

Audio for VATSIM Preparations

28 September 2019

Features



- **State of the art voice quality** - a brand new Opus-based voice codec with optional realistic distortion, white noise, VHF and HF simulation
- **Reduced delay** - up to 80% reduction in latency, making busy frequencies more realistic and manageable
- **Range simulation** - transceivers set up as per real ATC positions, with signal strength dependent on distance and altitude
- **Customisable technology** - this upgrade paves the way for future amazing development by the community.

The Challenge



- The largest disruptive roll out of technology in VATSIM history
- Requires VATSIM to be taken down entirely for a number of hours for the first time
- Member engagement throughout is key – over 80,000 people to tell
- All our members will need to update their client on migration

Release date



THIS IS EMBARGOED FROM RELEASE UNTIL VATSIM HAVE FORMALLY ANNOUNCED THE DATE

- Audio for VATSIM will launch on **Monday October 14, 2019**
- VATSIM will be taken down completely from 2000z on Sunday October 13, 2019
- The network will be down for up to 24 hours, with users asked not to plan flights or ATC before 2000z on Monday
- The network may become available much sooner than this, but there will be a connection limit whilst final testing takes place
- If for any reason the downtime period becomes longer than 24 hours, we will announce this as quickly as possible

Roadmap to launch

Audio for VATSIM

14 days prior to launch

- Date announced
- NOTAM
- Social Media Posts
- Schedule Broadcasts online
- Notice of Server Outage
- Login Message Change
- AFV Website released

14

2 days prior to launch

- NOTAM/Social Media posts re 24-hour shutdown of the Network for AFV integration work and testing
- Login Message Change

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Launch Day

- Login Message Change to advise AFV is live
- Users login with updated ATC and Pilot clients or AFV standalone client
- All current voice servers suspended
- NOTAM/Social Media posts

5 days prior to launch

- All AFV integrated ATC and Pilot clients released
- Stand-alone AFV client released
- Quick Start Guides released
- Voice Unicom Instructions released
- Login Message Change

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<https://vatsim.net>

Pilot/ATC client compatibility



Native

- vPilot
- xPilot

Requires standalone client

- xSquawkbox
- Swift
- All legacy clients (FSInn, Squawkbox etc.)
- All ATC clients

Questions

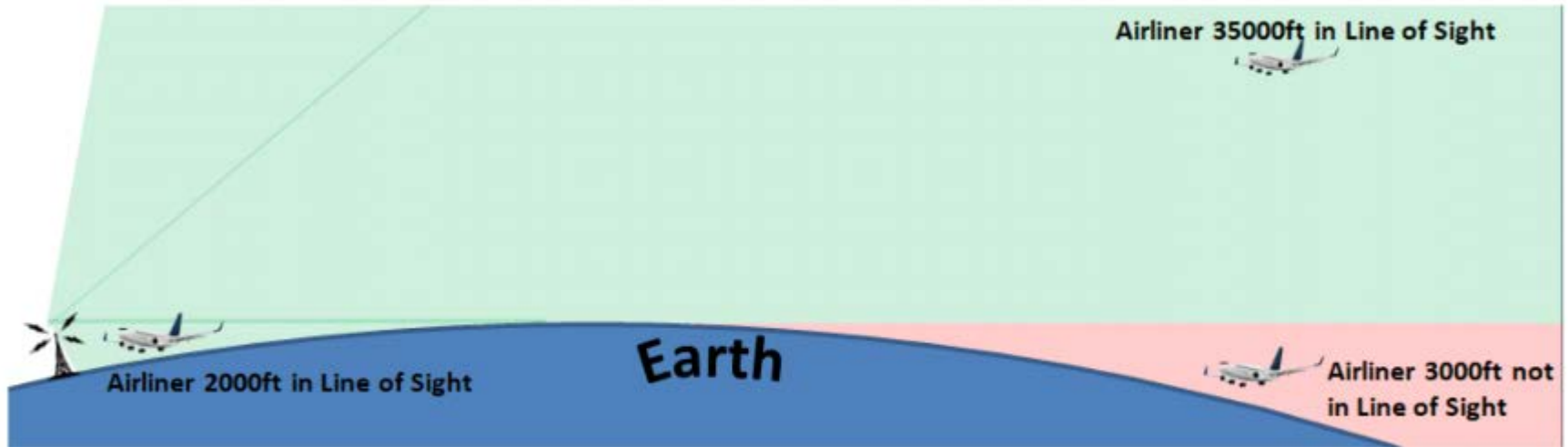


Any questions so far?

What is new?

