Airspace Technology Demonstration II (ATD-2)

American Airlines CLT Ramp Training RTC/RMTC

September 8, 2017
Vicki Dulchinos & Savvy Verma

Agenda

| Training Topic	Duration
A. Overview of ATD-2 & RTC/RMTC	30 Min
B. Interface Details: Upper Status Bar: (Map Features, Notifications)	30 Min
C. Interface Details: Flight Strip and Flight Menu	30 Min
D. Data Exchange and Integration	30 Min
E. Metering Modes, and Tactical Scheduler Advisories	1 Hour
F. Interactive Exercises on all the above	1 Hour
	Total 4 Hours

Field Demo Partners
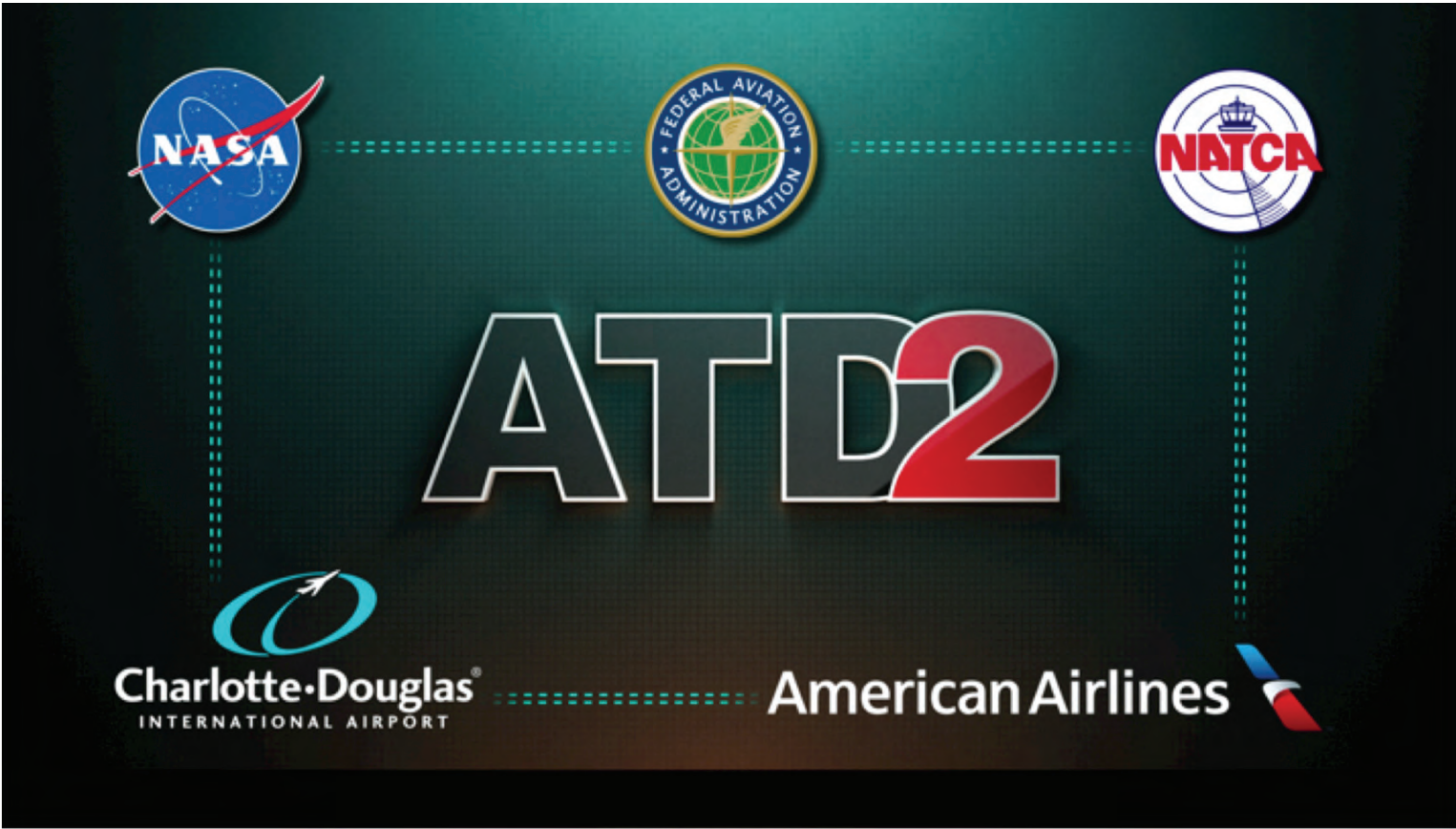
Concept Overview – Users

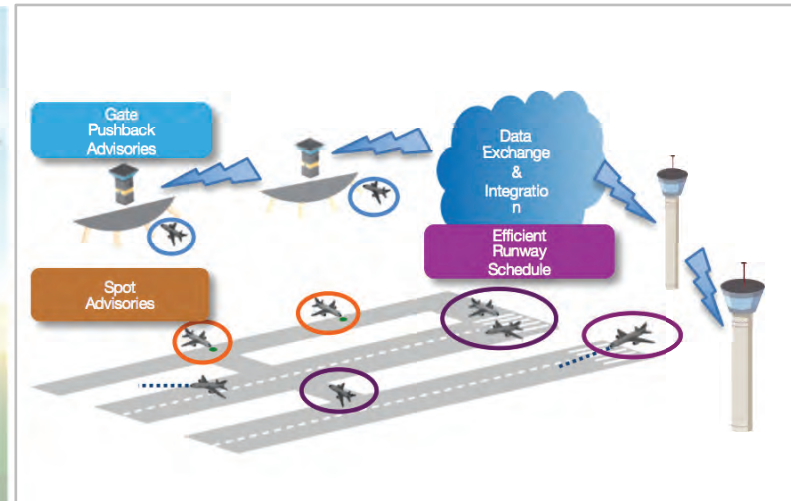Overview video online at: http://aviationsystemsdivision.arc.nasa.gov/research/tactical/atd2.shtml

Nutshell of ATD-2 (Phase 1 of 3)
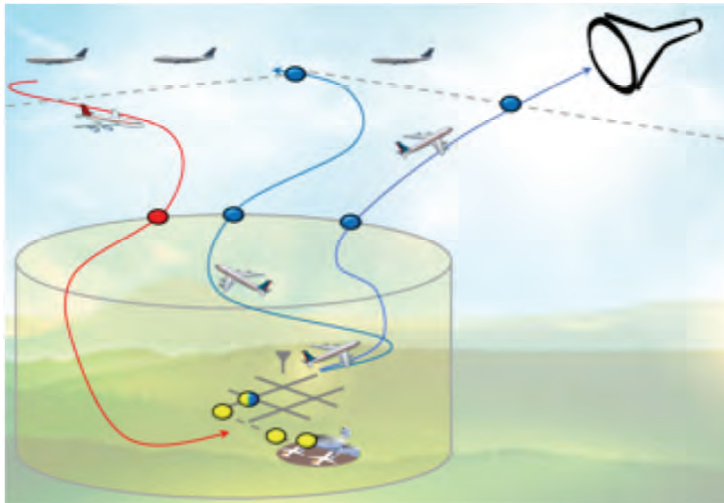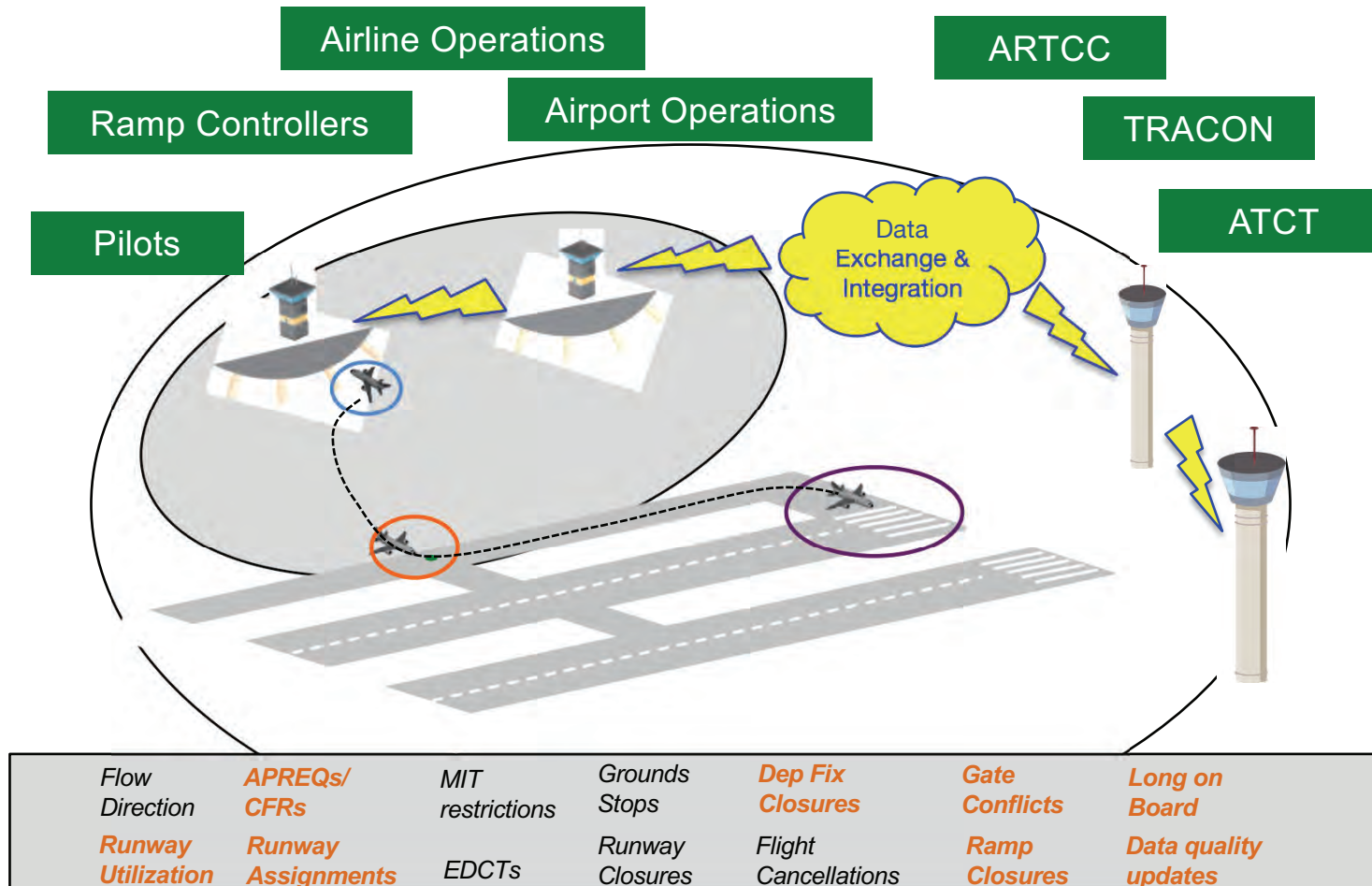

3T Data Exchange & Integration

- Integrated Arrival/Departure/Surface (IADS)
- Onramp to the overhead stream (TFDM with IDAC)
- New data elements shared between FAA & Industry
- Real-time dashboard for planning and awareness

Surface modeling, scheduling & metering

- Surface modeling uses nodes and heuristics to model surface operations
- Trajectory based model of airport operations that allows predictive capacity estimation and creating a schedule
- Metering is required when there is a demand and capacity imbalance

Data Exchange and Integration

| Flow Direction | APREQs/ CFRs | MIT restrictions | Grounds Stops | Dep Fix Closures | Gate Conflicts | Long on Board |
| Runway Utilization | Runway Assignments | EDCTs | Runway Closures | Flight Cancellations | Ramp Closures | Data quality updates |

What does ATD-2 bring to AA Ramp Control?

- ATD-2 as a system connects AA Ramp tower with CLT ATC-T, TRACON and ZDC

- Information exchange between AA CLT Ramp and Tower (STBO) in real time will improve shared situational awareness among all users.

- ATD-2 fuses data from 12-13 feeds including TBFM, Flight Stats, Flight Hub, ASDE-X, and different SWIM feeds that has improved the quality of data used to drive the systems

- ATD-2 improves transparency of information

  - e.g. Wheels-up time provided to pilot are now visible to ramp controllers.

  - AA Ramp can see ATC-T displays in observer mode and vice versa

- ATD-2 tools allow automation to suggest gate hold times based on demand and capacity imbalance for the purpose of metering
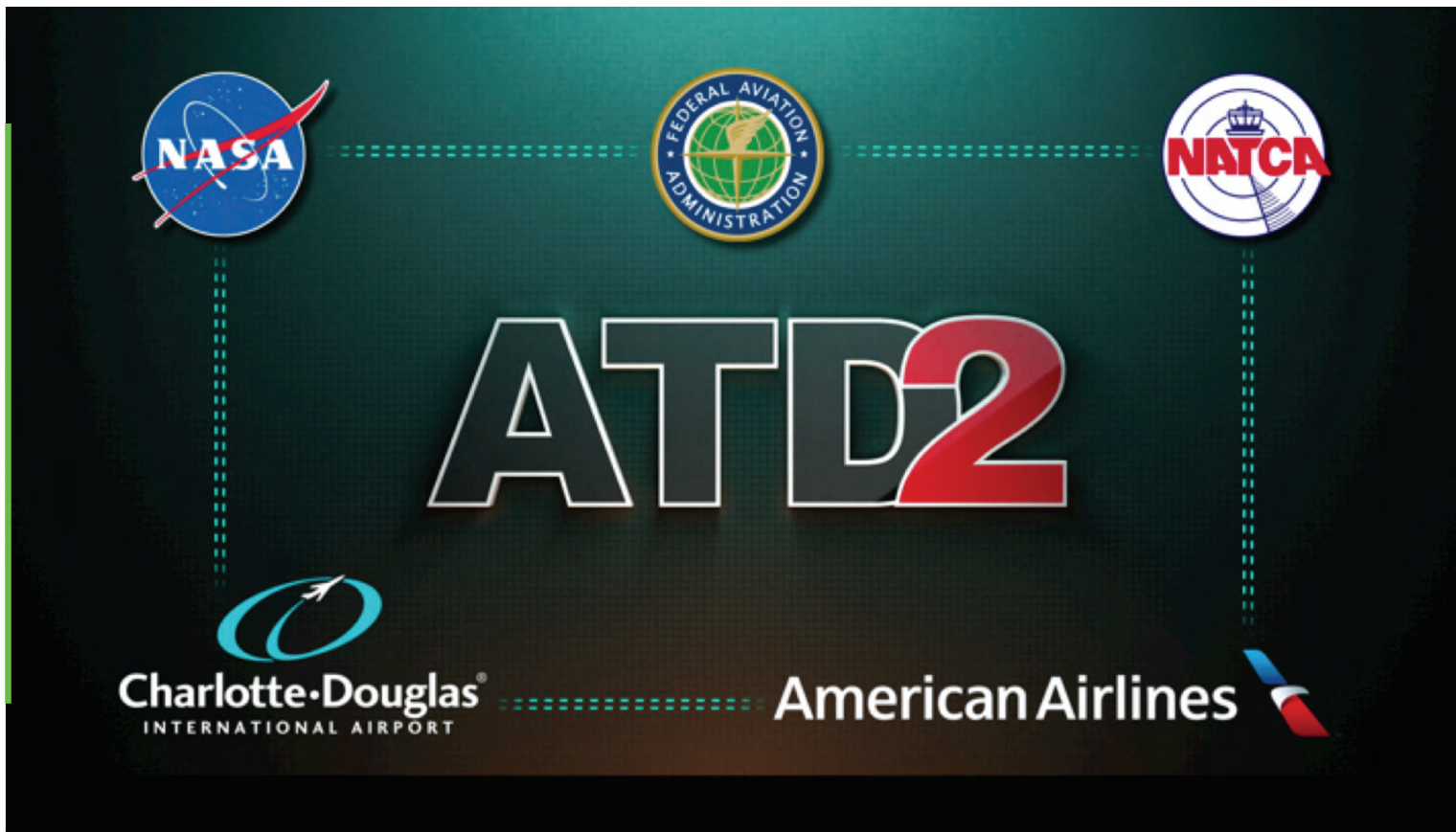
How to Access ATD-2 system?

Switch to ATD-2 Display

- Pushing the source button will bring up the menu

- Clicking on the second button from right on the menu shown on the screen switches between Aerobahn and ATD2
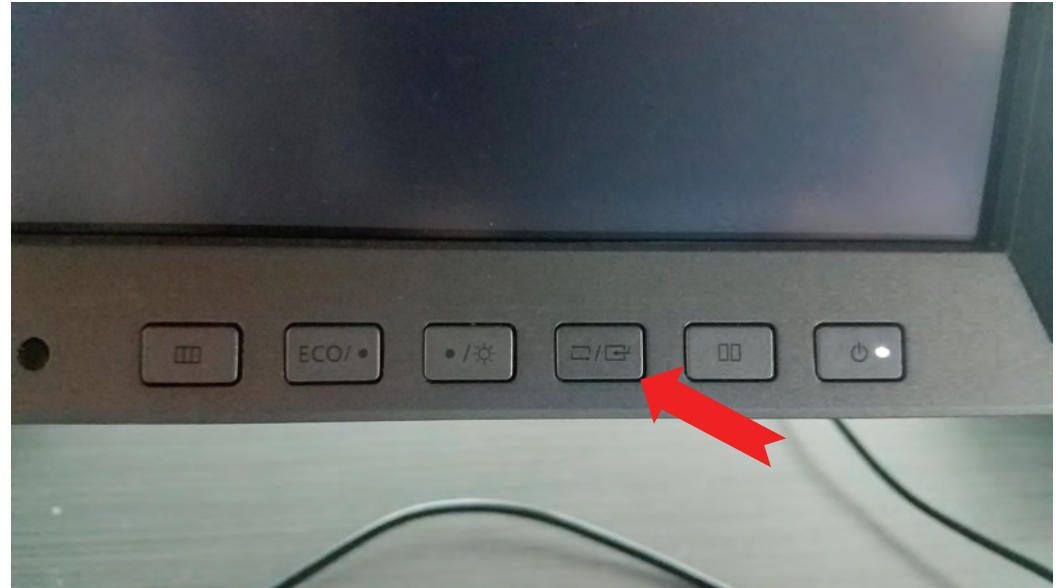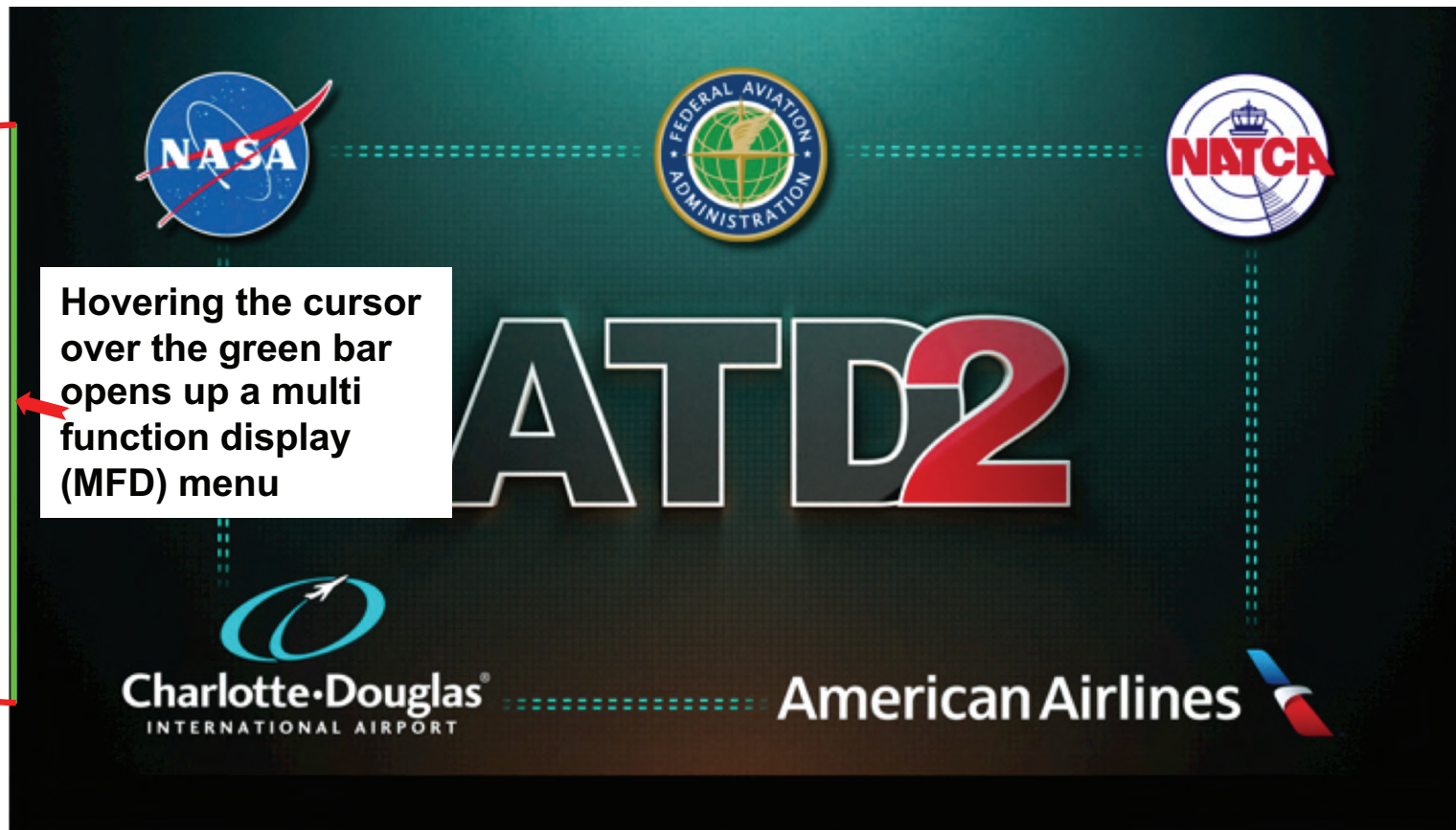
ATD-2 Desktop
(From this Desktop: Use MFD menu to access My Desktop)

ATD-2 Desktop
(Use MFD menu to access My Desktop)

Hovering the cursor over the green bar opens up a multi function display (MFD) menu

ATD-2 Desktop
(Select My Desktop from MFD Menu)

Select

"My Desktop"

