



**FAQ: 2021-2022 Design-Build-Vertical Flight Competition  
[Updated 5/22/2022]**

**DBVF email is now [fly@hq.vtol.org](mailto:fly@hq.vtol.org)**

**Virtual Presentations May 25 and May 26 1:00 to 2:30 pm (EDT) Conference Call:** with the withdrawal of Arizona State University the presentation scheduled has changed slightly – see table below and other reminders.

- Per the RFP Section 2.4 your presentations should be 10-minutes in length with 10-minutes for Q&A.
- Team captains and faculty advisors have received the *Teams* invite, which can be forwarded to appropriate members of the team to join.
- **Join the call at least 10-minutes BEFOR your allotted time.** Note, teams are allowed to join and listen to other presentations for the duration of the call.

<b>DBVF Virtual Presentations: Wed. May 25 1:00 to 2:30 PM (EDT): 10-minute Presentation/10-minute Q&amp;A</b>	
<b>University Team</b>	<b>Time</b>
University of Michigan	1:00 to 1:30 PM
McGill University	1:30 to 2:00 PM
University of Maryland	2:00 to 2:30 PM
<b>DBVF Virtual Presentations: Thurs. May 26 1:00 PM to 2:30 PM (EDT): 10-minute Presentation/10-minute Q&amp;A</b>	
<b>University Team</b>	<b>Time</b>
Vaughn College	1:00 to 1:30 PM
Ohio State University	1:30 to 2:00 PM
Pennsylvania State University	2:00 to 2:30 PM

**Fly-off Competition June 1 to 3 @ ARL Gracie Quarters:** per the call between ARL, VFS and the teams on May 18 - see the table below for the updated schedule of events. A more detailed overview of other logistics, address, event, activities etc. will be forthcoming to team captains by Friday May 27.

**Fly-off Competition Schedule: updated 5/22/222**

<b>Day 1: June 1 (8:00 AM to 4:30 PM)</b>		
<b>Team Number/University</b>	<b>Time</b>	<b>Task</b>
	8:00 – 8:30 AM	Teams1 & 2 Arrive
	8:30 – 9:00 AM	Safety/Security Brief
Team 1: University of Maryland	9:00 – 10:00 AM	Team 1: Pilot Cert. Practice; Competition Flights
Team 2: Penn State University	10:15 – 11:15 AM	Team 2: Pilot Cert. Practice; Competition Flights
	11:15 AM – 12: 15 PM	Flex Time
	12: 15 – 12:30 PM	Teams 3 & 4 Arrive
	12:30 – 1:00 PM	Safety/Security Brief
Teams 3: Ohio State University	1:00 – 2:00 PM	Team 3: Pilot Cert. Practice; Competition Flights
Team 4: Vaughn College	2:15 – 3:15 PM	Team 4: Pilot Cert. Practice; Competition Flights
	3:15 – 4:15 PM	Flex Time
<b>Day 2: June 2 (8:00 AM to 4:30 PM)</b>		
<b>Team Number/University</b>	<b>Time</b>	<b>Task</b>
	8:00 – 8:30 AM	Teams 6 & 7 Arrive
	8:30 – 9:00 AM	Safety/Security Brief
Flex Time (was ASU Timeslot)	9:00 – 10:00 AM	Team 5: Pilot Cert. Practice; Competition Flights
Team 5: McGill University	10:15 – 11:15 AM	Team 6: Pilot Cert. Practice; Competition Flights
	11:15 AM – 12: 15 PM	Flex Time
	12: 15 – 12:30 PM	Teams 7 Arrives
	12:30 – 1:00 PM	Safety/Security Brief
Teams 6: University of Michigan	1:00 – 2:00 PM	Team 7: Pilot Cert. Practice; Competition Flights
Possible Inclement Weather/Makeup	2:15 – 4:15 PM	Makeup Competition Flights
<b>Day 3: June 3 (8:00 AM to 1:00 PM)</b>		
<b>Possible Inclement Weather/Make-up at ARL: 8:00 am to 10:30 am</b>		
<b>Closing Ceremony at Survice Engineering: 11:30 am to 1:00 pm</b>		

