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# General Info

## About

Just over a decade ago, Richard Bateman KD7BBC saw the need to begin improving and modernizing the way Amateur Radio exams are administered. At that time he and a close-knit team of volunteers began developing and hosting web and computer based software applications that aim to improve how people study for, take, and administer Amateur Radio license exams. The results of this labor turned into two tools:

- For candidates, [HamStudy](#) is a program that aids in studying for upcoming tests by using intelligent flash card study and practice tests, as well as maintains a listing of upcoming exam sessions. It can be used at no charge in an exclusively web based format, or as a mobile device application. While primarily used to study for US based Amateur Radio exams, [HamStudy](#) can also be used for many FCC commercial elements, as well as Amateur Radio exams in several other countries.
- For volunteer examiners, [ExamTools](#) is a web-based software package that allows for administering and grading exams via computer or paper, and digital signing of all forms including NCVEC Form 605 and all Certificates of Successful Completion. It can be used to generate randomized exams for Amateur Radio Element 2 (*Technician*), Element 3 (*General*), and Element 4 (*Amateur Extra*).

These projects are funded primarily through proceeds from [SignalStuff](#), an antenna design and development company Richard started which is known for its highly acclaimed Signal Stick handheld radio antennas, with additional support from [Icom America](#).

The COVID-19 pandemic seriously restricted the ability to hold in-person amateur radio license testing beginning in the Spring of 2020. To address the continuing demand for license testing, a Fully-Remote Working Group representing several VECs was formed. The working goal of this group was to determine how to implement and proctor remote exams while remaining in full compliance with Part 97 requirements and VEC-specific policies. ***The very first fully-remote exam session was held as a proof of concept on March 26, 2020 using Tier 1 of the ExamTools software.*** Though the session was successful, the process was cumbersome, required remote access to the candidate's computer by VEs, and third party digital signature tools for all paperwork. To improve the workflow and operation of remote testing, ExamTools Tier 2 was developed and released on May 26, 2020,

Several VEC organizations are actively using ExamTools at this time for both in person and fully remote exams. From March 26th until December 1st, 2020 ExamTools has been used to administer tests for:

- **In-Person:** 1,100 candidates taking 1,600 elements
- **Fully Remote:** 9,000 candidates taking 10,000 elements

ExamTools is being improved further based on input from active VEs and the support of a committed team of volunteers that assist Richard in design, development, testing, documentation and training. Future enhancements of ExamTools could integrate features such as digital payment, video conferencing and VE chat functionality which are currently performed using stand-alone applications. ExamTools has provided a world-class computer-based fully-remote testing environment that is efficient and scalable to support the continued growth of the amateur radio community.

If you are a Volunteer Examiner and would like to learn more about how ExamTools works in a typical exam session, please read the [ExamTools Overview](#).

# ExamTools Overview

Below are links that will give you an overview of ExamTools and how it is designed to administer Amateur Radio License exams, either in person on paper or computer, or fully remotely via video conferencing software. While the general requirements as dictated by Part 97 remain the same for each type of exam, the details of how each type of session is administered can vary based on the needs of the exam team.

Here are the primary websites and their uses in the ExamTools Ecosystem

## Websites

There are many websites in the ExamTools environment. They are broken into three primary categories

- **Production Environment** - Use these websites for live test sessions that are intended to be submitted to your VEC.
- **Sandbox / Training Environment** - For training new VEs or troubleshooting and experimenting with known and suspected issues. This environment runs on a database that is isolated from production. You will need a separate login to use this site.
- **Development** - Both the Production and Sandbox / Training Environments have development stages. These sites are used for testing new features and bugfixes. In all cases, expect unexpected results.

Environment	URL	Description
Production	<a href="https://ham.study">https://ham.study</a> OR <a href="https://hamstudy.org">https://hamstudy.org</a>	Production website for creating accounts
Production	<a href="https://exam.tools">https://exam.tools</a> OR <a href="https://examtools.org">https://examtools.org</a>	Production website for creating and accessing real test sessions
Sandbox	<a href="https://hamstudy.dev">https://hamstudy.dev</a>	Sandbox environment for creating test accounts
Sandbox	<a href="https://examtools.dev">https://examtools.dev</a>	Sandbox environment for creating and accessing sandbox test sessions for training/practice/learning
Development - Production	<a href="https://beta.exam.tools">https://beta.exam.tools</a>	Generally stable environment with new features. May produce unexpected results
Development - Production	<a href="https://alpha.exam.tools">https://alpha.exam.tools</a>	Bleeding edge environment used by a small group of dev ops; do not use unless you have explicit knowledge of what is happening there. Expect the unexpected. If you are interested in troubleshooting, you should join the development and testing Discord server for more information
Requests	<a href="https://features.exam.tools">https://features.exam.tools</a>	Website for viewing existing feature requests, voting for ones you find most

Environment	URL	Description
		useful, and requesting new features
Documentation	<a href="https://docs.exam.tools">https://docs.exam.tools</a>	Instructional website containing user guide and instructions for the ExamTools system

## Exam Flow and Overview in ExamTools

Below is a table showing the role of each person in a typical ExamTools Exam Session using computer-based testing.

	Candidate	VE Team Lead	VE Team Member
<b>Creating Session</b>		Does this at <a href="http://exam.tools">http://exam.tools</a> - Assign VEs to the manifest (at any time before the exam). These VE Team members need to have accounts. - Invite button can be used for this.	Verify account at <a href="http://exam.tools">http://exam.tools</a> is valid - Work with VE Team Lead to ensure you have the right account permissions in the system to be assigned as a VE for that VEC's session.
<b>Signing up for session</b>	Go to <a href="http://ham.study/sessions">http://ham.study/sessions</a> - Sign up, get or enter FRN - Gets Candidate PIN		
<b>Starting Session</b>		Change session to "In Progress" at <a href="http://exam.tools">http://exam.tools</a> - Verify all VE Team Members are added to the manifest - Assign VE Admins (if needed) to assist with VE Team Lead responsibilities	Log into <a href="http://exam.tools">http://exam.tools</a> and go to current session dashboard
<b>Before</b>	Go to <a href="http://exam.tools">http://exam.tools</a> - Click		Any of the 3 VE Team Members

<b>Exam</b>	<p>“Join Exam Session” button - Enter Session Callsign and Candidate PIN - Candidate will then be left at the “VE Verification Screen” - Once they have been verified, they will review the 605</p>	<p>that are assigned to the specific candidate can “Authorize” the candidate to join the session. - This authorization can be performed in one of two ways: 1) by typing the VE Callsign and password on the candidate’s computer (for In-Person Sessions) or 2) by clicking the button on the session dashboard</p>
<b>Starting the Exam</b>	<p>Candidate then requests to start the exam.</p>	<p>VE Team Member can authorize an exam to start - This authorization can be performed in one of two ways: 1) by typing the VE Callsign and password on the candidate’s computer (for In-Person Sessions) or 2) by clicking the button on the session dashboard</p>
<b>During Exam</b>	<p>Candidate takes the exam</p>	<p>Three VEs should be monitoring the exam in progress.</p>
<b>Finishing Exam</b>	<p>Candidate clicks “Grade Exam” and waits for authorization</p>	<p>VE Team Member can authorize to grade the exam - This authorization can be performed in one of two ways: 1) by typing the VE Callsign and password on the candidate’s computer (for In-Person Sessions) or 2) by entering your VE password in the dashboard</p>
<b>After Exam</b>	<p>Candidate is given the option to take the next exam level or retake the current exam if failed. - Upon receiving a passing score, the candidate reviews the 605 and CSCE forms, then signs forms</p>	<p>At this point, the 3 VE members assigned to the candidate can sign that candidate’s paperwork digitally from their dashboard. - Once all signatures are collected the candidate will</p>

digitally. - Confirmation screen is shown

show as a green logo with the #3 next to it, showing completion.

### Closing out Session

VE Team Lead goes through each candidate and verifies completeness - Print all session documents - Download EBF file - Submit digital files to VEC

## VE Roles and Permissions in an ExamTools session

ExamTools allows for the owner of a session to assign roles and permissions to each VE attending. These range from the Session Owner to monitoring Volunteer Examiners.

- **Owner:** This is the ExamTools user that creates a session. They are responsible for managing the details of the session itself, including starting, changing, and finalizing the session.
- **Co-Owner (Team Lead):** A VE that has been explicitly authorized by the owner of the session to act with full permissions on their behalf.
- **VE Administrator:** A more experienced VE Team Member that is typically a capable decision maker. They are able to help VE Team Members be assigned correctly, and manage the candidate information.
- **VE Team Member:** VEs that are monitoring exams and signing forms.

Action Item	Owner	Co-Owner (Team Lead)	VE Administrator	VE Team Member
Create Session	Yes			
Edit session	Yes	Yes		
Start Session	Yes	Yes		
Add VEs to session	Yes	Yes		
Change VE permissions within session	Yes	Yes		
Assign other VEs to candidate	Yes	Yes	Yes	
Unassign other VEs from a	Yes	Yes	Yes	

Action Item	Owner	Co-Owner (Team Lead)	VE Administrator	VE Team Member
candidate				
Edit candidate information	Yes	Yes	Yes	
Void Candidate Exam	Yes	Yes	Yes	
Evict Candidate from Session	Yes	Yes	Yes	
Self Assign to candidate	Yes	Yes	Yes	Yes
Self unassign from a candidate	Yes	Yes	Yes	Yes
Authorize candidate to join session	Yes	Yes	Yes	Yes
Authorize candidate to begin testing	Yes	Yes	Yes	Yes
Authorize grading of exam	Yes	Yes	Yes	Yes
Sign as responsible VE	Yes	Yes	Yes	Yes
Finalize Candidate	Yes	Yes		
Finalize Session	Yes	Yes		

## Where to Get Help with ExamTools

ExamTools is still a maturing software base. While Volunteer Examiners have been giving exams for over 30 years, ExamTools in it's current form has only been operational since early in 2020. Understandably, it is still going through active development and upgrades by Richard Bateman, KD7BBC. Should you run into a bug in the software, need some training help, or simply have a question, there are several ways to reach out.

Via Discord

SignalStuff maintains the Amateur Radio Volunteer Examiners of America server on Discord, an internet chat platform. Here you can find conversation and tips about exam sessions, several methods of proctoring Amateur Radio exams including using ExamTools for both fully remote and in-person exams, and of course a bit of ham ragchew. In addition to an experienced user base, there is also Experienced Support who are trained and knowledgeable about the platform and its functions. You can join the server by clicking [this invite link](#). If you need quick support, this is the best avenue.

Via email

You can email your request to [support@examtools.org](mailto:support@examtools.org). Should you take this route, please provide a detailed description of the issue, including

- A link to the session or module being impacted
- What you were doing before the issue came up
- What you expected to happen
- What actually happened (or did not happen)
- Any error messages that may have popped up

## Getting Started with ExamTools

This is a brief overview of the several different styles of exam session that can be managed by ExamTools. In order to know what your first steps in this system should be, verify what type of exam session your team will be running, and follow the steps listed accordingly. Remember that every VE team operates differently, so if you have any questions you should consult your Team Lead for more details.

Who needs an account with ExamTools for each session type

<b>Exam Type</b>	<b>Grading Type</b>	<b>Signatures Applied</b>	<b>Candidates require ExamTools registration</b>	<b>VEs require ExamTools Account</b>	<b>Team Leads require ExamTools account</b>
Paper – Randomly Generated	Paper using ExamTools grading Key	Pen and paper only	No	No	Yes
Paper – VEC Grading Key	Paper using VEC supplied grading key	Pen and paper only	No	No	Yes
Paper – GradeCam Graded	Bubble-style answer sheet scanned by smartphone or computer camera	Pen and paper or digital signatures	Yes	Paper Signatures: no – Digital Signatures – yes	Yes
Computer-Based In Person	Automatic grading by ExamTools within the software	Pen and paper or digital signatures	Yes	Paper Signatures: no – Digital Signatures – yes	Yes
Computer-Based Fully Remote	Automatic grading by ExamTools within the software	Digital signatures	Yes	Yes	Yes



## **Getting Started as a VE in a paper-based session using ExamTools exams and paper keys**

As a session Volunteer Examiner using paper exams generated by ExamTools that are graded using hard copy test keys, *you will not need to do anything with the ExamTools software*. Your team lead or designated admin will be logging into the software to print exams and keys either prior to the session or on-demand as candidates register. All paperwork (including Form 605 and CSCEs) is hard copy. You will be filling them out and sign via pen and paper.

## **Getting Started as a VE in a paper-based session using ExamTools exams and VEC standardized grading keys**

As a session Volunteer Examiner using paper exams generated by ExamTools that are graded using a VEC standardized grading key, *you will not need to do anything with the ExamTools software*. Your team lead or designated admin will be logging into the software to print exams and keys either prior to the session or on-demand as candidates register. All paperwork (including Form 605 and CSCEs) is hard copy. You will be filling them out and sign via pen and paper.

## **Getting Started as a VE using paper-based exams and digital signatures**

In order to perform digital signatures on paperwork in ExamTools, you will need to have a verified account on the system and be assigned to the session. This will enable you to

- Log into an exam session
- Select the applicant who has earned exam credit
- Apply your signature digitally to all documentation

The paperwork can then be printed for signing by the applicant, or digitally signed and emailed.

To sign up for an ExamTools account, follow [this walkthrough](#). To apply signatures on a live test, you will need to set up an account in the [production system](#) by following the first section of the walkthrough. *If your team trains Volunteer Examiners in the [Sandbox environment](#) prior to performing live exams, you may also need to follow the steps listed under “Follow these steps to create an account for use with ExamTools Sandbox / Training Environment.” Your team lead will be able to guide you more in that regard.*

## **Getting Started as a Volunteer Examiner using paper-based exams and GradeCam grading**

The GradeCam grading software integrated into ExamTools allows for an applicant to be digitally registered onto the session roster and have their tests graded quickly and easily by using a standard smartphone or computer webcam. After grading is complete, the paperwork for successful candidates can be signed digitally or by printing out hard copy of the forms and signing in the traditional manner. VEs who are grading or signing digitally must have accounts with the ExamTools software. Any VEs who will be signing manually do not require an account. Having an account and being assigned to the session will enable you to

- Log into an exam session
- Select the applicant who has earned exam credit
- Apply your signature digitally to all documentation

The paperwork can then be printed for signing by the applicant, or digitally signed and emailed.

To sign up for an ExamTools account, follow [this walkthrough](#). To apply signatures on a live test, you will need to set up an account in the [production system](#) by following the first section of the walkthrough. *If your team trains Volunteer Examiners in the [Sandbox environment](#) prior to performing live exams, you may also need to follow the steps listed under “Follow these steps to create an account for use with ExamTools Sandbox / Training Environment.” Your team lead will be able to guide you more in that regard.*

### **Getting Started as a Volunteer Examiner in a computer-based session**

Many volunteer examiner teams allow candidates to take their license exam on a computer or tablet. This style of test can be used both in-person or fully remote via video conferencing solutions. If the exam is given in person, any combination of digital and paper signatures may be used. Fully-remote exams necessitate the use of digital signatures to avoid the need to scan or snail mail hard copy forms. Any actions taken by a VE in this style testing are logged and signed by the software, and so require the VEs to have an account in the system. Having an account and being assigned to the session will enable you to

- Log into an exam session
- Select the applicant who has earned exam credit
- Apply your signature digitally to all documentation

The paperwork can then be printed for signing by the applicant, or digitally signed and emailed.