My Desktop

CLT Roof Camera 1
CLT Roof Camera 2
OSI Camera 1

Remote Desktop Tower
Remote Desktop TMC
Remote Desktop RM
Remote Desktop Ramp North
Remote Desktop Ramp East
Remote Desktop Ramp South
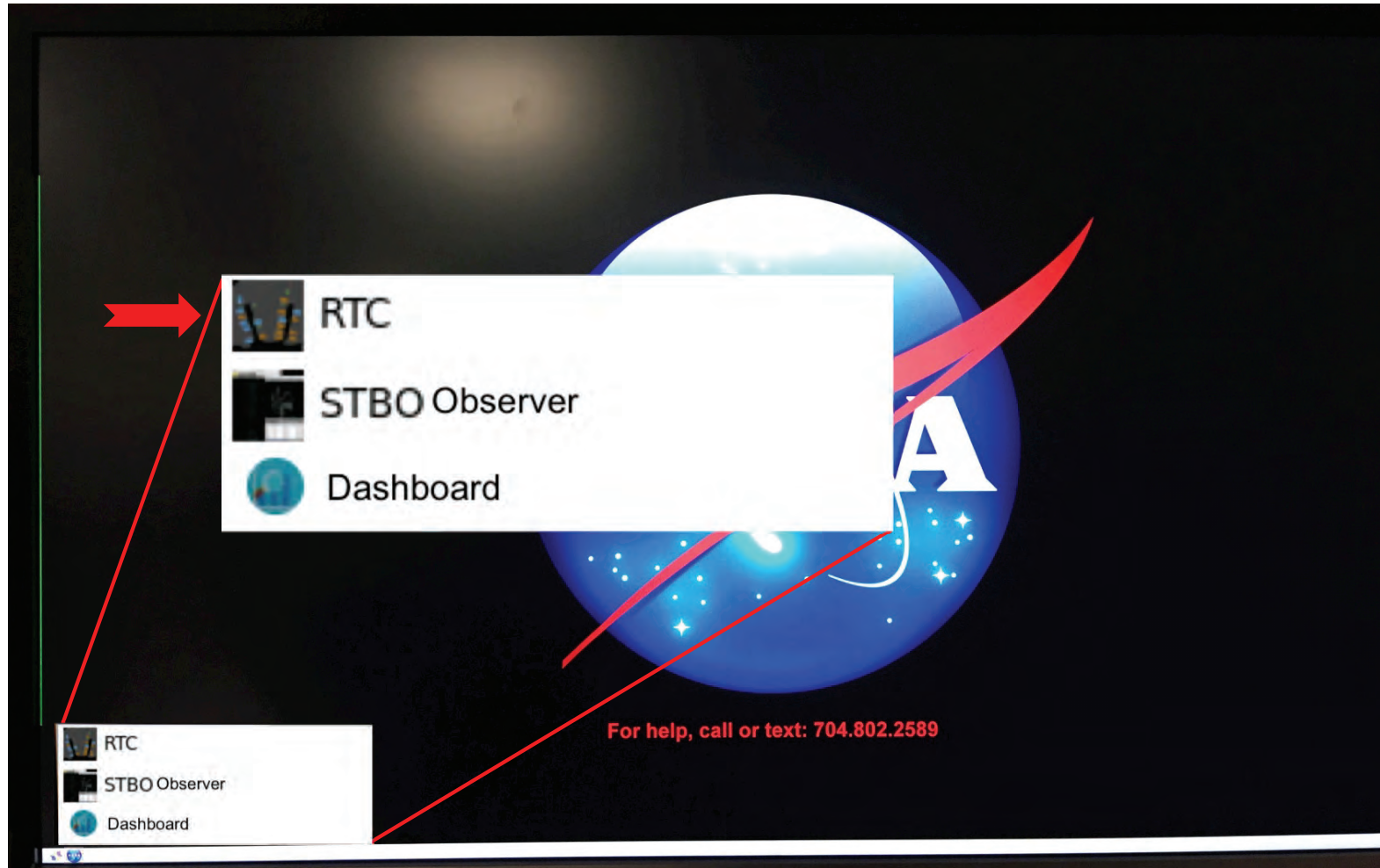Remote Desktop Ramp West

My Desktop
(Click on NASA Icon to open My Desktop Menu)
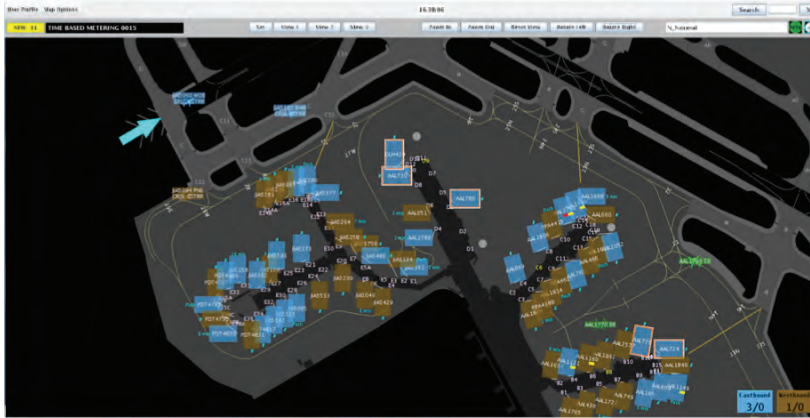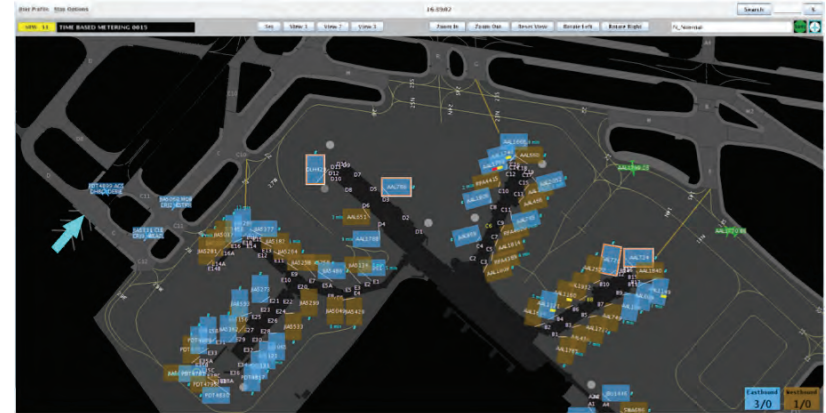

Click
NASA
Icon →

My Desktop
(Select RTC)

Ramp Sector Maps
Separate Default View for Each RTC Sector

North


East

South

West

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User Profile
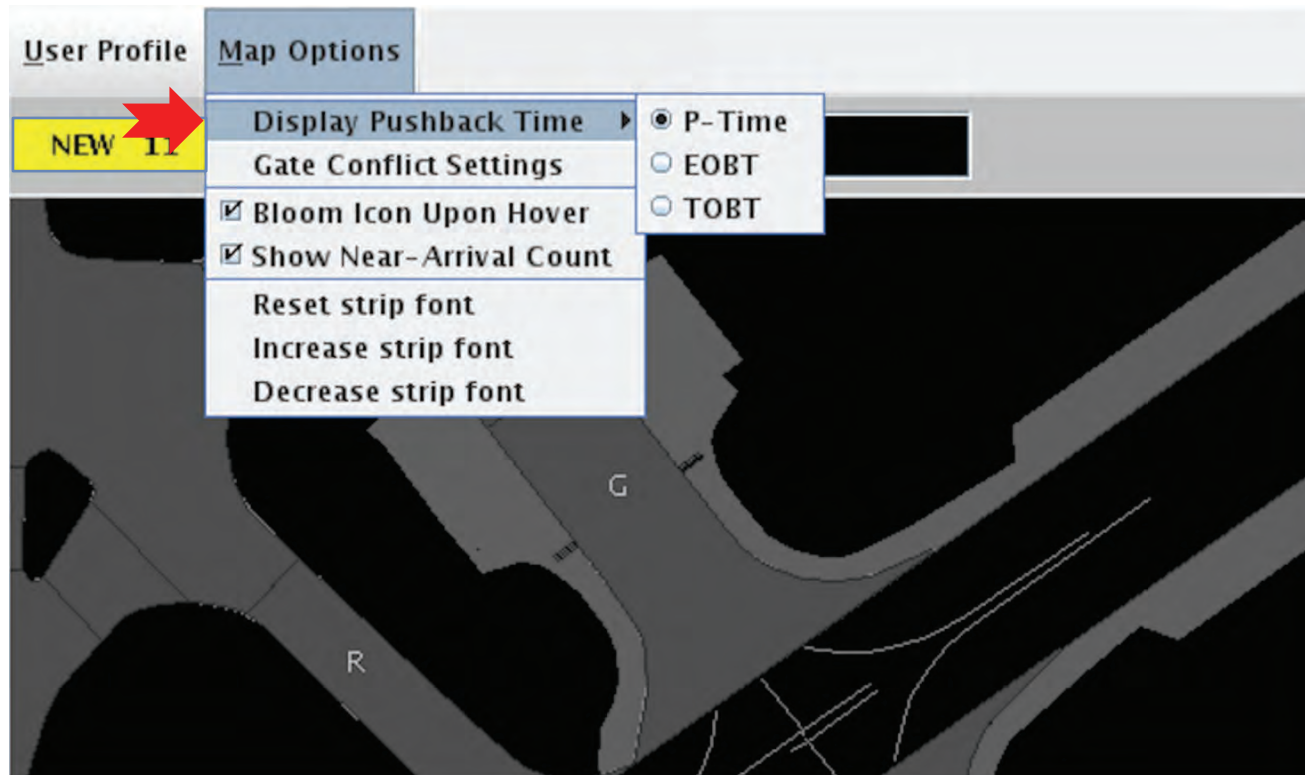## Save as a Unique Username
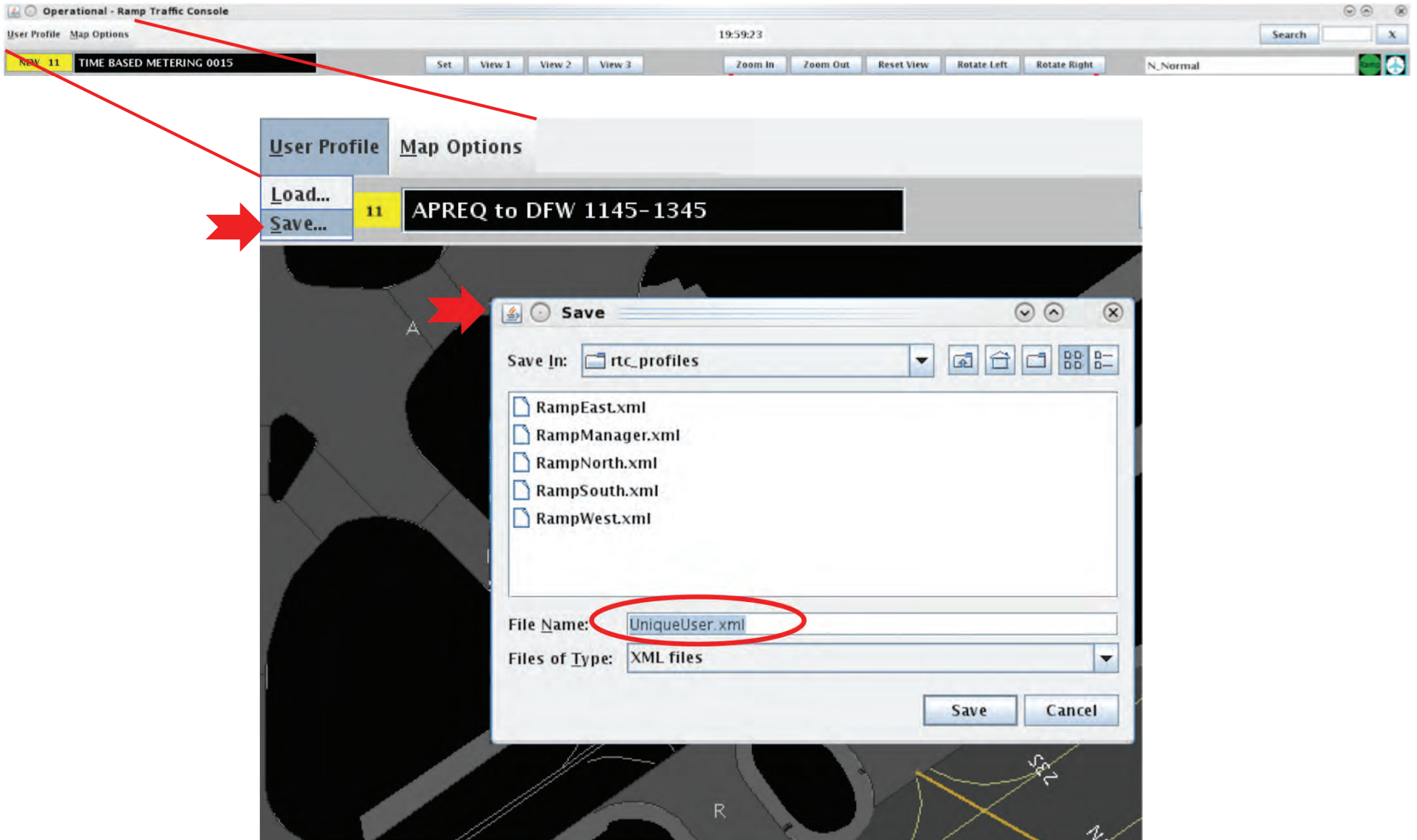
User Profile
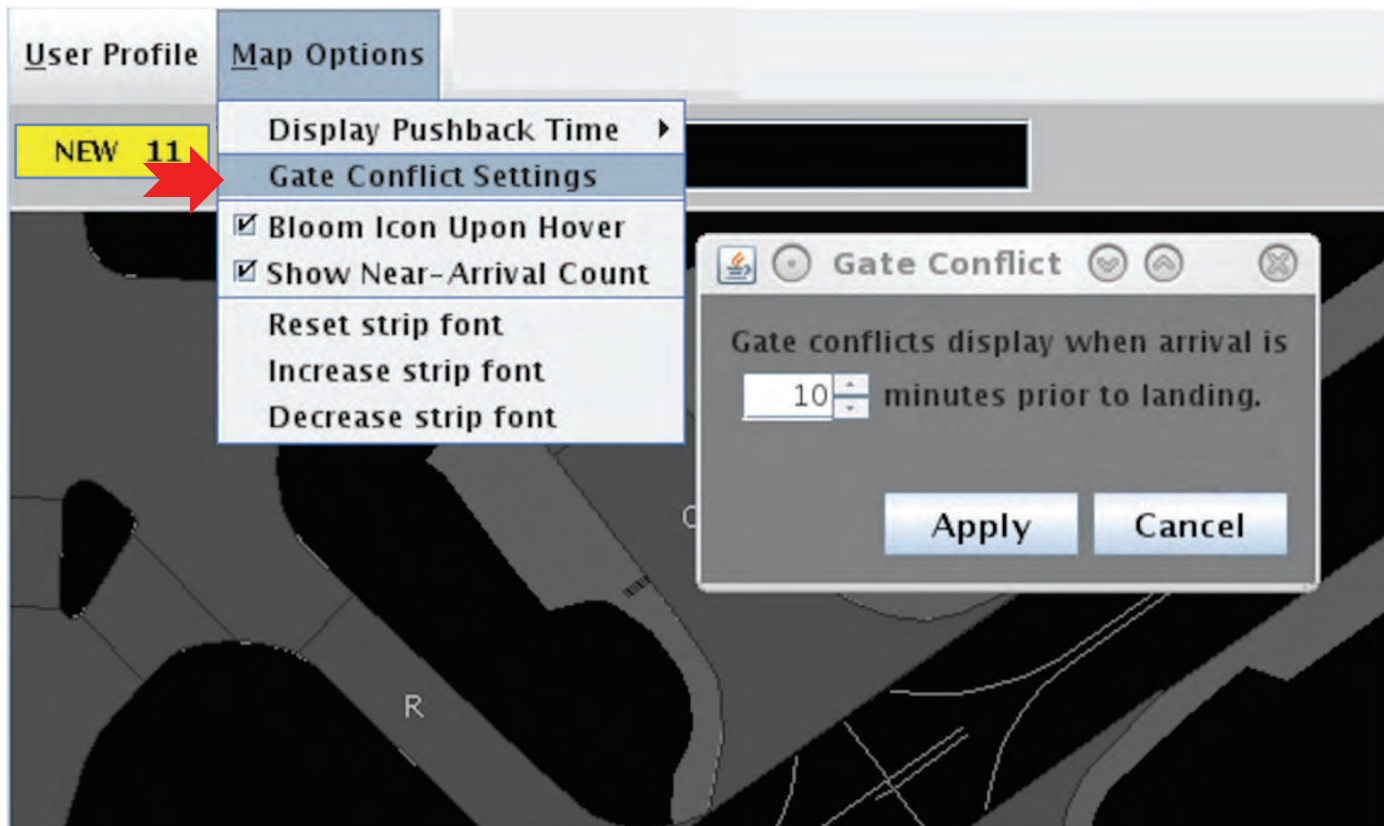## Load an Existing Profile
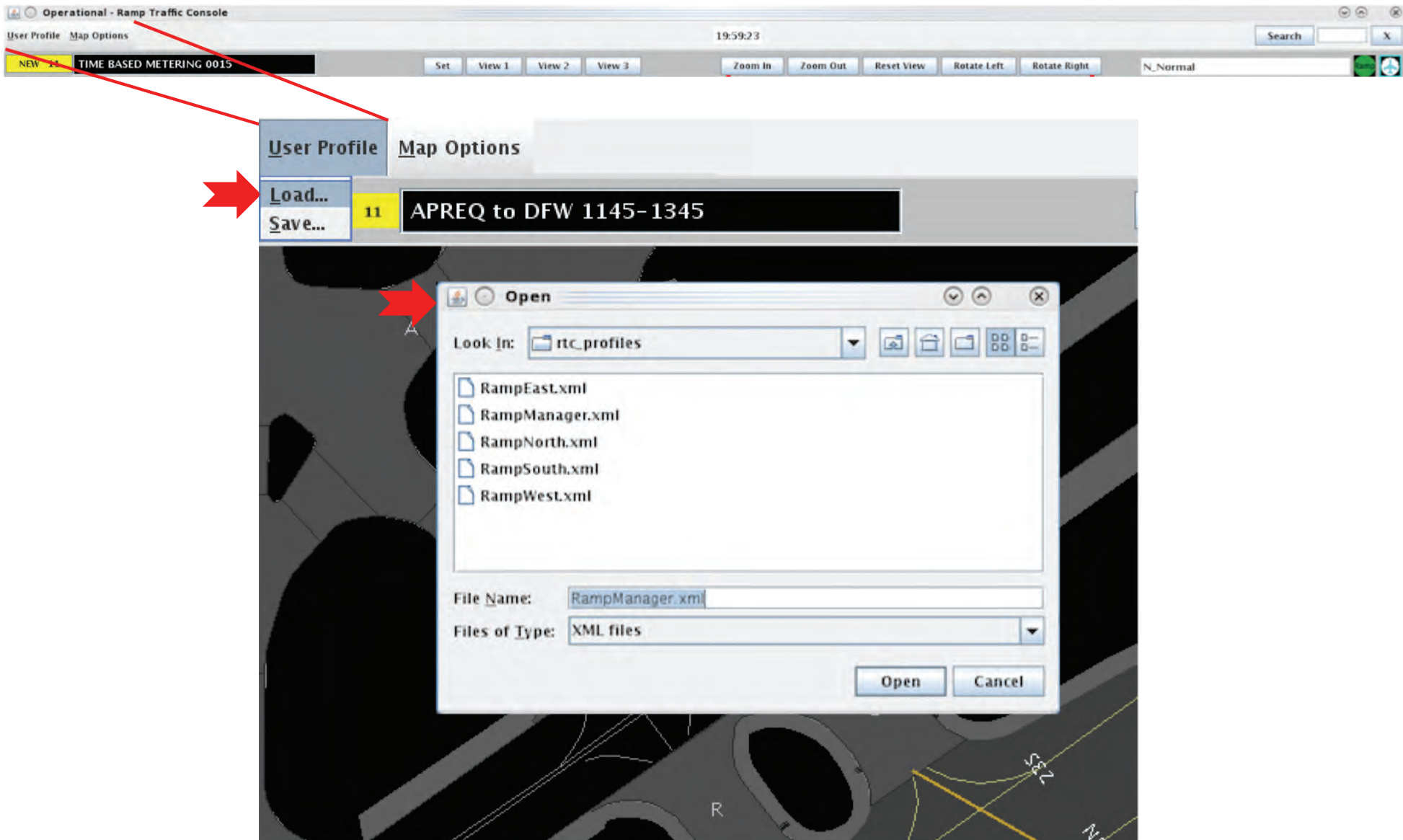
Map Options
Choose Time to Display on Strip

- P-Time: Airline scheduled departure time (default setting)

- EOBT (Earliest Off Block Time): updated departure time provided by the airline

- TOBT (Target Off Block Time): generated by the Metering Tool

RTC Upper Status Bar

Map Options
Gate Conflict Settings

Open the Gate Conflict Settings Menu to configure when to display gate conflicts on RTC
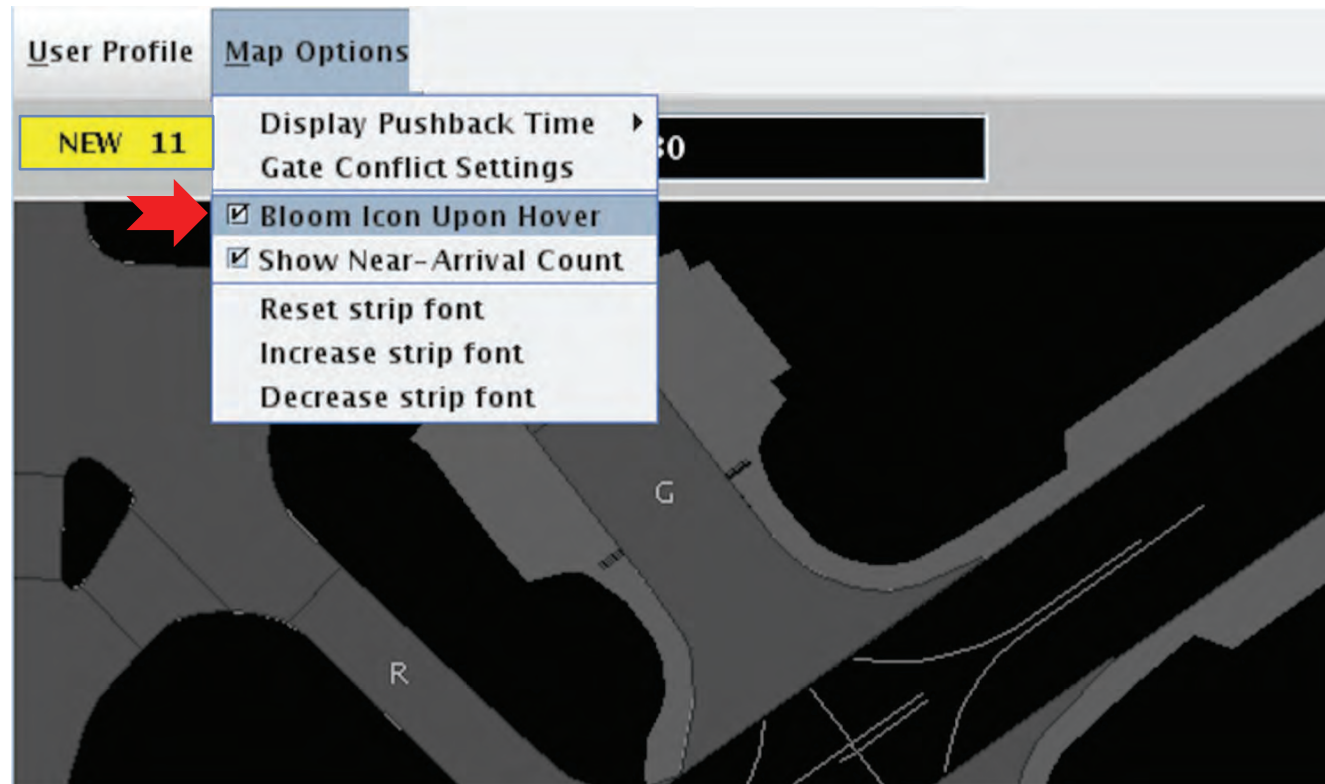
Gate Conflict Alerting