- Audio for VATSIM uses each pilot's location and altitude to determine the range effect (which affects clarity, signal/noise heard and volume)
- Audio for VATSIM also understands *where* a transmission is originating from and *where* it is received - so we define transmitter locations for ATC
- In other words, it behaves like a real-world VHF or HF radio

Principle of range simulation

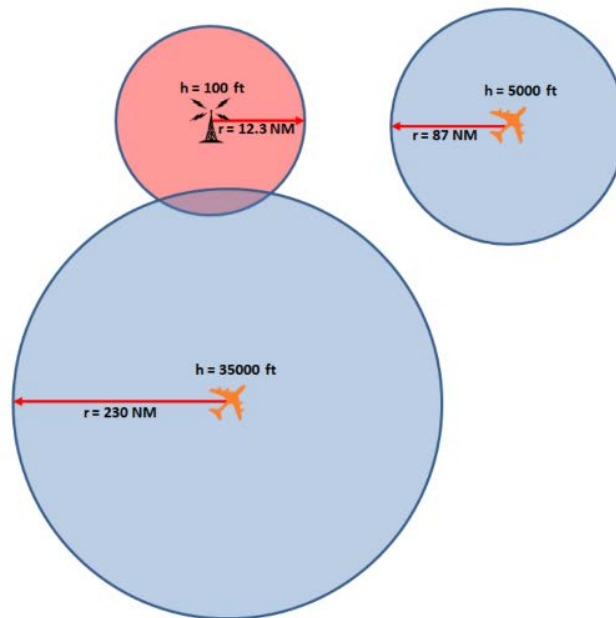


Aircraft **MUST** be within line of sight of a facility-specified transmitter for 2-way communication to occur

Technology - Consequences

- With no voice rooms, we are no longer dependent on ATC “opening” a frequency - they can go chat on any station we want to
- Being able to hear each other is dependent on the effective range of the transmissions from each participant
- Different participants on the same frequency *may* hear different things
- When you transmit, you no longer receive - so blocking one another is a possibility as per real world
- Additionally, you **may not hear** the person you’re stepping on because of range issues
- However, this is ‘fixed’ with a thing called cross-coupling which we will explain shortly

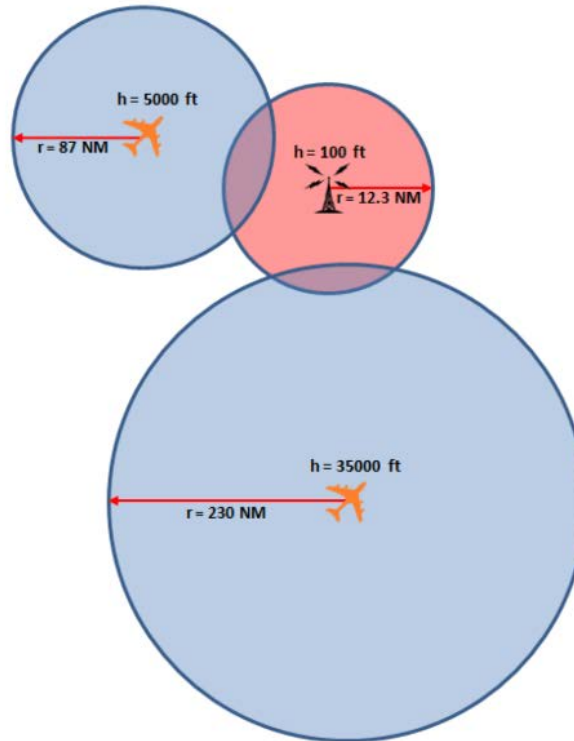
Range Example 1



Adapted from Audio for VATSIM manual, Kelsey, S, (2019)

Aircraft not in range of a facility-specified transmitter will not be able to hear or transmit

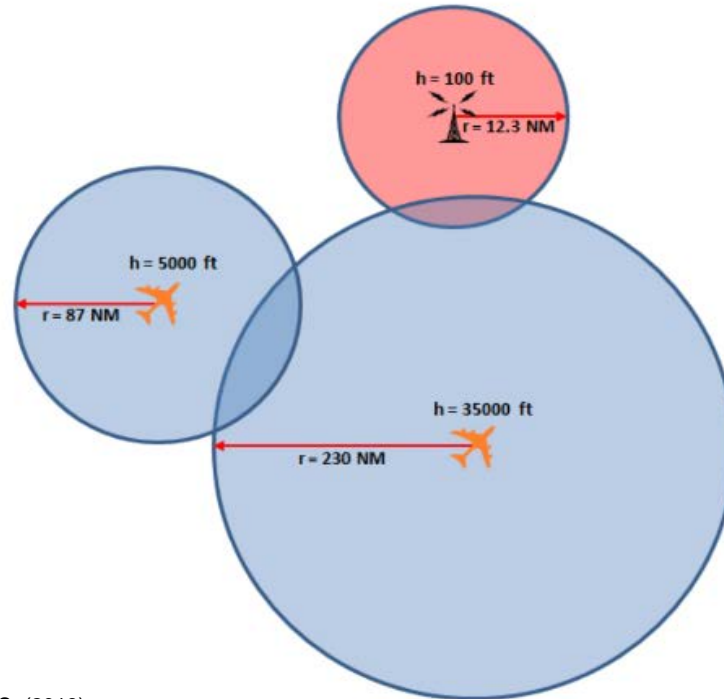
Range Example 2



Adapted from Audio for VATSIM manual, Kelsey, S, (2019)