To sign up for an ExamTools account, follow [this walkthrough](#). To apply signatures on a live test, you will need to set up an account in the [production system](#) by following the first section of the walkthrough. *If your team trains Volunteer Examiners in the [Sandbox environment](#) prior to performing live exams, you may also need to follow the steps listed under “Follow these steps to create an account for use with ExamTools Sandbox / Training Environment.” Your team lead will be able to guide you more in that regard.*

### **Getting Started as a Team Lead printing paper Exams**

In order to print paper exams in ExamTools, at least one member of your team must be confirmed as a Team Lead. If paper grading and signatures are to be used, no other VEs will be required to have an account. You can sign up for an account and be granted Team Lead status by doing the following:

- [Sign up for an ExamTools account](#)
- [Notify ExamTools of your Team Lead status](#)
- [Review the steps to print paper exams](#)

### **Getting Started as a Team Lead running computer-based sessions**

In order to run computer-based testing sessions, you must be confirmed as a Team Lead to create and manage sessions. Each Volunteer Examiner on your team that will be performing grading or signing actions will also need to have an account set up in ExamTools as indicated above. You can sign up for an account and be granted Team Lead status by doing the following:

- [Sign up for an ExamTools account](#)
- [Notify ExamTools of your Team Lead status](#)
- [Review the steps to create and manage computer based sessions](#)
-

## Getting Started as a Team Lead running fully-remote Sessions

In order to run fully-remote testing sessions, you must be confirmed as a Team Lead to create and manage sessions. Each Volunteer Examiner on your team that will be performing grading or signing actions will also need to have an account set up in ExamTools as indicated above. You can sign up for an account and be granted Team Lead status by doing the following:

- [Sign up for an ExamTools account](#)
- [Notify ExamTools of your Team Lead status](#)
- [Review the steps to create and manage computer based sessions](#)

## ExamTools Supported Browsers & Devices

ExamTools is officially supported on the current version of the Chrome web browser. Chrome or common derivatives will run on most modern desktop operating systems, including Windows 10, MacOS, and most mainstream Linux distributions.

### Community Verified Browsers & Devices

The ExamTools community is working to test models and versions of various tablets and other devices to verify functionality. As these devices are tested, they will be added to the list below. **It is important to note that these browsers and devices are not officially supported;** while efforts to maintain compatibility with browsers written in the past 7 years will be made, some features may not work. Please verify prior to using any devices in a live session.

If you have tested a device and would like to submit it to our list, please submit a pull request to these documents on GitHub, join the [Amateur Radio Examiners of America Discord server](#), or send an email to [examtools@n1cck.us](mailto:examtools@n1cck.us) with the following information:

- Device Name
- Device Model
- Device OS Version
- Browser Name
- Browser Version
- Support for Fully Kiosk software
- Notes about ExamTools functionality
- Device notes
- ExamTools version tested

## Volunteer Examiners

### How ExamTools Works

Overview of the ExamTools system

ExamTools is designed to make administering Amateur Radio exams a more modernized and streamlined process used for in person and fully remote exam sessions. Tests can be administered in a web browser

on a computer or tablet, manually graded on paper, or graded by a laptop or smartphone camera using GradeCam grading software.

## User Types

Users of ExamTools are broken into 4 different groups

- **Candidate** - Candidates are people taking exams. They will log in through a different portal to be presented exams to take, and not see the session management information
- **Team Lead** - Team Leads or Owners as they are called in ET are VEs that are authorized by the VEC to manage exam sessions. In the ExamTools system, they are able to create and edit session information, add and remove Volunteer Examiners from the session manifest, edit candidate information as needed, and export all session documents for submission to the VEC.
- **Co-Owner** - A Co-Owner can do everything that a Owner can with the exception of creating the session. Once the session is created the Co-Owner can edit it. A VE will need to have Co-Owner permissions in order to add/remove VEs in a session and mark applicants complete. Both are simple tasks, but require a higher level of permissions.
- **VE Admin** - VE Admins are assistants to the Team Lead at a session. They can help assign other VEs to candidates and edit candidate information as needed.
- **Volunteer Examiners** - VEs are standard users in the system. They are responsible for starting and stopping exams and signing candidate exams.

## VE Overview and Training Videos

Overview of an ExamTools sessions

For an overview of what an ExamTools session looks like, watch these videos:

- [ExamTools Tier 2 BETA - How to be a VE for a Fully-Remote Exam!](#)
- [Fully-Remote Amateur Radio Exam Administration - QSO Today Virtual Ham Expo 2020](#)

Training Videos

These videos are extensions of the overview videos above, designed to go more in depth prior to training on a live session.

- [Create a Session](#)
- [Register for a Session](#)
- [Session, Exam, and Signatures](#)
- [Fully-Remote Exam and Signatures](#)
- [Understanding Applicant Icons](#)
- [VE Permission Levels](#)

## Create an ExamTools Account

The [ExamTools ecosystem](#) has two distinct environments for Volunteer Examiners.

- The primary website is found at <http://exam.tools>, and is considered the [Production environment](#). This is where all active Volunteer Examiners need to have an account in order to perform live exams.

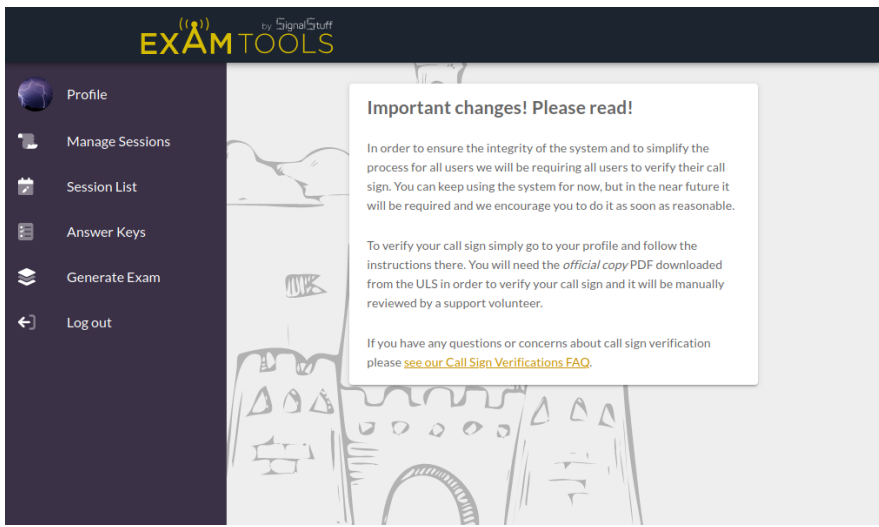
- ExamTools also maintains a [Sandbox environment](#) that is used for troubleshooting program errors and general VE training. This is a separate database, with different user names and passwords from the Production environment.

Follow these steps to create an account for use with [ExamTools Production Environment](#)

- Create an account on [ExamTools](#). If you have a previously existing [HamStudy](#) account, you may skip this step and use the same login information for ExamTools

- You will receive a confirmation email; click the link in the email or enter the number in the email to confirm your account
- Enter your personal details. For clarity, we recommend using your call sign as the username.

- It will then redirect you to [ExamTools](#).
- Login with your newly created account and note the instructions on how to verify your ExamTools account in the middle of the page.
- Once logged in, head to your profile to verify your ExamTools account.

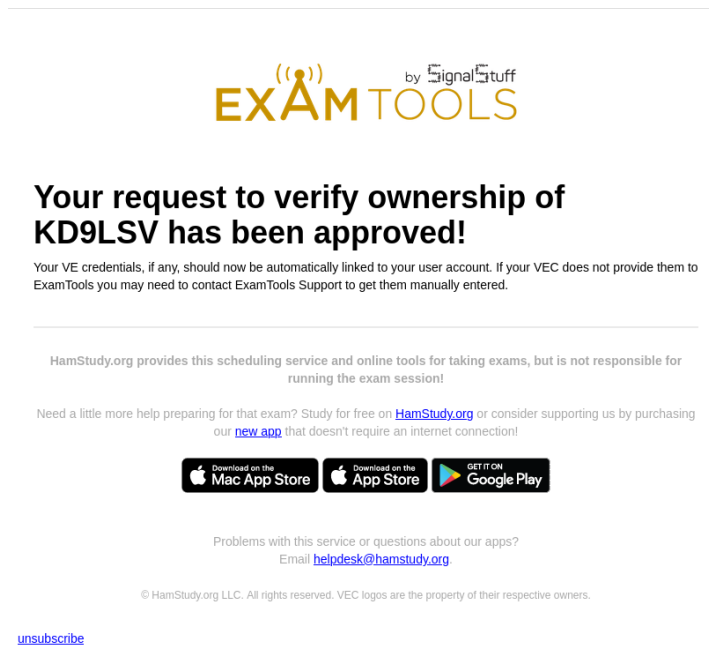


- Carefully fill out the Verify Callsign form.

The 'Verify Call Sign' form contains the following sections:

- Title:** Verify Call Sign
- Instruction:** Please upload proof of ownership of your license.
- Text:** Before allowing you to sign forms as a VE we need to ensure that you really are the owner of the call sign. Please [Obtain a PDF copy of your license from the ULS](#) and upload it below.
- Warning:** A reference copy or scanned copy is not sufficient. It must be the Official Copy downloaded from the ULS. Your document will be deleted once the verification request is closed, whether accepted or rejected.
- Field:** Official license copy (with a file upload icon)
- Field:** Anything else we should know? (text area)
- Affirmation:** By signing below, you affirm that:
  - You are the current legal holder of the call sign
  - The above information is correct
  - You will respect the privacy of all applicants in accordance with the "Privacy Policy" and Part 97 rules
  - You will be a positive role model for the Amateur Radio community
- Signature:** A large dashed box with the text "Sign Here" in a cursive font.
- Buttons:** Save as default signature (checkbox), CLEAR SIGNATURE (button)
- Text:** Signer: Please enter your legal name (not username or call sign!) This will be used on your 609 and CSCE forms when you sign.
- Field:** Full Name of signer (text input)
- Buttons:** CANCEL, SUBMIT REQUEST

- Wait for an email from Examtools stating your account has been verified.



- Inform your Team Lead that you are set up on ExamTools and ready to participate in sessions.

If you plan to run practice exam sessions, setup your [sandbox account](#) once you have completed the production account process above.

## Create an ExamTools Sandbox Account

The [ExamTools ecosystem](#) has two distinct environments for Volunteer Examiners.

- The primary website is found at <http://exam.tools>, and is considered the [Production environment](#). This is where all active Volunteer Examiners need to have an account in order to perform live exams. Make sure to sign up for your [production account](#), if you plan on participating in live sessions.
- ExamTools also maintains a [Sandbox environment](#) that is used for troubleshooting program errors and general VE training. This is a separate database, with different user names and passwords from the Production environment. It is not required to create a Sandbox account to perform live testing; however, your Team Lead may require training sessions in the [Sandbox](#). You might also be interested in using it to follow along with documentation and walk-through videos.

Follow these steps to create an account for use with [ExamTools Sandbox / Training Environment](#)

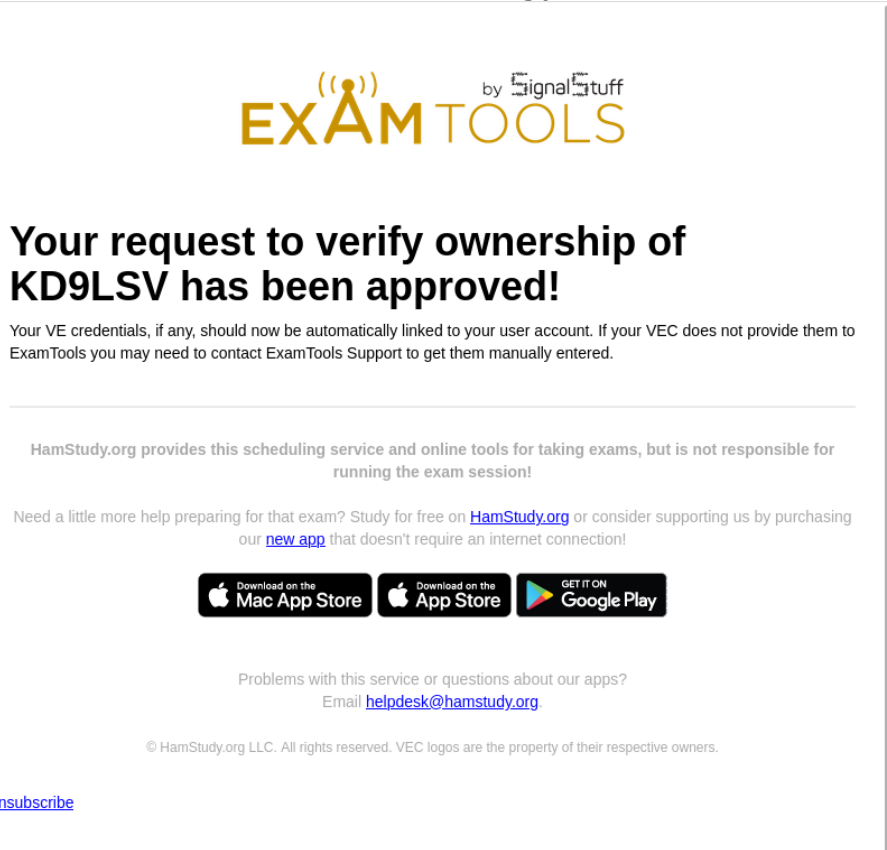
- Create an account on [ExamTools Sandbox](#).

- You will receive a confirmation email; click the link in the email or enter the number in the email to confirm your account
- Enter your personal details. For clarity, we recommend using your call sign as the username.





- Wait for an email from Examtools stating your account has been verified.



- Inform your Team Lead that you are set up on the ExamTools Sandbox and ready to participate in training sessions.

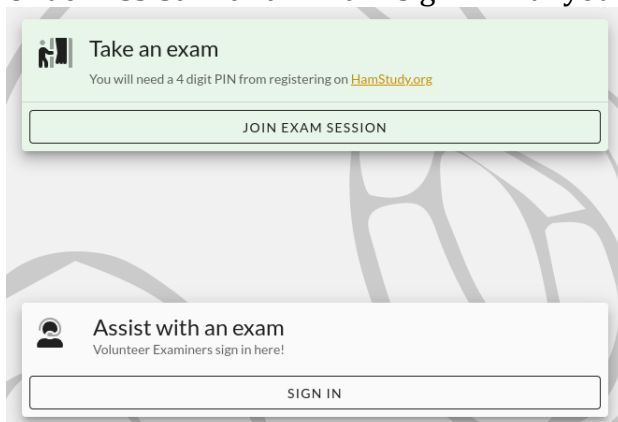
Want to run a practice session by yourself or short on VEs? Check out documentation on [Sandbox Exams and dummy VEs](#) in your training sessions.

## Add a Signature to your Profile

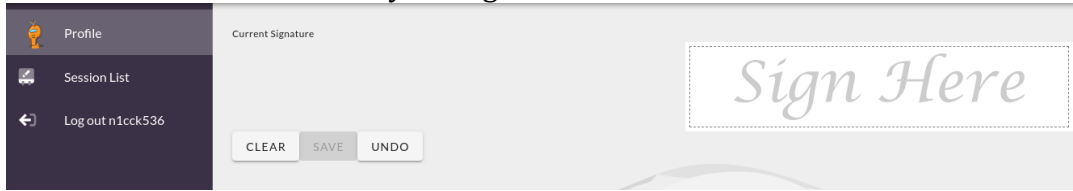
Add a saved signature to your profile

**Pro Tip:** Use a smart phone or tablet for best looking results.

- Go to <https://exam.tools>
- Under **Assist with an Exam** sign in with your HamStudy credentials



- Click on **Profile**
- Look for a white box at the top of your screen that says **Sign Here**. Use your mouse or a touchscreen device to draw your signature



- When you are happy with the image click **Save**

## Adding Additional VEC Accreditation

Follow these instructions if you have an existing ExamTools account and have now become accredited with one or more additional VECs.

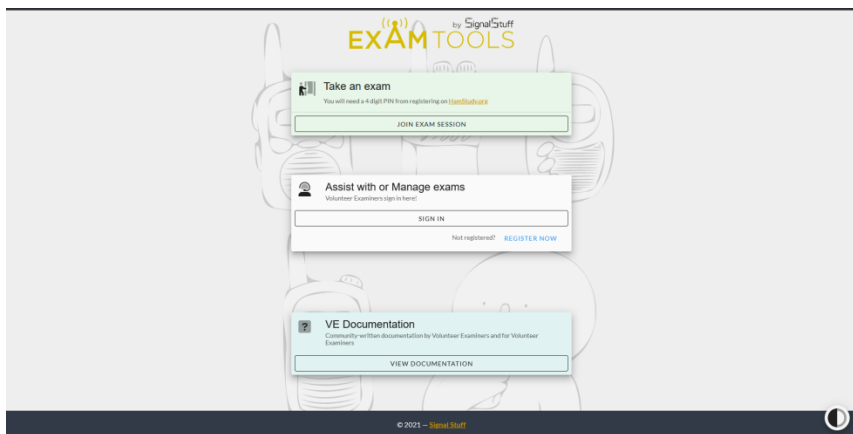
- Wait until your accreditation is officially confirmed by your additional VEC(s)
- Fill out [this form](#).
  - When you created your initial VE account you were assigned a request ID; when adding additional VEC accreditation, you can simply write “Adding VE Credentials” where the Request ID is required.
- Inform your Team Lead/CVE that you are set up on ExamTools and ready to participate in sessions.