- Gate conflict Alerting: The arrival icon as well as gate number are displayed in magenta

- Click on icon or gate number to draw "tether" line between them

- Gate conflict alerting logic: gates blocked by a heavy type aircraft are also shown as gate conflict

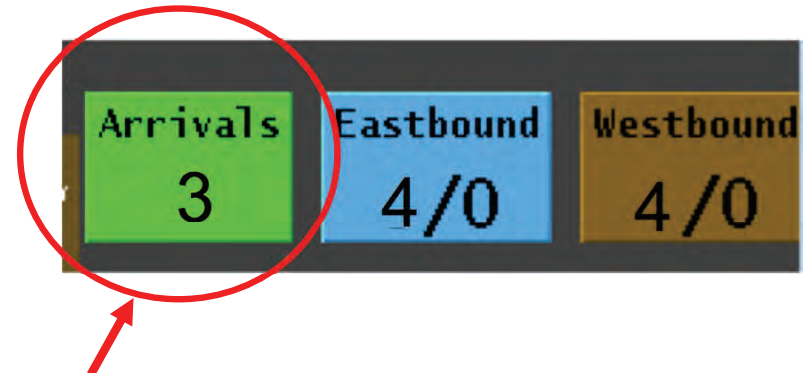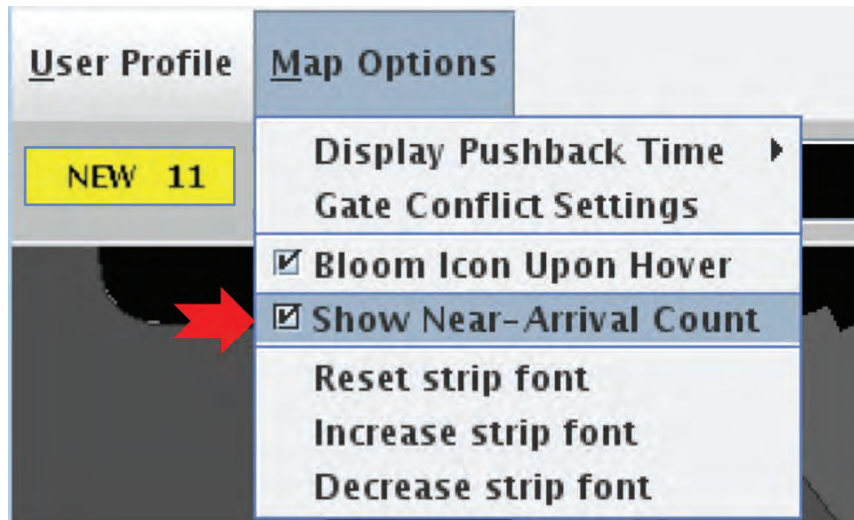- Yellow gate number indicates arrival is On
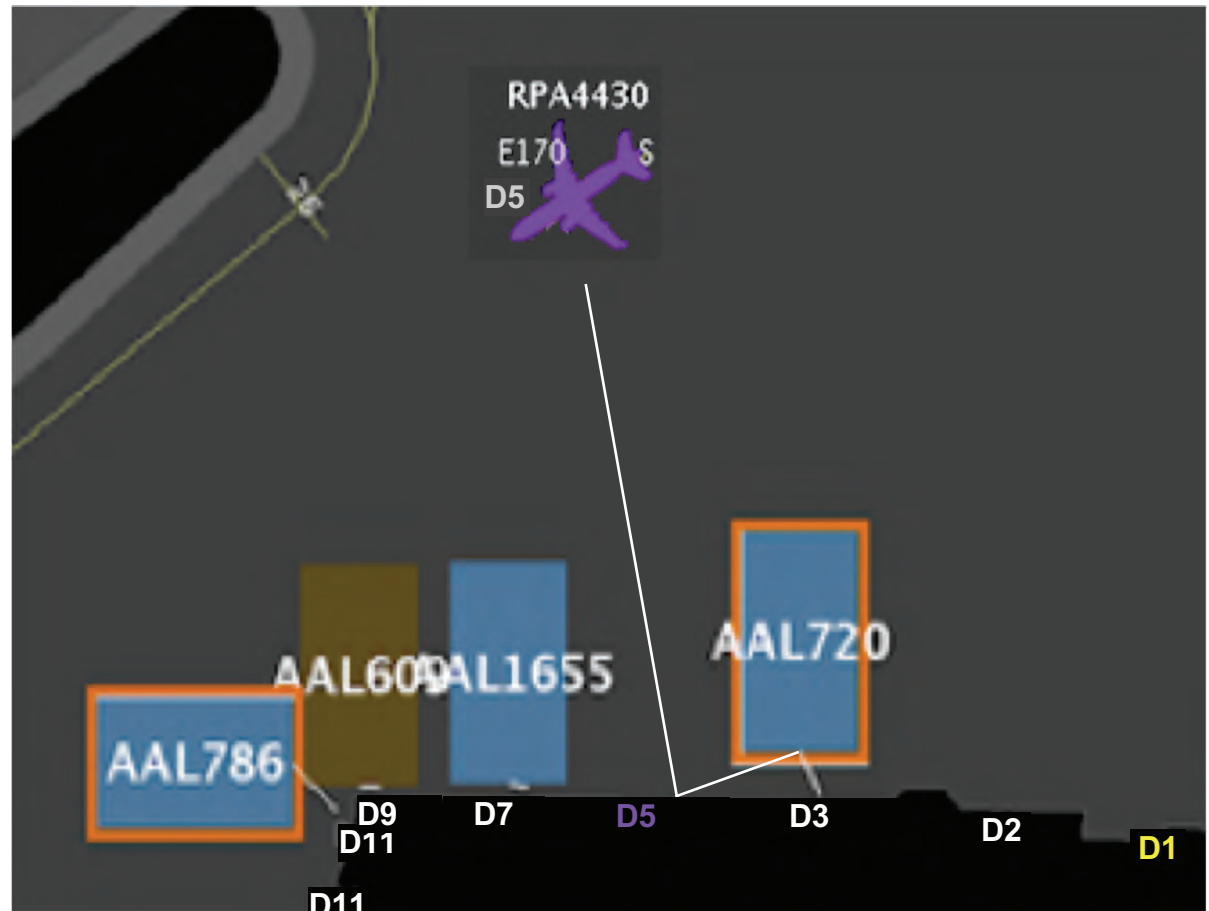
Map Options
Bloom Icon Upon Hover

Bloom Icon Upon Hover: select this option to enable "bloom" of icon or strip when hovering with mouse cursor

Map Options
Show Near Arrival Count

Select Show Near Arrival Count to display the Near Arrival Count Box next to the departure count boxes on bottom right side of the RTC display.

Flight & Hold Lists

Eastbound and Westbound Flight Lists and Hold Lists Opened by clicking on Runway Count boxes

Near Arrival List

Runway Count and Near Arrivals Click these to open lists

Map Options
Reset-Increase-Decrease Strip Font
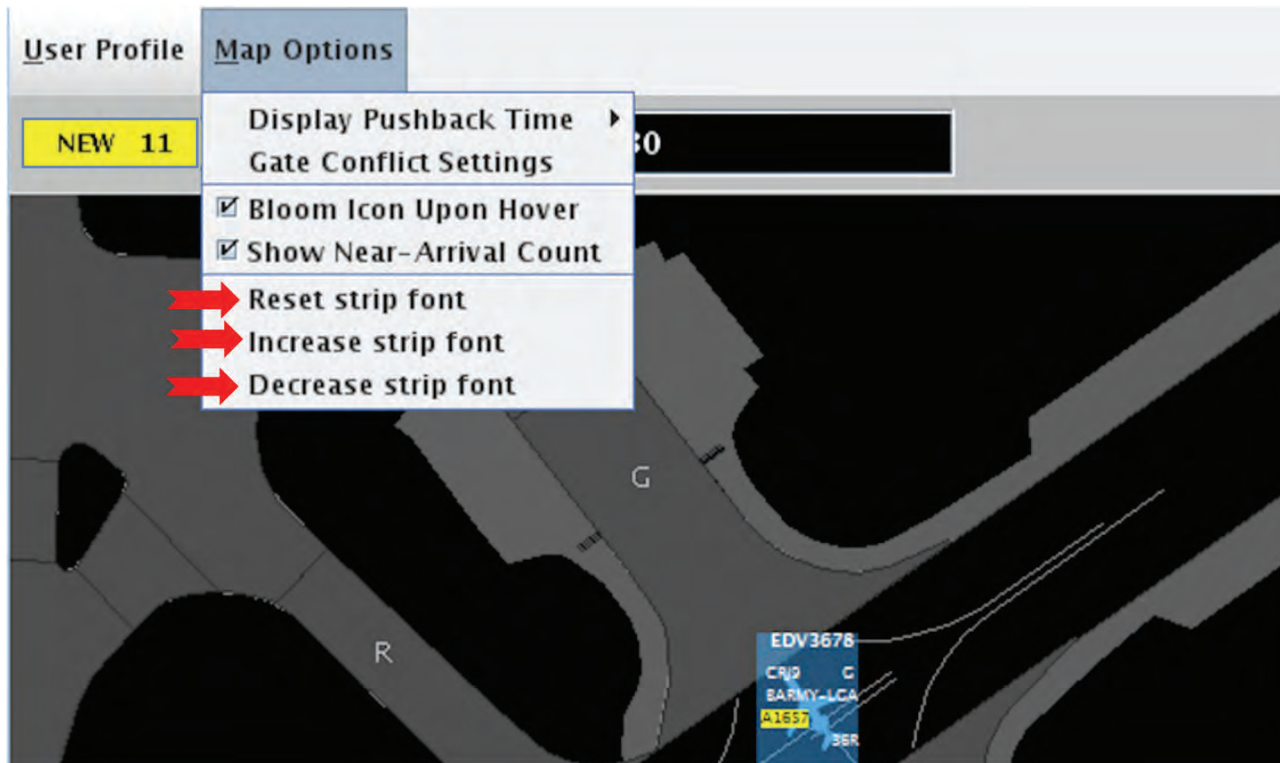
- Reset strip font (to default font size)

- Increase strip font size

- Decrease strip font size

Notifications
Notification Window

Click here to acknowledge Yellow alert

Click here to open the Notification Window

- Notification Window opened here shows entire list of notifications with the new notifications highlighted in yellow
- Click anywhere in the list to acknowledge yellow alerting
- Same notifications and alerts also shown on STBO Client

RTC Upper Status Bar
Set Views- Zoom/Rotate/Reset View
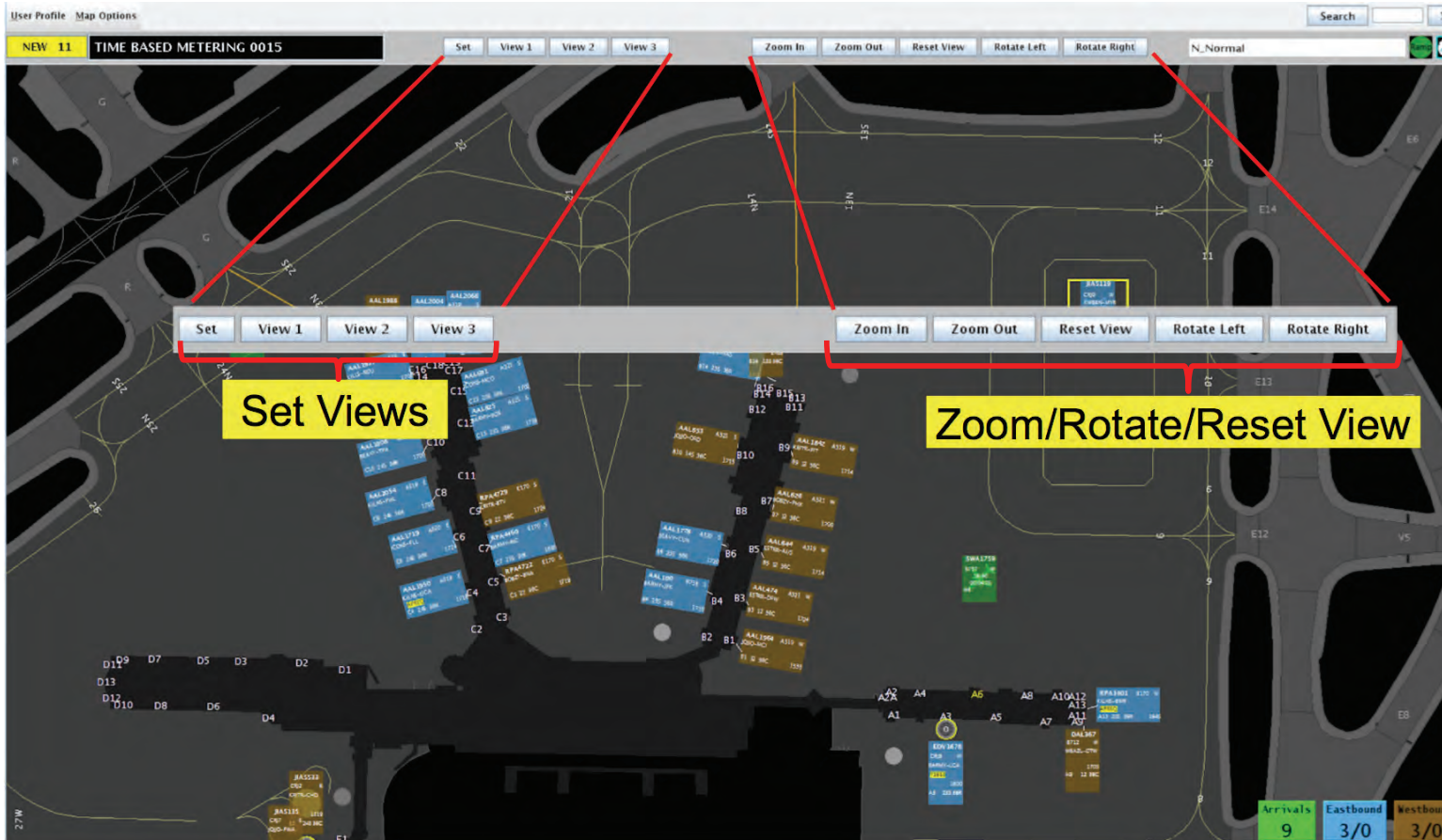
- Set the zoom level by using the mouse scroll wheel on the map or use the zoom in and zoom out buttons shown above to incrementally zoom
- Use the rotate Left and Right buttons to rotate the map
- Once the view is configured, use the set view buttons to save up to three different views and then toggle between those set views

RTC Upper Status Bar
Search
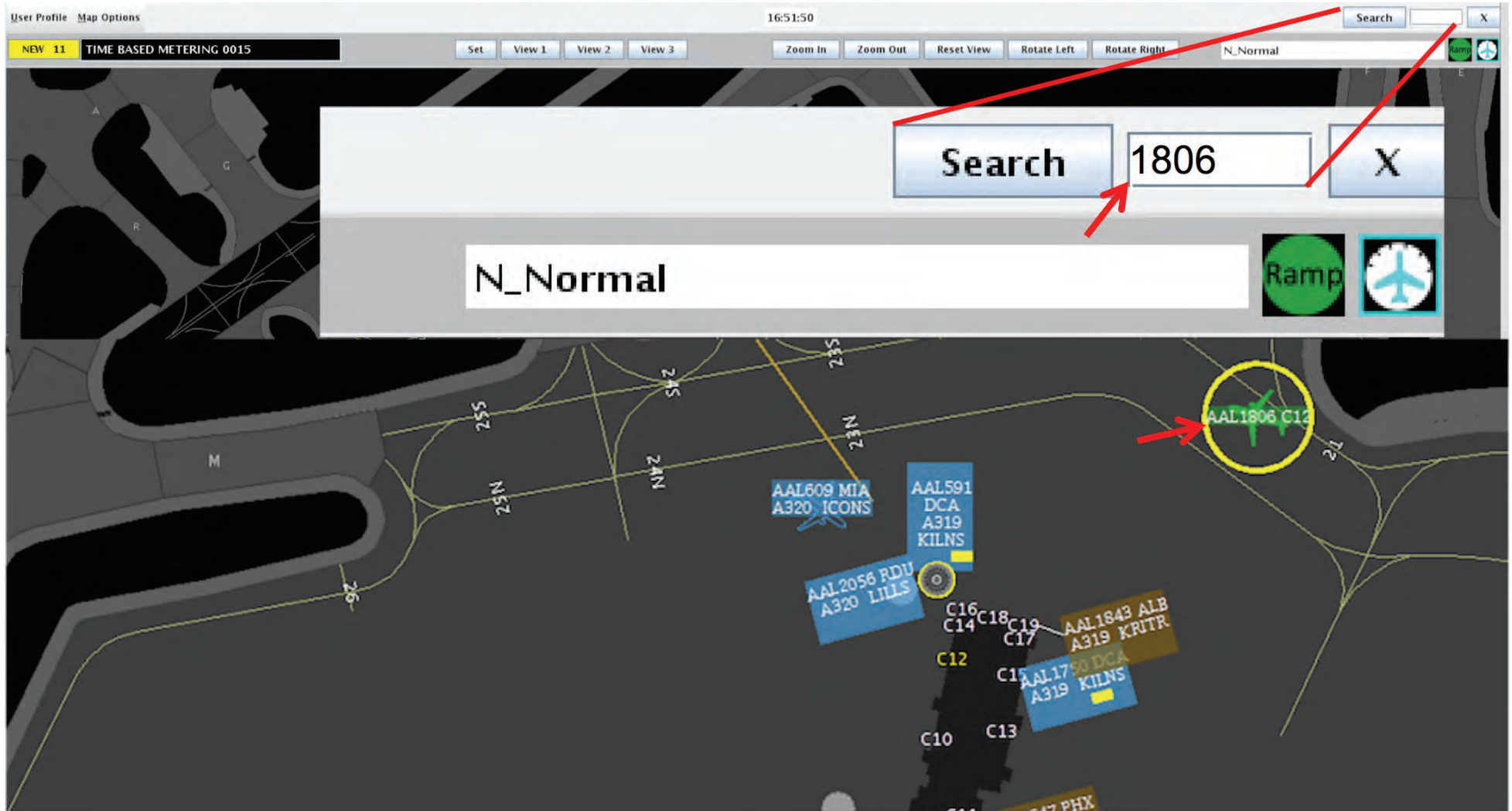
Search for call sign, flight number, destination airport, or departure fix. Search result marked with yellow circle.

RTC Upper Status Bar
Runway Utilization-Ramp Status-Metering Mode
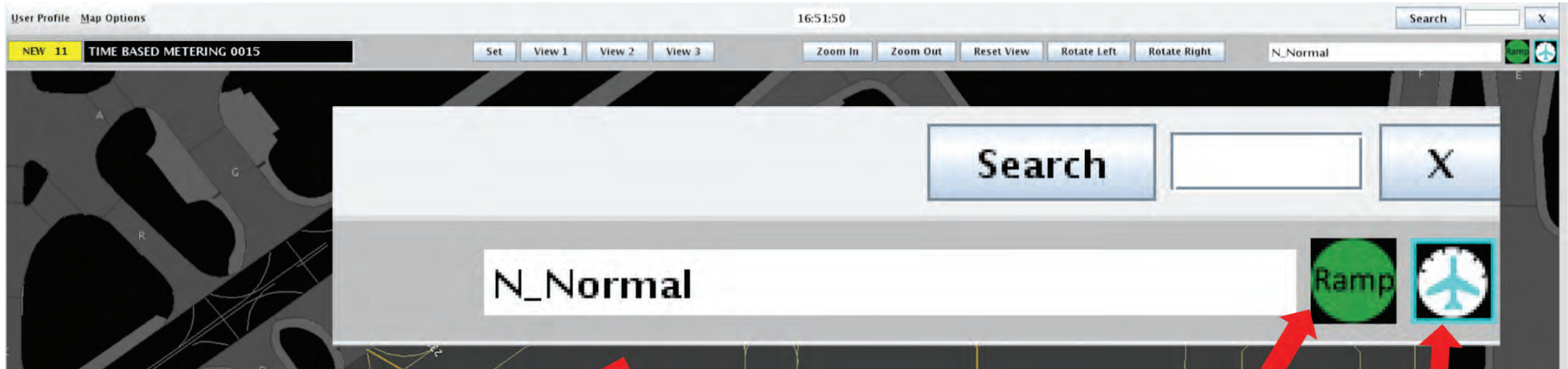
Runway Utilization

