

START PLANNING
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Drone Show Software

Version 3.0.1

Release Notes



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Version 3.0.1

Update: November 2018

Drone Show Software Components version: 3.0.1

Firmware version: 3.0.1-DDC, hash: 7922e42

Compatible and tested with UgCS version 3.0.1302 and newer.

Installer and Components

A dedicated installer for Drone Show Software components has been added. This means that now Drone Show Software components such as:

- DDC Client,
- DDC-VSM,
- RTK GPS Client,
- Drone Configuration Tool

are installed together over an existing UgCS installation and are separate from it. It is now possible to reinstall UgCS Client and related components without reinstalling DDC and vice versa.

DDC Vehicle Specific Module (VSM) is a new type of VSM to be used for Drone Show Software along with the custom firmware for Pixhawk. This means that using Ardupilot-VSM is no longer necessary, therefore it can be excluded when installing UgCS unless there is a need to fly Ardupilot drones without using DDC.

An archive with Software-In-The-Loop (SITL) simulator and some auxiliary scripts are provided along with the installer to enable the option to test a show before a real flight.

New Features and Changes

Firmware

- Second fence (also referred to as “Hard fence”) has been implemented. By default hard fence is disabled, but, when enabled, is capable of automatically disarming a vehicle if it passes a certain distance beyond normal fence without turning back.
- A new dance type called “R+YAW Dance” has been added to the already existing dance type “RGB Dance”. R+YAW Dance allows changing the heading of the drones instead of green and blue color channels. This can be used for creating drone shows with fireworks.
- The number of maximum trajectory points has been increased to 2000. This means that animations of the same length can now be generated with at least twice as many points, thus making them more smooth.
- Protection from rebooting the autopilot during flight has been added.
- “Upload Path” function has been disabled for armed vehicles.
- Offset for landing (RTL) time added.
- Fence parameter cyclic redundancy check (CRC) calculation has been added.

Note that drones need to be upgraded to new firmware (hash 7922e42) for the abovementioned changes to take place.

DDC Client

- Drone list has been reworked, including new grouping and filtering functionality. Groups can now be created from within DDC Client without then need to edit the configuration file. Drones can be filtered by their status.
- Automatic path assignment has been implemented.
- Added graphical user interface (GUI) for uploading parameters on multiple vehicles from a file.
- Added GUI for uploading PATH-specific parameters on corresponding vehicles from file.
- Added Fence Synchronization check.
- Added Fence Breach check to Dance Ready column.
- New telemetry columns have been added:
 - Minimum Relative Altitude,
 - Time to Land,
 - Maximum Angular Speed,
 - Fence Sync,
 - Dance Type.
- Added Second fence parameters to DDC configuration file.
- Removed “Execute Hold Before RTL” parameter and all logic connected to it.
- Removed “Adjust last point” function from the menu.

RTK GPS Client

- RTK GPS Client saves field values after restart.

F450 Suggested Parameters

- Tuned FS_BATT_VOLTAGE parameter .
- Turned off second EKF Core. Flight tests (F450 frame) indicate that keeping two EKF cores running simultaneously increases the risk of unexpected behavior at the certain vibration level.

Bug fixes

- Significantly decreased the CPU resource consumption when using more than 50 drones in DDC client.
- Fixed UAV discovery for large fleets (60+).
- Decreased the time it takes for vehicles to be shown after starting DDC Client.
- Column width changes are now saved after restart of DDC Client.
- Fixed an issue where Max Relative Altitude column in some cases displayed an incorrect value.
- Fixed sorting of GPS FIX column.
- Fixed the issue that the command “Turn off the lights” used before take-off disabled LED lights even during the flight.

Known Bugs

- If a vehicle is disconnected during some longer operation such as path\fence\parameters upload, it could be necessary to restart DDC VSM to reestablish the connection with that specific vehicle.