**Due to ARL April 25<sup>th</sup>:** Part 107 pilot certifications along with name of team pilot and any back-up pilots. Email directly to Ray Vonwahlde ([raymond.vonwahlde.civ@army.mil](mailto:raymond.vonwahlde.civ@army.mil)) and Eric Spero ([eric.spero.civ@army.mil](mailto:eric.spero.civ@army.mil))

**Due to VFS May 2nd:** Final Technical Reports. Email to [fly@hq.vtol.org](mailto:fly@hq.vtol.org) and copy [jmgibbs@vtol.org](mailto:jmgibbs@vtol.org)

**Save the Date May 18 3:00 to 4:00 pm (EDT) Conference Call:** VFS/ARL Final Preparations Flyoff & Presentations – invites forthcoming to team captains and faculty advisors, which can be forwarded to teammates.

**Save the Dates May 25 and May 26 1:00 to 3:00 pm (EDT) Conference Call:** Virtual Presentations – refer to the schedule on page 2 – invites forthcoming to team captains and faculty advisors, which can be forwarded to teammates

*Note: The University of Portland has withdrawn from the competition hence the fly-off schedule has changed slightly. Specifically, McGill University moves to the morning of June 2<sup>nd</sup> (versus afternoon) – refer to page 4 for the revised competition schedule.*

Q: When/how will presentations be conducted?

A: Due to limited time during the fly-off competition (June 1-3 – refer to page 4 of FAQ for team schedules), team presentations will be conducted via conference call the week before the competition, **specifically on May 25 and May 26.**

A save the date calendar invite will be forthcoming to team captains. Here is summary of the presentation schedule:

- Each team is scheduled as noted in the table below.
- Team captains can forward the invite to all and/or as many team members as they deem appropriate to have on the call.

Each team will have 10-minutes to present, followed by approximately 10-minute Q&A from the judges.

<b>DBVF Virtual Presentations: Wed. May 25 1:00 to 3:00 PM (EDT)</b>	
<b>University Team</b>	<b>Time</b>
University of Michigan	1:00 to 1:30 PM
McGill University	1:30 to 2:00 PM
Arizona State University	2:00 to 2:30 PM
<b>DBVF Virtual Presentations: Thurs. May 26 1:00 PM to 3:00 PM (EDT)</b>	
<b>University Team</b>	<b>Time</b>
Vaughn College	1:00 to 1:30 PM
Ohio State University	1:30 to 2:00 PM
Pennsylvania State University	2:00 to 2:30 PM
University of Maryland	2:30 to 3:00 PM

Q: Are there contingency plans for inclement weather?

A: Yes, the afternoon of June 2 (1:00 pm) and the morning of June 3 (8:00 am to 11:00 am) before the closing ceremony. **Note: The University of Portland has withdrawn from the competition hence the fly-off schedule has changed slightly. Specifically, McGill University moves to the morning of June 2<sup>nd</sup> (vs afternoon) – refer to page 4 for the revised schedule.**

Q: Are there details on the closing ceremony?

A: Yes, the DBVF Gold sponsor, Survice Engineering, will be hosting the award ceremony from 11:30 am to 1:00 pm on Friday, June 3<sup>rd</sup>. The Survice facility is located approximately 20-minutes from ARL Gracie Quarters. Below is summary of information, including drone video of the facility.

**Lunch/Networking: 11:30 am to 12:15pm**

**Survive/ARL Presentations/Award Ceremony: 12:15 to 1:00 pm**

**[Survive Engineering ATO Airpark Facility](#)**

3538 Aldino Road

Hangar #6

Churchville, MD 21028

Survive's Applied Technology Operation Drone Fly-Through

<https://www.youtube.com/watch?v=x9cN1eMtfyM>

Q: Will ARL supply basic tools?