Ramp Status   Metering Mode

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RTC
Flight Strips
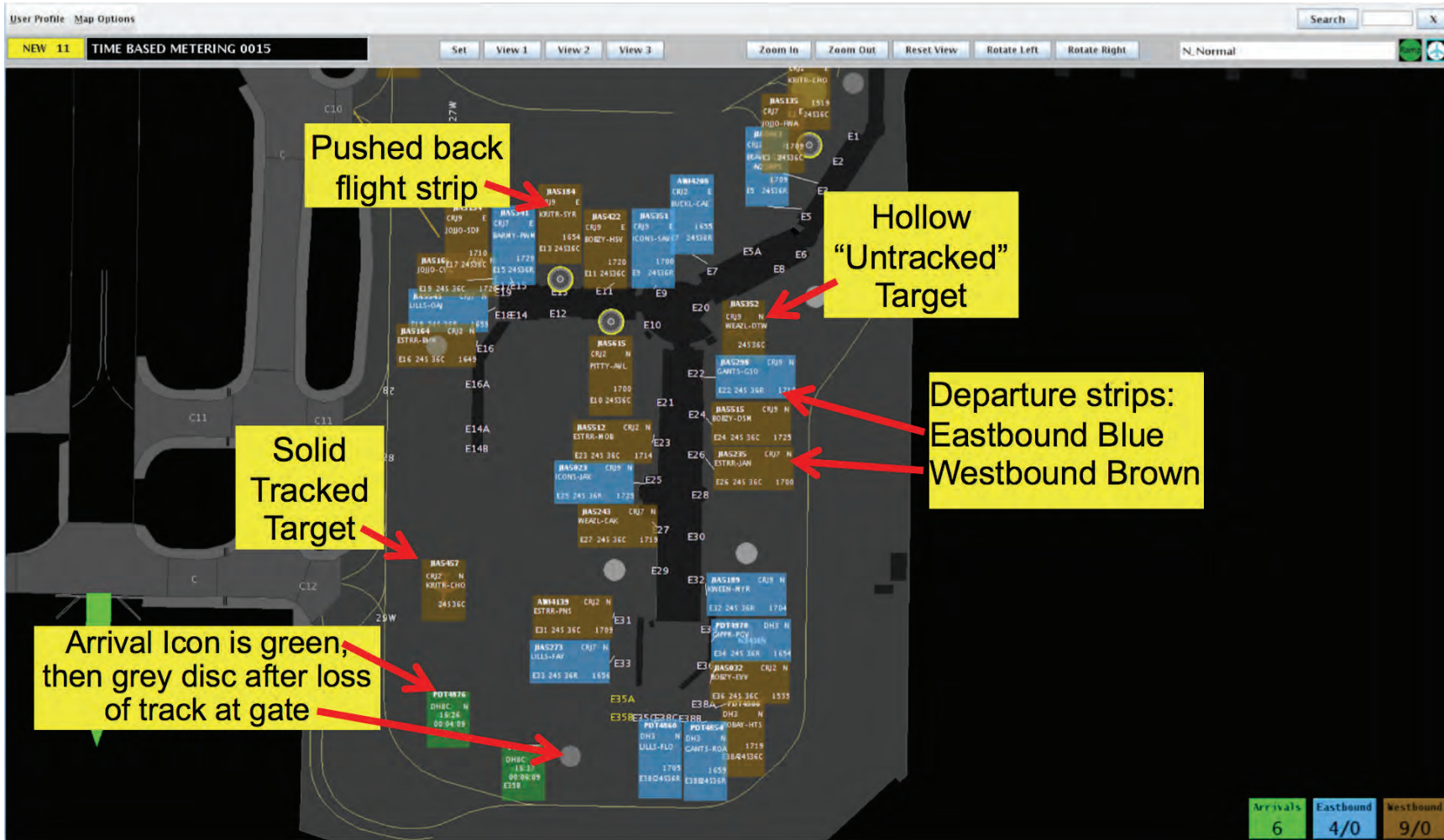
RTC
Solid if Tracked, Hollow if no Track
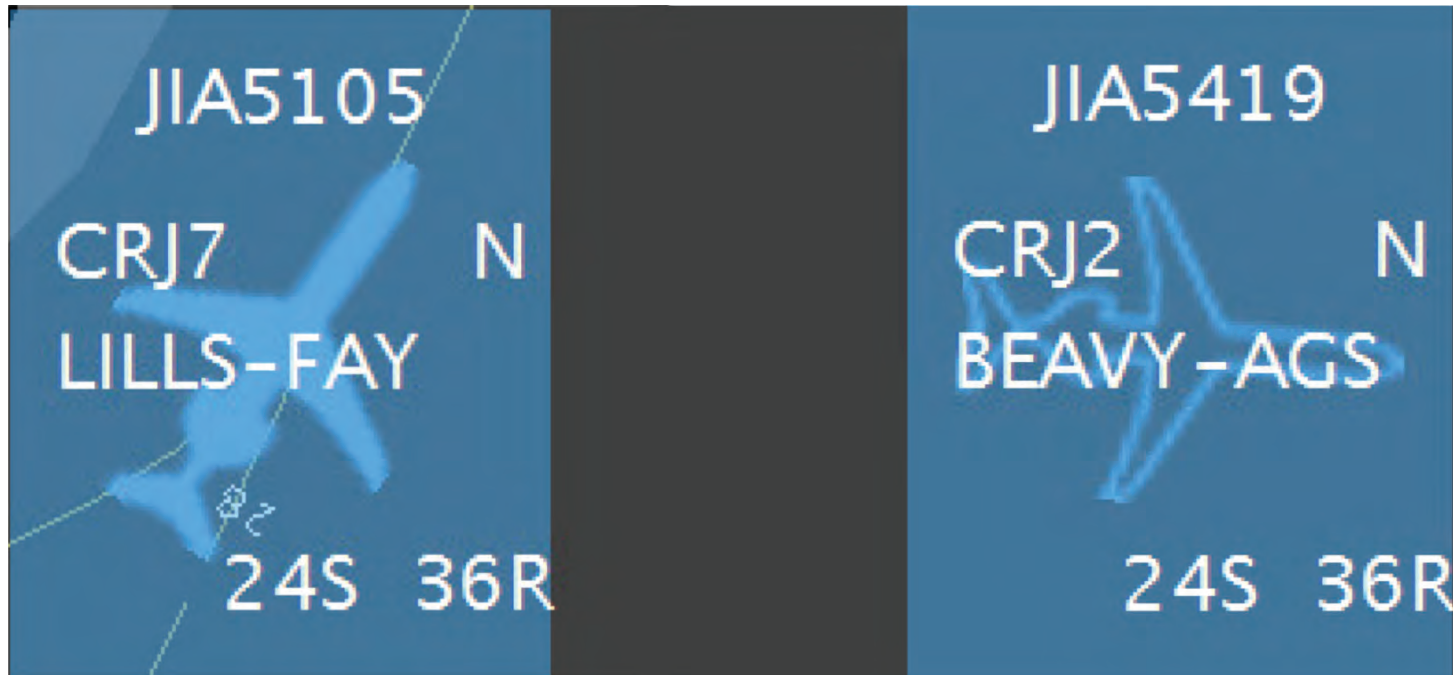
Flight Strips and Persisted Targets
Select to Drag & Drop and Spin

- Flight strips and persisted targets may be relocated and reoriented on the display, deselect strip to remove any tether lines

- Flight strips or icons, once selected, have a white circle drawn to indicated selectable area.

Click inside circle to drag/drop

Click outside circle to "spin"
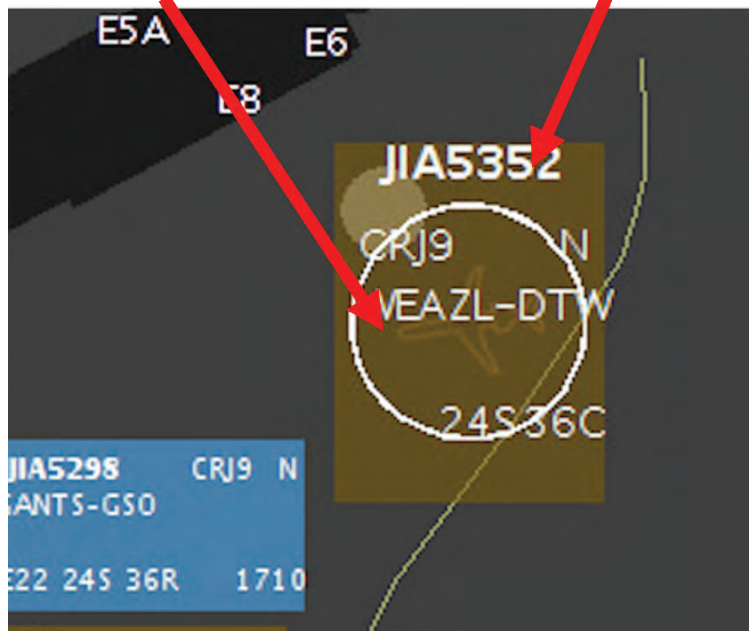
Click here to drag/drop

Click here to "spin"
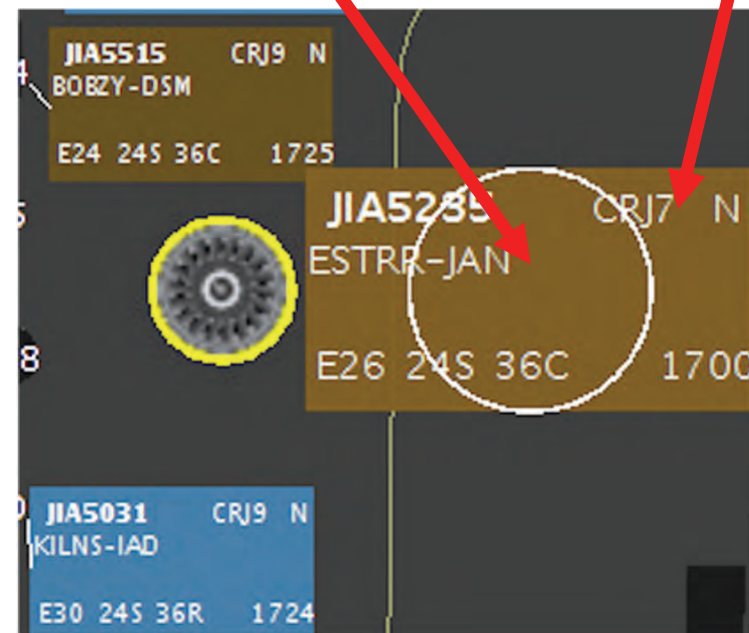
Right Click Mouse Menu
Next Logical Action

Flight Strip at Gate

Pushback State
Engine icon indicates spool up

Hollow icon if no track solid if track
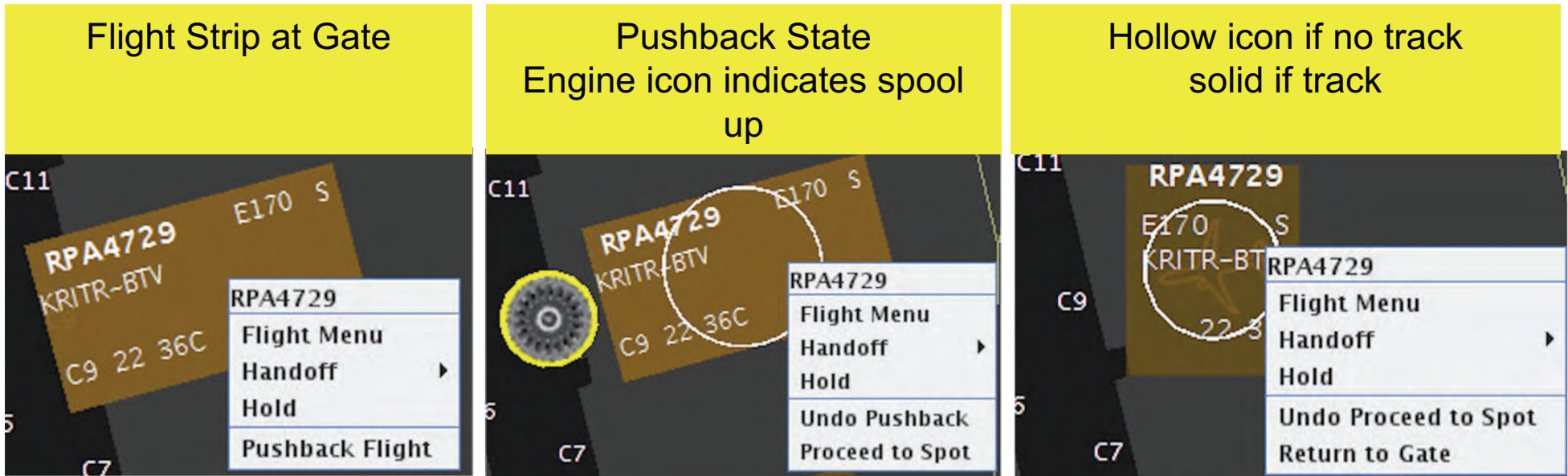
Use right click mouse menu to Open Flight Menu, Handoff, or Hold.

Also use right click menu to select "next logical action":

- Hold
- Pushback
    - Undo pushback
    - Undo Proceed to Spot
        - Proceed to Spot
        - Return to gate

After Pilot Calls Ready to Push:

Pushback: A

-Right Click Menu, select Pushback

After Spool Up, Proceed: B

-Click engine icon

-Or Right click menu, select proceed

Aircraft icon displayed: C

-Solid icon if track, hollow if track is not available

———OR———

Hold at gate: Use right click menu to hold, count up timer appears

Flight Strip & Flight Menu
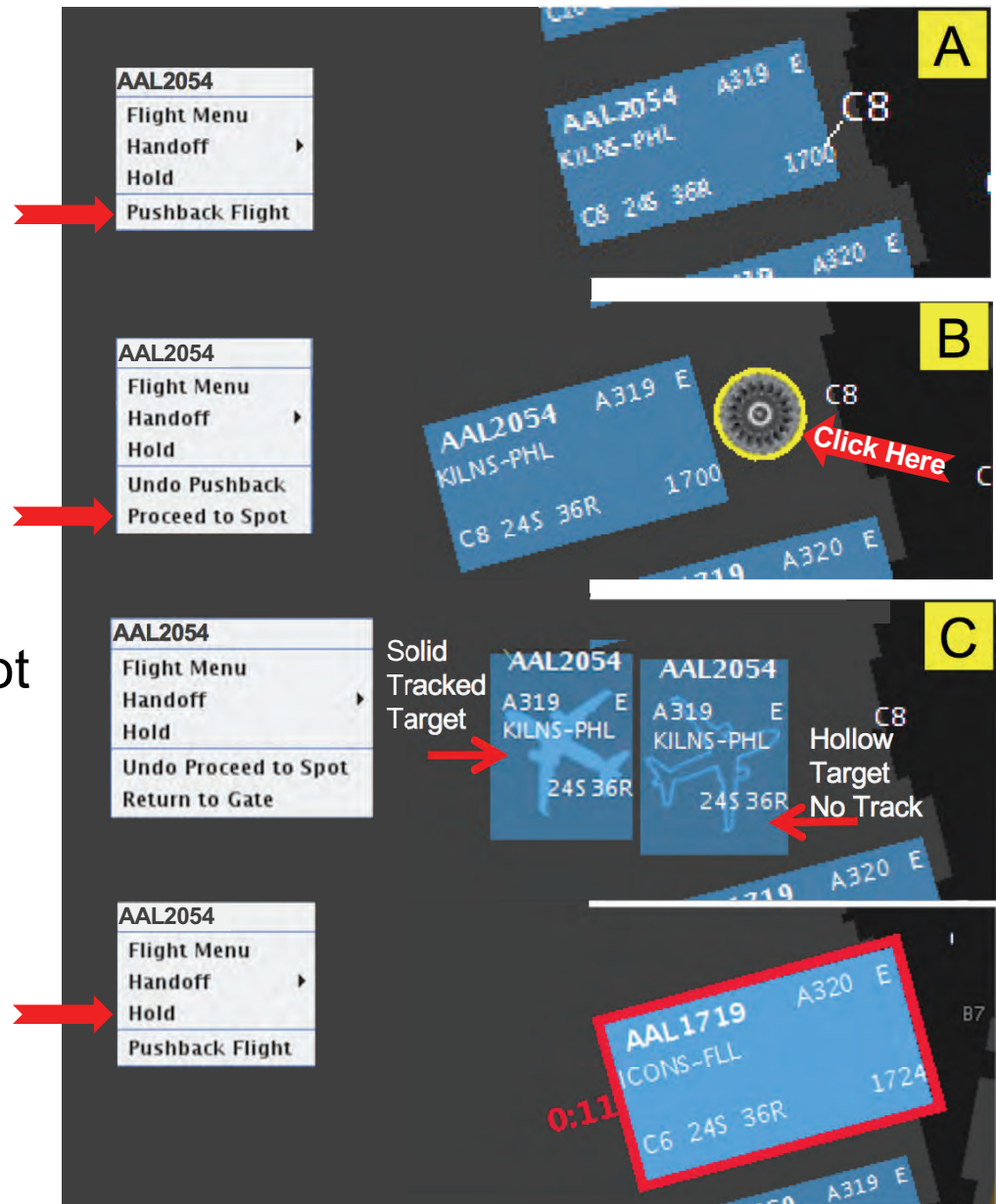
Departure Flight Data

AAL1477
B738   W
ESTRR-IAH

1705
B16 13S36C

- Current sector ownership is automatically transferred.
- Use Handoff feature on right click menu to deliberately handoff sector ownership.
- For example, in the case of handing off (taking back) control of a flight from ground back to ramp sector

Arrival Flight Data
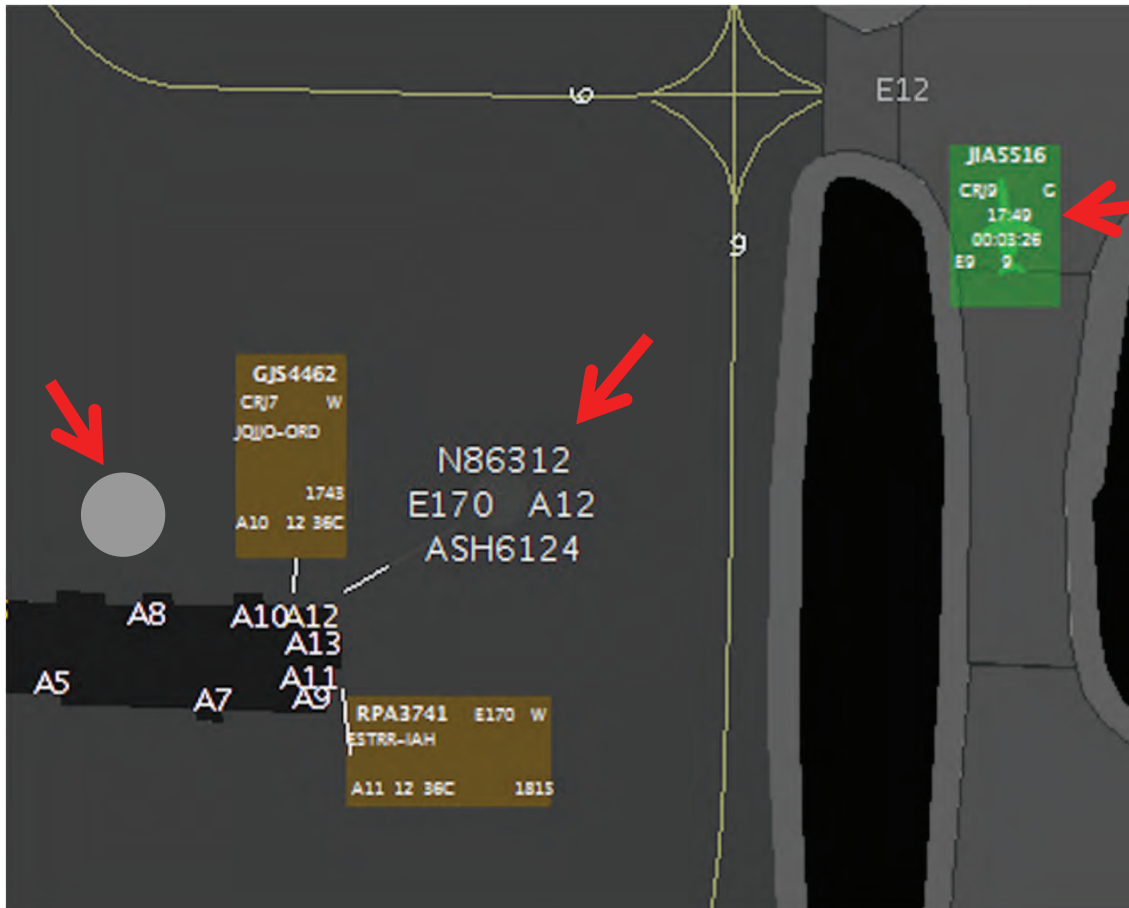
Mouse over or select target to view arrival time and time since On

- Arrivals are green
- Arrivals become grey discs after they become inactive at the gate, click on the grey disc to view flight data.
- Once there is an In time, the arrival may be relocated on the map

Flight Menu
Make Updates to Flight Data

Open the Flight Menu using double click on flight or from right click menu to make updates to flight information.
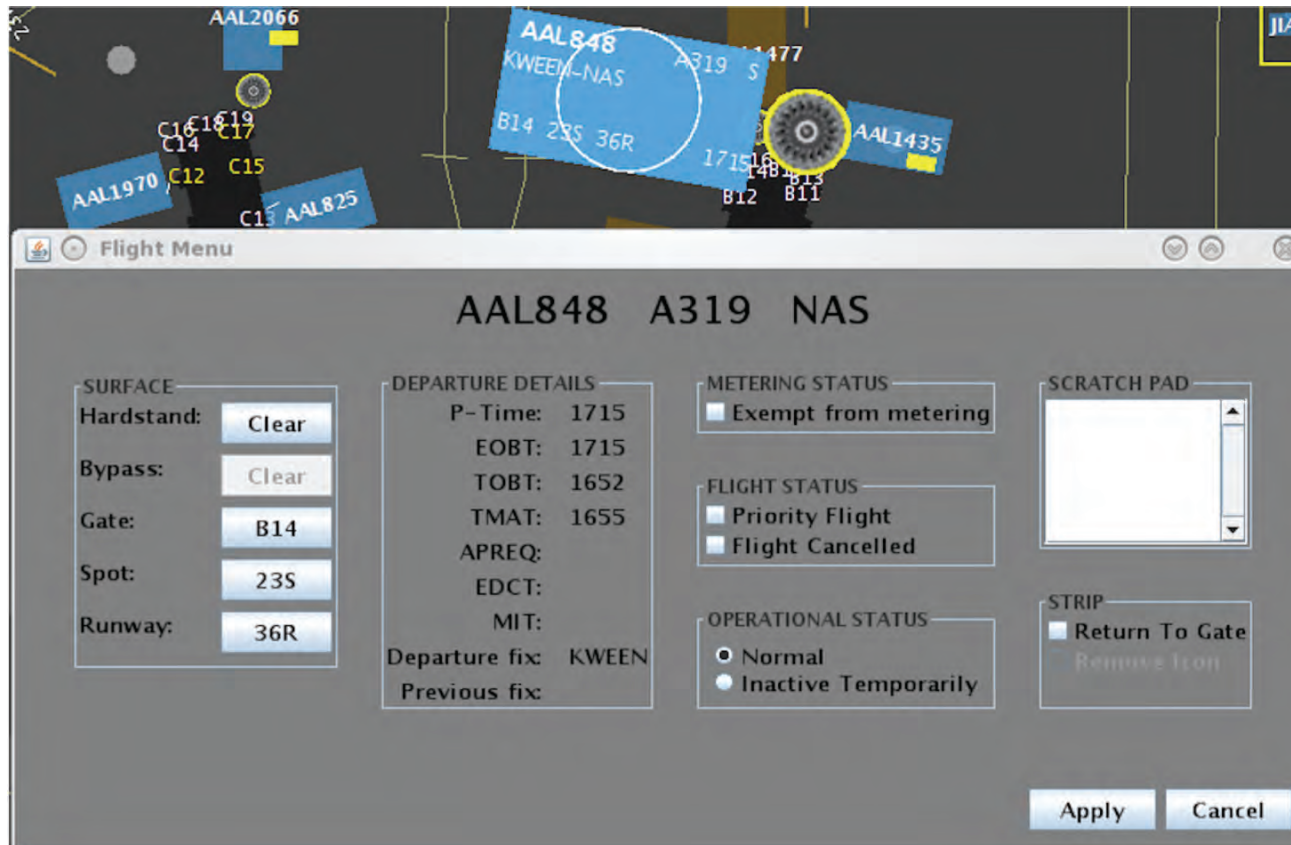
Flight Menu
Surface Data Updates

