ICPC <u>V</u>irtual <u>C</u>ontest <u>S</u>upport <u>S</u>ystem (VCSS) Team Guide

This guide explains how to use the ICPC VCSS system to participate in a virtual contest. It assumes you are a member of a team that is registered in the contest and will be using your own computer to compete.

1. Contest Machines

Every contestant is required to use the same "contest OS image" for the contest.[1] The VCSS contest image is based on the ICPC World Finals Ubuntu Linux image, which is described at https://icpc.global/worldfinals/programming-environment. There are two ways to use the VCSS image from your own computer:

- By connecting to a "VCSS Cloud Machine" running the image, or
- By installing the image as a "Virtual Machine" on your computer and then running that VM in an environment such as *VMWare* or *VirtualBox*.

1.1. Using a Cloud Machine

To use a VCSS-provided Cloud Machine for the contest, you must obtain "VCSS cloud machine connection credentials" from the contest director. These credentials consist of (1) the address of your cloud machine, and (2) the account name and password used to login to your cloud machine. Members of the same team will share the same cloud machine (but will have separate accounts/passwords on that machine).

To access your cloud machine you must run one of the following remote desktop applications on your computer:

- Windows users: run "**Remote Desktop Connection**".
- MacOSX users: download and run "**Microsoft Remote Desktop**" from the AppStore.
- Linux users: run **"Remmina"** on your computer.

Regardless of what native platform you have on your computer, running the remote desktop application will prompt you for the VCSS connection credentials provided to you by the contest director. Entering those credentials will connect you to your VCSS cloud machine and present you with a contest image desktop where you can develop code solutions to the contest problems.

To use a VCSS cloud machine we recommend that you have an Internet connection of at least 50Mbps; otherwise your contest experience may be degraded. (To test your Internet connection speed, open a browser to *speedtest.net* or use another similar tool.)

1.2. Using a Local Virtual Machine

To run the contest image as a VM on your own computer, follow these steps:

- Download the contest image file from the following URL:

     https://pc2.ecs.baylor.edu/vcss/2021/imageInstructions.html.

- Download/install a VM management tool such as *VMWare* or *VirtualBox* (both have free versions).

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[1] While it is theoretically possible for you to use your own native platform for the contest, there are two significant drawbacks to doing this: (1) compilers on your machine may not work in the same way as in the VCSS system, which in turn means that programs which compile and run on your machine may not do so on the judge's machine; and (2) VCSS-managed systems allow for automatic updates of contest settings during the contest, which would not be possible on your machine. All teams are expected to use a VCSS contest OS image, and there is NO support provided for teams who use non-VCSS facilities.

- Use the VM management tool to create a Virtual Machine from the downloaded image file.

- Start the VM running. It will automatically connect to the VCSS server and will present you with a login screen. The login account name is "team" and the password is "contest". Once you log in you will see the contest image desktop where you can develop code solutions to the contest problems.

2. Communications and File Sharing

Team members are allowed to communicate with each other during the contest through any means they choose. For example, teams may wish to set up a Discord channel ahead of time for use during the contest, or to arrange for a Google Meet session, Slack channel, Skype session, or other communication channel (even a cell phone). VCSS does not provide any intra-team communication channels, but teams are not prohibited from using outside channels.

NOTE: the Contest Orientation will take place using a Zoom Webinar, and because Zoom does not allow multiple simultaneous sessions on the same computer it may be in your team's best interest to arrange for a venue *other than* Zoom for team communications.

Teams may use any online resources that they want during the contest, subject to the following conditions:

- Online resources other than intra-team communication channels may only be accessed using your VCSS platform. That is, you may not simultaneously use other computers, or other windows on your computer, to access online resources.

- Teams may not communicate during the contest in any way (whether in person or through the computer) with any person other than their own team members.

For team members sharing a cloud machine there will be a folder named **/home/shared** to which all team members will have access; it is up to each team to decide how to organize folders and files in **/home/shared.**

For team members using local VMs, it is up to the team to decide how to share files (for example, many collaboration tools such as Google Meet, Zoom, Slack, and Discord provide facilities for transferring files back and forth).

3. Submitting Programs to the Judges

The contest uses the PC^2 *contest control system* to allow teams to submit programs and clarification requests to the judges and to view the contest scoreboard. The contest director will provide you with connection and authentication credentials for logging into PC^2; this information will include (1) the URL for connecting to the PC^2 system, and (2) your team's PC^2 login and password (all members of the same team will use the same login credentials for PC^2).

To connect to the PC^2 system from a VCSS machine, open a terminal window (right-click on the desktop and select **Open Terminal**), then type the command **firefox**. In the Firefox browser, enter the PC^2 URL, then when the PC^2 login screen is displayed enter your PC^2 credentials.