*A: No. Teams are encouraged to bring their own tools to the in-person flyoff at ARL. Teams do not need any pre-approval to bring their tools to the ARL site and can bring them when they arrive for their scheduled on-site times.*

Q: How can teams identify the landing zones for the autonomous flight portion of the competition?

*A: Each team will have an opportunity to capture GPS coordinates at the competition by walking the course with their UAS and capturing coordinates at the center of each landing zone. Teams are also welcomed to bring their own machine-readable markers if desired.*

**Fly-off Competition Schedule: updated 4/21/222**

<b>Day 1: June 1 (8:00 AM to 4:30 PM)</b>		
<b>Team Number/University</b>	<b>Time</b>	<b>Task</b>
Team 1: University of Maryland  Team 2: Penn State University	8:00 – 8:30 AM	Teams Arrive
	9:30 – 9:00 AM	Safety/Security Brief
	9:00 – 10:00 AM	Team 1: Pilot Cert; Practice; Competition Flights
	10:15 – 11: 15 AM	Team 2: Pilot Cert; Practice; Competition Flights
	11:15 AM – 12:15 PM	Flex Time
Teams 3: Ohio State University  Team 4: Vaughn College	12:15 – 12:30 PM	Teams Arrive
	12:30 – 1:00 PM	Safety/Security Brief
	1:00 – 2:00 PM	Team 3: Pilot Cert; Practice; Competition Flights
	2:15 – 3: 15 PM	Team 4: Pilot Cert; Practice; Competition Flights
	3:15 – 4:15 PM	Flex Time
<b>Day 2: June 2 (8:00 AM to 4:30 PM)</b>		
<b>Team Number/University</b>	<b>Time</b>	<b>Task</b>
Teams 5: Arizona State University  Team 6: McGill University	8:00 – 8:30 AM	Teams Arrive
	9:30 – 9:00 AM	Safety/Security Brief
	9:00 – 10:00 AM	Team 5: Pilot Cert; Practice; Competition Flights
	10:15 – 11: 15 AM	Team 6: Pilot Cert; Practice; Competition Flights
	11:15 AM – 12:15 PM	Flex Time
Teams 7: University of Michigan  Possible Inclement Weather/ Make-up Slot.	12:15 – 12:30 PM	Teams Arrive
	12:30 – 1:00 PM	Safety/Security Brief
	1:00 – 2:00 PM	Team 7: Pilot Cert; Practice; Competition Flights
	2:15 – 3: 15 PM	Team 8: Pilot Cert; Practice; Competition Flights
	3:15 – 4:15 PM	Flex Time
<b>Day 3: June 3 (8:00 AM to 12:00 Noon)</b>		
<b>Possible Inclement Weather/Make-up: 8:00 am to 10:30 am</b>		
<b>Closing Ceremony at Survice Engineering: 11:30 am to 1:00 pm</b>		

## Q&A from VFS-ARL telecon (Feb. 22, 2022)

**Q1.** We understand that government funds cannot be used for the UAS, and that the pilot cannot be a government employee. Can the pilot be an ROTC cadet, or does this count as a government employee?

**A2.** *An ROTC Cadet is not a government employee. When the ROTC Cadet pilots the UAS at Graces Quarters, he or she must be representing the University and not the Service Component.*

**Q2.** Some of our team members have Employment Authorization Documents, as well as some variation of expired or non-existent passport and visa. What documents shall we send in order to initiate the request for access to the Graces Quarters facility?

**A2.** *ARL requires color photocopies of each person's Passport and Visa (if applicable), as well as a copy of a resume or CV. If the applicant is a Green Card holder, then submit a color copy along with a resume or CV. The documents used to request entry must be current. We strongly recommend that you identify alternate attendees and, if one of the team members with expired documents is the pilot, that you identify an alternate pilot. The Employment Authorization Documents are specific to your working relationship with your university and are not required for the ARL review process.*

**Q3.** Canada has its own UAS pilot certification process. Will you accept the Canadian equivalent of FAA Part 107 certification from the Canadian (McGill) team? If so, what level (Basic, Advanced, Special Flight Operations Certificate)?