Click here to open each option menu to make changes to hardstand, spot, gate or runway, then apply
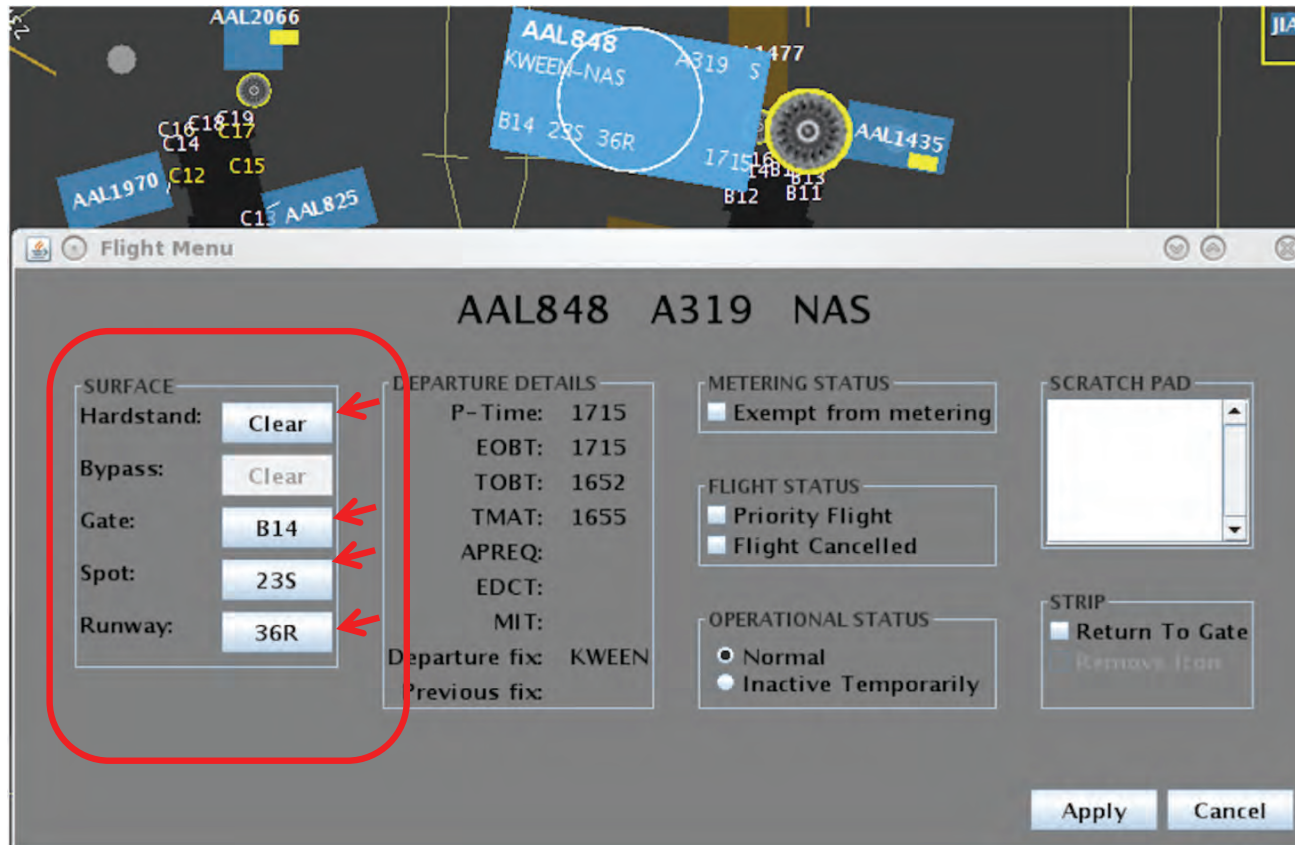
Flight Menu
Hardstand

Choose West or North hardstand or Clear to remove hardstand assignment, then apply.
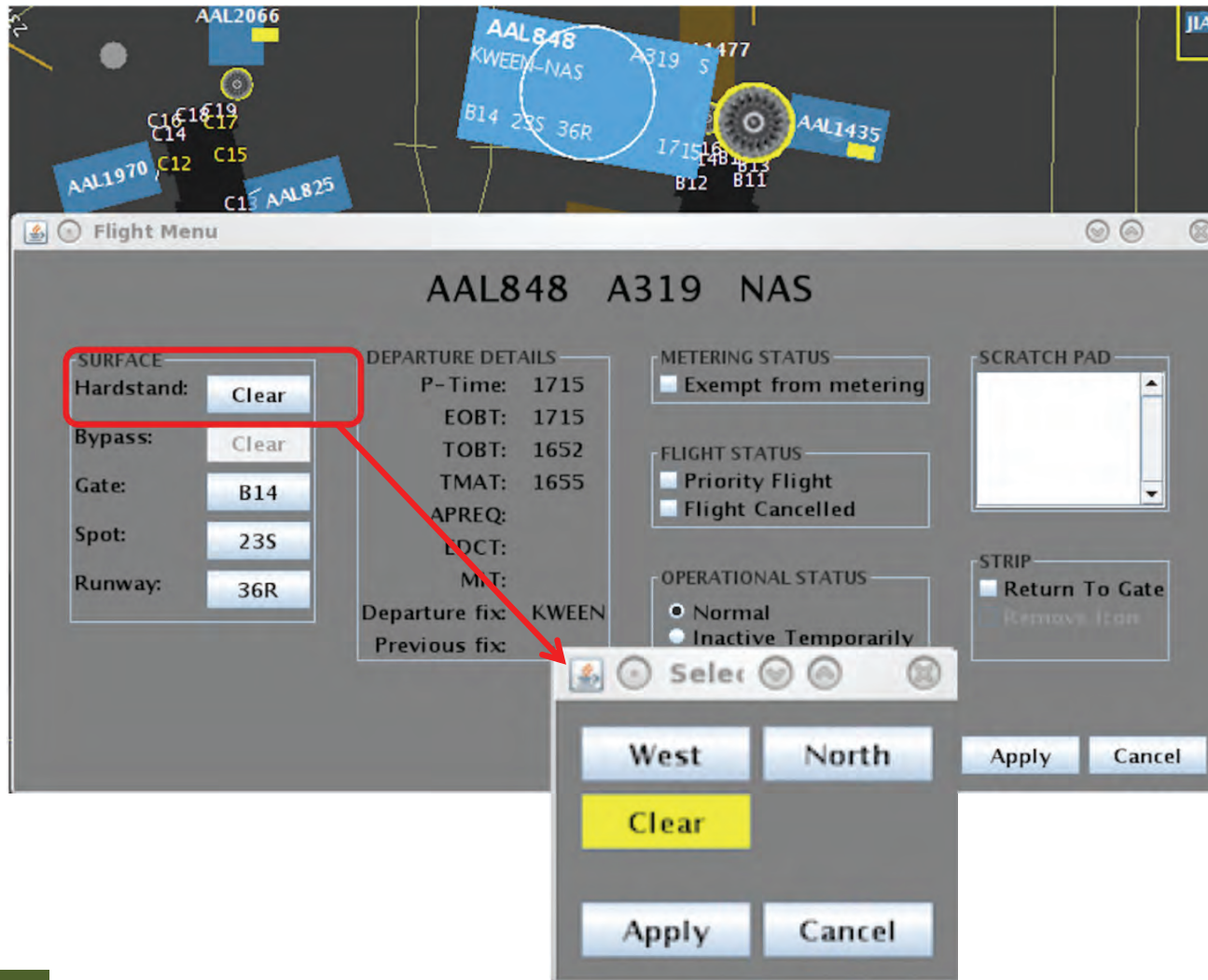
Hardstand Assignment
From Flight Menu

Hardstand assignment places yellow box around the flight
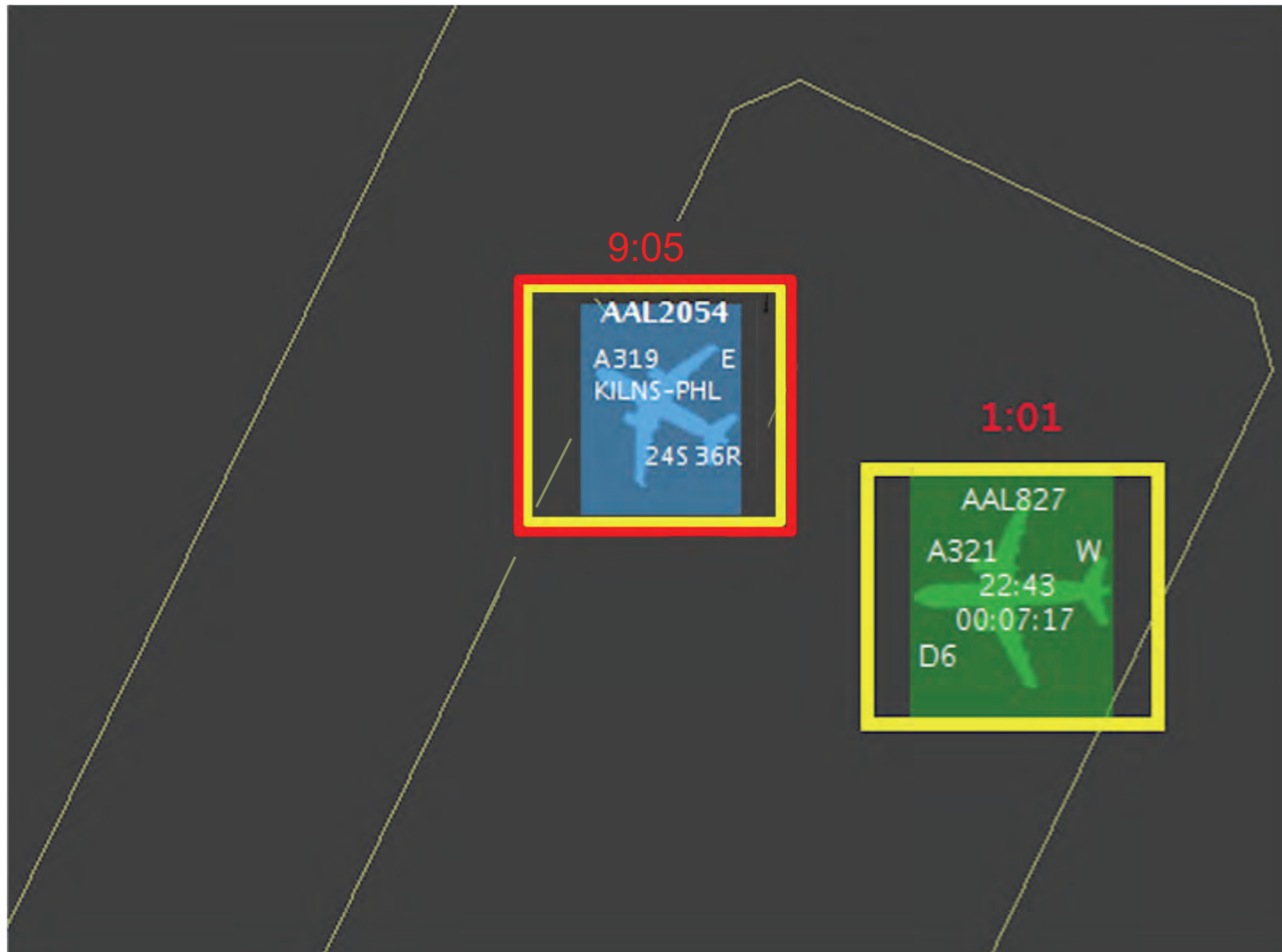
Departures: Assign a hold to apply the count up timer in hardstand
Arrivals: A red count up timer automatically provided in hardstand

Flight Menu
Gate Assignment on RTC

- Recommend use for A Concourse Only
- This change is local to RTC/RMTC, the update is not made on ASCENT/ Gate Manager

Flight Menu
Spot Assignment

- Click on spot to open the Select Spot menu

- Select new spot, then apply
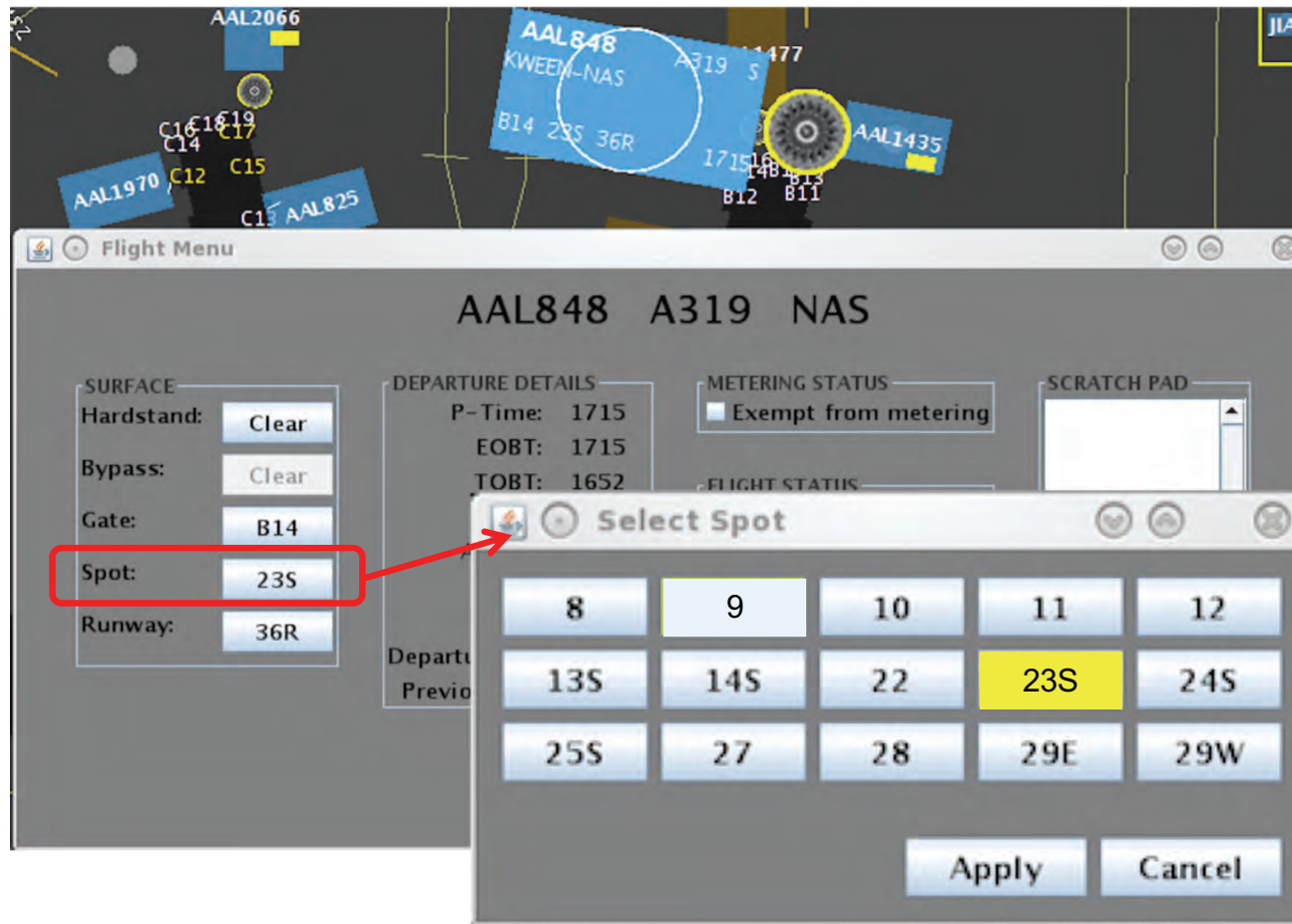
Flight Menu
Update Runway Assignment

- Click on runway to open Select Runway menu
- Select Operational Necessity checkbox
- Select new runway, then apply
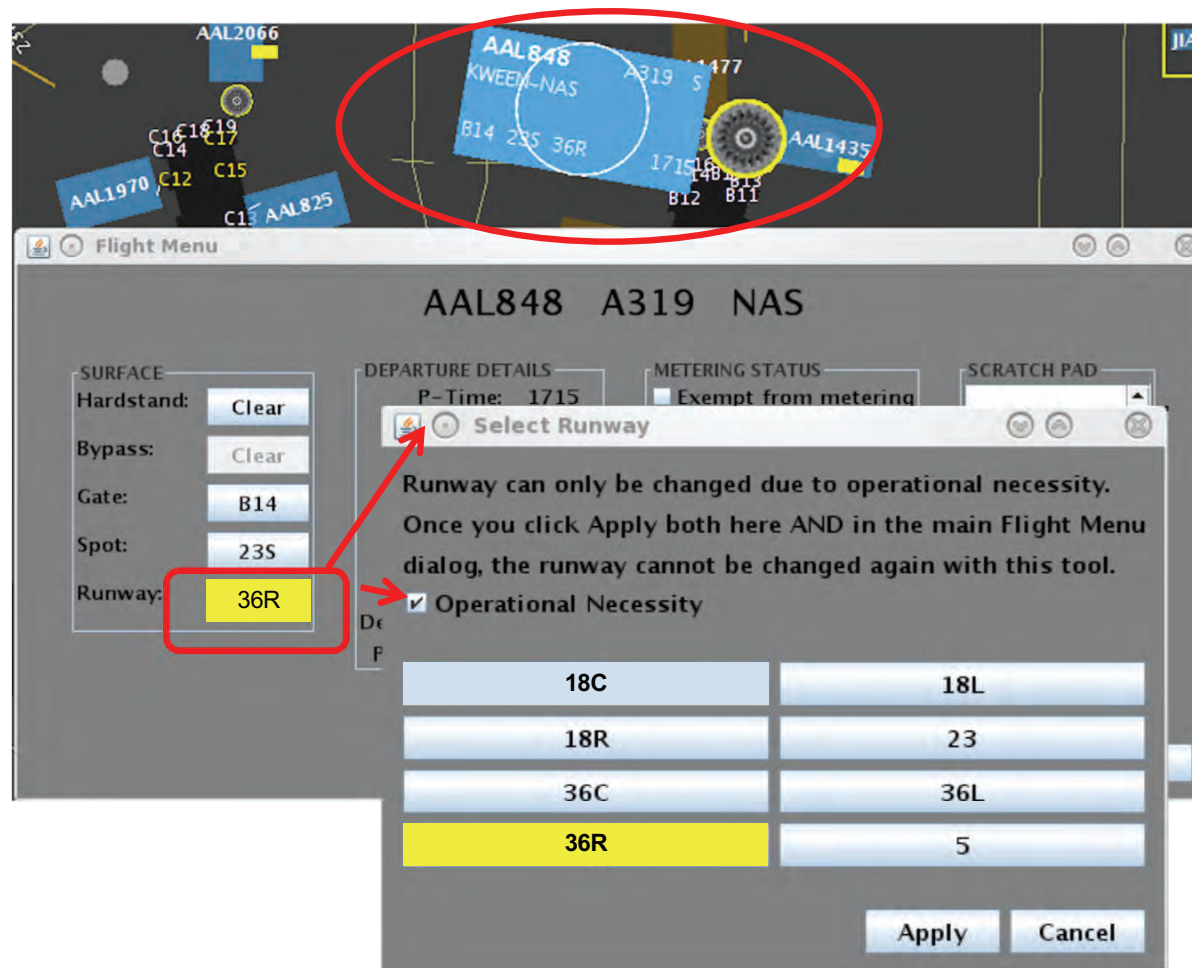
Flight Menu
Update Runway Assignment

- Flight strip updates to new color, with green highlight to indicate the change was made
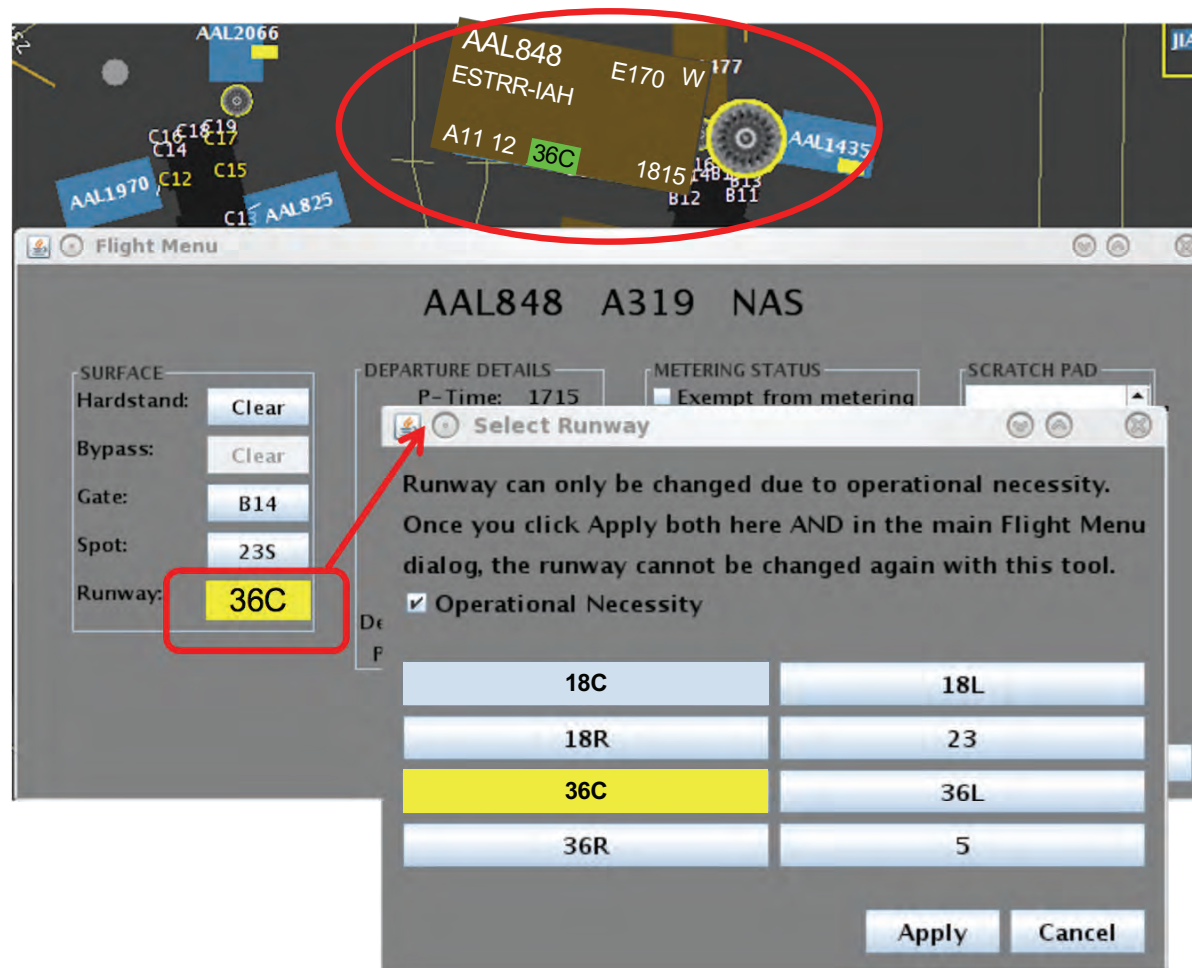
Flight Menu
Departure Details

- View details for the flight here: EOBT, TOBT, and TMAT
- If applicable then Traffic Management Initiatives (TMI) times will also be shown here: APREQ/CFR, EDCT, and MIT
- The current departure fix is shown here, as well as the previous fix if there was an update to the departure fix