## Change your Callsign

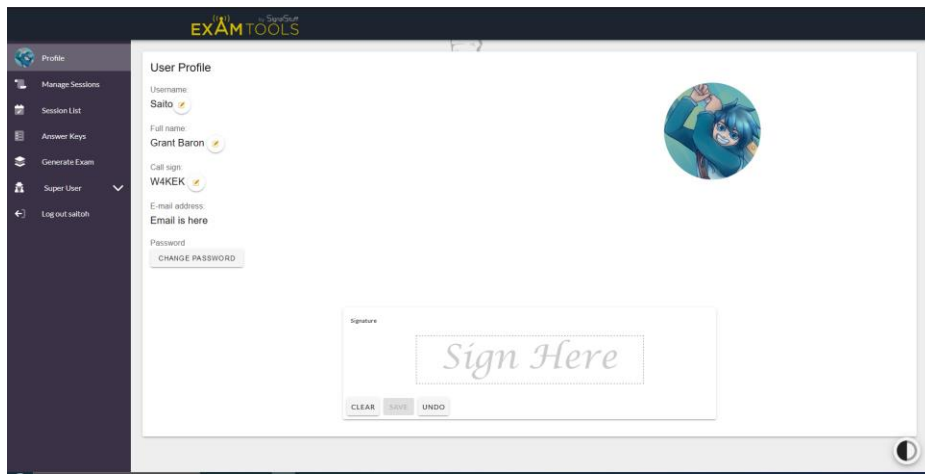
Follow these instructions after you have updated your call sign with both the FCC and all VECs with which you are accredited.

You will not be able to be added to any sessions exams until your VEC updates you in their records.

- Login to your account on [Examtools](#)



- Change your callsign on [your profile page](#)



- Click on the pen and paper and enter your new callsign in the box.

## Team Leads

### Become a Team Lead in ExamTools

If you are a new VE Team Lead looking to get started with ExamTools, here are our recommended steps:

For in-person paper template graded sessions

- Read through this documentation, including the [Getting Started guide](#) and [Print and Grade Hard Copy Exams](#) pages
- Get permission from your VEC to use ExamTools. If you are a GLAARG session manager, W5YI CVE or a SANDARC team lead, your VEC will update ExamTools automatically. If you are an ARRL team lead, please send the emailed confirmation of your approval from Maria Somma ARRL-VEC to [verifications@examtools.org](mailto:verifications@examtools.org)

For GradeCam, computer-based, or fully-remote sessions

- Read through this documentation and watch the videos provided
- Get yourself setup in the [Sandbox](#) environment by following [these instructions](#)
  - Optional: Set up 2 or more of your more experienced VEs that you would like to bring along on this journey using the same steps. If you do not have VEs that can train with you in the sandbox environment, you can use [dummy VEs](#) referenced in the instructions.
- Set up sample sessions and practice registering candidates, running the exam, and getting yourself comfortable with the ExamTools system.
- Ask in the appropriate VEC channel on the Discord to shadow another team already running live exams
- VE Team Lead - Once you are ready to run real exams in the [production environment](#), get explicit permission from your VEC to run fully-remote or in-person exams using ExamTools. If you are a GLAARG session manager, W5YI CVE or SANDARC team lead, your VEC will update ExamTools automatically. If you are an ARRL team lead, please send the emailed confirmation of your approval from Maria Somma ARRL-VEC to [verifications@examtools.org](mailto:verifications@examtools.org)
- At this point you will need to get all VEs on your team set up in the [production environment](#) to assist with your exams. Have them follow [these instructions](#) for the live environment.
- Create your first real exam session in the [production environment](#) and run your session!

- For in-person sessions using GradeCam or devices, check out [In-Person Exams with ExamTools](#) documentation.

At any time, use the Discord to ask questions or ping Experienced Support for any specific or urgent needs. We're all here to help each other out and expand testing for everyone!

## Teams for Session Management

Intro:

The primary purpose of a “team” in ExamTools is to own exam sessions and schedules. It’s purely an administrative entity. Teams can have a name, contact email, and website. There is no need to add everyone who is on your actual team to the ExamTools “team”.

Create a New Team:

- Click on **Team List** on the left navigation in Exam Tools.
- Click on **+Add New Team** in the middle upper area below the ExamTools page header.
- **Add New Team** window should pop-up with four fields for you to define.
- **Team Identifier** (Team ID) - A team is identified on the schedule by a “team identifier” which starts with a letter, is 3-10 characters long, and can contain letters, numbers, and hyphens. Any single word, call sign or acronym can be used to uniquely identify the team. ex. UVARC, NT3ST-R, etc. Enter the call sign of the session manager, if you are not planning on having a team ID.
- **Team Name** - the team’s name or group associated with the team
- **Contact E-mail Address** - a valid email address associated with the administrator (owner) of the team
- **VEC** (Which of your VEC credentials should this team be allowed to use to schedule exams?) - Select an available VEC from the drop-down menu. The individual setting up the team will have the option of selecting from the VECs for which they are a session manager/team lead/liaison in ExamTools. Select all that apply to this team.
- When done, click **Save** to exit.

Team List : To edit or view teams

- From the **Team List**, locate the team you wish to view and click on the **Manage Team** button which will allow you to view all the fields and setting for the team.
- **Team Identifier:** - Used by the applicants to login and join the exam; also used in permalinks for the session and the team on HamStudy.
- **Team Name:** - Displays along with the team identifier in the session listing on HamStudy.
- **E-mail Address:** - Should contain a valid email address for the administrator of the team.
- **Team Website:** - Enter the url (i.e. http://...) for the website for the club or group associated with this team. Leave blank if you do not have one.
- **My team permissions:** - The personal permissions settings for the team you are viewing. (not editable and set by the owner/co-owner of the session)
- **Delegated Privileges:** (In order to list sessions for a given VEC one or more VEs who are at least co-owners must delegate their team lead permissions to the team. Note that sessions must still have a valid team lead assigned from the team, but anyone with Scheduling permissions may schedule sessions for any VEC for which the team has delegated permissions.) - Only those with session manager permissions in ExamTools will see VECs in the Delegate Privileges list. Select the

VEC for which you would like the team schedulers to be able to create sessions for. If selected, the VEC will display below the feature.

## Add, Edit, and Delete Members

- **Members:** - A list of those VEs who are part of your team management. This list does not include everyone of your VEs, but rather those few who assist with the scheduling, coordinating and running of the sessions.
- Click on the + (plus sign) next to **Members:** to add members.
- Use the **Edit** (pencil and paper icon) or **Delete** (trash can icon) to manage members on the list.
- Click **Edit**, to **Change team member permissions**.
- The team member's *call sign and license class* will display along with the **Name:** which may use the Display Name from the VE's Profile, if entered.
- **Credentials:** (view which VECs they are accredited with) - A little blue winner's cup will display, if they are a team lead/session manager in ET for that VEC.
- **Permissions** (select from the drop down) - Choose from *Owner, Co-owner and Schedule*
- You can have one or more Owners who are co-equal – this means that any of them can even remove the others from the team! Because of this, most teams will want to just have a single Owner who is the primary person responsible and then add others as “co-owners”. A co-owner can do anything an owner can except add or remove other owners or co-owners. Bt selecting schedule will allow that memeber to create and edit sessions for the team.
- Click **Cancel**, if you want to discard changes or **Save** when editing is complete.
- If you would like to return to the team list, click the **back arrow** in the upper left corner under **Manage Team**.

Members can see the team sessions in the **Session List** even if they have not been added to the session as a VE.

## Create and Edit Sessions in ExamTools

To Add a Session to HamStudy

Detailed instructions to schedule an exam session in the ExamTools software are written below. You may also watch [this video](#) for a walk-through.

- Login to **ExamTools** by clicking on [SIGN IN] under Assist with or Manage Exams.
- In the second window **Log in as a Volunteer Examiner**, enter your **Username or email** and **Password**.
- **ExamTools (ET)** should open in the **Session List**.
- On the left navigation, click on **Manage Sessions**.
- **Upcoming Sessions** should display at top.
- On the far right of the title header row, click on **Add new**.
- The **Add Session** window should display.
- **Event name (summary):** Enter your session title to display in HamStudy listing. You may want to include time and time zone, in-person or remote/online information as well.
- **VEC:** Select the VEC organization which is associated with this exam.
- **Session Type:** Select Online Session or In-Person Session from the radio buttons.
- If you select In-Person Session, a **Location** field will appear. Enter the street address of the exam session venue. Once entered, a preview of a map will pop up. The map will also be visible on HamStudy.

- **Time zone:** Select your time zone from the dropdown list.
- **Date and time:** Enter the date and time which your applicants should expect the exam to begin.
- **Maximum number of applicants** (*0 for unlimited*): Enter the number of applicants you would like to limit the session to. If you are just using ET for scheduling, then just leave this blank.
- **Duration in minutes:** Enter the number of minutes you expect the session to last (i.e. a two-hour exam would be 120 mins).
- **Fee amount:** Enter the amount for your exams as directed by your VEC. You can add payment information, terms and info about waived fees in the session description in Other Notes field farther down in the form.
- **ExamTools Features Desired:** From the dropdown, select one from the following list. By default Schedule only is selected.
  - [Schedule, Registration, and Exams] - Your exam will appear on the schedule, registration will be enabled, and users will be assigned a PIN which they will receive in their email. Use this option if you plan to do remote or in-person exams in ET.
  - [Schedule and Registration] - Your exam will appear on the schedule and online registration will be enabled, but users will not receive a PIN. Use this option if you plan to use a method other than ET to test applicants.
  - [Schedule only] - Your exam will appear on the schedule and online registration will be disabled. Use this option for listing your in-person, walk-up exam or if you are going to be registering applicants in another manner. Add registration information to the session description in the Other Notes field.
- Options:
  - Pre-registration required
  - Do not list on HamStudy.org – Hide your session and do not display on HamStudy. Especially helpful, if you want to work on your session listing ahead of time and aren't quite ready for applicants or want to share a private link to a certain population for whom the session has been scheduled. (i.e. Local radio club or college course) The session is still accessible online, but the applicant will need a private link to view. When you are ready to list your session on HamStudy, return to the session in ET and uncheck the box and it will appear in the HamStudy list of [Upcoming test sessions](#).
  - Receive notification on applicant signup - If this box is selected, a New Applicant Registration notice will be sent to the email listed in the Contact Name and Email field. This email will include the following applicant information: Name, License Class, FRN, Address, Email, Phone Number and the date/time of the session in which applicant registered.
- Toggle the ExamTools Features Desired dropdown back to Choose... in order to add or remove a check mark for Schedule only and edit the options above. You will see the Schedule only description in the blue box, if your listing is set to not display. In that case, you will need to go back to Choose... to remove the Do not list on HamStudy.org selection.
  - **Schedule only** - Your exam will not appear on the schedule and online registration will be disabled.

Select the Schedule only and Do not list on HamStudy.org combo before you are ready for the public to view your session and register. You may do this to proof-read it, experiment with formatting or share it with your VE team using the private link before it goes live.

- **Contact Name and Email** - This field will include the Session Manager's email address by default, but may be changed to a preferred email address as long as the formatting is maintained. ET uses this email for notification and does not appear in your session listing online. If you want your email to be posted, added it to the Other Notes below.
- **Other Notes** (*markdown enabled*): Add your session description here. Add any additional information which wasn't included in the rest of the listing. For remote sessions, you may want to include the time and time zone again, links to instructions, how to pay, and contact

information. Using markdown, you can style your listing using headers and bullets, include pictures and logos, links and more. Images must be hosted on another server.

- Review your listing and click [Save] when done.

#### To View Your Session on HamStudy

- To view your listing on the web, navigate to the **Session List** and click on the session which you are interested in.
- At the end of the title for the session look for a small link icon:
- Click on the icon and the link to your session on HamStudy will automatically copy to your clipboard. You should be able to open a browser window and paste the url in and the address bar and hit enter. Send the link to others or posted to another website to advertise your session.
- Search for your session by clicking on the **Find a Session** from the right side navigation on [HamStudy](#). If the session is not hidden, then it should come up. Find all your sessions by adding your call sign to the end of the following link: <https://ham.study/sessions/yourcallsign>. Use this URL to link to all your sessions live on HamStudy. Include it in the session description or share in email. This link will not include hidden sessions.

#### To Edit an Existing Session

- Return to **Manage Sessions** and click on **Edit Schedule** to update or change your listing. Do this within the session from the **Current or Session List**. Open your session. Along the top of the window, look for a button for **EDIT SCHEDULE**. This button will take you to the Edit Session window where you can make changes to your exam.

### Edit the VE List in an ExamTools Session

Add a VE to an Exam Session:

You must be a owner or co-owner to add VEs to the session. Add VEs to the manifest at any time until the exam is finalized.

- Login to [ExamTools](#) by clicking on [SIGN IN] under **Assist with or Manage Exams**.
- In the second window **Log in as a Volunteer Examiner**, enter your **Username or email** and **Password**.
- **ExamTools (ET)** should open in the [Session List](#).

To add a VE to an exam session, select an existing session from the **Session List**.

By default, the Applicant tab is active. Click on the Volunteer Examiner tab to the left of the active tab. At the top of the VE page, located and click the button **+ ADD VES**.

The **Add Volunteer Examiners** window should popup with a field in the upper right corner **VE call sign (enter to add)**.

Type in the call sign of the VE who you would like to add. Hit **Enter** on your keyboard and then click **SAVE** on your screen. To add more than one VE, just keep entering call signs and enter until you have added all your VEs, then click **SAVE** to add them to the session all at once. ExamTools will not add a VE more than once even if you add them again.

VEs need to have an ExamTools account with VE Documents for the same VEC as the session is associated with. If you are presented with an UNREGISTERED to the right of the VE, the VE does not have what they need to be added to your session. New to ExamTools VEs will need [to create an ExamTools account](#). VEs who have volunteered with a different VEC using ET may need [to add additional VEC accreditation](#) to their existing account.

Setting VE Permissions:

You have three different levels of permissions which you can sign to VEs. Volunteer Examiner, VE Admin and Co-Owner are explained on the [VE Roles and Permissions in an ExamTools Session](#) page. The Session Manager who created the session is the owner and can not be changed.

From the dropdown located on the right side of the VE's name, select the role at which you want the VE to participate in the session with. The Volunteer Examiner setting by default will allow VEs to authorize and certify exams and under **MANAGE**, view applicant information.

How to Remove a VE from an Exam Session:

Look for an **x** in a small solid circle located to the right of the VE within the VE list. Clicking on the x will result in a popup "**Are you sure you want to remove VE Name (Call Sign) from the session?**" Select **YES**. Do not remove VEs who are currently assigned to an applicant or have authorized exams. This may break something in your session.

## In-Person Exams with ExamTools

For more complete instructions, please contact your VEC for documentation and guidance. We strongly recommend that you shadow other team leads and participate in several sessions before starting to run your own. You are encouraged to have an experienced team lead and experienced VEs join your first few sessions to help out. Initial sessions are recommended to be only one or two applicants until you're comfortable with the whole process. Participation in remote online exams is the perfect place to learn how ExamTools works.

Prepare for In-Person Exam:

- Session Manager (SM) [creates a session](#) on ExamTools (ET).
- Session Manager [prints paper exams](#) for use with GradeCam. Exams printed for use with templates will not work with GradeCam. However, you may use the Record External Exam feature under Manage to add exams which were graded without the use of ET.
- Session Manager or team members prepare computers or tablets for applicant use or applicants will be notified what kind of devices are allowed.
- SM (owner) or co-owner [adds participating Volunteer Examiners \(VEs\)](#) to the exam session.


Applicant Registration:

1. **PRE-REGISTER:** Direct applicants to pre-register (and pay online) before the exam by using the link on [HamStudy](#). The session listing may be public or private. A public session will be listed on HamStudy and anyone may register for the exam. A private session will not be listed on HamStudy and applicants will need to be sent the link to the session listing in order to view and register. The SM marks the *Do not post on HamStudy.org* checkbox option. Once a session has been listed



publicly, applicants may be able to navigate back to it even after the session listing is edited to hide it on HamStudy.