**A3.** *The Transport Canada Basic Operations UAS Pilot certification is sufficient for this event, for the McGill University team.*

**Q4.** Will the ARL be providing any courtesy tools and, if so, which ones? This will help us identify what to pack, versus what will be available on site. Examples: hot air gun, soldering iron, hand tools.

**A4.** *ARL still working on formal response*

**Q5.** For the flight portion of the competition, does this have to be first person view (FPV)?

**A5.** *The pilot must have direct visual line of sight with the UAS at all times. A team member is able to use FPV goggles, but the UAS may not be controlled by the person wearing the FPV goggles.*

**Q6.** At what point of the day will teams deliver their 10-minute presentation, with follow-on 10-minute Q&A session?

**A6.** *VFS is working with ARL to identify the best time of day for the presentations. The presentations may take place prior to 1 June.*

**Q7.** Can the ARL provide recommendations for airports, hotels, and attractions to see in the area?

**A7.** *ARL can provide this information.*

**Q8.** When will teams find out the order of competition? For example, when will we know who is Team 1, Team 2, etc.?

**A8.** *VFS will identify which team is which and will let all teams know ahead of time.*

**Q9.** What can teams expect regarding outreach and interaction with researchers, engineers, and others?

**A9.** *Currently, we are planning the event to comply with a 50-person limit at the site. Because of this, we are limited in how many people can be available for outreach and engagement, in addition to the student competitors, judges, and ARL support staff.*

**Q10.** In addition to the list of 5 team members that will be on site at Graces Quarters, can we submit request for an additional 3 team members as backup? We will still abide by 5 total team members attending on site.

**A10.** *Teams are permitted to include names (and corresponding Citizenships) of up to 3 alternate team members by the Tuesday, 1 March 2022 deadline. ARL will reach out to team captains with further instructions for providing the following support materials for non-US Citizens: passport and/or visa and/or Green Card, resume or CV, and a filled-out ARL visit request form. Support materials must be provided back to ARL by end of day on Tuesday, 8 March 2022.*



ARL (Fly-Off Host) information and document requirements for 2022 DBVF Competition: send documents by the due date directly to Eric Spero of ARL ([eric.spero.civ@army.mil](mailto:eric.spero.civ@army.mil)). **Team captains can also reach out to Eric directly with any questions about ARL documents.**

- *VFS DBVF\_ARL Presentation\_12-07-2021.pdf*
  - *Slides from the DBVF call with ARL and teams on 7, Dec. 2021.*
- *VFS DBVF UAS System and Components\_ARL\_2022\_DistA.docx: **due March 1, 2022***
- *VFS DBVF Network Diagram Template\_ARL\_DistA.ppt: **due March 1, 2022***
- *ARL Record of UAS Pilot Certifications Training and Experience\_DBVF.docx: **due April 25, 2022***
  - *Addendum to the ARL Pilot in Command Certification Procedure Checklist*
  - ***Must include Pilot FAA Part 107 Drone Certification***
  - *ARL UAS Pilot in Command Certification Procedure Checklist\_DBVF.docx: provided as courtesy to teams to practice maneuvers that pilot will likely perform onsite.*

**Q:** In the PDR rubric, it does not specifically ask for a roster of teams. We wanted to double check if it was required to have a roster of the team listed.

*A: A roster is not a requirement for the PDR deliverable. The roster of attendees at the competition fly-off is a requirement that will come later, and information on this will be forthcoming from ARL. Table 1 in the RFP, Preliminary Design Report Scoring Criteria, lists in the summary section: "Overall description of team organization (leadership, sub teams, and responsibilities)", which could be accomplished without providing an actual roster of team member names, so the inclusion of such a list (team members) is up to each team.*

## **Questions from the VFS DBVF/ARL Telecon on December 7<sup>th</sup>, 2021**

**Q:** Does the limitation on country of origin apply to individual parts of a component, for example chips inside of a component, or to the component itself?

