

NATCA Safety & Tech Update Week of April 23, 2018

ENROUTE AUTOMATION WORKGROUP (ERAW): Julio Henriques (ZNY) leads the ERAW efforts for NATCA. Rex Jackson (ZDC) provides this update, his report is below.

Facility Tech Reps completed Ops Eval testing on EAD704, EAD710, EAE100 and EAE110. FTR's continued work on Task Teams and preparation for Data Comm deployment.

Enroute Automation Workgroup (ERAW) received an Early-R Tech Refresh (TR2) briefing from the ERAM Program Office. The current hardware failure rate has been re-evaluated and used to assess the need for TR2 Early R limited deployment to ZLA, ZSE and ZOA and determined that it is no longer necessary. Key-site activities to support R-side TR2 will begin late Spring 2019.

ERAW approved the release plan of EAD704 and the process to allow facilities to re-enable PDRR once the sites transition to the new software is completed. Guidance has been distributed to all ARTCC's on the new process.

The National User Team held the scheduled quarterly meeting in Louisville, KY the week of March 5th. The team received briefings and worked on the following topics:

- Handoff to Non-US
- BMG and SMG High Confidence and CSS Weather
- GPS Non-Interference Testing
- Multiple Flight Plan Strip:
 - The team was briefed on the status of the Multiple Flight Plan Strip as well as printing of Destination in Block 8 of the terminal strip; both functionalities were delivered in EAD700. Both functions are dependent on TDLS, EFSTS and AEFS software updates. Sites should ensure the correct software versions are available should a terminal want to utilize either function.
- PDRR/ABRR
 - The team was briefed on the status of PDRR/ABRR, the 45-minute warning parameter and a CDR issue being tracked by AIMS 188314. The fix for the CDR issue is being delivered in the EAD7004 delta release at the end of March. The team was also briefed on IDAC, which is a tool used by terminals to identify departure slots.
- Data Comm
 - The Data Comm team provided briefings on the current status of Data Comm, the EAE1X release plan, SGET class availability, Ghost Pilot

resources, outstanding CHI issues and use case updates for initial and full services.

- ER 180253 NRS Fixes on the GPD
 - The team discussed and reached consensus on the problem statement, its desired behavior is to add a new filter to the GPD map to display/remove NRS fixes and NRS fix labels as an option to reduce clutter. Once all team members concur the problem statement will be sent to SLE.
- ER 187136 Display Weather on GPD
 - The ER was discussed and the group originally agreed that a task team should develop a use case, after more discussion, the team decided not to pursue this ER.
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- STARS Enhancement 2
 - Point Out use case
 - The team discussed and reached consensus on the use case, its desired behavior is to allow Point Outs to be made between ERAM and STARS facilities. The completed use case will be sent for engineering.
 - Airspace Transfer use case
 - The task team discussed the current version of the use case; the desired behavior is to develop a function that would allow real-time transfer of adapted airspaces between ERAM and STARS facilities.
 - Messaging
 - The task team explained the reasoning for not developing a use case for the Messaging function, it would have allowed text-based messages to be transmitted between ERAM and STARS facilities. The team agreed that this function does not need to be pursued.
- GIMMS
 - The team discussed ER 180897, TBFM Rounding vs Truncation. The TBFM team has asked that this ER be discussed and a problem statement created. The ERs desired behavior is to allow controller select-ability and display of either rounded or truncated meter times.
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- The following is a sample of other issues the National User Team worked in March 2018:

- ER 184496 ABRR/PDRR Restricted Airspace
 - The team discussed the problem statement for this ER. There is concern that a software solution may not work in all cases and that more education/communication is needed with the Command Center with respect to how and what portions of routes are protected. The task team will continue to

work on the problem statement and FTRs should discuss this behavior with their local TMUs to better understand what is working and what needs improvement.