2. WALK-INS or SAME DAY REGISTRATION: If you allow walk-ins on the day of the exam, assign a VE to help applicants register in two ways.
  - On <https://ham.study>, direct applicants to use their own device (a smartphone or tablet) or one provided by a VE to register. Applicants will receive a registration email which includes their pin and allows them to confirm their information.
  - In ExamTools, a VE can register applicants using the **Add Applicant** feature located in the upper right corner of the applicants list. Applicants added in this manner will not receive a registration

email. 

A VE should confirm FRNs and call signs on the ULS. Although ExamTools does have some automatic lookup features, all information should be confirmed by a real person. All applicants need a FRN to register. An email address is strongly suggested and is required by FCC. If an email is not provided, the applicant will need to log in to obtain a copy of their license.

Since ExamTools registers the applicant electronically, the 605 may not be required for in-person, but the applicant still will need to bring identification.

Paper or Device?

- Paper exam booklets, figure sheets and answer sheets must be printed from ET by a SM. The paper exams are reusable, printed with or without figures, randomly generated and have unique test ID numbers. Font size is adjustable. Should be printed on white paper as some people have problems with reading on colored paper. Select exams to be graded by GradeCam. [Instructions on Printing Exams for GradeCam](#) Check with your VEC to find out if they may print or reimburse you for the exams. Suggestion: Use brightly colored folders or cover sheets to keep track of exams and elements.
- Paper and grading templates provided to stocked teams may be used with ExamTools. Check with your VEC to see to what the procedure is for accepting ExamTools exports for these types of sessions. Supplemental files (i.e answer sheets) may be required.
- Devices (computers, tablets, smartphones) may be owned by the applicants, VEs or VEC. The ET process is nearly identical to a remote session. Devices may or may not be reimbursable by your VEC.
- Exam results may be shared depending on your VEC's policy. Exam results are found on the Applicant Tab under PRINT FORMS in the expanded view of the applicant. On devices, exam results may be shared as each exam is randomly generated. When exams are graded by GradeCam, ET results may or may not be shared depending on the number of versions of the paper exam you have and if the exam is to be reused. It would always be safe to provide the question pool number (i.e. T6A07) to the applicant.

Check in Applicants:

Change the applicant status from Registered to Seen in ExamTools to indicate that the applicant has checked in and is testing. The applicant will move to the top of the applicant list depending on how it is sorted. During the check-in process, you may:

- Check ID and collect any fee from applicants.

- Use a paper roster provided to you by your VEC to track payment and ID check or download an applicant list from ExamTools and add columns for both. Defer to your VEC for direction.
- Confirm any CSCE and add credit.
- Confirm any existing license (current or expired).

#### Start Exam:

- SM should click the **Start Session** button located in the upper right corner of the session. Only the owner and co-owners can see it.

#### To Test with Paper:

Provide each applicant with an exam, a figure sheet, a bubble answer sheet, pencil/pen and calculator, if needed. The applicant may choose to use the front and back of the answer sheet for scratch paper given they do not write in the box or backside of the box or the team can provide the applicant with a blank sheet.

**IMPORTANT NOTE:** Answer sheets should be prefilled with the exam's Test ID number and the Applicant Pin. The answer sheet for the Tech and General are the same with 35 bubbles, but the Extra answer sheet has 50 bubbles. A new 35/50 question combo form is now available for download along with all supplemental resources (answer sheets and figures) in ExamTools under Generate Exam.

A VE may seat the applicant and give instructions on what to do when they have completed their exam.

Suggestion: Provide each applicant with an instruction or exam cover sheet to provide directions for the exam and what to do to have the exam scored.

#### To Test with a Device:

Provide each applicant with a sheet of blank paper, a pencil/pen and calculator, if needed. Inspect the device as you would for remote testing. The applicant needs only a web browser open and should be instructed to remain on that page only. Settings, profiles, and/or apps (i.e. Fully Kiosk) maybe used to secure VE team owned devices.

The applicant should go to <https://exam.tools> and join the session with the SM call sign and the applicant pin. A VE will need to authorize at points during the exam as they would during a remote exam.

#### During Exam:

For both paper and device testing, VEs should be assigned to monitor the applicants. Walk around behind the applicants with devices, make sure that they stay on the exam page and provide assistance when needed. VEs will need to assign themselves or a VE Admin or higher can assign Certifying VEs to each applicant.

The team should determine how they want the applicants to signal when they are done with the exam. For an exam taken on a device, the applicant can hit the grade exam button. For those who are using paper, they may need to raise their hand or bring their exam and materials to a specific table to be graded. All materials, pencil and calculators should be collected from the applicants.

## Grading Exams:

For applicants using a device, they can proceed through the exam process as if they are being tested online.

For paper exams, use GradeCam to grade the exam. Navigate to the Session Detail page, and click the GradeCam button. VE will be prompted to choose the camera to use to scan. Center the filled out answer sheet within the camera window, and the software will grade the exam automatically. If ET cannot clearly determined which answer was selected, the VE will be prompted to visually confirm the answer. This can occur when an applicant does not cleanly erase a previous answer when changing it. Any device with a camera (tablet, cell phone, or computer) may be used for scoring. The SM and the rest of the VE team may want to practice this and test out different devices in the [SandBox](#) before your session.

## To Add a Score from a Non-ExamTools Exam:

A VE team may use existing exam booklets and scoring templates which were provided to them as a stocked team, if desired. Go to the applicant record and use the Record External Exam feature under Manage to add the element, score and any notes for the exam. Teams choosing this method should check with their VEC and confirm what additional documentation (i.e. original answer sheets) should be provided beyond the documents which ET exports.

## Viewing 605 and Draft CSCE:

All applicants should be able to sign in or remain signed in using their own device (a smart phone) or one (a tablet, iPad, computer) provided to them to view their score, finish and sign forms (view 605/CSCE and create an electronic signature). For paper exam applicants, you can skip right to the 605/CSCE and signature by changing the applicant status to Ready to Sign in ET.

## Official Certificate of Successful Completion:

Once the applicant and three Certifying VEs have all signed, the SM or a co-owner should **Mark Complete** the applicant and **send the CSCE**. The applicant should check their email which they used to register and confirm that they received the CSCE. Only the owner and co-owners have the ability to mark applicants complete, but any VE may send the CSCE. The Mark Complete button displays to owners and co-owners in the expanded view of the applicant. All three VEs must sign before the Mark Complete button becomes active. Once the applicant has been marked complete, they will drop to the bottom of the applicant list. A VE can then click on the up arrow displaying just to the right of the applicant's pin to send the CSCE.

## Applicants Who Did Not Pass:

Will not receive anything unless the team would like to either print or email the applicants the 605 from ET. Depending on the team's point of view, returning the 605 is completely unnecessary as the applicant did not provide a 605 when registering. Common practice for the three certifying VEs is to remain assigned to the non-passing applicant. Although ExamTools will allow VEs to sign a 605 on which **NO NEW LICENSE OR UPGRADE WAS EARNED** most all teams do not sign. Check with your VEC for direction.

## Closing the Session:

- The SM cleans up the manifest, will remove any non-participating VEs and add any that did participate. Optionally, remove applicants who did not show. Then, clicks **Finalize Session**.

- Session Manager submits session docs (EXPORT>VEC Archive) to the Volunteer Examiner Coordinator (VEC) along with any other requested documentation (i.e. expense report, CSCEs, etc).

#### VEC Upload, Licenses and Upgrades:

Once the VEC has uploaded the batch file from the session, the FCC will start the process of reviewing the applications and issuing call signs. Once this happens, the applicant should receive an email from ExamTools and the FCC, if everything goes well with the EBF upload. The email from the FCC comes overnight with a link to the official license. The applicant should download the license from the link, maybe rename it something other than what it is called (just a long string of numbers starting with their FRN) and save it in a place where they can find it again. They may choose to print out a copy and keep it with their radio.

Those who upgraded can use their existing call sign appended with /AG (General) or /AE (Extra) to immediately start using their new privileges. Those who do not have a license will need to wait until their call sign appears in the ULS. Occasionally, applicants need to wait an additional day or two while their application is in review.

The FCC issues call signs Monday through Friday. Weekend and holiday uploads are not processed until the next business day.

#### Flow of Applicants through Exam Site:

Tables should be set up to allow a logical flow through each station. This is an example below.

1. Registration
2. Payment of fee (if not free)
3. Check-in/Present ID
4. Receive Exam
5. Take Exam
6. Return Exam
7. Grade Exam (VEs sign/SM marks complete/send CSCE)
8. Receive CSCE

#### Applicant Email Address:

All applicants are encouraged to provide an email address on all applications. When an email is provided, the licensees will receive an electronic issuance of an official copy of their licenses upon application grant. Certain email preferences and email services may potentially block or filter incoming email attachments. Applicants should set their email preferences to allow incoming email from [authorizations@fcc.gov](mailto:authorizations@fcc.gov) before their applications are submitted.

If no email address is provided, the licensees will need to login to ULS and download their authorizations, as no paper copies are distributed. The instructions for downloading an authorization can be found at: <https://www.fcc.gov/support/universal-licensing-system-uls-resources/how-obtain-official-authorizations-uls>. Email questions about this process to [ulsebf@fcc.gov](mailto:ulsebf@fcc.gov).

#### Basic Qualification Question:

If an applicant answers Yes to this question not only should the SM confirm that the answer is correct, but make it clear that there are additional steps to their application with the FCC. Providing the application

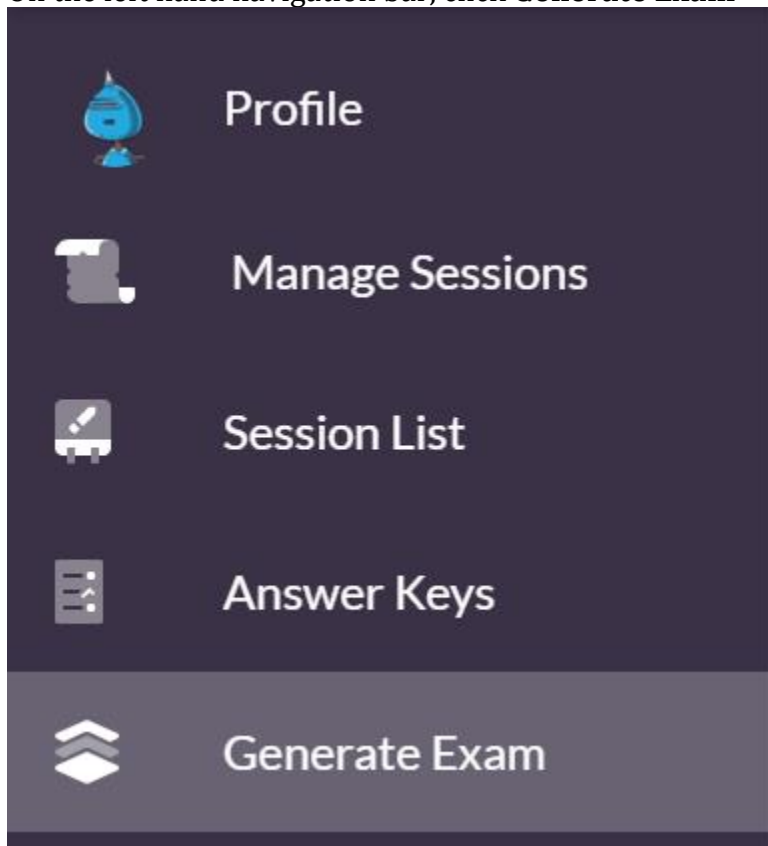
file number and the instructions on the back of the 605 may be needed. This may be the first time the applicant has applied for an amateur radio license and may need a little extra explanation. ExamTools does provide instructions when the applicants register, but the information is currently **not** included with the session information notification email when they register.

## Print and Grade Hard Copy Exams in ExamTools

### Printing Exam Sheets for Manually Graded Exams

Follow these instructions to print out randomly generated exams for use with a manual grading key

- Log into [ExamTools](#) software using your user name and password
- On the left hand navigation bar, click **Generate Exam**



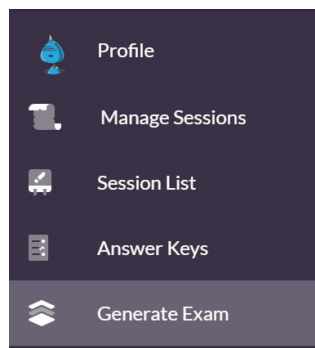
- The default selection is **Manual Grading**, indicated by a grey highlight
- Follow the option selections for the exams that you wish to generate
  - **Text Size** - Choose the size of your text printing. Available selections are *Miniscule, Tiny, Small, Regular, Large, Huge, or Ridiculous*
  - **Question Pool** - Choose the question pool for which you wish to generate exams. Available selections include current US Amateur Radio exams, several FCC Commercial Elements, and Canadian 2014 Basic and Advanced Qualifications in either English or French Canadian
  - **Language** - Choose the language to generate exams. Available selections are *English* or *(Spanish not available for all question pools)*
  - **Number of Exams to Create** - Choose how many unique exam sheets to generate. *Use the slider to select a number between 1 and 50*
  - **Omit questions with figures** - Toggle on to generate exams that do not use questions containing figures suitable for administering to visually challenged candidates. *Default is off (include figures)*

- Click **Generate** - You will have a PDF file generated that includes answer keys, blank answer sheets, and exam booklets in the quantity of exams chosen in the previous step. You may print off as many copies as you need. The exam number is printed on page 1 in the upper right hand corner as well as in the footer of every page. This number is used to determine which grading key to use.
- To grade these exams, each VE will compare the candidate's filled-out answer sheet against the grading key generated in the prior step. This candidate will then require a CSCE and Form 605 filled out and signed by hand. Alternatively, if the applicant has been registered into ExamTools, VEs may record the score into ExamTools by following [To Add a Score from a Non-ExamTools Exam](#): instructions.

## Printing Exam Sheets for Pre-Determined (VEC) Keys

Follow these instructions to print out randomly generated exams for use with a pre-determined (VEC) grading key

- Log into [ExamTools](#) software using your user name and password
- On the left hand navigation bar, click **Generate Exam**



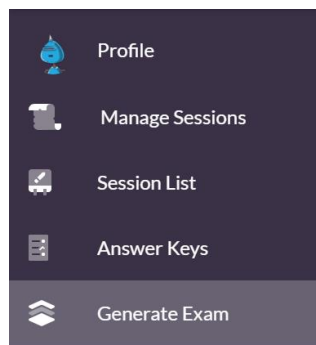
- The default selection is **Manual Grading**, indicated by a grey highlight. Click on **Pre-Determined Key**
- Follow the option selections for the exams that you wish to generate
  - **Choose Answer Key(s)** - Choose the grading template that you are using. Includes pre-determined VEC-Specific grading templates such as ARRL: 1-1 through ARRL: 9-4. Multiple selections are allowed.
  - **Text Size** - Choose the size of your text printing. Available selections are *Miniscule, Tiny, Small, Regular, Large, Huge, or Ridiculous*

- **Question Pool** - Choose the question pool for which you wish to generate exams. Available selections include current US Amateur Radio exams, several FCC Commercial Elements, and Canadian 2014 Basic and Advanced Qualifications in either English or French Canadian
- **Language** - Choose the language to generate exams. Available selections are *English* or (*Spanish not available for all question pools*)
- **Number of Exams to Create** - Choose how many unique exam sheets to generate. *Use the slider to select a number between 1 and 50*
- **Omit questions with figures** - Toggle on to generate exams that do not use questions containing figures suitable for administering to visually challenged candidates. *Default is off (include figures)*
- Click **Generate** - You will have a PDF file generated that includes exam sheets in the quantity of exams chosen in the previous step. You may print off as many copies as you need. The answer key to use for grading each exam is printed on page 1 in the upper right hand corner as well as in the footer of every page
- To grade these exams, each VE will compare the candidate's filled-out answer sheet against the appropriate grading key provided by your VEC. This candidate will then require a CSCE and Form 605 filled out and signed by hand

## Printing Exam Sheets to Scan with GradeCam(tm)

Follow these instructions to print out randomly generated exams for scanning with GradeCam(tm) software, which is accessible via the ExamTools website on any internet-connected device with a camera.