*A: The guidance we have received is that the limitation applies to final assembly of the component.*

**Q:** Since the component review and approval process is so long, how can teams mitigate the impact of submitting a component only to find out that it has been denied?

*A: As with the 2021 DBVF, teams are permitted to submit up to 3 options for each component. This applies to components in Section II of the ARL component request form. For example, if a team is considering alternative flight controllers/autopilots, then they would include all required details for each alternative flight controller/autopilot (aka “device”, aka “component”) – up to 3 – being considered. Similarly, if a team is considering alternative hand-held radio controlled handsets, then they would include all required details for each alternative device – up to 3 – being considered.*

**Q:** You mentioned we are not allowed to change our aircraft's electronics during the competition (Do's and Don'ts slide). Are we allowed to change the software?

*A: We will address this question in two parts; hardware and software. Regarding hardware, you are permitted to make a like-for-like swap of a component for the purpose of replacing a damaged or malfunctioning component. However, you may not make any changes or alterations to your aircraft design that causes your system configuration to deviate from the one you submit for approval (otherwise the configuration will be different than what we have received approval to fly at our facility). This applies only to components that appear in your component information request form. Regarding software, you are permitted to make changes to the software during the competition. You will not be permitted to access the internet in order to implement the changes. Further, if the software modification causes unstable flight, then the ARL Test Director will instruct the pilot to land the vehicle so that modifications can be made to the software to produce stable flight.*

**Q:** What is the probability of approval for devices made in Taiwan?

*A: We have previously received approval for components / devices made in Taiwan. The limitation on components is driven by [Public Law 116-92](#), Sec. 848 ‘Prohibition on operation or procurement of foreign-made unmanned aircraft systems.’ As stated in Sec. 848, the following components are not permitted to have their place of manufacture or assembly be the People’s Republic of China: flight controllers, radios, data transmission devices, cameras, and gimbals. This includes onboard computers, laptop or tablet used for ground control, FPV goggles, telemetry radios, control transmit/receive devices, and video transmit/receive devices. Based on our interpretation and experience, components which are not impacted by Sec. 848 and thus are permitted to have their place of manufacture or assembly be the People’s Republic of China include: motors, batteries, propellers, wiring, frames, power distribution boards, ESCs, servos, GPS, and other non-computing electronic components.*

**Q:** What is the probability of approval for devices made in Hong Kong?

*A: Based on our interpretation and experience, it is unlikely that components that are made in Hong Kong and which are part of the limitations outlined in Public Law 116-92, Section 848, will be permitted. The limitation on components is driven by [Public Law 116-92](#), Sec. 848 'Prohibition on operation or procurement of foreign-made unmanned aircraft systems.' As stated in Sec. 848, the following components are not permitted to have their place of manufacture or assembly be the People's Republic of China: flight controllers, radios, data transmission devices, cameras, and gimbals. This includes onboard computers, laptop or tablet used for ground control, FPV goggles, telemetry radios, control transmit/receive devices, and video transmit/receive devices. Based on our interpretation and experience, components which are not impacted by Sec. 848 and thus are permitted to have their place of manufacture or assembly be the People's Republic of China include: motors, batteries, propellers, wiring, frames, power distribution boards, ESCs, servos, GPS, and other non-computing electronic components.*

**Q:** Has the VFS considered moving the competition away from a government site? These limitations, especially with regards to having multiple components available is likely a (cost) barrier for small universities like ours.