- ER 179415 Sat Comm Equipage
There was a discussion of a ZNY ATOP request for an independent Sat Comm indicator, not tied to the Data Comm indicator. The user team had previously completed a problem statement for this ER and an independent indicator was not part of the behavior. Work is ongoing to assess this new request.
 - ER 183395 Changes to SATORI and FALCON
The SATORI and FALCON systems are not currently capable of displaying the new data block indicators including those related to Data Comm. SATORI will be updated in the future but there are no current plans to do so for FALCON. The team feels that these systems should be fully capable to support the operation and are pursuing solutions to these limitations.

NAS VOICE SWITCH (NVS): Jon Shedden (ZFW) represents the NATCA membership as their Article 114 Representative to the NVS project. His report is below.

The **NAS Voice System (NVS)** schedule has officially slipped. The FAA and Harris continue to work on a new schedule. The detailed schedule is expected around the April time frame.

Mr. Shedden is traveling to the MMAC in OKC March 26th-30th to assist with the OKC software install on the primary and backup systems.

Next Generation Air-Ground Communication (NEXCOM) continues deployment of new CM300/350 V2 radios to terminal facilities across the country. Some terminal facilities in the NAS using very old radios hear a pop back or "squelch tail" when they release their transmitters. The new radios being deployed under NEXCOM Segment 2 do not have this "feature" as the squelch tail is generally regarded as undesirable in radio communications. This issue has cropped up twice now during deployment and the program office should brief future affected facilities prior to install.

NAS Voice Recorder Program (NVRP) is the replacement for existing NAS voice recorders (DALR, DALR2, DVRS, DVR2). The Program Office presented to the JRC and received approval to proceed to Final Investment Analysis, leading up to the Final Investment Decision. Final Investment Decision will be in February 2019. Key site for NVRP will be Seattle Center in the 2020. A Safety Risk Management Panel is schedule for April 12th.

NVRP is currently in the source evaluation phase.

Grand Rapids Tower/TRACON (GRR) is reporting multiple issues with their aging voice switch. There's one outstanding issue where a RADAR site is causing interference in the Tower Cab. That issue continues to be worked.

The **Tone Mitigation National Workgroup** met in September 2017 to discuss potential mitigations to the number and severity of tone/noise events across the NAS. This workgroup kicked off largely because of the number of tone/noise events occurring at PCT. One of the outcomes from these meetings was exploring the use of new headset bases which incorporate an active limiter. The FAA is currently in the process of procuring these new headset bases. Another outcome was the investigation into and possible mitigations for the various causes of tone/noise events. AJW-173 in Oklahoma City continues to work with PCT to identify causes and implement solutions, with the additional goal of providing guidance and best practices nationwide.

SURVEILLANCE BROADCAST SERVICES (SBS) OFFICE: Eric Labardini (ZHU) is the Article 114 Representative to the SBS Office. Below is the update for SBS.

The NATCA Surveillance and Broadcast Services (SBS) team includes: **Eric Labardini (ZHU)**, National SBS Article 114 Rep, **Craig Bielek (A90)**, **Dan Hamilton (SFO)**, National Airport Surface Surveillance Capability (ASSC) Rep, **Andrew Stachowiak (I90)**, **Tom Zarick (ZDV)**, National Interval Management Rep, and **Chris Aymond (MSY)**, National Terminal Interval Management Rep

ADS-B:

- As of March 1, 2018, the number of Rule Compliant ADS-B Out aircraft in the US reached 45,282. ADS-B In equipped aircraft reached 38,843. The growth in aircraft equipage has been significant, and some areas of the NAS are seeing high percentages of traffic equipped. However, the projections are still falling short of the numbers needed prior to the January 1, 2020 deadline to equip. So far, the Agency has been clear that the deadline is firm.
- Most, if not all, Air Carriers have provided the Agency with a plan to meet the deadline. However, the means to achieve those plans in the short amount of time remaining is becoming a larger question. United Airlines, Rockwell, and the SBS Program Office have partnered to make significant progress in upgrading the United B737 Rockwell avionics fleet with 110 ADS-B installations complete. American, Delta, Alaska, and many other airlines are showing increased fleet ADS-B equipage.
- For General Aviation, the very rough estimate of avionics installation capacity nationwide is 50,000 aircraft per year. The rough estimate of all NAS aircraft that need to equip is 160,000. The actual number that need to equip could be much lower depending on the number of users that remain outside of ADS-B Rule airspace (where a transponder is required). Users that

wait too close to 2020 may find that the capacity for installation falls short of demand.