- Log into [ExamTools](#) software using your user name and password
- On the left hand navigation bar, click **Generate Exam**



- The default selection is **Manual Grading**, indicated by a grey highlight. Click on **Scan with GradeCam(tm)**
- Follow the option selections for the exams that you wish to generate
  - **Text Size** - Choose the size of your text printing. Available selections are *Miniscule, Tiny, Small, Regular, Large, Huge, or Ridiculous*
  - **Question Pool** - Choose the question pool for which you wish to generate exams. Available selections include current US Amateur Radio exams, several FCC Commercial Elements, and Canadian 2014 Basic and Advanced Qualifications in either English or French Canadian
  - **Language** - Choose the language to generate exams. Available selections are *English* or *(Spanish not available for all question pools)*
  - **Number of Exams to Create** - Choose how many unique exam sheets to generate. *Use the slider to select a number between 1 and 50*
  - **Print Answer Keys?** - Choose to generate hard-copy answer keys for your exams *Default is off*
  - **Omit questions with figures** - Toggle on to generate exams that do not use questions containing figures suitable for administering to visually challenged candidates. *Default is off (include figures)*
- Click **Generate** - You will have a PDF file generated that includes exam sheets for the number of exams chosen in the previous step, and optionally bubble forms for GradeCam scanning. The exam number to write into the answer sheet is printed on page 1 in the upper right hand corner as well as in the footer of every page
- To grade these exams, navigate to the Session Detail page, and click the **GradeCam** button. You will be prompted to choose the camera to use to scan. Center the filled out answer sheet within the camera window, and the software will grade your exam automatically. This candidate may then proceed through digital CSCE, Form 605, and electronic VEC submission steps

The screenshot shows a web interface for generating exams. At the top, there are three tabs: "MANUAL GRADING", "PRE-DETERMINED KEY", and "SCAN WITH GRADECAM™". The "SCAN WITH GRADECAM™" tab is selected. Below the tabs, the main content area is titled "Generate exams for camera grading with GradeCam™". It contains several settings:
 

- Text Size:** A dropdown menu currently set to "Regular".
- Question Pool:** A dropdown menu currently set to "2018 Technician".
- Choose Language:** A dropdown menu currently set to "English".
- # of exams to create:** A horizontal slider with a yellow dot at the 10 mark.
- Print answer keys?:** A toggle switch that is currently turned off.
- Omit questions with figures:** A toggle switch that is currently turned off.

 At the bottom center of the form is a "GENERATE" button.

## Supplemental Resources

These supplemental resources are for use with generated exams

- **Bubble forms** for GradeCam (camera-based) scanning - these are blank fill-in-the-bubble forms to be used by candidates to answer questions on exams to be graded using GradeCam software



- **Figures** which go with exams - These are the labeled figures to be provided to candidates taking generated exams. The figures are not printed in the exam booklet

Supplemental resources:

These are for use with the generated exams:

- Bubble forms for GradeCam (camera-based) scanning:
  - [35 question form for Technician and General class license exams](#)
  - [50 question form for Amateur Extra class license exams](#)
- Figures which go with the exam:
  - [Figures for the Technician class license exam](#)
  - [Figures for the General class license exam](#)
  - [Figures for the Amateur Extra class license exam](#)

## How to Use Zoom for Online Exams

### Overview of Using Zoom

[Zoom](#) is by far the most popular tool used for running online ExamTools sessions. It has a **lot** of features and can be quite daunting to set up and use properly to run an exam session. There are two basic ways Zoom is used: single- and multi-room. Think of single-room sessions like small in-person VE exams with 4 or 5 VEs and a handful of candidates and multi-room sessions as what you might see at a large hamfest (do they still have those?).

### Single-Room Zoom

Many teams run small exam sessions of half-a-dozen VEs and candidates, dealing sequentially with one candidate at a time. This is the simplest way to use Zoom and is **highly recommended** for new teams to start out with. Even this *single-room* mode of operation has a lot of moving parts that you'll need to master in order to run a successful VE session.

This model of Zoom usage includes a main room that all VEs and the currently active candidate are in, as well as a waiting room for candidates who are "on deck" for their exam. All VE introductions, candidate pre-checking, running the test, etc. are done in the main room and the waiting room is a holding pen for candidates who are waiting their turn.

The following is a good baseline setup which you may want to adjust as your team gets comfortable with Zoom and ExamTools.

### Multi-Room Zoom

Some teams use a *multi-room* approach, with dozens to hundreds of VEs and candidates in a single session, processing many candidates at the same time. Multi-room Zoom is not described further here.

### Get a Zoom Pro Account

Zoom [pricing](#) varies from free to a lot of money. You can get a free Zoom account but it limits any meeting duration to 40 minutes. This is not recommended as you don't want to be rushing your candidates nor have a surprise end to your Zoom session midway through a candidate taking the exam.

The recommended version, at least for smaller teams, is Zoom Pro. Zoom Pro meetings can have up to 100 participants and meetings are not time-limited. Per [FCC Rule §97.527](#) use of Zoom to run your exam sessions is considered one of the "out-of-pocket expenses incurred in preparing, processing, administering, or coordinating an examination for an amateur operator license." You'll just need to make

sure to comply with your VEC's policy for retaining fees and will likely have to prorate your recovery of the Zoom cost over several candidates and/or sessions.

Your single Zoom Pro license only permits one meeting at a time. In practice this should be fine if you are the team lead. Only you need to pay for the Zoom Pro license: Your VEs and candidates are guests and do not pay.

### **Establish a non-Zoom means of communicating among VEs**

We strongly recommend against using Zoom Chat for VEs to chat amongst themselves. Find another (free) chat tool such as Slack, Discord, Google Chat, etc. It's just too much of a risk that the VEs will chat with the candidate by mistake.

### Zoom Account Settings

Zoom has a large number of optional settings – and they keep changing as Zoom continuously develops new features. Following are some recommended settings for a single-room session. Note that you set these at <https://zoom.us> – not in the Zoom desktop app.

### **Personal/Profile**

[Personal/Profile](#) settings:

- You can make your display name different from your first/last name. For example, put your first name and call sign in your display name.
- Consider setting an appropriate profile photo. This will be displayed when you turn your camera off. Leaving it blank will show your display name.

Other personal profile settings include your time zone. Just make sure it's right!

### **Personal/Settings**

In [Personal/Settings](#) set these:

### **Security:**

- Waiting Room enabled.
- Waiting Room Options: Everyone will go in the waiting room.
- Waiting Room Options: Customize waiting room and add some help text for people in the waiting room. Something like this:
  - **Your session host will let you in shortly.**
  - **If there is a problem, text (123) 456-7890 or email [ve@example.com](mailto:ve@example.com).**
- Embed passcode in invite link for one-click join enabled.

### **In Meeting (Basic):**

- Chat enabled. (See more about pros and cons of enabling chat, [below](#).)
- Sound notification when someone joins or leaves – Play sound for everyone.
- Co-host enabled.
- Screen sharing enabled.
- Who can share? All Participants.
- Allow removed participants to rejoin enabled.
- Allow participants to rename themselves enabled.

## Create a Zoom Session

In [Personal/Meetings](#) settings click [Schedule a Meeting](#) and set these:

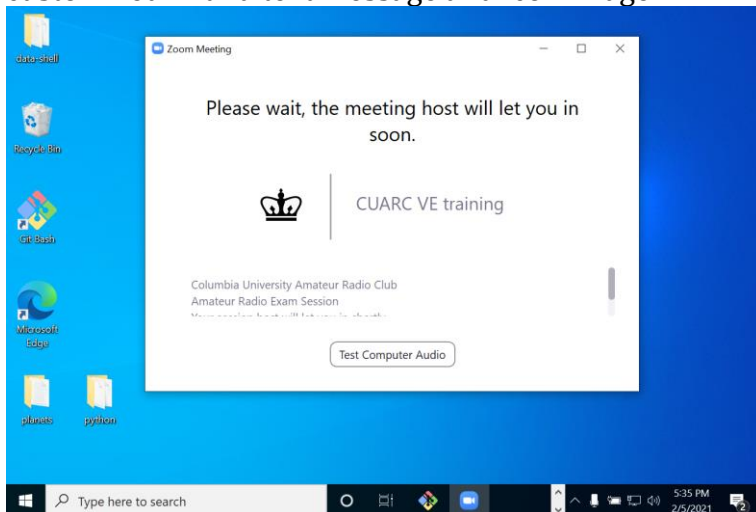
- Select **Recurring meeting** with **Recurrence: no fixed time**.
- Set a pass code.
- Enable Waiting Room.
- Video off for host and participant. This is the initial value. We want no surprises when some connects from the waiting room.
- Meeting options: **Allow participants to join anytime** and **Mute participants upon entry**.

## Running the Exam Session with Zoom

1. Log in to the desktop Zoom app and start the session you defined above.
2. Click on the Participants button which will bring up the Participant list on the right-hand side.

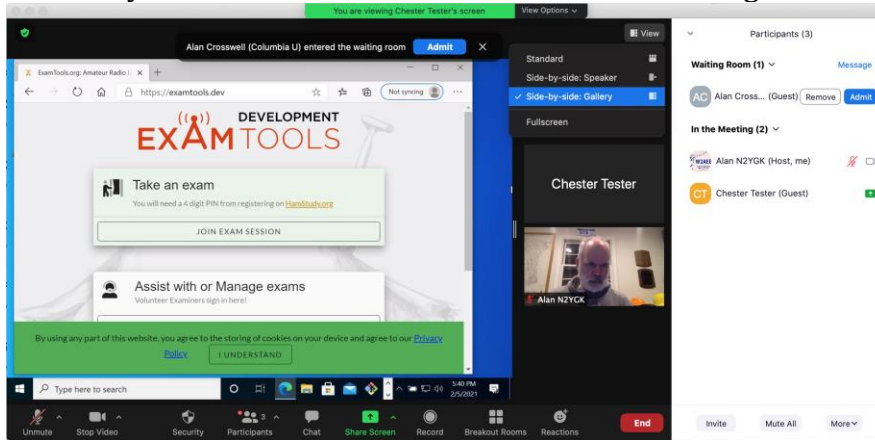


3. Wait for your VEs and candidates to start showing up. Since you've allowed "join before host" they may already be there in the waiting room. This is what the waiting room looks like when it's been customized with a text message and icon image:

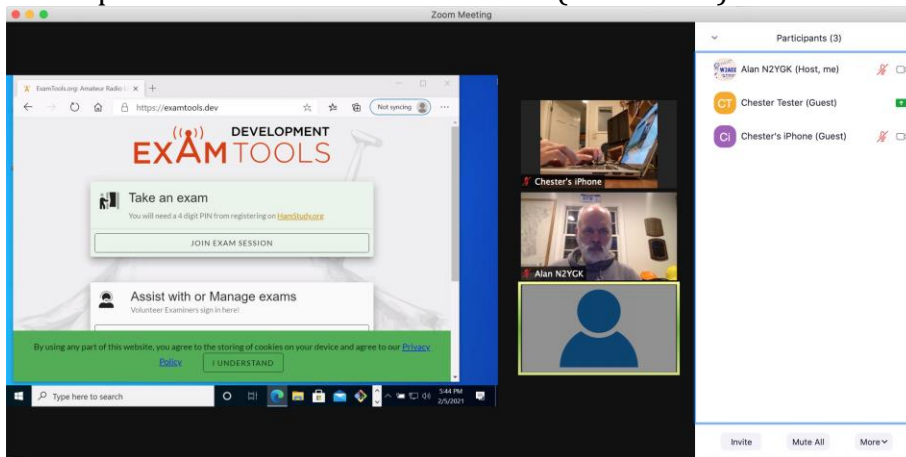


4. One-by-one admit your VEs from the Waiting Room. Be aware that the waiting room only displays a small number of names. You may have to scroll up and down.
5. Designate one or two as co-hosts by clicking on their name and selecting the Make Co-Host option. Think of a co-host as Alternate NCS in case your Zoom session fails.
6. Make sure all your VEs have a good video presence and background – either real or using a Zoom Virtual Background. We want our candidates to experience a friendly, positive, apolitical image of our VE team, our VEC, and the Amateur Radio Service. They should set their Zoom display name to include their call sign (or you can do it for them).

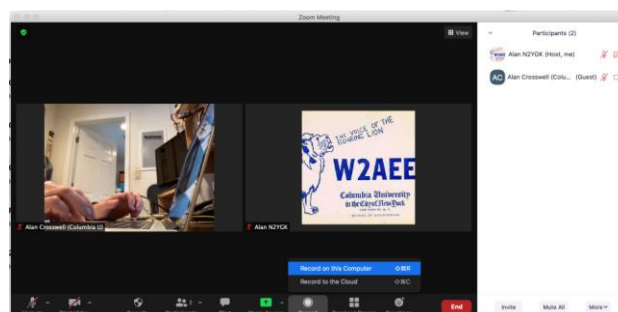
- Once all your VEs are present, admit your first candidate. Make sure to set Side-by-Side Gallery mode so you can see all the VE and candidate video angles.



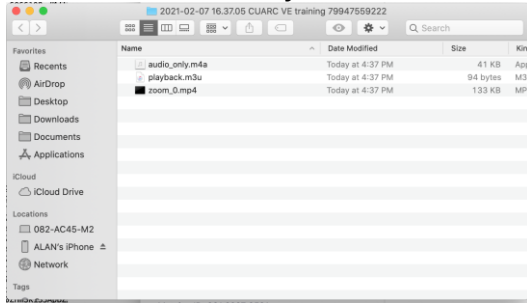
- After introductions, checking candidate ID, and so on, have the candidate share their complete desktop, make sure you are ready to start the exam, and then have them enter ExamTools in their browser. Depending on the number of VEs, you may need to slide the bar between the shared desktop and video windows so as to see (and record) all the video views.



- If your team requires two devices (cameras) per candidate, make sure that the second device is connected to the Zoom session with **audio not connected**. Otherwise you will likely get audio feedback from the speaker of the second device to the microphone of the candidate's main computer. In Zoom for iOS (and likely other versions) have the candidate click on **... More** near the bottom right and then **Disconnect Audio**. See [screenshots](#), below.
- Before you approve them to start their exam, start Recording to Computer and have all the VEs mute their video and audio. It is important that you've made sure that all the videos are visible in the gallery view since that's what will get record. Don't forget to pause the recording when they are done. The video recording can be paused and restarted for each candidate. This will result in one mp4 file at the end of the session. If you stop recording and start another, then you'll get multiple mp4 files. You can later upload the rendered recorded video to Google Drive (mp4's do not count against your storage quota) or your favorite cloud storage.



11. Upon exam session completion, end the Zoom meeting for all. At this point, Zoom will start rendering the saved video into an mp4 file. When it's done, a file browser will pop up with several files offered. You only need to retain the mp4 file – usually named **zoom\_0.mp4**.



## Hints and Kinks

You will invariably run into some issues. Here is the (beginning of) a list of hints and kinks:

### Zoom Chat

Use Zoom chat only to send messages to **Everybody** which includes all the VEs and the current candidate. This can be useful if, for example, the candidate is unable to hear you. Do not use Zoom chat to talk among the VEs – this can be distracting to the candidate. Some teams disable Zoom Chat to prevent this.

You can also use Zoom Chat to send a message to **Everybody in the Waiting Room**. You can use this to drop in helpful status updates if your session is running behind schedule, for instance. Be careful when you send these messages as:

1. everyone in the waiting room will receive the message. Avoid sharing candidate names, etc.;
2. you might inadvertently send the message to everyone in the meeting instead.

### Unknown Person in the Waiting Room

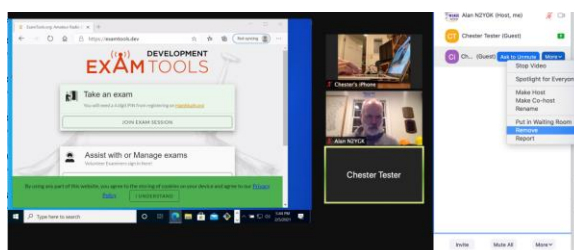
While in the Waiting Room, the person is unable to change their display name. If it wasn't set correctly beforehand (e.g. Zoom was already configured with a company's, spouse's or child's name) they can't fix it until they've been admitted to the main room. You'll need to admit them and see who they are.

### Wrong person admitted from the Waiting Room

You can send them back to the Waiting Room by selecting **Put in Waiting Room**.

### Candidate has difficulty or forgets to leave Zoom session

You can remove the candidate but make sure to uncheck the box to Report to Zoom – that's for reporting Zoom bombers and other inappropriate behavior.

