile.
- Added a login screen to access the graphs, which is required to allow users to save settings.

## 2.8 TOS Service

- Updated so that if a flight is in a "Reroute Filed or "ATC Approved" Coordination State and a new filed route is received by the system, then the ATC Approval will be removed on every TOS option that does NOT match the new filed route, reverting the Coordination State back to "FO Submitted" for those route options.
- Updated to detect whether the Tower or Center has TOS Approval authority, which is set either from the STBO Client or by the nightly TMI Reset.
- Changed the runway assignment for TOS route options so that, instead of each TOS option being given the same runway as the filed route, the TOS options will be assigned a runway based on the runway scenario/taxi plan. This supports the general assumption that the best predicted runway for a TOS route is based on the runway scenario, until the user decides otherwise. This means that different route options may have different runway assignments within the same TOS.
- Enhanced the TOS Eligibility State computation to detect if a TOS is Expired.
  - A TOS is expired if the flight's filed departure time (displayed as POBT on the STBO Client) is within a threshold of the current time (i.e., a TOS is Expired when  $POBT < (current\_time + threshold)$ ).
  - If the threshold is 0, then the check for expiration is skipped (i.e., a TOS will not be marked as Expired).
  - There is one threshold used when the Center has TOS Approval authority and a different threshold when the Tower has TOS Approval authority. All Towers use the same threshold.
  - The threshold when the Tower has approval authority is currently set to 0, which means that when DFW or DAL have TOS Approval authority, TOS options will not be marked as Expired.
  - The threshold when the Center has approval authority is currently set to 35 minutes, which means that when ZFW has TOS Approval authority, TOS options will be marked as Expired when the flight's POBT is less than 35 minutes into the future.
- Updated the Eligibility State processing so that a flight that has a TOS route option that has been Submitted or Approved will only have an Eligibility State of Potential, Candidate, or Expired (unless the flight is already departed or cancelled, or the route option is not an alternate route). Previously, a flight with a TOS route option that had Coordination State = Reroute Filed could possibly have an Eligibility State of NOT\_APPLICABLE, which caused the flight to be dropped from the display on the Client TOS Departure Table and to lose its timeline green T.

# 3 Release 6.0.1

## 3.1 Overview

This document describes the changes to the ATD-2 software baseline for version 6.0.1. Version 6.0.1 was deployed on 19 May 2021 to DFW only.

## 3.2 Adaptation

- Updated the CDRs and NFDC adaptation data based on the 04/22/21 CCU.

## 3.3 Fuser

- Updated to filter out EDCTs from TBFM. This corrects the problem where TFMS cancels an EDCT and then TBFM resets it.
- Updated so that commas in a scratch pad entry will be replaced with the UNICODE equivalent before inserting the scratch pad entry into the database. This solves the problem of the database interpreting the comma as a delimiter in a comma-separated list.

## 3.4 STBO Client

- Imported the latest user preference files. Per AAL's request, all AAL user preference files were deleted except the SPAD\* and TEMPLATE\* files.
- Extended the flight plan demand window to 4 hours in the future and 4 hours in the past; previously it was capped at 2 hours in each direction.
- Restricted the Scratch Pad dialog to replace a '\$' character with an '\_' character due to the '\$' having special meaning in supporting libraries.

## 3.5 TOS Service

- Updated to allow an assigned route to be cleared. This corrects a problem where the filed route did not change on the TOS client after the flight transitioned from REROUTE\_FILED back to SUBMITTED.
- Updated the departure fix assignment for TOS route options so that, if the user assigns a departure fix to a flight, the assignment is only applied to the filed route, not the alternate TOS routes.
- Updated the predictions in the case of a SWAP TMI (a fix closure with alternative fixes out a different gate) such that the affected flights will fly the shortest CDR route through the alternative route. The shortest CDR's route distance will be used to compute the IN Delay, IN Delay Savings, and Relative Trajectory Cost (RTC), which in turn will drive which other routes are recommended as candidates.

# 4 Release 6.0.2

## 4.1 Overview

This document describes the changes to the ATD-2 software baseline for version 6.0.2. Version 6.0.2 was deployed on 28 June 2021 to DFW only.

## 4.2 Adaptation

- Updated CDR and NFDC data for the 06/17/2021 CCU.

## 4.3 Fuser

- Corrected handling of filed reroutes from SFDPS. Mediation rules were updated so that SFDPS has the highest priority for the filed route (10a) and local intended route (10b); TBFM is second.
- Corrected mediation rules for EDCT so that TFM was listed as a higher priority than TMA.

## 4.4 STBO Client

- Imported the latest user preference files for DFW, plus proposed user preference files for ENY and SWA.

## 4.5 Terminal Scheduler

- Corrected the problem that the ETOT for the filed route was not being published to the TOS Service.

## 4.6 TMI Service

- Added a check in the TMI Reset that the default TMI file will be updated only if there was actually a change to the persistent TMIs.

## 4.7 TOS Service

- Corrected how the filed time is set when a flight is rerouted.

# 5 Release 6.1.0

## 5.1 Overview

This document describes the changes to the ATD-2 software baseline for version 6.1.0. Version 6.1.0 was deployed on 12 July 2021 to DFW only.

## 5.2 TOS Web-based Table

- Recreated the STBO Client's TOS Table to be available in a browser.
  - The web page can be configured with multiple data tables, each with its own column configuration, filter selection, and sort criteria.
  - A right click menu provides the ability to open a Flight Menu for any displayed flight.
  - The Top route (if any) in the Flight Menu will be highlighted in green as it is in the Client.
  - The Eligibility and Coordination fields will be color-coded as they are in the Client.
  - Flight Operators have the additional right click menu to Submit a route request, Undo a previously submitted route request, or to Exclude a flight from TOS.
  - ATC users have the additional right click menu to Approve a submitted route request or Undo a previously approved route request.
  - When a Flight Operator submits a route request, a visual alert will be displayed on the appropriate ATC Tower or Center display.
  - When ATC approves a route request, a visual alert will be displayed on the appropriate Flight Operator display.
  - All users (ATC Center, TRACON, and Tower, and all Flight Operators) each have their own login and have the ability to load and save their own user preferences.
  - The data displayed in the tables are filtered from the server so that Flight Operators see flights only from their own carrier, and ATC Tower users will only see flights from their airport.

## **6 Release 6.1.1**

### **6.1 Overview**

This document describes the changes to the ATD-2 software baseline for version 6.1.1. Version 6.1.1 was deployed on 2 August 2021 to DFW only.

### **6.2 Terminal Scheduler**

- Updated the logging to reduce log file sizes and scheduler run time.

### **6.3 TOS Web-based Table**

- Enhanced the readability and user friendliness of the display.

## **7 Release 6.1.2**

### **7.1 Overview**

This document describes the changes to the ATD-2 software baseline for version 6.1.2. Version 6.1.2 was deployed on 24 August 2021 to DFW only.

### **7.2 Adaptation**

- Updated CDR and NFDC data based on the August 12, 2021 Chart Change Update.

### **7.3 TMI Service**

- Updated so FCAs will only be applied to CDR availability if there is a current corresponding AFP in the system. If there is no corresponding AFP, the FCAs are still parsed and stored in the event that the AFP is later added; however, the FCA will not affect CDR availability.

### **7.4 TOS Service**

- Corrected the original route flag set when the original filed route is a CDR. Also, the RTC value is zeroed out on the current NAS filed route.

### **7.5 TOS Web-based Table and Real-Time Metrics Display**

- Updated the displays to be more user-friendly.