Aircraft will hear/communicate with ATC, but can't hear each other

Range Example 3



Adapted from Audio for VATSIM manual, Kelsey, S, (2019)

Low aircraft can hear/communicate with high aircraft, but not ATC

Transmitters

Either from the controller client or the facilities database



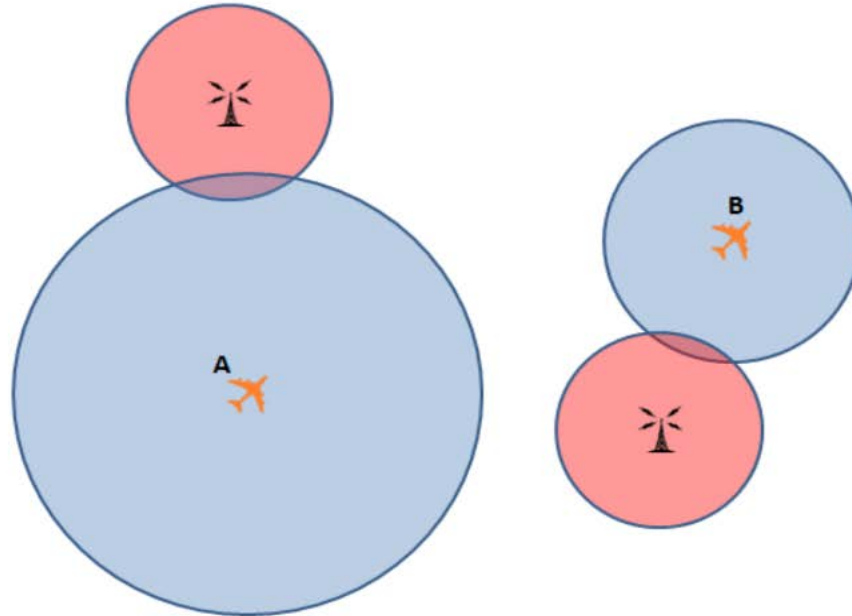
Cross-Coupling

For most cases the effective range of most pilots will be sufficient to not be a factor.

But, for larger sectors we need to introduce **cross-coupling**

Cross Coupling

Cross-coupling means each transmitter will re-broadcast each transmission received at another transmitter to all participants - so pilot A and B will hear each other

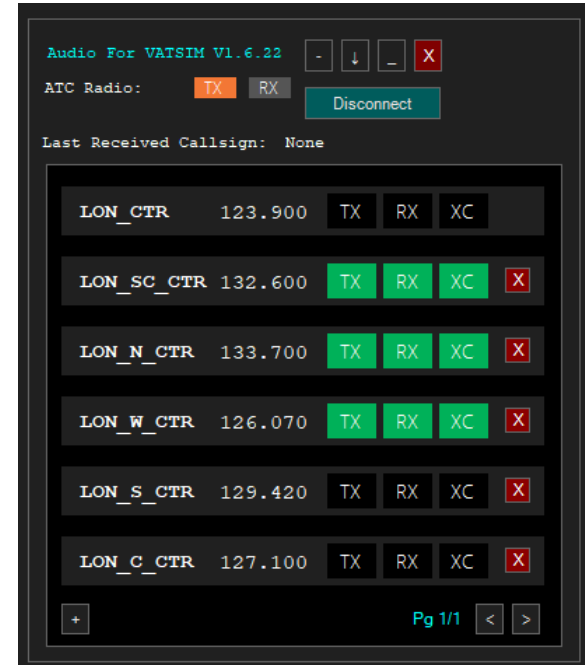


Optional Features

But don't worry we don't have to change anything at launch, however...

Optional Features

- Facilities Database
- Additional Stations per controller



Questions



Any questions so far?

Key Messages

Education (via training and/or marketing)

- **Everyone needs an updated client or the standalone client**
- Pilots will need some information about why they're not hearing everything on a voice channel
- **Everyone** needs education on blocking each other - and the consequences
- C1s need appropriate information - though a significant amount of automation exists to make this work readily
- Agree processes and procedures for additional stations
- All controllers need information for CTRs on multiple frequencies
- Facilities Engineers to be engaged for additional features
- Voice UNICOM is new

What we need from you



- Check that every division and/or facility is aware of the Facility Engineer interface with the AFV team so that transceivers can be pre-defined, however this is not essential for AFV to function.
- A summary from every division, collated by each Region, on their marketing plan for Audio for VATSIM to be received by 2000z on **Sunday 6th October**

Other things to consider



Supervisor education

Pilot training awareness

VSOA and ATO engagement

audio.vatsim.net

[The AFV Bible](#)