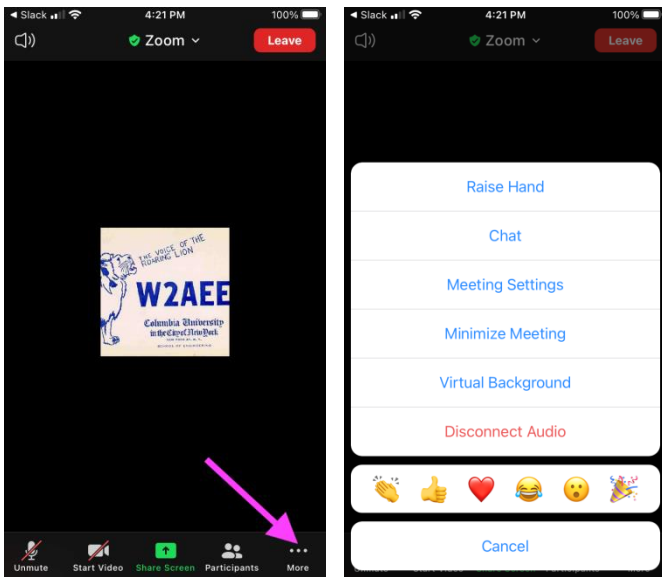


## PC Camera is too blurry to read photo ID

Frequently desktop/laptop cameras don't focus well on photo IDs. Try using their second device (phone) camera. (You are using two devices, right?) Two cameras are required by some VECs and not others, but they can be very helpful. Most people who have a laptop computer with a camera also own a Zoom-capable phone.

## Zoom Second Device Audio Feedback

When using a second device (usually a phone), candidates frequently connect audio, which leads to audio feedback from the speaker of the phone into the microphone of the main computer. Have the candidate click on **... More** near the bottom right and then **Disconnect Audio**.



## Sandbox Exams and Dummy VEs

### Sandbox/Training Environment

For training purposes, use the ExamTools (ET) sandbox environment at <https://examtools.dev>. Training sessions which are created in the sandbox will be found on <https://hamstudy.dev>. To get started, checkout the instructions on [how to create a session](#) in ExamTools. You may want to reference the [in-person exam instructions](#) for how you may want to register your applicants and run your training session.

### Sandbox ExamTools Accounts:

Volunteer Examiners (VEs) who want access to the sandbox will need to register for a [sandbox ET account](#) even if they already have a [production ET account](#). Team leads will need to request [session manager permissions](#) be added to their sandbox account in order to create and run training exam sessions. All features available in production can be tested out and mastered in the sandbox before a live session is scheduled.

### Fake Applicants:

Use hamstudy.dev to register fake applicants for your training session and experience what an applicant would experience. Alternatively, practice registering applicants in ExamTools which would be extremely helpful, if you allow walk-in applicants at your exam session. Click the **Add Applicant** button in the upper right (opposite the sort order selector) of the applicant list. To create your own fake applicant, enter ten zeros (0000000000) in the FRN field or use a real FRN or call sign to automatically lookup the record from the ULS. To populate the fields with a fake applicant's information, look to the upper right corner of the dialog box and click on the **Action** dropdown. Then, select **Create Fake**.

Dummy VEs:

If you do not have enough real VEs to train with, you can use dummy VEs. Dummy VEs can only be used with assigning to an applicant and signing; they use a special callsign format like E92USR – E means “Extra class” (and G means “General”), 92 can be any 2 digit number, and USR is just a common suffix eg. G23USR, E12USR, etc.

The password for each dummy VE is passwordNN where NN is the number, so for E46USR, the password is password46. If you put in the wrong password, ET will prompt with a hint.

Rules for Dummies:

- Use E or G for the license class prefix.
- The two digits can range from 01-99.
- Suffix should always be USR (user). E01ABC is not a valid dummy VE.
- You cannot login to ET with a dummy account.

If you use a “T” as a prefix, you will get the tech error and you will not be able to use the dummy VE. If you try to add someone who does not hold a General or Extra class license, you will get the same error in production.

Creating a Dummy VE:

Add a dummy VE as you would a VE in a live session.

Using the Dummy VE:

Click the **Assign VE** button and select the VE who you want to sign from the dropdown. Once the exam is complete, hover over the **Manage VE Signatures** icon, select the VE who you want to sign again and enter in the password.

Acing the Exam:

A VE will need to log in at <https://examtools.dev> as an applicant using another browser window or device to use for the training exam session. Once you've started the exam, use the equal symbol (=) on your keyboard to answer the question correctly and advance to the next question. Or answer each question on your own and see how you do!

# Frequently Asked Questions for ARRL VE Team Liaisons



**ARRL** The national association for  
**AMATEUR RADIO**®

Can a VE volunteer join existing teams performing remote exams?

Yes. Go into the [#arrl](#) channel in Discord and volunteer. Several team leads monitor the channel and will get in touch, especially if they are short-handed.

I am already an ExamTools VE with another VEC. How do I get added as an ARRL VE?

First, make sure you are accredited with the ARRL/VEC and confirm that you are listed at <http://www.arrl.org/ve-session-counts> for your state. Once you've done that, copy the web URL for that session counts page, you will need to paste that into the form in the next step.

Follow [this link](#) and fill out and submit the form to notify @Experienced Support of the additional VEC accreditation. When filling out the form, you can simply write "Adding VE Credentials" in the field for the Request ID.

Your team lead will be able to add you to their Exam Tools session once @Experienced Support has received the file and updated your profile.

Is there a checklist of what my VE team needs to do?

See [this checklist](#) used by the [Columbia University ARC VE Team](#) for some ideas. As with in-person sessions, there's always room for customizing how your particular team operates.

Is there a procedure for verifying that ARRL is good with us doing online exams?

Receipt of instructions via email from Maria is the approval for ExamTools and video sessions. You must apply for permission by contacting the VEC but be aware of these requirements before you apply:

*ARRL VE teams must meet the following criteria and adhere to the following rules/policies to participate in the Video sessions program. Long-standing, well established teams with a history of adhering to the highest degree of examination integrity, and that consistently submit accurate exam documents consistent with ARRL VEC standards will be selected to participate.*

The team should follow up with the VEC when ready to go live to receive the confidential session document upload instructions. However, if they have been training and are able to get the upload instructions from a trained team, that would be acceptable.

Make sure you, the CVE (VE Team Liaison), do the following:



- Follow the instructions in Maria’s email.
- Sign up for the VE Discord chat here: <https://discord.gg/CsKrBmA>
- Upgrade your VE Discord membership by filling out [this form](#).
  - To answer this question: “Please provide a link to some form of evidence to verify your VE credentials:” put in the link to the ARRL VE Counts page for your state. For example: <http://www.arrl.org/ve-session-counts?state=CA> (If your call sign is not on the page for your state, you will need to resolve your VE accreditation with the VEC.)
- Read through exam.tools [CVE documentation](#), if you have questions you can ask them in the Discord [#arrl](#) channel.
- Register in the sandbox at <http://hamstudy.dev/> and then login at <https://beta.examttools.dev/> with your team members. DO NOT use a Facebook or Google login: Make a “real” user. There’s more info in [getting an exam.tools and sandbox account](#)
- Volunteer in the Discord [#arrl](#) channel to help out with another team’s ARRL/VEC session so you get to see the real system in action.
- Once ready, you and all your VEs must register for tier 2 production via [this form](#).
- Forward your approval email from the ARRL/VEC to [verifications@examttools.org](mailto:verifications@examttools.org) making sure to note your call sign, username and email address. This will result in your Examtools membership being upgraded from VE to CVE (liaison).

How do I collect candidate exam fee payments?

At this time, Examtools does not provide for any payment processing. You will need to establish a mechanism for requesting and collecting payments and keeping track of who has paid – preferably before or during the exam session – and sending payment to the VEC as appropriate.

Many teams send email to registered candidates to request payment and other details as needed (e.g. how many elements they intend to take) and typically use online personal payment processors like Venmo, PayPal, Zelle, Apple Pay, Google Pay, etc. or even have candidates mail them personal checks! You can get the candidate’s email address from the MANAGE dropdown [Edit Applicant](#) on the candidate in your session.

Can I get reimbursed for expenses like Zoom Pro and PayPal transaction fees?

Yes. Simply keep records of your “necessary and prudent” expenses required to run the exam session and submit for reimbursement, remembering the [limit](#) of up to \$7 per candidate. For a monthly fee like that of Zoom Pro, prorate it over several exam sessions if the expense exceeds the per candidate limit for a single session. See Retaining A Portion of the Fees on page 61 of the VE Manual for complete rules and record-keeping requirements.

What if a registered candidate fails to pay the fee?

It is entirely possible that some candidates will register for a session and not respond to the email that you sent requesting payment. It’s unclear if this is due to your mail going into their spam folder or they are just plain rude. You can cancel their registration by deleting them using the MANAGE dropdown [Delete Applicant](#) on the candidate. This frees up the exam slot for someone else.

What happens when a prepaid candidate cancels or doesn’t show up?

You should refund the fee if you can. This is easy to do with most online payment systems. Also don’t forget to remove them from the Examtools roster before submitting the test session package to the VEC.

You do this by deleting them using the MANAGE dropdown **Delete Applicant** on the candidate before Finalizing the session. See the next question if your team policy is to retain fees for no-shows:

How are retained fees for pre-registered no-shows handled?

The no-show candidate fees can be listed separately in “other fees collected” or all test fees could be added together. VE teams are allowed to retain up to \$7 per candidate for reasonable expenses including the no-shows. No-show candidates that are not refunded the test fee could be listed on the roster or a note should be included explaining the additional fee. Candidates that give the team ample time to schedule another candidate in their vacated time slot should be refunded. See above. See page 61 of the VE Manual for complete rules and record-keeping requirements for retained fees.

How do I send the exam fees to the VEC?

When sending/ mailing the exam fees checks, we ask that teams please include the test date and location and the VE team leader’s name, call sign, and contact information for reference so we can match it to the session.

The ARRL/VEC’s mailing address is:

ARRL/VEC  
225 MAIN ST  
NEWINGTON CT 06111-9825

Instead of mailing a check(s), the VE team may keep a credit card on file with the VEC department to pay for the exam session fees. Contact the VEC to make arrangements. Do not email your credit card information.

Can I charge more (or less) than the \$15 ARRL/VEC fee?

No.

FCC Rules require VEC organizations to agree to assure that, for any examination, every examinee qualified under these rules is registered without regard to race, sex, religion, national origin or membership (or lack thereof) in any amateur service organization.

The ARRL exam fee cannot be increased, reduced, or waived; the fee is to be applied uniformly throughout the calendar year to ensure every applicant is treated equally and without discrimination.

The exam fee cannot be increased for a particular group of applicants. Therefore, teams should hold back a portion of each \$15 exam fee to offset a credit card company’s payment fee. The exam fee should be not increased to offset the credit card fees.

A candidate cancels and says “keep the fee as a donation”. What do I do?

Return it.

Donations/solicitations are not allowed.

FCC Rule: Administering VE requirements:

*§97.509 (e) No VE may administer or certify any examination by fraudulent means or for monetary or other consideration including reimbursement in any amount in excess of that permitted. Violation of this provision may result in the revocation of the grant of the VE's amateur station license and the suspension of the grant of the VE's amateur operator license.*

Soliciting, asking for donations, or offering free material to candidates would have the appearance of impropriety.

This is to ensure the integrity of the examination process.

Can my VE team or club solicit donations in conjunction with our VE activities?

No. See above.

How should I prepare my session to upload to the VEC?

Once you receive the confidential uploading documentation, you will need to upload two files. Do this once by selecting the two from your browser's upload dialog: Build a single PDF file that contains the entire session. See this [this example checklist](#) used by the Columbia University ARC VE Team that seems to be acceptable (and might be overkill).

Export your exam session JSON document and upload that as well. This document will eventually help the VEC automate a bunch of currently manual data entry. See the following screenshots for an example:



## Welcome to ARRL's VEC Upload Page

Use this page to upload files for the VEC department.

First we need to know a few things about the file(s) you will upload. Fields in **bold** are required:

**Full name:**

**Please provide your e-mail address:**

**Please provide your phone number:**

**Please provide your exam session date:**

**Please provide your exam session location:**

(If in the USA, city and state, otherwise city and country)

Notes: (include anything you think ARRL staff need to know about this file)

ARRL only allows the following file types: **PDF, DOC, DOCX, JSON**

- You can upload up to two (2) session files that are 40MB or less. You can now select multiple files from the 'File Upload' dialog.
- ExamTools users must upload the PDF and the JSON files.
- Session files larger than 40MB should be split into smaller sized files and uploaded separately.
- If there are multiple files for the one session, in the Notes field state the number of files being uploaded (ie: 1 of 2, 2 of 2).
- The page displays an on-screen acknowledgement of receipt of the upload or a failure message when unsuccessful.

**Upload File**

Choose Files

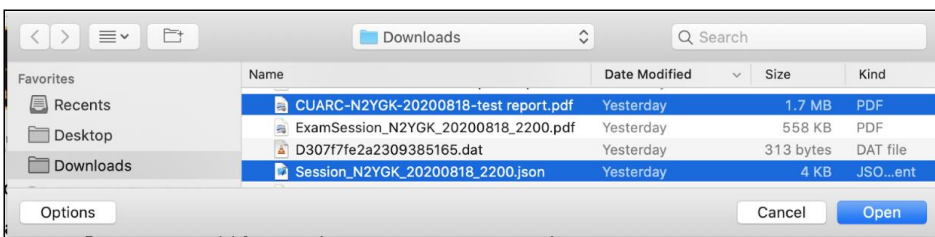
No file chosen



Upload!

If you are having trouble uploading your form please call: (800) 368-5888

Reminder: Social Security Numbers (SSN) are not permitted on any exam documents or in session files.



Can EBF files be uploaded to ARRL/VEC?

Instead of an EBF file, you should upload the exported session JSON file along with the session report PDF. As described above.

Do we still have to provide FCC license copies in the uploaded package? CSCEs?

License copies are not needed. You do need to include a copy of only the front of any pending CSCEs. But do an [FRN lookup](#) ahead of the exam. Odds are the 605 for which the CSCE is for will already have been acted upon by the time the exam session happens.

How do I process a "paper upgrade" with or without an exam?

The candidate registers for your exam session and provides proof to you of any element credit. Consult the [ARRL Exam Element Credit Information](#) for what is acceptable proof.

You will enter the credit(s) using the exam.tools MANAGE dropdown **Add Credit** for the candidate. Make sure you handle the case of expired Amateur Extra by giving both Element 3 and Element 4 credit.

- If the candidate has no current license they need to take the Element 2 exam. Upon passing, the candidate does the usual signature process.
- If the candidate already has a current license and thus is not taking an actual exam, you need to move the candidate Status from **registered** or **seen** to **ready to sign**. The candidate logs into the session using their pin and is presented with the usual signature process.

After the 3 VEs assigned to the candidate have signed and the candidate is marked complete, exam.tools generates the proper forms reflecting these credits.

You will need to do “PDF splicing” to add the proof documents for the candidate to the session PDF submitted to the VEC.

What do we sign when a candidate fails? How do we prove the failed exam happened?

There is nothing to sign. Proof of failure is that Print Session Forms/Final Forms contains the candidate roster showing failed element(s) and the candidate’s answer sheet showing a failing score. Your ARRL Test Session report also has a place to count candidates who did not earn a new license or upgrade.

In traditional in-person exams, the candidate usually fills out the 605 in advance of the exam in order to streamline the process at the end of the session and so the VEs can confirm candidate identity matches their photo ID. In that case, it is common practice to either return the unsigned 605 to the candidate [per 97.509(i)] or to send it to the VEC, possibly signed but with the NO NEW LICENSE OR UPGRADE WAS EARNED box checked.

However, it is acceptable [citation?] for a candidate to only fill out their 605 after successful completion of the exam element(s) and then the VEs sign it and send it to the VEC [97.509(l)].

Examtools implements this practice by not generating a 605 (and CSCE) until after the candidate’s new license or upgrade is earned and the candidate is Finalized. The information typically found on the 605 and/or candidate roster for traditional exam sessions is collected at the point of candidate registration in Hamstudy.org [97.17(b)(1): “...The VEs may collect all necessary information in any manner of their choosing, including creating their own forms.”]