Flight Menu
Status Details

- Select Exempt from Metering to remove this flight from metering
  - GA and Military are exempted automatically
  - Internationals will have to be manually exempted
- Flight Status: Select Priority Flight or Flight Cancelled to update the flight status
- Operational Status: Normal is the default, but Inactive Temporarily may be chosen to temporarily remove flight from metering
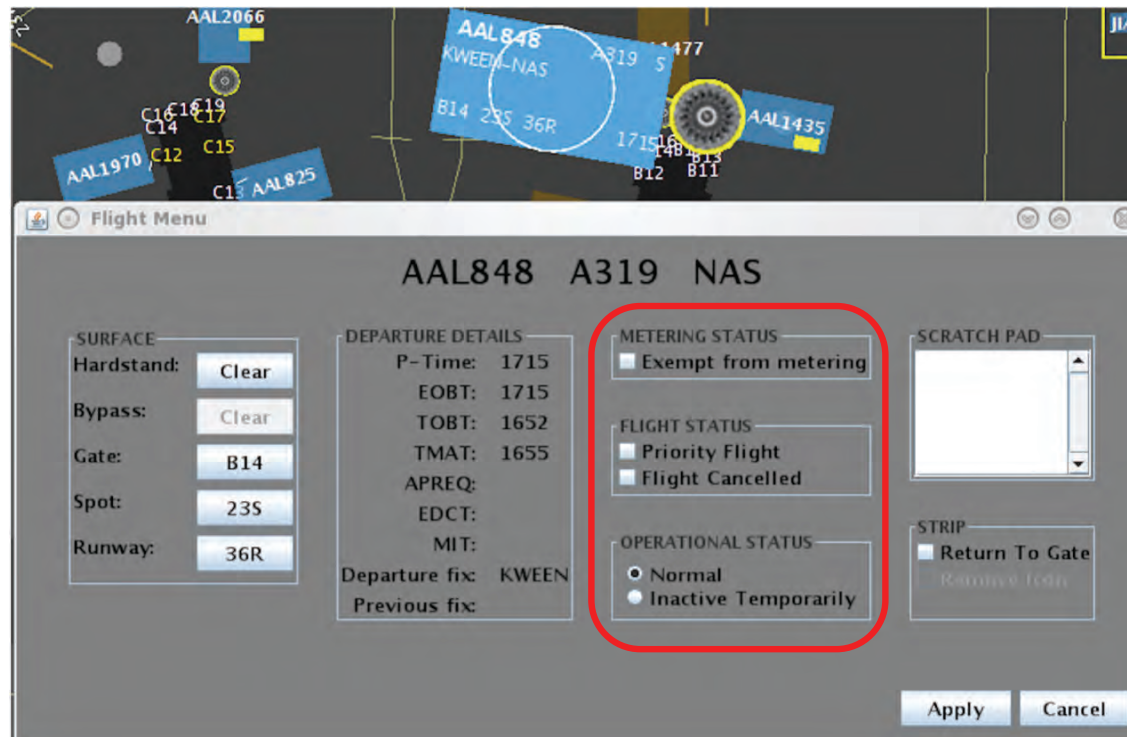
Priority and Canceled Flight
Assigned from Flight Menu

Canceled flight
Red X Watermark
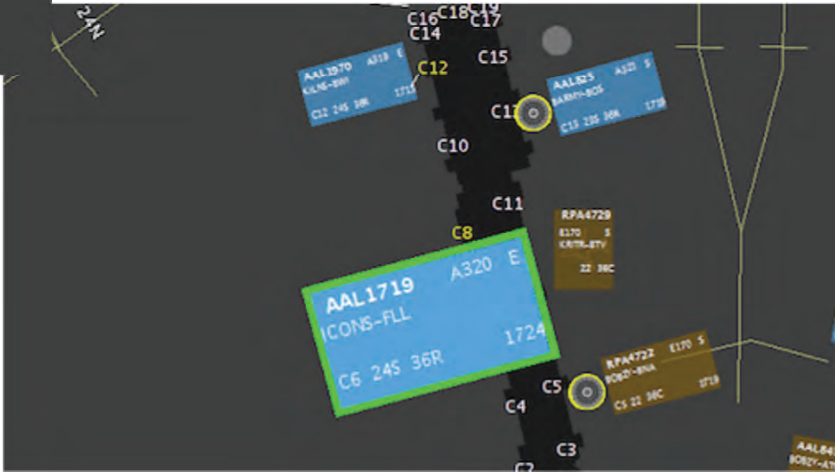
Priority flight
Green Border

Flight Menu
Scratch Pad Entry-Return to Gate-Remove Icon

- Type text into the scratchpad field, then apply
- Return to Gate and Remove Icon are greyed out until necessary
  - Return to Gate: will be available if departure flight is already off the gate, select here and apply to move flight back to gate
  - Remove Icon (greyed out), only available if the departure flight has been cancelled or arrival is in inactive state, select here then apply to permanently remove the icon

Arrival Flight Menu

- Move To Gate option is not available (grey) until IN message
- May assign Mike Charlie Bypass (see next slide)

Arrival Flight Menu
Mike Charlie Bypass

- Assign Mike Charlie Bypass on arrival flights
  - Places MC designation on flight to show intent to use Mike Charlie Bypass

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Data Exchange

- Data Exchange and sharing between CLT Tower and AA Ramp is foundational to Scheduling and Metering
- Improves Situational Awareness among decision makers
- Allows automated exchange of information and less reliance on phone calls
- Allows for collaboration between different kind of users
- Twelve ATD2 Shadow sessions at CLT lab have captured more than dozen data exchange items between tower and ramp
- Data exchange generates a notification for the users in their respective system

Data Exchange/Integration

Data Exchange and Integration

ATC-T to Ramp

- Airport Config & Runway Utilization
- MIT
- EDCTs
- APREQ/Call For Release (CFR)
- Departure Fix Closures
- Ground Stop
- Runway Closures

Ramp to ATC-T

- Taxi for Operational Necessity
- Cancellations
- Ramp Closure
- Metering Information
- Pushback & Surveillance

Gate Conflicts & LOB/ LTD

Data Exchange and Integration

Runway Utilization

Runway Configuration and Utilization

Tower/STBO Client
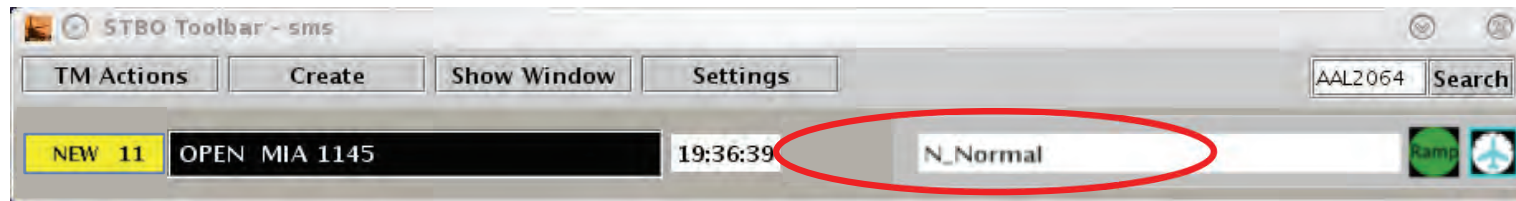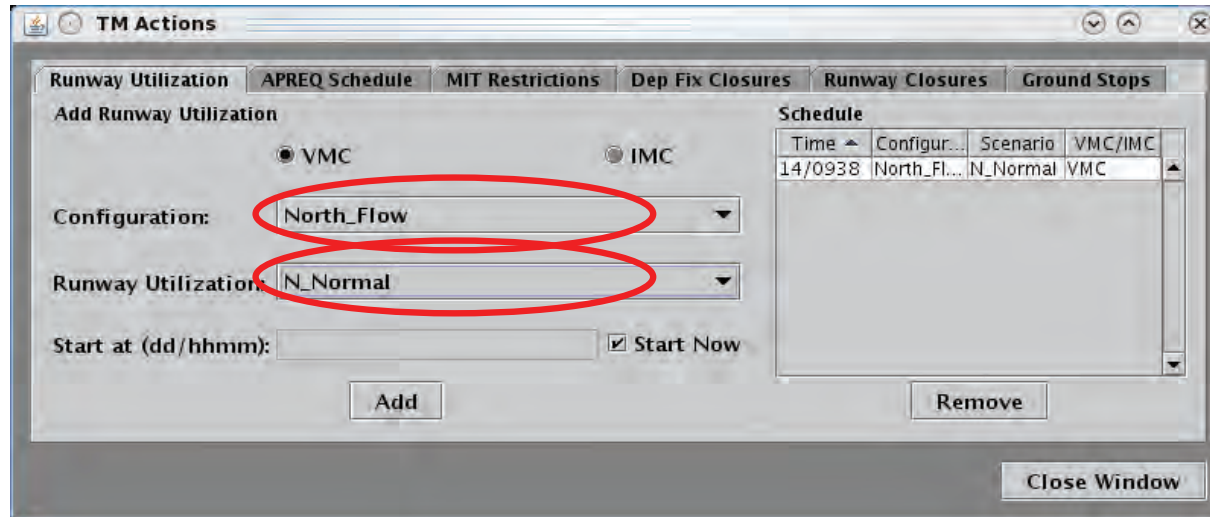
Ramp RTC/ RMTC

Data Exchange/Integration

Data Exchange and Integration

MIT

New "ICONS" Fix Miles-in-Trail of 15

NEW 11   15 MIT ICONS 2015-0712

Tower/STBO Client

Ramp RTC/ RMTC

Data Exchange/Integration

58
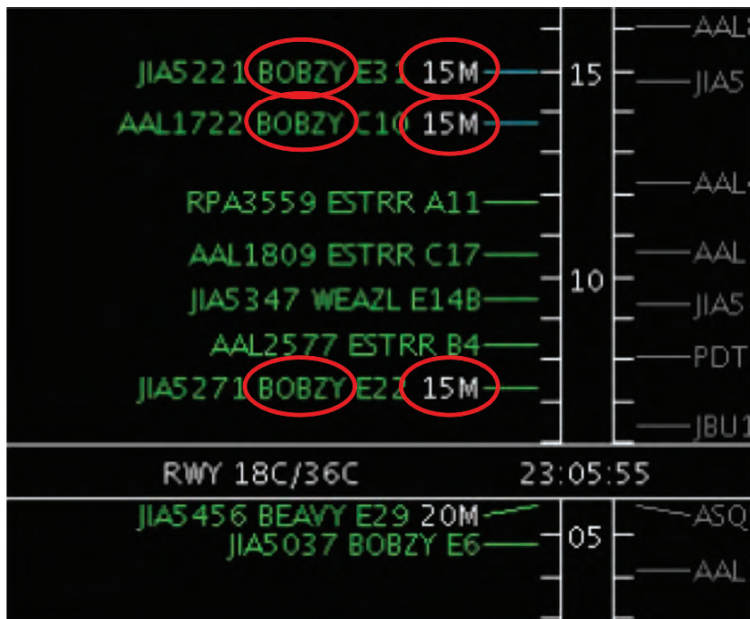
Data Exchange and Integration

EDCT Flights

EDCT Flights

Tower/STBO Client

Ramp RTC/ RMTC
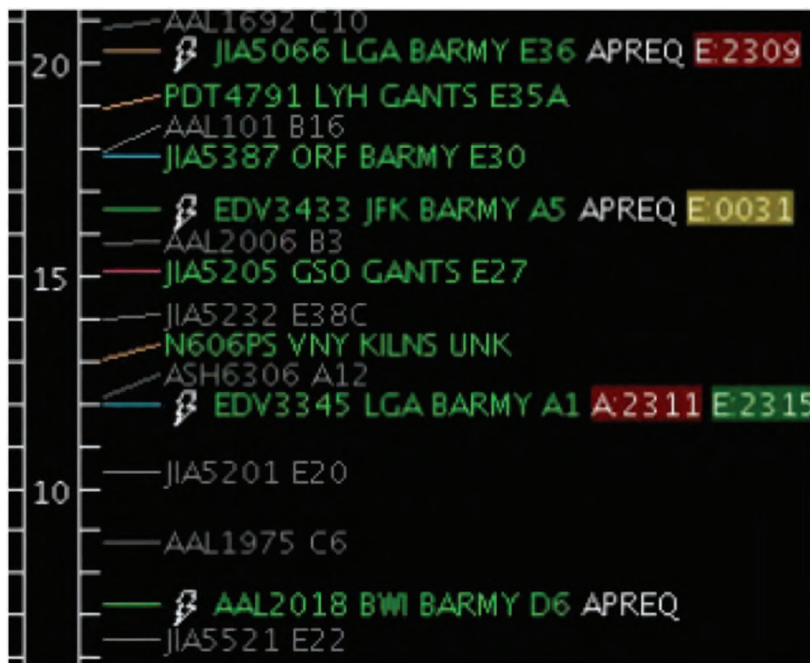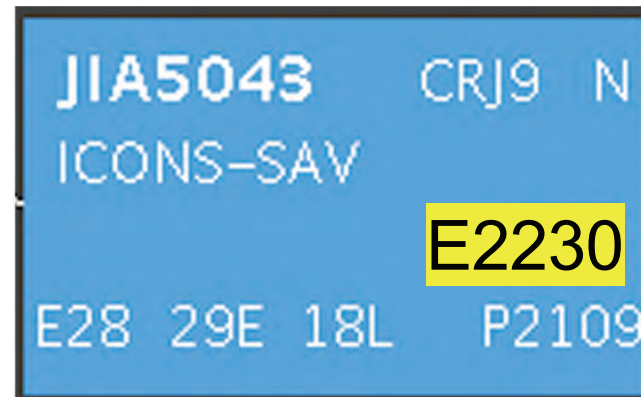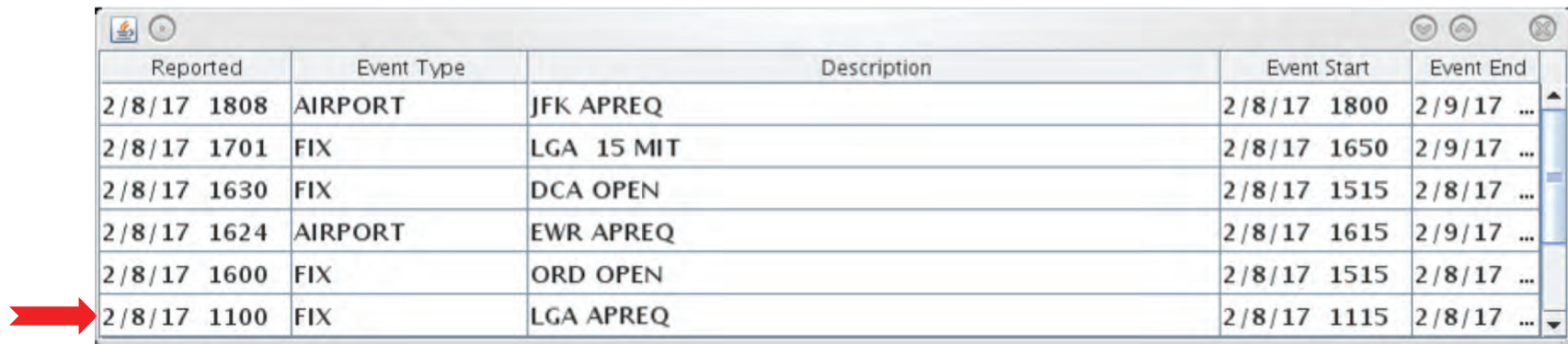
EDCT aircraft that is currently within time window of ±5 min

Data Exchange and Integration

APREQ/Call For Release (CFR)Scheduling

APREQ on RTC

- Notification on RTC for the APREQ/CFR

Reported	Event Type	Description	Event Start	Event End
2/8/17 1808	AIRPORT	JFK APREQ	2/8/17 1800	2/9/17 ...
2/8/17 1701	FIX	LGA 15 MIT	2/8/17 1650	2/9/17 ...
2/8/17 1630	FIX	DCA OPEN	2/8/17 1515	2/8/17 ...
2/8/17 1624	AIRPORT	EWR APREQ	2/8/17 1615	2/9/17 ...
2/8/17 1600	FIX	ORD OPEN	2/8/17 1515	2/8/17 ...
2/8/17 1100	FIX	LGA APREQ	2/8/17 1115	2/8/17 ...

- APREQ showing on the strip
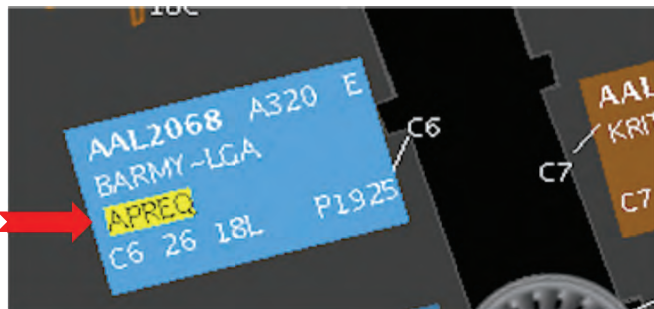
Prior to scheduling of CFR

After scheduling of CFR

Scheduled APREQ on STBO Client

- APREQ Time shown on STBO Client Timeline after scheduled
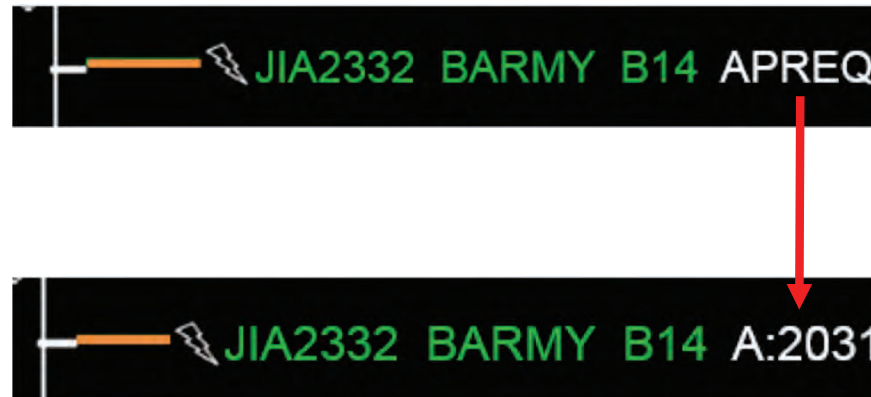
Cancel APREQ or Reschedule

- To cancel or reschedule an APREQ release time
  - Right click on Timeline datablock
  - Click "Cancel APREQ"
  - Begin the APREQ process again
- RTC will show APREQ on the flight strip when the time has been cancelled

Tower/STBO Client

Ramp RTC/ RMTC
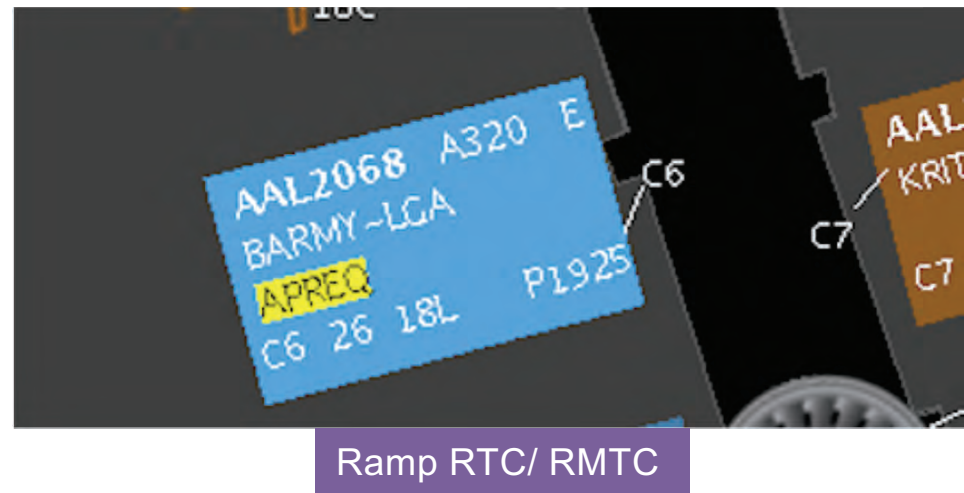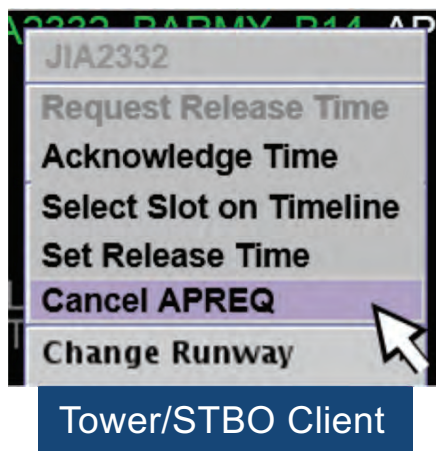
Data Exchange and Integration

Departure Fix Closures

Departure Fix Closures

NEW 11 — Closure JOJJO 1755-0712

Closed Dep Fix with CDR Fix selected →

AAL436 DFW BOBZY->CHOPN D2
JIA5275 E36
JIA5066 LGA BARMY E36 APREQ E:2324
AAL1692 C10
AAL435 DFW BOBZY->CHOPN B10
PDT4791 LYH GANTS E35A
20
JIA5387 ORF BARMY E30
AAL101 B16
JIA5221 TYS BOBZY->CHOPN E31
AAL2006 B3
AAL1722 SEA BOBZY->CHOPN C10
15   N606PS VNY KILNS UNK
JIA5232 E38C

Closed Dep Fix with no CDR Fix selected →

Tower/STBO Client

JIA5098
CRJ9   E
KILNS-MKE
P1830
E11 24S36C

Ramp RTC/ RMTC

Data Exchange/Integration

66

Data Exchange and Integration

Ground Stops

Ground Stop BWI on RTC
with Notification

Reported	Event Type	Description	Event Start	Event End
3/14/17 1736	TMI	GROUND STOP at BWI	3/14/17 1736	
3/14/17 1730	TMI	GROUND STOP REMOVED BWI	3/14/17 1723	
3/14/17 1700	TMI	OPEN LGA	3/14/17 1659	
3/14/17 1700	TMI	OPEN BWI	3/14/17 1659	
3/14/17 1700	TMI	OPEN BOS	3/14/17 1659	
3/14/17 1601	TMI	GROUND STOP REMOVED SNA	3/14/17 1456	3/14/17...