- The military has already indicated they will be unable to meet the 2020 deadline. Several of their older airframes simply cannot accommodate the new avionics. The military does expect to equip newer fighters and all of their larger aircraft. To deal with the exception, the Agency is working on agreements with DOD to ensure identified radar sources remain in place.
- ADS-B IOCs have been completed at all Enroute (ERAM and MEARTS) facilities. All ERAM sites have promoted ADS-B to the top of their sort cells. 3 of 4 MEARTS facilities are operating on Fusion with ZSU next to transition.
- 120 of 155 Terminal sites have reached their ADS-B IOC, and 116 are operating on Fusion. The majority of the remaining Terminal sites are ARTS 2E sites awaiting an upgrade to the ELITE (STARS) build. The Terminal ADS-B/Fusion transition proceeds in this order: Kickoff meeting, ADS-B Flight Inspection, ADS-B IOC, Fusion Operational Suitability Demonstration (OSD) and Fusion Operations. The most recent and upcoming Terminal events:
 - Madison (MSN) Fusion OSD 3/14
 - Waco (ACT) ADS-B Flight Inspection 3/14
 - Toledo (TOL) Fusion OSD 3/27
 - Waco (ATCT) ADS-B IOC 4/3
 - Waco (ACT) Fusion OSD 4/3
 - Youngstown (YNG) ADS-B Flight Inspection 4/4
 - Southern California WAM Phase 2 Flight Inspection 4/10
 - Casper (CPR) ADS-B Flight Inspection 4/11
 - Toledo (TOL) Fusion Transition 4/12
 - Falmouth-Otis AFB (K90/A90) ADS-B k/o 4/18
 - Waco (ACT) Fusion Transition 4/19
 - Great Falls (GTF) ADS-B Flight Inspection 4/24
 - Youngstown (YNG) ADS-B IOC 4/24
 - Asheville (AVL) Flight Inspection 5/2
 - Youngstown (YNG) Fusion OSD 5/2

ADS-B Avionics Issues:

- An issue not screened by automation systems but an important assumption for future ADS-B dependent applications is the broadcast call sign of the user. ADS-B aircraft reports include this information, and automation systems compare it to the filed call sign. When a mismatch occurs a Call Sign Mismatch (CSMM) alert can be generated. The issue has been highlighted in Equip 2020 meetings since ADS-B dependent applications (CAVS, Advanced Interval Management, etc.) are dependent on this functionality. Monthly tracking continues to trend upward. ***The SBS Article 114 work group has recommended disabling CSMM alerts across all automation platforms.***
- A flight test was conducted February 27 to examine the effect of ADS-B Duplicate ICAO Address on ERAM and STARS. Engineering assumptions have always been that when this condition occurs with two aircraft within 6nm,

the SBS network would either drop the tracks, swap the tracks or other. The initial results of the flight test show the events are much more conservative. Test aircraft as far apart as 50nm were still dropped from the network and presented as radar only targets. The SBS Article 114 work group has concluded that Duplicate ICAO Address alerts are not worthwhile for controllers. They will still be available for Flight Standards compliance monitoring efforts.