*A: Yes, the VFS has considered this. It is too late to change the venue for this year. However, this is a consideration for next year, especially if the requirements to fly on a government facility continue to put undue burden on competitors.*

**Q:** Is a faculty member required to be one of the 5 team members?

*A: According to the competition guidelines, all participants must be full-time university students, and must have a faculty advisor. A total of five (5) team members will be allowed at the competition fly-off, including any faculty advisors. Attendance of at least one (1) Faculty Advisor to the fly-off is recommended but not mandatory. Note: VFS and ARL reserve the right to reduce or increase the maximum number of team members allowed at the fly-off.*

**Q:** Who are the 9 competing teams?

*A: This information is posted on the [vtol.org/fly](http://vtol.org/fly) website*

- 1. Arizona State University*
- 2. Auburn University*
- 3. McGill University*
- 4. Ohio State University*
- 5. Pennsylvania State University*
- 6. University of Maryland*
- 7. University of Michigan*
- 8. University of Portland*
- 9. Vaughn College of Aeronautics & Technology*

**Q:** Will ARL make special accommodations for facility access and mobility?

*A: Please let ARL know in advance about special accommodation requests for people accessing the site.*

**Q:** What is the material of the landing pad on the course layout?

*A: The circular pad at Graces Quarters is made of crushed stone up to 1-1/2" in length. The start/end VTOL zone and touch-and-go landing zones depicted in the competition guidelines are on the pad, and are therefore this same material.*

**Q:** Can we bring our own safety glasses if we prefer the fit, or if they are prescription?

*A: Yes. However, if you choose to provide your own eye protection, it must have the ANSI Z87.1 stamp.*

## **FAQ: 2021-2022 Design-Build-Vertical Flight Competition [Updates from 11/30/2021]**

Updates to following Timeline Deliverables:

- Preliminary Design Report: **Updated to Dec. 20, 2021**
- Team Fly-off Participant List to ARL: **Updated to March 1, 2022**

**Q:** Upon reviewing the RFP, we noticed that teams were limited to 10 individuals on the roster. Would be possible for teams to have more than 10 members as allowed last year?

**A:** *Yes, teams can have any number of additional student participants, which is solely up to the university's discretion. However, team rosters for the competition flyoff will be limited to a total five (5) students, including any faculty advisors – no exceptions.*

**Q:** Where on the field will the pilot be located? Also, will they have clear sight of the entire field, or will their vision be blocked by obstacles?

**A:** *Refer to Figure 3, page 10 of the updated RFP dated Nov. 30, 2021 (link below). This course is laid out on the Southern half of the image shown in Figure 1, i.e. flip Figure 3 and overlay it onto Figure 1 for a depiction of the course in relation to obstacles shown on Figure 1. Yes, the pilot will have clear sight of the entire course. <https://vtol.org/download.cfm?downloadfile=CABE8F50-0A8F-11EC-869D005056BF91B4&typename=dmFile&fieldname=filename>*

**Q:** We have many sizing and design tools we have developed over several years now and we are wondering if we can use them for this competition?

**A:** *Teams may feel free to use any tools they deem helpful for the competition. It is advisable to document the team's use of the tool, with a brief description of where it came from and its general use, in your PDR and FTR report submissions to earn maximum points.*

**Q:** Can you provide clarification on exactly which components fall under the 'final assembly in People's Republic of China exclusion policy?

**A:** *The limitation on components is driven by Public Law 116-92, Sec. 848 'Prohibition on operation or procurement of foreign-made unmanned aircraft systems.' As stated in Sec. 848, the following components are not permitted to have their place of manufacture or assembly be the People's Republic of China: flight controllers, radios, data transmission devices, cameras, and gimbals.*

*This includes onboard computers, laptop or tablet used for ground control, FPV goggles, telemetry radios, control transmit/receive devices, and video transmit/receive devices. Components which are not covered by include Sec 848 and thus are permitted to have their place of manufacture or assembly be the People's Republic of China: motors, batteries, propellers, wiring, frames, power distribution boards, ESCs, servos, GPS, and other non-computing electronic components. For more information, see <https://www.congress.gov/116/crpt/hrpt333/CRPT-116hrpt333.pdf>*