If you want to return an unsigned 605 with NO NEW LICENSE OR UPGRADE WAS EARNED box checked in the VEC package, use Print Session Forms/All Forms. But the 605 will not be signed by the candidate or VEs and the session manifest is not included, so you’ll have to do some “PDF splicing”.

Can answers be provided to candidates?

Yes for randomly-generated exams like ExamTools prepares but not for in-person exams using ARRL/VEC pre-printed exam booklets. For the online exam setting we can be more flexible because all exams are randomly generated and examinees wouldn’t be retested with the exact same question set.

Moving forward, ARRL will allow candidates to be given their answer sheets for randomly generated tests, if the team chooses. This would apply to online as well as in-person sessions when randomly generated examinations are used.

## CUARC VEC Session Checklist

*The following was the Columbia University ARC VE Team Checklist as of June 18, 2020. The team has since implemented some automation scripts. Some updates have been made here to reflect changed practices since June. Use this just to get an idea of the manual effort required.*

Overview of tools we use

We use the following tools:

- ExamTools of course.
- Zoom Pro to run the session.
  - We “record to computer” and then upload the mp4 file.
- Google Drive to:
  - retain session records (including mp4 videos)
  - Google Sheets for record keeping.
  - Gmail to process email to/from candidates.
- Venmo, Zelle and PayPal to collect exam fees.
- My bank account to send e-checks to the ARRL/VEC.

Creating a New Session

- Clone an existing exam session in examtools and update date, confirm max number of candidates is 4 and mark session unlisted.
- Update exams spreadsheet with date, VEs #1,2,3, CVE and any guest/trainee VEs.
- When we have enough VEs, turn the column green in the spreadsheet and add those VEs to the calendar event and examtools session VE roster.
- Make a new folder under Google Drive **Online** folder named **YYYYMMDD**.
- If there are any special handling candidates (e.g. need rescheduling), send them the unlisted hamstudy session link(s) before publishing.
- Publish the session in hamstudy by removing the unlisted flag.

Check for candidate registrations

- Look at <https://exam.tools/ve/sessions> and check sessions counts. If there are changes:
- Look at Old Manifest for each session, view individual candidate details and ...
- Paste name & PIN into appropriate cell (date/time slot) in exams spreadsheet.
  - Tack on callsign (if any) and exam elements they want to take.
  - As examinees pay their fee, percolate them up in the spreadsheet - first-paid first-scheduled.
  - Set cell fill color to red.
- Email boilerplate **Confirmed Hamstudy registration: next steps**
  - Reset cell fill color.
- Examtools: Export Applicant List CSV and append to **candidates** tab of spreadsheet.

Wait for candidate payment

- Get payment confirmation from Venmo, Zelle or Paypal.
  - If PayPal charged a fee, add the fee to the reimbursement sheet.
  - Set cell fill color to yellow.

- If a candidate responds with a CSCE, upload it.
  - Check ULS to see if no longer needed. If still needed, you'll want to merge it into the session report, below.
- If candidates don't respond with payment within 24 hours, cancel them:
  - delete from examtools Old Manifest (trash can icon).
  - remove from schedule spreadsheet.
- Email **03Zoom Invite** after updating date, time slot and examtools URL with PIN appended
  - Set cell fill color to green.

#### During session

- Start Zoom meeting.
- Examtools: Start session.
- For each candidate
  - CVE co-owner/VE admin assigns 3 VEs to each candidate
  - Follow [greeter script](#).
    - Admit candidate, run exam(s), get examinee signature, etc.
  - VE's sign successful candidates.
  - CVE Finalizes candidate.
- CVE Finalize session.

#### After session

#### Email CSCEs to each successful candidate

- Examtools: Open each candidate, Print Forms/CSCE and download using default name: Applicant ####\_name\_csce.
- Email these to candidates using **04CSCE** template.

#### Create VEC upload PDF package:

- **New!** Examtools: Export JSON and save with default name: **ExamSession\_YYYYMMDD\_HHMM.json**.
- Examtools: Export EBF. (Not really used by us, but might as well save it.)
- Examtools: Print Session Forms/Final Forms and download using the default name: **ExamSession\_N2YGK\_YYYYMMDD\_HHMM.pdf**
- Grab a prefilled Test Report as **CUARC-N2YGK-YYYYMMDD-test report.pdf** (The session report has a box that says "see attached examtools session summary".)
- Edit test report to show the date, session counts, money held for reimbursement and amount forwarded.
- Cut a check for that amount to ARRL/VEC and record the check number on the test report.
- Insert **ExamSession\_N2YGK\_YYYYMMDD\_HHMM.pdf** after that.
- For each candidate, merge in *only* any pending CSCEs.
- Go to ARRL upload page and select two files for uploading:
  1. Test report (**CUARC-N2YGK-YYYYMMDD-test report.pdf**)
  2. JSON export file (**ExamSession\_YYYYMMDD\_HHMM.json**)

Then upload them and print/Save as PDF the upload "receipt" as **YYYYMMDD-ARRL VEC File Uploads.pdf**.

- Upload files to **Online/YYYYMMDD**:
  - **CUARC-N2YGK-YYYYMMDD-test report.pdf**
  - **ExamSession\_YYYYMMDD\_HHMM.json**.

- YYYYMMDD-ARRL VEC File Uploads.pdf.
- EBF file (#####.dat)
- Wait for Zoom to render recording and upload zoom-0.mp4 to Online/YYYYMMDD.

Post session – callsign lookups

- Email call signs or upgrade completion notifications.
  - Do ULS Search by FRN of each successful candidate in spreadsheet candidates tab.
  - Send email template 05Callsign with callsign as link to ULS listing.

Examples

Master Schedule spreadsheet

docs.google.com/spreadsheets/d/1yWig6CeahFoumhCxWGdiYF

VE Exam Schedule

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100% \$ % .0 .00 123 Default (Ari... 10

9/7/2020

	A	BJ	BK	BL	BM
1	Date	Mon 9/7	Tue 9/8	Wed 9/9	Thu 9/10
2	CVE		N2YGK	N2YGK	N2YGK
3	VE#1		KE2UN		KE2UN
4	VE#2		K1SU	N2YGN	WQ7W
5	VE#3		N2YGN	W2RCT	K2LAZ
6	VE#4		N4NG	WQ7W	N2YGN
7	Add'l VEs				
8					
9					
10		0	5	4	5
11	Exam Slot	Labor Day			
12	6:00 PM		David Cupan (PIN 6411) 0029912250 T	Liam Gazeley (PIN 6992) KI5JXQ G	Aaron Hardy (PIN 9440) 0029919461 T
13	6:30 PM		Rangaraj Char (PIN 5683) KN6KNL G	Marlon Valladares (PIN 1979) 0029784519 T	Whit Bissell (PIN 1650) 0029919990 T + G
14	7:00 PM		Francis Heaney (PIN 0384) 0029643376 T	Richie Garcia (PIN 3380) 0029917267 T	Walt Noon (PIN 6327) 0029920634 T
15	7:30 PM		Albert Lousteau (PIN 3874) 0029912797 T	Johnny O'Quinn (PIN 7043) 0029926441 T	Riya Fukui (PIN 4042) 0029928926 T
16	overflow				
17	237	0	4	4	4
18	VEC payment		\$41.78	\$60.00	\$60.00
19	check #		11557	11558	11559

Expense Tracking spreadsheet





### Expense Reimbursement

File Edit View Insert Format Data Tools Add-ons Help [Last edit was 10 hours ago](#)

100% \$ % .0 .00 123 Default (Ari... 10 B I S A

	A	B	C	D	E	F	G
1	date	description	reference	expense	balance	\$400.00	<-- examtools
49	8/25/2020	zoom pro monthly 8/25-9/25/2020	INV37909158	\$ 14.99	\$ 40.51		
50	8/25/2020	retained expense	11551	\$ (28.00)	\$ 12.51		
51	8/26/2020	retained expense	11552	\$ (12.51)	\$ (0.00)		
52	8/26/2020	paypal transaction fee	9ER01398UB628132G	\$ 0.74	\$ 0.74		
53	8/26/2020	paypal transaction fee	1VW99248DX562815E	\$ 0.74	\$ 1.48		
54	8/29/2020	examtools.org support	7DA845401F1314818	\$ 100.00	\$ 101.48	\$ 100.00	
55	8/30/2020	paypal transaction fee	9LT47936N5083183F	\$ 0.74	\$ 102.22		
56	8/31/2020	retained expense	11553	\$ (28.00)	\$ 74.22		
57	9/1/2020	retained expense	11554	\$ (28.00)	\$ 46.22		
58	9/2/2020	retained expense	11555	\$ (28.00)	\$ 18.22		
59	9/8/2020	retained expense	11557	\$ (18.22)	\$ -		
60	9/9/2020	paypal transaction fee	10T83674X04070801	\$ 0.74	\$ 0.74		
61	9/10/2020	paypal transaction fee	1RT82770AP227894B	\$ 0.74	\$ 1.48		
62	9/13/2020	paypal transaction fee	30907060H83460714	\$ 0.74	\$ 2.22		
63					\$ 2.22		

## Test Session Report



### ARRL VEC TEST SESSION REPORT

TEST SITE: New York, NY TEST DATE: 09/10/2020

Exam Elements	2	3	4	Total
Pass (or exam credit)	4	1		5
Fail				
<b>Total</b>	4	1		5

New License Class Earned	Technician	General	Extra	Total
	3	1		4
Candidates who did not earn an upgrade or an initial license at this session				
<b>Total Candidates Served by this Session</b>				4

#### TEST FEE SUMMARY

Total candidates served at this test session All candidates pay a test session fee -- this fee is set by the ARRL VEC for each calendar year (per FCC Rules)	Total Served 4	Enter applicable test fee for the calendar year x \$ 15 = \$	60.00
Amount of expense reimbursement retained by the VE team (as necessary and prudent up to \$7 per candidate)	Total Served (up to \$7)	x \$ = \$	
Amount of Test Session Fees forwarded to the ARRL VEC (total test fees collected minus fees directly retained by team for expense reimbursement)			60.00

[See example on back for how to complete the test fee summary.] **CK #11559**

Other Fees Collected: (i.e.: renewals, address changes, ARRL membership. A portion of these fees may NOT be retained for reimbursement.)	\$
--	----

**PARTICIPATING VE LIST:** In order to verify VE accreditation status and to credit each participating VE with having served at this session, please **CLEARLY PRINT** the required information for **ALL** participating VEs:

- | Name        | call | class | Name  | call | class |
|-------------|------|-------|---|------|-------|
| 1. Liaison: |      |       | 5.  |      |       |
| 2.          |      |       | <b>SEE ATTACHED EXAMTOOLS SESSION SUMMARY</b> |      |       |
| 3.          |      |       | 7.  |      |       |
| 4.          |      |       | 8.  |      |       |

→ Important: See Reverse side of this form for additional information. ←  
GREEN REPORT must be sent to VEC. YELLOW REPORT must be retained by VE Team.

## Email templates

### Confirmed Hamstudy registration: next steps

Confirmed Hamstudy registration on 2020-07-02 for John Public: next steps >



Alan Crosswell N2YGK <alan+ve@columbia.edu>  
to alan+jqp

Fri, Jul 3, 12:21 PM ☆ Reply

Dear John:

Now that you've registered on [hamstudy.org](https://hamstudy.org) for the Columbia University ARC VE Team session on 2020-07-02 and have received your 4-digit PIN (2020), please follow the next steps. **Failure to do so within 24 hours will result in your registration being cancelled.** Upon successful completion of those steps, you'll be assigned a time slot beginning somewhere between 6:00 and 8:00 PM Eastern Time.

1. Make sure you've reviewed [www.w2aee.columbia.edu/video-exams](https://www.w2aee.columbia.edu/video-exams) and that you **meet the requirements** for taking the test. If you are using a Mac, make sure you [set permissions in advance](#) (This is a new Zoom feature as of late May, 2020).
2. Let me know if you plan on **taking more than one exam element**: We will allow you to take additional exam elements if you pass earlier elements, but only if you are well prepared. There is no additional fee for additional elements but we need to know your plans so we can schedule your and other candidate's exam sessions accordingly, since we are only able to supervise one exam at a time.
3. Pay the registration fee by sending \$15 either by Venmo, Zelle or Paypal. **Failure to send payment within 24 hours of receipt of this email will result in your session reservation being cancelled.** Exam time slots are generally assigned first-paid first-served, so the sooner you pay, the more likely you are to get an earlier slot.

VENMO

### Zoom invitation



Alan Crosswell N2YGK <alan+ve@columbia.edu>  
to alan+done

Dear D:

Thank you for paying your exam fee. We'll see you at 6:45 PM US/Eastern on 2020-07-02. Please arrive 15 minutes early and hang out in the waiting room.

When directed please click here to begin your exam session:  
<https://exam.tools/portal/applicant/N2YGK/8848>

If you haven't already, you can take practice tests at [hamstudy.org](https://hamstudy.org) to become familiar with the testing software.

There is no need to submit a 605 form in advance; upon successful completion of the exam you will sign online.

Here's the Zoom meeting invitation:

Topic: CUARC online exam

Join Zoom Meeting  
<https://us02web.zoom.us/j/84>

Meeting ID  
Password:  
One tap m  
+1646558E  
+1312626E

Dial by you  
+1 646 55E  
+1 312 62E  
+1 301 71E  
+1 346 24E  
+1 669 90C  
+1 253 21E  
Meeting ID  
Password:

Find your local number: <https://us02web.zoom.us/j/kyF8F4Kgr>

---  
Alan Crosswell, N2YGK  
[Columbia University ARC VE Team](#)

## CUARC VEC Greeter Script

CUARC VE Greeter Script v2.5 02/02/2021

*CVE: make sure Zoom is in Gallery view*

*CVE: make sure Security/Allow participants to share screen is enabled.*

*CVE: set examtools session to In Progress*

*CVE: queue up recorded greeting in QuickTime Player*

Hello and welcome to our Amateur Radio exam session. [Roundtable VE introductions – name, callsign, location].

*play recorded greeting – Share QT window w/audio*

### **BEGIN Recorded Video Script**

We ask that you please bear with us as we refine the process for performing a fully-remote proctored exam. The process may seem onerous and somewhat invasive. It may seem like we suspect that each candidate might try to cheat. The CUARC VE team did not come up with the complete process and requirements, but we have a liability to uphold the trust put in us.

Before we begin, some additional reminders:

1. Make sure you have your photo ID handy.
2. Ensure you are 100% focused during the entire exam session.
3. Any distractions or anomalies could be cause to void the exam at the sole discretion of the VE Team. Anomalies include, but are not limited to:
  1. Notable distraction by you, such as eyes not remaining on the exam and/or wandering around the room, or any noises.
  2. Your appearing to reference or use unauthorized materials (e.g. looking at cell phone, even just the lock screen, changing windows on computer, etc.)
  3. Another person entering the exam space (on camera, physically, or audibly).
  4. Your getting up or leaving the room during the exam.
4. Once you start the exam, the Volunteer Examiners will all turn off their video and audio so as to not distract you – but we'll be listening and watching. Please leave your audio and video on. Give us a shout if you need anything and when you are ready for grading click the "grade exam" button and let us know you are ready.
5. Make sure to answer all the questions: Only correct answers add points; incorrect answers don't subtract, so it's best to guess rather than leave an answer blank. Good luck with the exam

Please respond to the next questions, and, if you don't agree or can't comply, we'll end this now and refund your fee.