- NATCA SBS continues to work with the Agency toward a more proactive approach to ADS-B avionics issues that result in position error. Though these are infrequent occurrences, the Agency's ability to respond has been hampered by a lack of resources, bureaucracy, and legal constraints. These issues occur when standards for installation or configuration within aircraft or ground systems are not met. ADS-B is a cooperative surveillance source relying on the position information determined onboard the aircraft. Multiple ATSAP reports have been filed on the known issues to date. Controllers and facilities are encouraged to report any identified events through ATSAP and any other mechanism.
- In order to reduce the number of safety compromising events in the NAS an effective, efficient response mechanism is needed. The Agency has deployed additional mitigations including enhanced validation (EV) and a No Services Aircraft List (NSAL).
 - The NSAL (aka "blacklist") is effective in dealing with chronic non-compliant aircraft, but it lacks the ability to respond quickly. As such it will likely always be needed as a backstop to compliance or enforcement issues. Any issue identified and reported immediately takes a minimum of one day to place the aircraft on the NSAL.
 - Enhanced validation (EV) shows the most promise operationally as it is a real-time response to invalid ADS-B targets. The latest update to EV already deployed within 15nm around a Terminal Radar has shown positive results. Additional EV techniques are being analyzed, including expanding the range beyond 15nm and further increasing the responsiveness. SBS Engineering is working diligently with Harris to incorporate these changes with additional EV parameters in 2018. With 2020 approaching, rapidly, these changes are needed sooner than later to limit the sporadic effects of non-compliant avionics.
- SBS Article 114 work group discussions resulted in all B787 aircraft being placed on the NSAL. These aircraft have a latent avionics issue that causes false position information to be displayed to the controller. This has alarmed several facilities and caused both SCT and NCT to demote ADS-B in their sort cell priorities. Boeing released a Service Bulletin to address the problem. United, American and many others have confirmed completing the Service Bulletin allowing them to be removed from the NSAL. Other B787 aircraft are slowly being pulled off of the NSAL as verification of the Service Bulletin is received by Flight Standards.

Advanced IM

- A-IM Requirements documents completed.

- Paired Approach HITL in April still being finalized. Still working on lateral limit tools to be displayed to controllers.
- Awaiting safety case requested by ALPA to prove controller need to know aircraft's set speed directly from the aircraft. NATCA's need for this information was expressed on the point that IM will place more aircraft in a more efficient and confined space resulting in less room for error. Monitoring speeds will need to be more exact and instant to ensure separation is maintained.
- AIRS ConOps review started. Discussed keeping phraseology as standard as possible as all IM Programs evolve including AIRS. Currently exploring a "maintain present spacing" option for controllers and whether this option is feasible/needed in AIRS.

ASDE-X Tech Refresh:

- If the Taxiway alert enhancement is deployed on a national scale, the PMO would need to take control. As of right now, SEA is the only facility scheduled to receive this enhancement.
- Discussions continue regarding parts obsolescence and what the best path is moving forward in addition to increasing bandwidth capacity as traffic levels increase in the NAS.
- ASDE3 radar discussions continue as the agency struggles to decide if they should go the tech refresh route, or full replacement route. No decisions have been made at this time.
- The agency is starting to align ASDE-X with ASSC on the software systems side. Although controllers will not yet have all the same functionalities on both systems, it will allow for improved system performance and fine tuning capability which controllers will benefit from. The goal in time is for both systems to be equal on the software and controller capability aspects.

ASSC:

- Due to issues with the agencies internet security department, CVG IOC was pushed to April 5th.
- Field fam at CVG has continued with very positive input from the facility.
- MCI will be the next site on the ASSC waterfall. Coordination is underway with the facility.
- PIT outreach meetings scheduled for the week of April 9th.
- PDX outreach meetings scheduled for the week of April 23rd.
- The Agency's Internet security department has created significant issues for the ASSC program. Due to their inconsistency and lack of understanding, ASSC waterfall IOC dates for upcoming sites are at risk and could likely move to the right.

FMA in Fusion:

- The SRMD allowing the combined use of FMA and Fusion reached final approval on November 1, and the Notice allowing the operational start is now in place. Facilities that use FMA can now use Fusion on these positions as well.
- The change in procedure is not anticipated to require additional controller training as these facilities are already trained on both FMA and Fusion.

- Fusion on the FMA position, like all other positions, requires a thorough understanding of contingency plans should a radar sensor fail.