Data Exchange/Integration

Data Exchange and Integration

Runway Closures

Runway Closure on RTC

70

Data Exchange/Integration
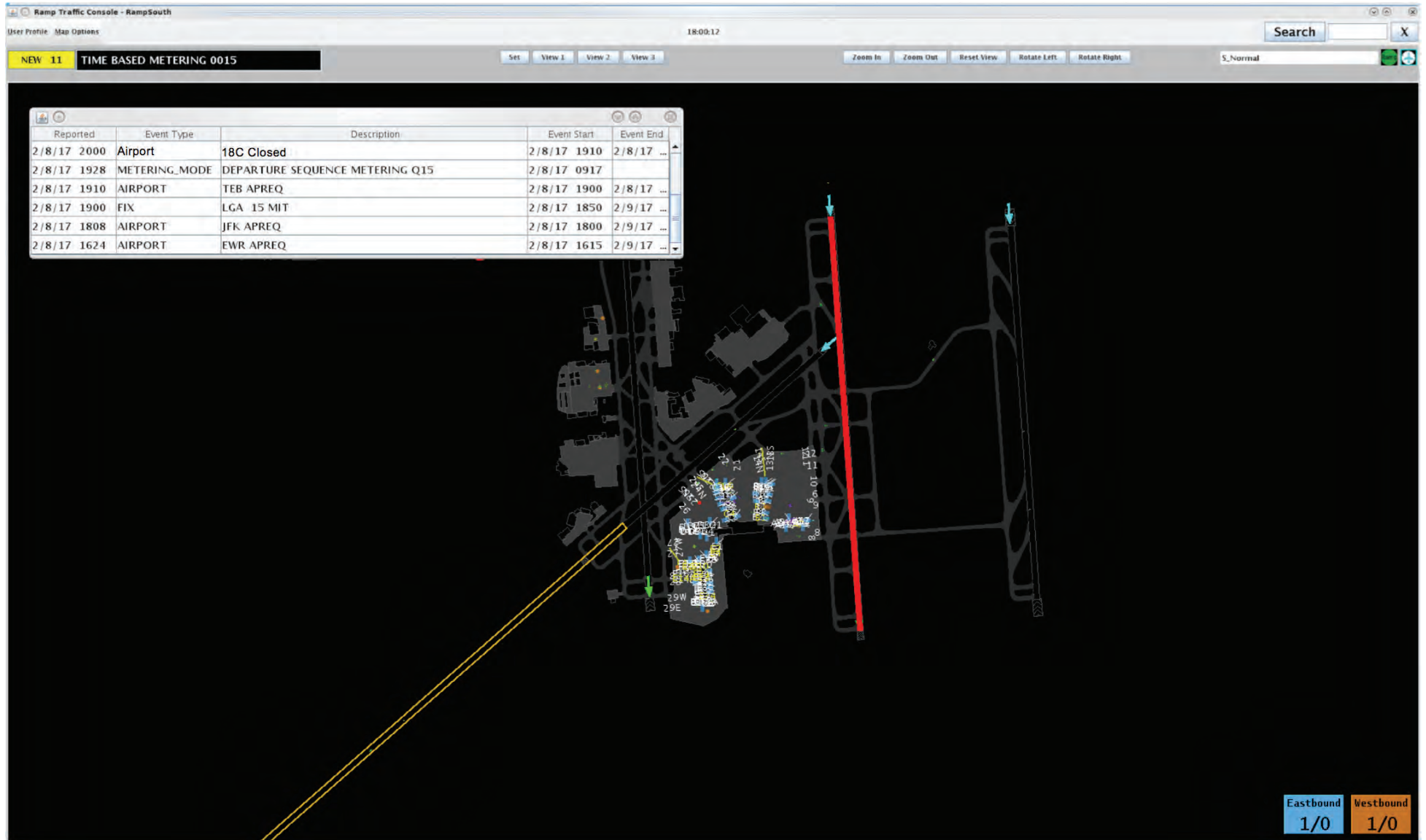
Data Exchange and Integration

Runway Change for Operational Necessity

Flight Menu
Update Runway Assignment

- Click on runway to open Select Runway menu
- Select Operational Necessity checkbox
- Select new runway, then apply

Before runway change

After runway change

Taxi For Operational Necessity (TFON) on STBO Client
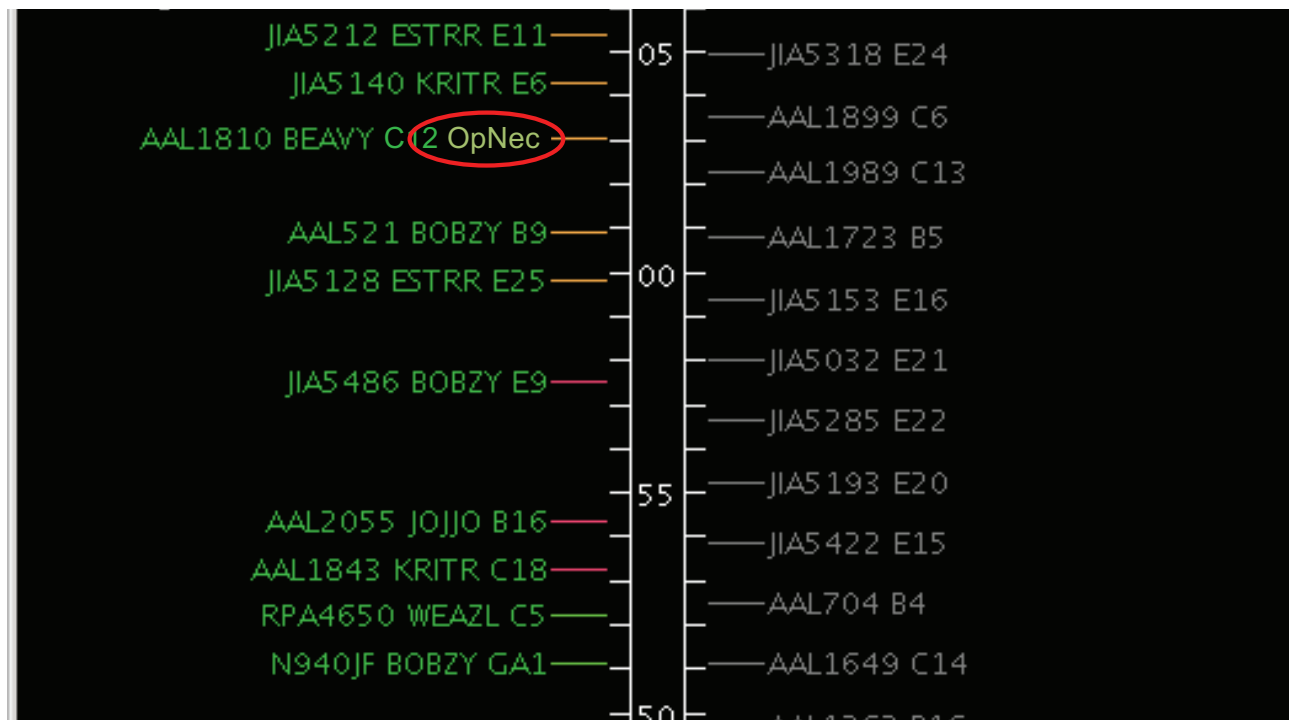
Data Exchange and Integration

Cancellations

Cancellations
Initiated from RTC Flight Menu

Flight Menu

RPA3474   E170   EWR

SURFACE
Hardstand: Clear
Bypass: Clear
Gate:
Spot:
Runway:

DEPARTURE DETAILS
P-Time: 1602
EOBT: 1602
TOBT: 1558

Departure fix: KILNS
Previous fix:

METERING STATUS
☐ Exempt from metering

FLIGHT STATUS
☐ Priority Flight
☑ Flight Cancelled

OPERATIONAL STATUS
◉ Normal
○ Inactive Temporarily

SCRATCH PAD

STRIP
☐ Return To Gate

Apply   Cancel

Check Here To cancel a flight

Ramp RTC/ RMTC

Ramp RTC/ RMTC

All; Results: 841 total. 17:58 GMT

Close   Search

Flight ID	Dest	Origin	AC Type	Rwy	RwyOpNec	Rwy Time	Flight Status	Gate	Gate Time	Spot	Spo
PDT4955	AVL	CLT	DH3	E36C		E14/18:55	Scheduled_Out	E38B	E14/18:40	S24	E14/
PDT4968	HTS	CLT	DH3	36C		14/17:35	Enroute_Dep	E34	14/17:15	S24	14/1
PDT4968	CLT	HTS	DH8C	E36L			Scheduled_In	E12		S9W	
PDT4972	CLT	ROA	DH3	36R		14/14:21	In	E38B	14/14:27	S29	14/1
PDT4974	TRI	CLT	DH3	36C		14/17:20	Enroute_Dep	E38A	14/16:59	S24	14/1
PDT4974	CLT	TRI	DH8C	E36L		E14/19:26	Scheduled_In	E12	E14/19:36	S9W	E14/
PDT4976	HTS	CLT	DH8C	E36C			Scheduled_Out	E38A		S24	
PDT4982	AVL	CLT	DH8C	E36C			Scheduled_Out	E38B		S24	
PDT4983	CLT	AVL	DH8C	E36L			Scheduled_In	E4		S9W	
RPA3454	IAH	CLT	E170	E36C		E14/18:40	Scheduled_Out	A12	E14/18:25	S12S	E14/
RPA3474	EWR	CLT	E170				Cancelled	A13			
RPA4402	CLT	BNA	E170	36L		14/16:15	In	C5	14/16:23	S9W	14/1

Tower/STBO Client

Data Exchange/Integration

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Data Exchange and Integration

Ramp Closure

Ramp Closure
From RMTC: Update Ramp Status
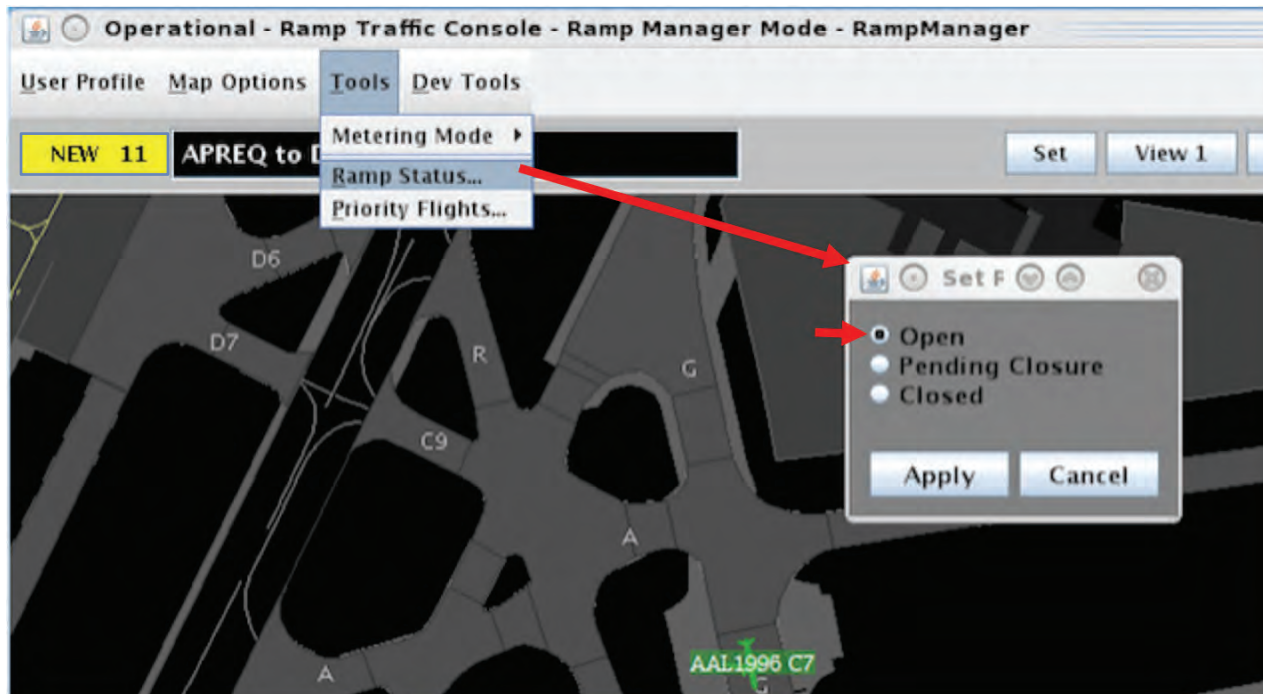
Ramp RTC/ RMTC

Ramp Open

Ramp Closure Pending

Ramp Closed

Tower/STBO Client

Ramp RTC/ RMTC

Data Exchange and Integration

Metering

Ramp sets the Metering Mode from Tools Menu
(RMTC)

Data Exchange/Integration
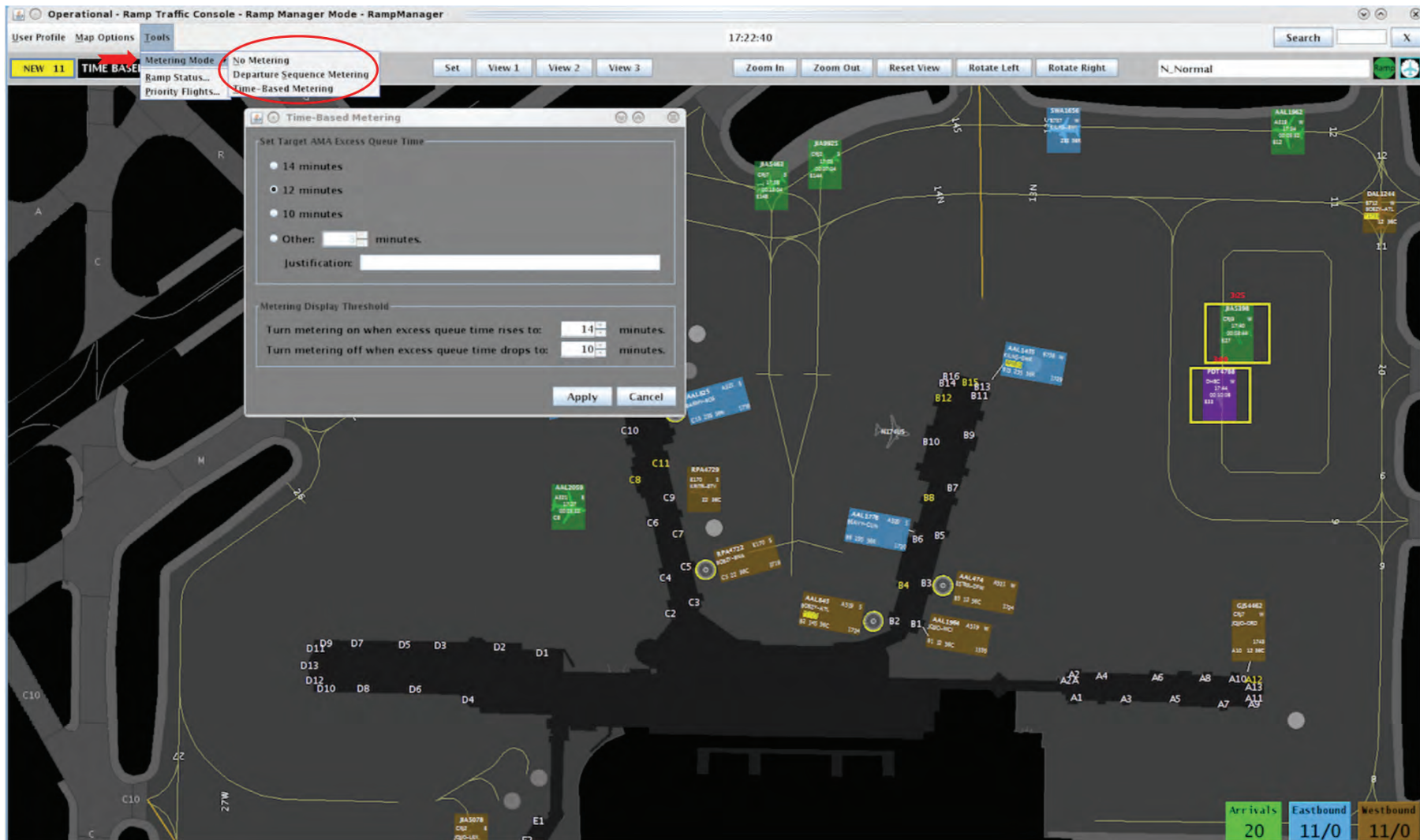
Metering Mode Icon
Displayed Top Right of Window

- **No Metering** :
  - No time-based advisories are displayed
  - Hold lists are available on RTC/RMTC

- **Sequence-based metering**:
  - This is provided primarily for legacy backward compatibility
  - This is how ATD-2 allows the count-based metering that CLT has previously called "departure sequencing"
  - Requires selection of a queue size on RMTC
  - Hold lists are available on RTC/RMTC

- **Time-based metering**:
  - This is the new tactical surface metering ATD-2 is adding which leverages time-based-metering & ration-by-schedule principles
  - The time-based pushback advisory is for individual aircraft using trajectory based predictions & scheduling algorithms
  - Both pushback and recommended hold times advisories are available on RTC/RMTC

Data Exchange/Integration

Data Exchange and Integration

Gate Conflicts

Gate Conflict

Gate Conflict Arrival aircraft in magenta + tether line to gate when flight is selected

Gate Conflict Arrival gate

Ramp RTC/ RMTC

Tower/STBO Client
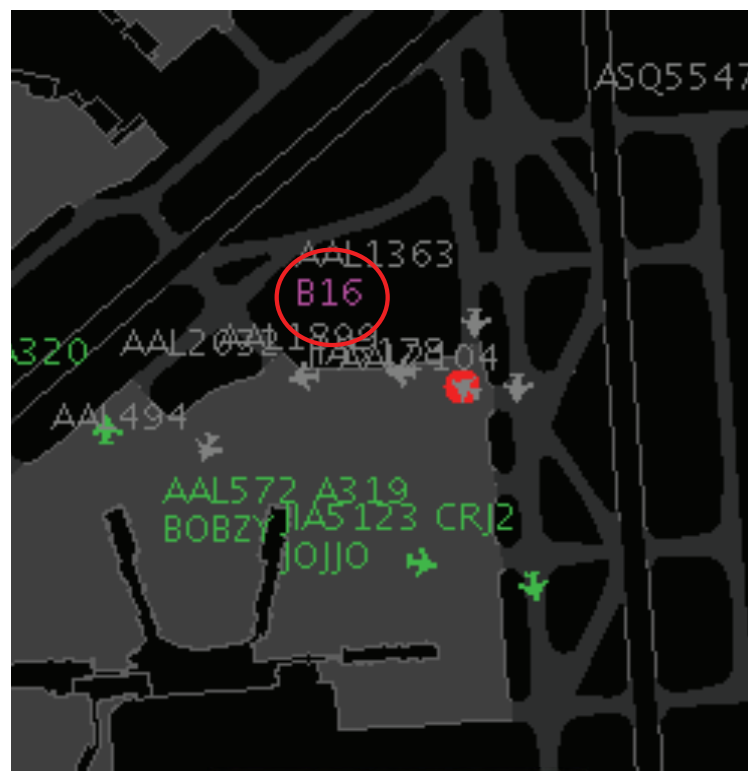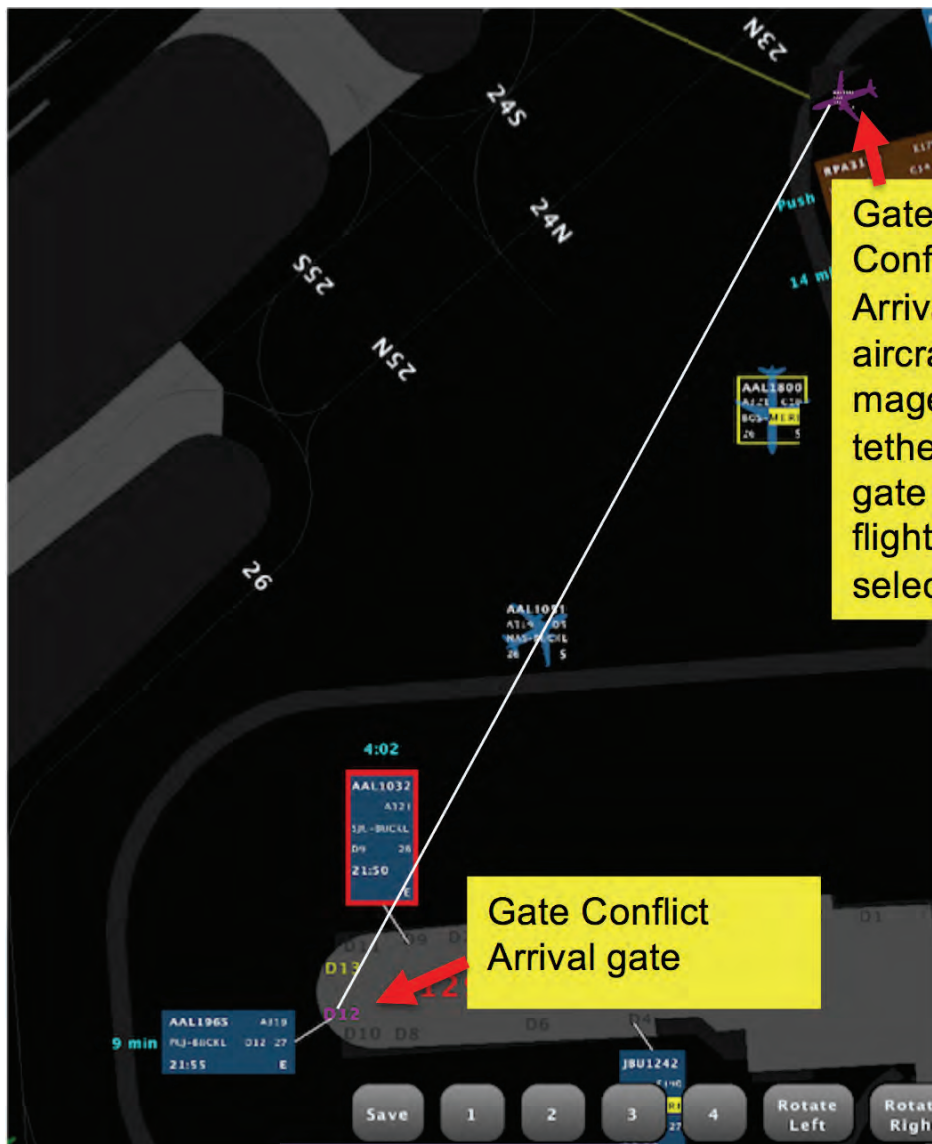
Data Exchange and Integration

Long On Board /Lengthy Taxi Delay

Long On Board/Lengthy Taxi Delay

60+ min

90+ min

120+ min
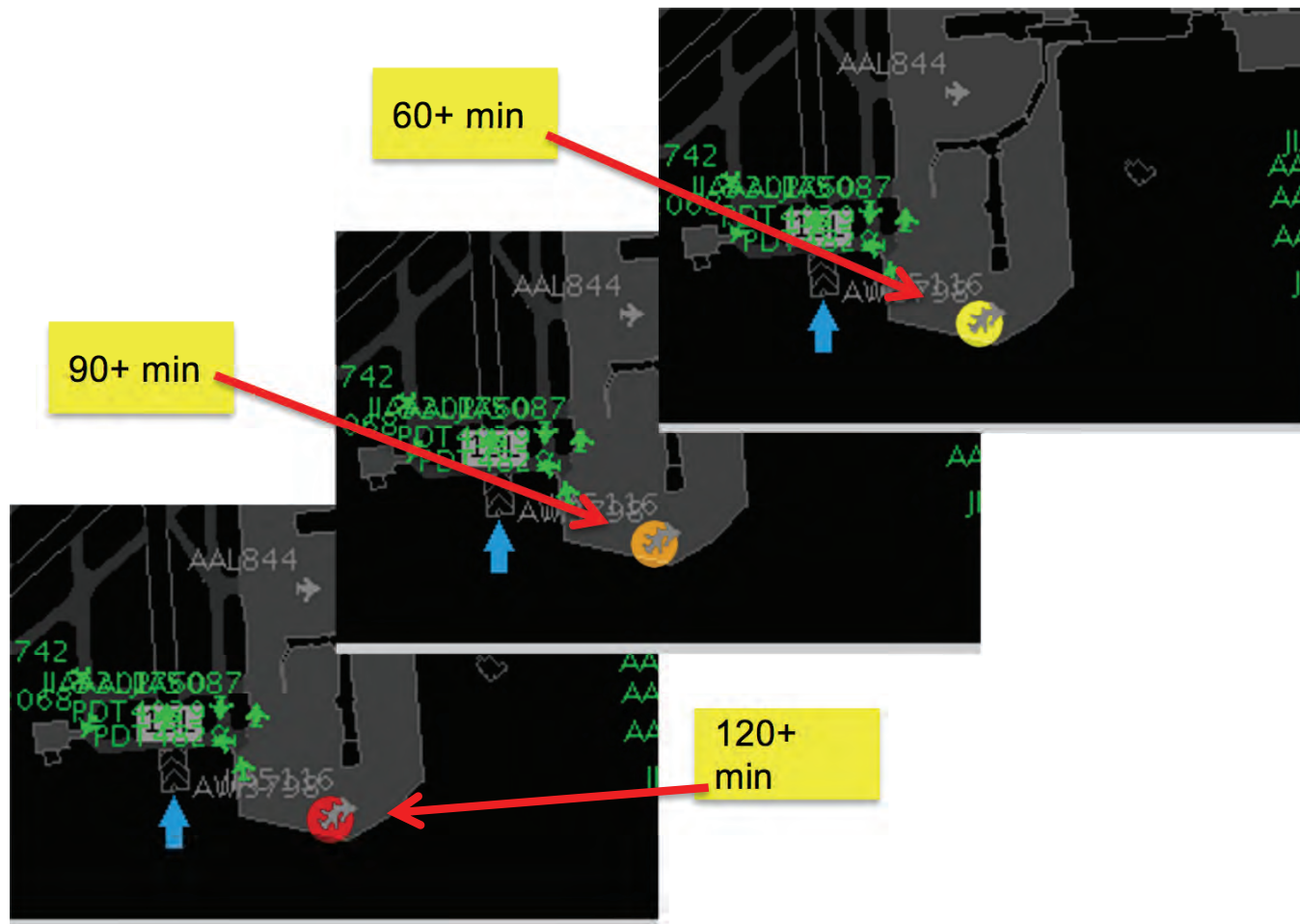
Data Exchange and Integration

Review of Data Exchange on Flight Strips

Review of TMI Flight Notification

 APREQ

 APREQ with Scheduled Time

- When a flight has a TMI, the TMI detail will be displayed on the flight strip with a blinking yellow text box. ***Click on flight to acknowledge this alert**

- APREQ on strip: this flight is waiting to be scheduled. *try not to release a flight until it has a scheduled time

- Required to acknowledge again after scheduled APREQ

- **APREQ flights will always get a gate hold recommendation, meant to guide the pushback of the flight to meet FAA controlled time (TMI)**

As an alert, these will all blink when they first appear.