### **END Recorded Video Script**

- Are you 18 years of age or over?
  - No, Under 13: Did parent send in COPPA form?
  - No: Under 18: must have parent/guardian give permission and they must remain in the room to chaperone.
- Do you consent to the data, audio, video, and screen-share recording of the fully-remote exam session, all of which may be retained for 15 months for test integrity audits, review, and training?
  - (No: seeya)
- Please confirm your name and hold up your photo ID to the camera
- Please connect to the Zoom session with your second device now.
- Please show us around the room:
  - do a 360 of the room

- show us the ceiling, floor, wall behind the computer
- desk with laptop/desktop
- anything up your sleeves?
- under the laptop, mouse, mousepad, keyboard
- no papers or anything on the desk
  - Optional: One blank piece of paper and pen or pencil for doing calculations.
  - Optional: Calculator (if not using built-in OS calculator)
    - show that it is cleared of any functions
- Please position your second device to the side so we can see your hands on the keyboard, computer display, etc. It needs to be stable enough to remain there for the entire session. It should also be fully charged or plugged in so it doesn't run out of battery.
- Now share your complete desktop in Zoom.
  - iOS (iPad) alternative: Click Share and select **Website URL** rather than **Screen** and enter exam.tools URL. Example screen shots:
    1. [click Share Screen](#)
    2. [select Website URL](#)
- Go to the desktop settings and show us there are no other displays attached.
  - Mac OS: System Preferences/Displays
  - Windows: Right click on the desktop...
- Show us that you have no apps open other than the browser with a single tab and the calculator app open next to it.
- Make sure to close any applications like email and messaging apps that might cause a pop-up during the exam.
- Now please click on <https://exam.tools/portal/applicant/N2YGG/####> replacing XXXX with your PIN.
  - *CVE makes sure VEs are assigned to the candidate*
  - *CVE approves starting candidate.*
- We are going to start recording now.
  - *CVE: Start recording locally and make sure in gallery view.*
- Have you used hamstudy.org to practice?
  - No - give quick tutorial
- If you need to look away, move around, etc. please inform us first. Just shout out and we'll unmute and respond shortly. We'll all be turning off our video and audio but will be watching and listening.
- *CVE approves starting test.*
- ... exam ...
- Now please click on grade your exam
  - VEs turn on video.
  - *CVE approves grading.*
- We are going to stop recording now.
  - *CVE: pause/stop recording locally and make sure in gallery view.*
- If the candidate passes: Congratulations, are you ready to try the next element?
  - If so, rinse and repeat.
  - If not, click Sign Out.
- If the candidate fails: Sorry, looks like you need to study a bit more. Seeya.
- If the candidate passes and is DONE: OK, we'll be submitting your results to the ARRL/VEC and you should expect to receive a CSCE from me via email soon. Your results should show up on the FCC website within a day or two and you should expect an email notification.
- Do you have any questions or feedback about the exam session?
- Thanks and congratulations. Please consider joining the ARRL if you're not already a member.
- *CVE disconnects the candidate.*

# Frequently Asked Questions for W5YI VE Team Liaisons

Is there a checklist of what my VE team needs to do?

See [this checklist](#) used by the [AA7HW VE Team](#) for some ideas. As with in-person sessions, there's always room for customizing how your particular team operates.

Is there a procedure for verifying that W5YI is good with us doing online exams?

You must apply for permission by contacting the VEC but be aware of these requirements before you apply:

*W5YI VE teams must meet the following criteria and adhere to the following rules/policies to participate in the Video sessions program. Long-standing, well established teams with a history of adhering to the highest degree of examination integrity, and that consistently submit accurate exam documents consistent with W5YI VEC standards will be selected to participate.*

The team should follow up with the VEC when ready to go live to receive the confidential session document upload instructions. However, if they have been training and are able to get the upload instructions from a trained team, that would be acceptable.

Make sure you, the CVE (VE Team Liaison), do the following:

- Read through exam.tools [CVE documentation](#), if you have questions you can ask them in the Discord [#W5YI](#) channel.
- Register in the sandbox at <http://hamstudy.dev/> and then login at <https://beta.examttools.dev/> with your team members. DO NOT use a Facebook or Google login: Make a "real" user. There's more info in [getting an exam.tools and sandbox account](#)
- Volunteer in the Discord [#W5YI](#) channel to help out with another team's W5YI/VEC session so you get to see the real system in action.
- Contact [@ARBatteiger WB5QNG W5YI CVE](#) for final approval and training before your team will be allowed to do online exams.

How do I collect candidate exam fee payments?

You will need to establish a mechanism for requesting and collecting payments and keeping track of who has paid – preferably before or during the exam session – and sending payment to the VEC as appropriate.

Many teams send email to registered candidates to request payment and other details as needed (e.g. how many elements they intend to take) and typically use online personal payment processors like Venmo, PayPal, Zelle, Apple Pay, Google Pay, etc. or even have candidates mail them personal checks! You can get the candidate's email address from the MANAGE drop-down [Edit Applicant](#) on the candidate in your session as well as the registration email from ExamTools when the applicant registers.

What if a registered candidate fails to pay the fee?

It is entirely possible that some candidates will register for a session and not respond to the email that you sent requesting payment. You can cancel their registration by deleting them using the MANAGE drop-down **Delete Applicant** on the candidate. This frees up the exam slot for someone else.

What happens when a prepaid candidate cancels or wants to reschedule?

If the candidate informs you ahead of time that they won't be able to make the exam session, ask them if they'd like to reschedule at no extra cost, then delete them from the initial session they registered for, and let them re-register at another session.

If they want to cancel, then you should refund the fee.

Per VEC policies, if a candidate fails to appear, they are still charged the fee, however you may refund them if you wish.

Can I charge more than the \$14 W5YI-VEC fee?

Absolutely not.

Can I charge less than the \$14 W5YI-VEC fee?

W5YI-VEC allows teams to 'sponsor' certain pre-determined classes of applicants, such as students, youths, veterans, club members, etc, as a group, however the team will still be charged by W5YI-VEC for conducting those exams, thus the team is paying for those applicants from the team expense funds.

Can my VE team or club solicit donations in conjunction with our VE activities?

Absolutely not.

FCC Rule: Administering VE requirements:

*§97.509 (e) No VE may administer or certify any examination by fraudulent means or for monetary or other consideration including reimbursement in any amount in excess of that permitted. Violation of this provision may result in the revocation of the grant of the VE's amateur station license and the suspension of the grant of the VE's amateur operator license.*

Soliciting, asking for donations, or offering free material to candidates would have the appearance of impropriety.

This is to ensure the integrity of the examination process.

How should I prepare my session to upload to the VEC?

Once you receive the confidential uploading documentation, you will need to upload two files. Do this once by selecting the two from your browser's upload dialog:

Select Print then 'Final Forms' from Exam.tools save this PDF.

Select Download then W5YI and save the resulting .dat file.

Upload those two files, along with any supporting documentation for out of the ordinary situations, like callbook pages for expired license credit, etc.

Do we still have to provide FCC license copies in the uploaded package? CSCEs?

License copies are not needed. You do need to include a copy of only the front of any pending CSCEs. But do an [FRN lookup](#) ahead of the exam. Odds are the 605 for which the CSCE is for will already have been acted upon by the time the exam session happens.

How do I process a “paper upgrade” with or without an exam?

The candidate registers for your exam session and provides proof to you of any element credit. Consult the W5YI VE manual for what is acceptable proof.

You will enter the credit(s) using the exam.tools MANAGE drop-down [Add Credit](#) for the candidate. Make sure you handle the case of expired Amateur Extra by giving both Element 3 and Element 4 credit.

- If the candidate has no current license they need to take the Element 2 exam. Upon passing, the candidate does the usual signature process.
- If the candidate already has a current license and thus is not taking an actual exam, you need to move the candidate Status from [registered](#) or [seen](#) to [ready to sign](#). The candidate logs into the session using their pin and is presented with the usual signature process.

After the 3 VEs assigned to the candidate have signed and the candidate is marked complete, exam.tools generates the proper forms reflecting these credits.

What do we sign when a candidate fails? How do we prove the failed exam happened?

You must sign the 605 as Proof of failure. The Print Session Forms/Final Forms contains the candidate roster showing failed element(s) and the candidate’s answer sheet showing a failing score. Your W5YI Test Session report also has a place to count candidates who did not earn a new license or upgrade.

## W5YI VEC Session Checklist

*The following was the W5YI VE Team Checklist as of June 1, 2020.*

Overview of tools we use

We use the following tools:

- ExamTools of course.
- Zoom Pro to run the session.
  - We “record to cloud or computer” and then save the mp4 file.
- Venmo, Cash App, Zelle and PayPal to collect exam fees.
- My bank account to send exam payment to the W5YI/VEC. ( most VE’s get a Debit card and send the info to W5YI to charge Exam fees to)

Creating a New Session

- Clone an existing exam session in examtools and update date, confirm max number of candidates.

Check for candidate registrations on exam day

- Look at <https://exam.tools/ve/sessions> and check sessions counts.
- Examtools: Export Applicant List CSV .

Wait for candidate payment

- Get payment confirmation .
- If a candidate responds with a CSCE.
  - Check ULS to see if no longer needed. If still needed, you'll want to merge it into the session report, below.
- If candidates don't respond with payment before the session, cancel them:
  - delete from examtools.
- Email [Zoom Invite](#)

During session

- Start Zoom meeting.
- Examtools: Start session.
- For each candidate
  - CVE co-owner/VE admin assigns 4 VEs to each candidate
  - Follow [greeter script](#).
    - Admit candidate, run exam(s), get examinee signature, etc.
  - VE's sign all 605's pass or fail.
  - CVE Finalizes candidate.
- CVE Finalize session.

After session

**Email CSCEs to each successful candidate**

- Examtools: Open each candidate.
- Email CSCE to candidates using [CSCE](#).

**Create VEC upload PDF package:**

- **New!** Examtools: Export dat and save with default name: [ExamSession\\_\(Callsign\)\\_YYYYMMDD\\_HHMM.dat](#).
- Examtools: Print Session Forms/Final Forms and download using the default name: [ExamSession\\_\(Callsign\)\\_YYYYMMDD\\_HHMM.pdf](#)
- If you have a Exam Debit card on file W5YI will charge exam fess when the exam is processed. Otherwise make payment to W5YI.
- Upload .dat and .pdf and any support documents to W5YI DropBox ( contact W5YI for details)
- Wait for Zoom to render recording and save [zoom-0.mp4](#).

Post session – callsign lookups

- Examtools will Email call signs or upgrade completion notifications.



## W5YI VEC Greeter Script

W5YI VE Greeter Script v4 04/08/2021

*CVE: make sure Zoom is in Gallery view*

*CVE: make sure Security/Allow participants to share screen is enabled.*

*CVE: start examtools session*

Before we begin, some additional reminders:

1. Make sure you have your government issued photo ID handy.
2. Ensure you are 100% focused during the entire exam session.
3. Any distractions or anomalies could be cause to void the exam at the sole discretion of the VE Team. Anomalies include, but are not limited to:
  1. Notable distraction by you, such as eyes not remaining on the exam and/or wandering around the room, or any noises.
  2. Your appearing to reference or use unauthorized materials (e.g. looking at cell phone, even just the lock screen, changing windows on computer, etc.)
  3. Another person entering the exam space (on camera, physically, or audibly).
  4. Your getting up or leaving the room during the exam.
4. Once you start the exam, the Volunteer Examiners will turn off their audio so as to not distract you – but we’ll be listening and watching. Please leave your audio and video on. Give us a shout if you need anything and when you are ready for grading click the “grade exam” button and let us know you are ready.
5. Make sure to answer all the questions: Only correct answers add points; incorrect answers don’t subtract, so it’s best to guess rather than leave an answer blank. Good luck with the exam

### W5YI VE SCRIPT 1

- Welcome
- [If the candidate has multiple devices, try to admit the computer first, and the phone next. Instruct the candidate to join with video only, not audio, on the phone. This is not always possible, because devices in the waiting room will not always be identifiable by candidate name or device type.]
- Photo ID.
- Is government issued ID acceptable to all VE’s?
- 360 tour of your room to make sure there is nothing visible to assist you in the exam. Please slowly rotate your camera so we can see all 4 walls from your sitting perspective as well as your desktop area.
- Is the 360 tour of the testing environment acceptable to all VE’s?
- Share entire desktop screen by clicking on the green “Share Screen” link at the bottom center of your Zoom window. Select “Desktop 1,” “Screen 1,” or similar from the list of screen share options, then click the Share button in the lower right corner of the window.
- Close any programs or applications except Zoom, a browser (Chrome or Firefox preferred), and optionally a calculator app.
- Do you want to use an onscreen calculator?
- If so, launch then position it on screen then, clear memory for us to verify nothing is stored to assist you.
- In the URL (address bar) enter “Exam.Tools” then press enter.

- Enter the session callsign in first line (Session Call)
- Enter your PIN in the second line (Session Pin)
- Click “Join Session” [one of the VEs will need to approve this by clicking on the red icon near the candidate’s PIN in the Exam Tools window and then clicking Approve]
- Check accuracy of all personal information
- If yes, click “Start Exam” [one of the VEs will need to approve this by clicking on the red icon near the candidate’s PIN in the Exam Tools window and then clicking Approve]
- Exam instructions:
  - This is not a timed exam so work through it at your own pace.
  - Notice the upper right corner, in black bar, lists number of questions in your exam.
  - This number will count down as you answer questions.
  - When all questions are answered, you will see a “Grade Exam” button.
  - Click this button when you are ready for us to grade your exam, but don’t feel rushed. You are free to go back and review your answers prior to clicking the “Grade Exam” button.
  - To navigate the exam,
    - Use your mouse or touchpad to scroll to each question and answer, or
    - Use your keyboard to select answers “A, B, C or D” for each question. The program will automatically advance to the next question for you.
  - You are free to answer questions in any order, and you are free review your answers and to change the answer to any question by clicking on a different answer.
  - If you skip a question, its question number will appear on the left side of the black bar so all you need to do is click on it to automatically jump back to that question.
  - If you happen to have a question with a diagram; simply click on the diagram to expand it, click again to return it to its original size so you can answer the question.
  - You are free to minimize the Zoom Window so our images don’t distract you.
  - We will mute our microphones to not distract you but you should keep your mic unmuted.
  - We will be observing your video and audio during your exam. If you have any technical issues, we will assist you. Simply talk and one or more of us will unmute to help.
  - Do you have any questions? If not, you may begin.
  - [When the candidate completes the exam, one of the VEs will need to grade the exam by clicking on the red icon near the candidate’s PIN, entering their password, and then clicking Approve.]

#### PASSING GRADE:

- Did you study for the next level exam?
- If “yes,” would you like to take the exam today?
- If “no,” we need to move on to signing the forms before we can submit your license information to W5YI & FCC.
- Click on the “Finish & Sign forms” button to end exam and proceed to signing the documents.
- Review the information on these forms to ensure accuracy.
- There are 2 forms you will be signing; the form “605” and the “CSCE.”
- Click on the Form 605. This is your application to take your exam today. Check your personal information for accuracy then click close.
- Click on the Form CSCE. This is your Certificate of Successful Completion of Exam. It will have 3 VE signatures that certify you took and passed your exam. The red “Draft” will be removed after we have signed and Herb has processed it for sending to you. If that all looks good, you can click on the “Close” button.
- Next, after reading the bulleted items above the signature box; you’ll need to create a digital signature in the box with your mouse or touchpad.
- Click “sign documents” when done
- Click “Finish session”

- Click “Log Out”
- Stop Screen Sharing at the top of the Zoom window.
- What will happen now is, 3 VEs will sign the forms [done in Exam Tools by clicking on the icon with the pen – Note that this requires the VE password]. Herb will email the completed CSCE to you and submit the forms to W5YI for processing. In most cases, you will have your license by the next business day.
- If candidate is in
- Main Room: Click the red “Leave Meeting” button to leave the meeting [on all devices].
- Breakout Room: Click the blue “Leave Room” button, then choose “Leave Meeting” [on all devices].
- FAILING GRADE:
- Encourage the candidate to study for the exam at hamstudy.org. Explain the difference between Study Mode and Practice Exams. [Study Mode will ensure that the candidate sees every question in the question pool, and is drilled more frequently on questions that they have difficulty with. Practice Exams contain random questions from the question pool, and there is no guarantee that the candidate will see every question.]
- [Note that 3 VEs must sign the forms even if the candidate fails the exam.]

## Frequently Asked Questions for W5YI VE Team Liaisons

Can a W5YI VE volunteer join existing teams performing remote exams?

Yes. Go into the **#W5YI** channel in Discord and volunteer. Several team leads monitor the channel and will get in touch, especially if they are short-handed.

I am already an ExamTools VE with another VEC. How do I get added as an W5YI VE?

If you are not accredited as a W5YI VE, you will need to contact a CVE to get sponsored as a W5YI VE.

Once you have your W5YI Credentials, your W5YI CVE will work you through the process of adding your W5YI Credentials to your profile. Your W5YI CVE lead will then be able to add you to their Exam Tools session once Experienced Support has updated your profile.

If you haven't participated in any W5YI sessions in recent years, you may need to contact W5YI-VEC to get updated in their records before you can participate in online sessions.