MEARTS Fusion:

- 3nm Fusion in MEARTS is a complex undertaking requiring multiple Tower, Approach, and Enroute sectors to come online with Fusion at the same time. The lessons learned in this undertaking will help the effort with future MEARTS and ERAM sites.
- ZAN has been on Fusion since August 2015. HCF has been on Fusion since August 1, 2017.
- Congratulation to ZUA! The facility transitioned to Fusion on March 26, 2018.
- A Fusion kickoff meeting and Air Traffic Cadre training session for San Juan (ZSU) is planned the first week of April.

Surveillance Portfolio Analysis Work Group

- Eric Labardini and James Keith (NATCA AJV-7) have been working closely with the Agency's multifaceted analysis of post 2020 radar infrastructure needs. The ADS-B business case was built on an assumption that today's robust radar infrastructure could be reduced once ADS-B becomes the predominant surveillance source.
- The Agency built their business case on an assumption that 100+ secondary radar sources could be removed throughout the NAS. This causes concern in airspace that does not require ADS-B (many Class D or other Approach Controls). NATCA has been pointing toward another option, removing overlapping radar sources completely rather than harming operational capabilities nationwide. There seems to be an awakening to this idea and analysis of the benefits is underway.
- An SRM Panel was held August 1-3 to analyze the risks associated with partial or complete removal of radar systems in a post 2020 environment. The conclusions of the Panel were that partial removal actually resulted in higher risks than complete removal. This assumes that complete removal would only occur where the effects were minimized by other overlapping radar sources nearby.
- An additional SRMD is planned for the week of April 9.

Terminal Fusion:

- The Fusion Focus Group continues to track and resolve facility reported issues with Fusion. These are largely issues with the underlying surveillance infrastructure, and experts from all fields are available to assist. Please report any issues to your OSF and our NATCA SBS group for assistance. It is critical that actual data is recorded for evaluation and resolution.
- SCT issues continue to be a large focus. NATCA SBS is heavily involved in the Surveillance Automation Analysis Team (SAAT) which is examining long term alternatives to help improve overall surveillance in the SCT airspace. The result is a multi-faceted approach including WAM, raising LGB radar, introducing other nearby radar feeds, STARS software changes, and radar software changes. In addition, SAAT is focused on mitigating tracking

issues in the LA Basin due to the construction of a new NFL stadium on final approach to LAX.

- The LGB radar site is now back online and in use at SCT. The radar site was raised from 37 feet to 67 feet. Feedback from SCT has been positive.
- Agreements are being worked with the military to ensure availability and performance of the North Island radar. Adding this additional surveillance source shows promise for tracking issues around SAN airport.
- WAM has been plagued by numerous fits and starts harming the confidence of the facility. The path forward is uncertain, but a remedy for interference from LA Stadium construction is desperately needed.
- The second phase of WAM at SCT is expected to be available by May 2018.
- SAAT has been analyzing Potomac (PCT) Fusion issues for potential solutions. The facility has been struggling with a number of issues related to problem radar sites or a lack of coverage. Radar analysis is confirming the benefit of adding Quantico (NYG) radar to PCT as well as reducing obstructions near Dulles. Funding for the additional NYG feed is being sought.
- NATCA and Ops Support SMEs from SBS have been reviewing numerous requests for additional radar feeds across the NAS. The focus of our team is those that benefit Fusion tracking. Issues such as service expansion are outside of SBS scope. SBS SMEs have met with representatives from F11 and RDU to uncover more detail on their needs and concluded that additional radar feeds are warranted due to Fusion tracking performance. Other internal discussions have concluded in support of additional radar feeds at: ACY, MOB, BHM. Other NAP entries identified as Fusion tracking related are still to be discussed.

Vehicle ADS-B:

- 1289 vehicles equipped at 20 airports.
- PIT outreach scheduled for the week of April 9th
- PDX outreach scheduled for the week of April 23rd
- CVG is finishing up vehicle install which will add another 176 units to the portfolio.