*It is important to acknowledge any alerting (blinking yellow or red) alerts so that if the TMI is updated, new alerts can be easily noticed.

EDCT Flight Notification

← EDCT

← EDCT & APREQ

- EDCT flights will always get a gate hold recommendation, meant to guide the pushback of the flight to meet FAA controlled time (TMI)

- EDCT & APREQ shown together APREQ will trump EDCT once negotiated

As an alert, these will all blink when they first appear.

*It is important to acknowledge any alerting (blinking yellow or red) alerts so that if the TMI is updated, new alerts can be easily noticed.

MIT, Departure Fix Closure, CDRs and Airport Closures

 ← MIT

 ← Departure Fix Closed

 ← Departure Fix Updated

 ← Destination Airport Closed (Ground Stop)

As an alert, these will all blink when they first appear.

*It is important to acknowledge any alerting (blinking yellow or red) alerts so that if the TMI is updated, new alerts can be easily noticed.

Data Exchange/Integration

APREQ and EDCT
Hold Recommendation

APREQ flights with a scheduled Call For Release (CFR) and EDCT flights will always have a recommended gate hold time
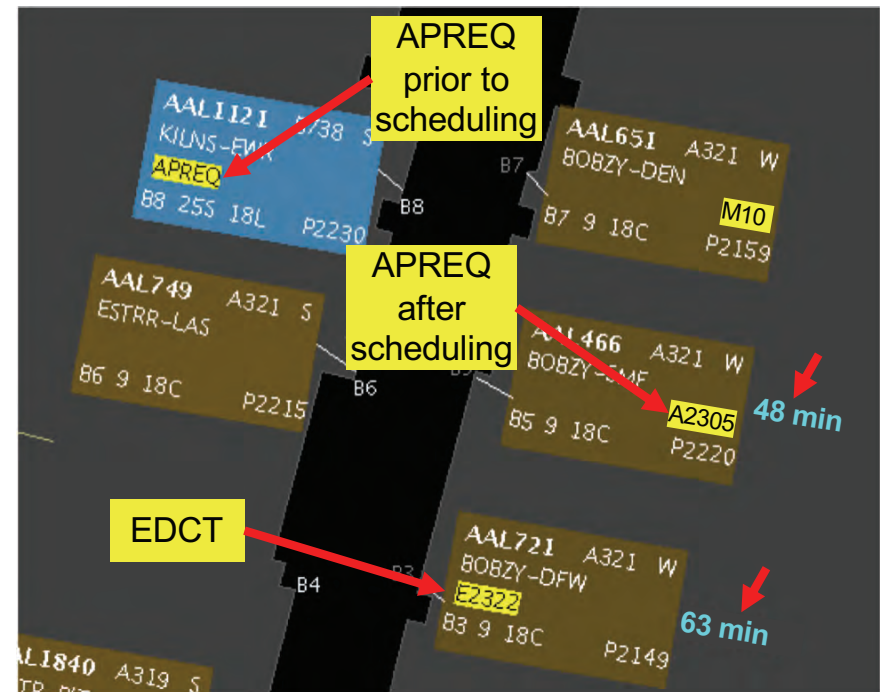
TMAT or Spot Time on APREQ and EDCT

If a flight has an APREQ or EDCT, then after pushback the TMAT or Spot Time is displayed in yellow highlighting as an alert that this TMAT is a function of the scheduled APREQ or EDCT. Beyond spot, APREQ displayed

APREQ and EDCT flights
Hardstand Release Advisory

Departures with Metering, APREQ and EDCTs get a TMAT/Spot Time

They have a release timers in the hardstand

Countdown Timer: counting down until flight should be released to meet TMAT
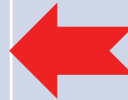
Hardstand Assignment
From Flight Menu - Departures

Release Alert: displayed after countdown expires if flight has not yet been released from Hardstand

Agenda

Training Topic	Duration
A. Overview of ATD-2 & RTC/RMTC	30 Min
B. Interface Details: Upper Status Bar: (Map Features, Notifications)	30 Min
C. Interface Details: Flight Strip and Flight Menu	30 Min
D. Data Exchange and Integration	30 Min
E. Metering Modes, and Tactical Scheduler Advisories	1 Hour
F. Interactive Exercises on all the above	1 Hour
	Total 4 Hours

Metering Modes and Icons
Displayed Top Right of Window

No Metering :
– No time-based advisories are displayed
– Hold lists are available on RTC/RMTC

Departure Sequencing-based metering:
– This is provided primarily for legacy backward compatibility
– This is how ATD-2 allows for the count-based metering that CLT has previously called "departure sequencing"
– Requires selection of a queue size on RMTC
– Hold lists are available on RTC/RMTC

Surface Time Based metering:
– This is the new tactical surface metering ATD-2 is adding which leverages time-based-metering & ration-by-schedule principles
– The time-based pushback advisory is for individual aircraft using trajectory based predictions & scheduling algorithms
– Both pushback and recommended hold times advisories are available on RTC/RMTC

Surface Time Based Metering (STBM)
Flight Grouping and EOBTs

- The metering tool algorithm places flights in Groups based on the quality of their EOBTs, and how far they are from current time, updates to EOBT are received at regular intervals
  - Uncertain Group   - Out Group
  - Planning Group   - Taxi Group
  - Ready Group   - Queue Group

- Each group may have different rules for prediction for scheduling, metering and display

- Taxi-time prediction is included in the algorthm to assess transit times and buffers are included to handle congestion

- Given aircraft groups, the scheduler calculates TTOT, TMAT and TOBT. Order of consideration is based on operation, aircraft groups, priority and exempt status

Advisories
(After Pilot Calls for Pushback)

- Advisories are present only if Metering is on and there is sufficient demand

- **After** the pilot calls for pushback, the Advisory (in cyan) will recommend: A, B or C

- If a hashtag is displayed, click on hashtag to generate the advisory

- If a "PUSH" advisory is displayed, then pushback recommended by the scheduler, make pushback entry using right click menu

- If a recommended hold time, then use right click menu to hold for n minutes

Metering
Modes/Advisories
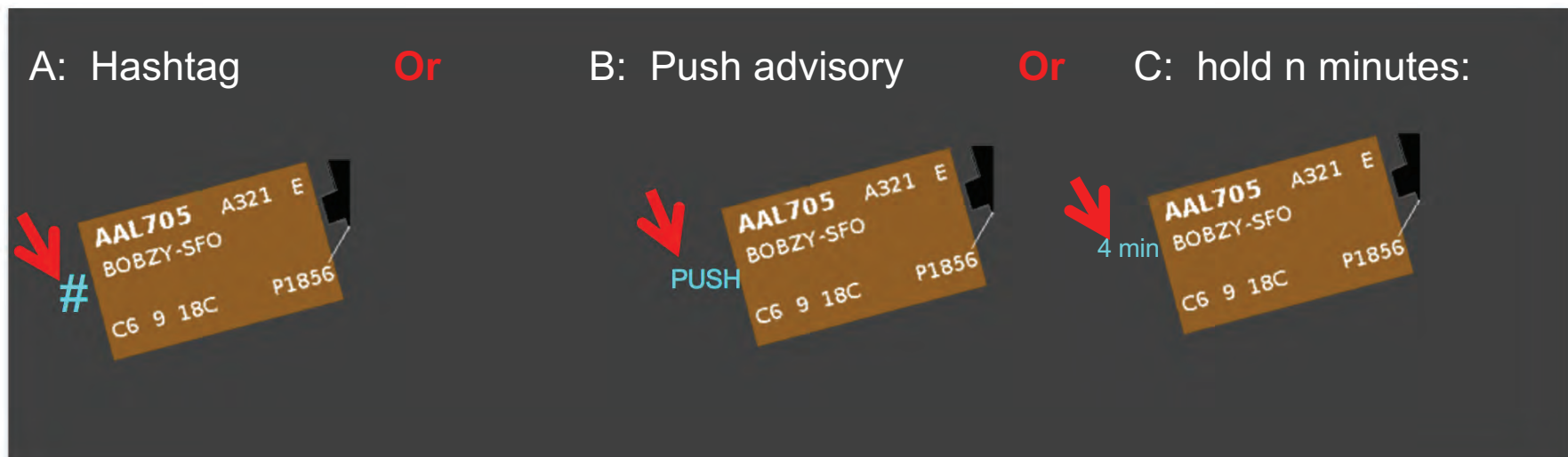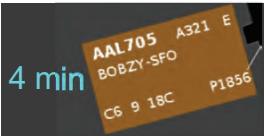
Uncertain Group

Group	Definition	RTC display
Uncertain	Flights with poor quality EOBT or (EOBT – current time) > 10 min	Click on hashtag to put flight in ready group and reveal advisory
Planning	Flights within 10 min of EOBT (i.e., EOBT – current time <= 10 min)	
Ready	Flights that have called in ready for pushback	
Out	Flights that are in pushback state	
Taxi	Flights that are cleared for taxi	
Queue	Flights waiting in the runway queue	

Is Flight Ready?
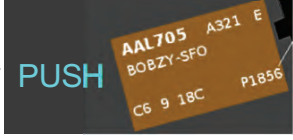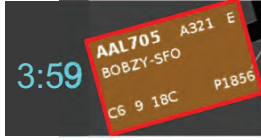
Click Hashtag

Note: Flights with hashtag can not be put on hold. Must click hashtag to get advisory

AAL705 A321 E
BOBZY-SFO
C6 9 18C   P1856
#

Planning Group

Group	Definition	RTC display
Uncertain	Flights with poor quality EOBT or (EOBT – current time) > 10 min	
Planning	Flights with good quality EOBT (and within 10 minutes of EOBT)	
Ready	Flights that have called in ready for pushback	
Out	Flights that are in pushback state	
Taxi	Flights that are cleared for taxi	
Queue	Flights waiting in the runway queue	
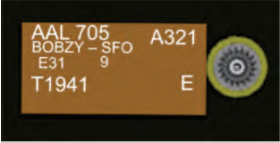
Ready Group

Group	Definition	RTC display
Uncertain	Flights with poor quality EOBT or (EOBT – current time) > 10 min	
Planning	Flights with good quality EOBT (and within 10 minutes of EOBT)	
Ready	Flights that have called in ready for pushback	
Out	Flights that are in pushback state	
Taxi	Flights that are cleared for taxi	
Queue	Flights waiting in the runway queue	

Out-Taxi-Queue

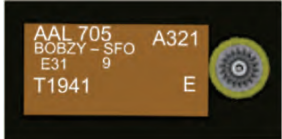| Group	Definition	RTC display
Uncertain	Flights with poor quality EOBT or (EOBT – current time) > 10 min	
Planning	Flights within 10 min of EOBT (i.e., EOBT – current time <= 10 min)	
Ready	Flights that have called in ready for pushback	
Out	Flights that are in pushback state	
Taxi	Flights that are cleared for taxi	
Queue	Flights waiting in the runway queue	

Metering Groups

Group	Definition	RTC display
Uncertain	Flights with poor quality EOBT or (EOBT – current time) > 10 min	
Planning	Flights within 10 min of EOBT (i.e., EOBT – current time <= 10 min)	4 min Or PUSH
Ready	Flights that have called in ready for pushback	3:59 Or
Out	Flights that are in pushback state	
Taxi	Flights that are cleared for taxi	
Queue	Flights waiting in the runway queue	

Metering Advisories
PUSH Phraseology

I.   IF the flight has a `PUSH` advisory

"AAL705, pushback approved, expect 18C"

Use right click menu to enter pushback.
Engine symbol appears to indicate spool up
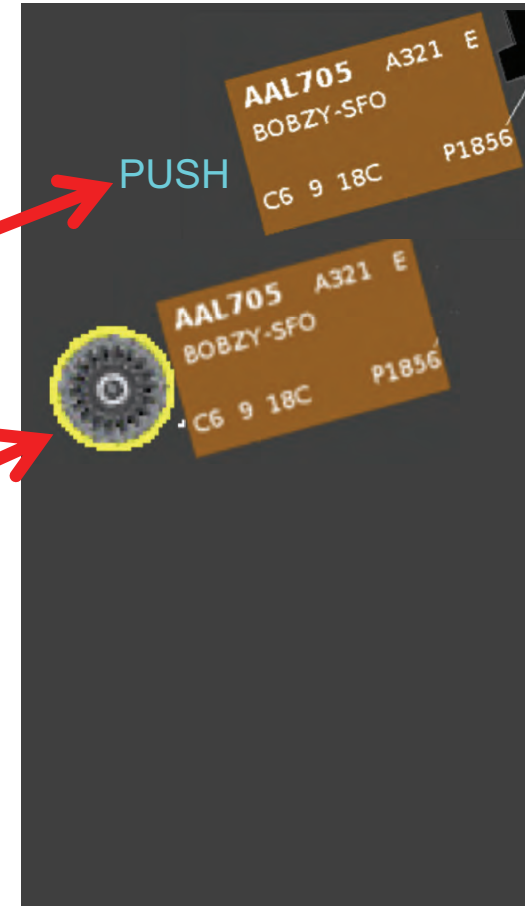
Advisories
Hold

I.   IF Flight has a Recommended Hold (`4 min`)

       "AAL705, hold 4 minutes for metering"

       (Use right click menu to select Pushback)

II.   Red border appears and timer begins to count down to zero *note: the time may jump from the rounded advisory time to a specific count-down time when locked in

       Timer color will change to yellow when two minutes remaining

III.   When timer counts down to zero, if able, contact flight to give pushback approval

       "AAL705, pushback and proceed to spot 9"

       (Use right click menu to select pushback)

IV.   If count down goes past zero, then an extra 5 minutes count down will be provided with blinking `PUSH` to allow extra time to pushback
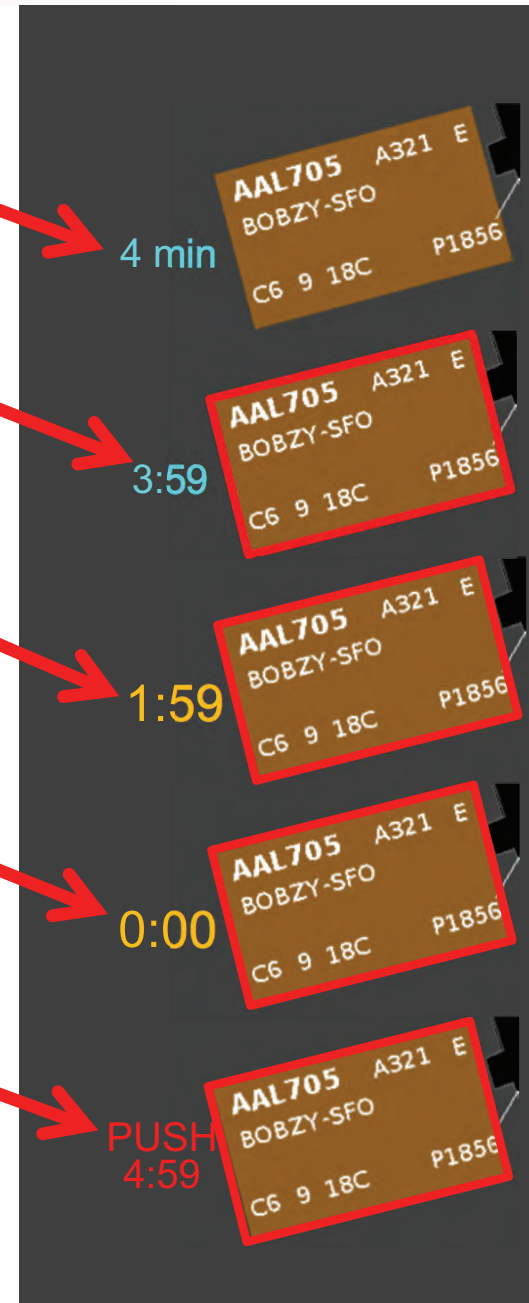
Advisories
Add Extra Hold

- If count down goes past zero, then an extra 5 minutes count down will be provided to give additional time

*If needed, to prevent flight from being placed into the uncertain group (hashtag), time may be added to the hold

- Use the right click mouse menu to add 2, 5, or 10 minutes to the hold time

  » Five minutes added to hold countdown timer

Target Movement Area Entry Times
Metering v/s APREQ/EDCT Flights

When in Surface Time Based Metering,
the TMAT or Spot Time is displayed on flight after Pushback
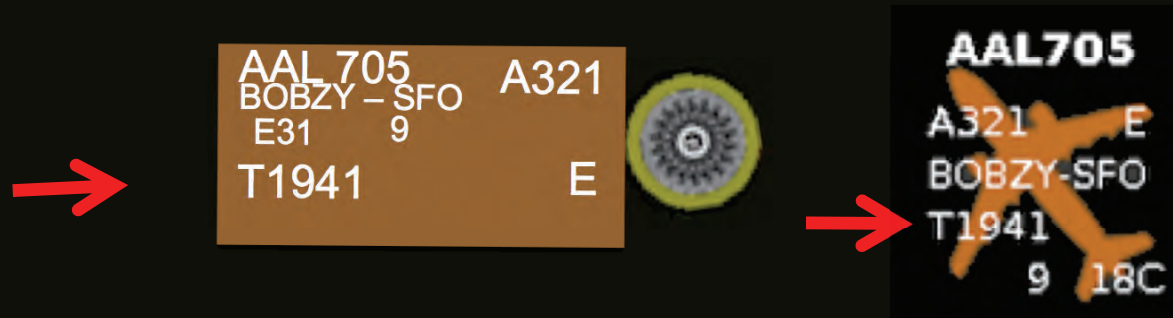
If a flight has an APREQ or EDCT, then after pushback the TMAT is displayed in yellow highlighting as an alert that this TMAT is a function of the scheduled APREQ or EDCT. Beyond spot, APREQ displayed

After crossing spot
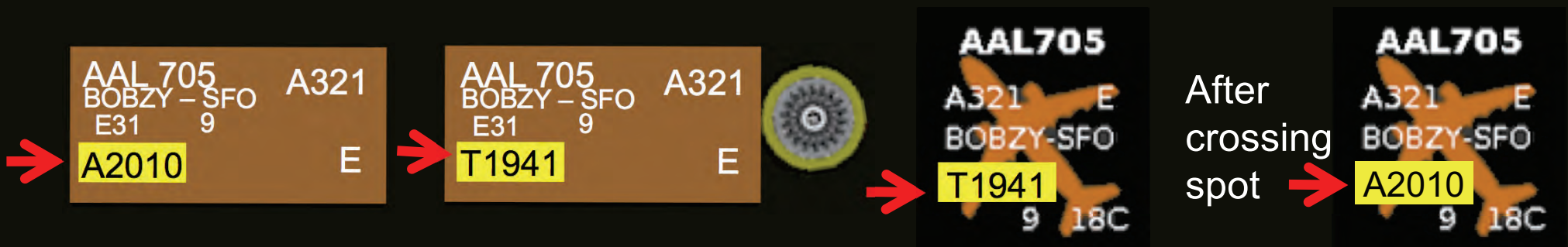
Expected Pilot Procedures

- Metering
  - "AAL705, hold 4 minutes for metering"
- APREQ Flights with wheels-up time
  - "AA 235 you have a wheels-up time of 1230 to LGA, hold for 10 min"
  - OR check if the flight got it's wheels-up time before proceeding to spot
- EDCT Flights
  - "AA 795 you have an EDCT or wheels up time of 1330 to EWR, hold for 40 min" or send to hard stand
- In Hardstand
  - Advisory available
    - "AA 898, you will be released from hardstand in 7 minutes"
  - Advisory not available : use current day procedures
- Dep Fix Closure (at gate when possible)
  - "AA 267, Contact Clearance delivery for new route, call when ready for push"

Agenda

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A. Overview of ATD-2 & RTC/RMTC	30 Min
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E. Metering Modes, and Tactical Scheduler Advisories	1 Hour
F. Interactive Exercises on all the above	1 Hour
	Total 4 Hours

Exercises

- How to access RTC

- Pushback, taxi

- Undo pushback, undo taxi

- Flight Menu

  – Surface updates (gate, spot, runway update)

  – Status updates (Exempt, Priority, Cancel, inactive temp)

  – Scratchpad, return to gate (move to gate for arrival)

- Notifications, open panel and acknowledge

- Advisories

  – Push, hold, undo hold

  – add time to hold

Extra Slides

Hashtag Flight

If the flight is in the Uncertain Group, it will have a hashtag in place of the advisory

- Click on the hashtag to get the "instant advisory"

  (Either PUSH or a recommended hold time)

  *If the hashtag is clicked on by mistake, it is important to use the right click mouse menu to put the flight back into the "unready" group. This places a hashtag back on the flight.

- If a hold is recommended, use right click menu to hold, and a countdown timer is displayed showing amount of time remaining for the recommended hold