Exercise Credentials can be obtained from URL: https://ibm.biz/zCEEWorkshop

- This image provides the opportunity to have hands-on experience with IBM z/OS Connect.

  Areas covered included:
  - Developing and deploying z/OS Connect artifacts for accessing z/OS resources.
    - Exercises for generating OpenAPI 2 specification documents are available at Box@IBM URL https://ibm.box.com/v/WSC-OpenAPi2 and/or at Github URL https://ibm.biz/BdPbPs. Exercises for consuming OpenAPI 3 specification documents are available at Box@IBM URL https://ibm.box.com/v/WSC-OpenAPI3 and/or at Github URL https://ibm.biz/BdPbPb. *All the z/OS Connect Designer instances are configured with the exact same support for CICS, Db2 or IMS. If you want to repeat a specific OpenAPI3 exercise, just use another Designer instance. Note that this will require the use of different ports and context roots when testing the APIs. See the information on page 7 for more details.*
  - Developing z/OS applications that can access remote APIs running on other platforms.
    - Exercises for the developing of z/OS Connect API Requester applications are available at Box@IBM URL https://ibm.box.com/v/WSC-APIRequester and/or Github URL https://ibm.biz/BdPbPp.
  - Performing some basic system and security administrator security tasks.
    - Exercises related to the administration and security of z/OS Connect servers are available at Box@IBM URL https://ibm.box.com/v/WSC-AdminSecurity and/or Github URL https://ibm.biz/BdPbPg.

  These exercises can be downloaded from these URLs to your local image. Be sure that also download the corresponding copy/paste file at the same site and copy it to your zVA image or to your local desktop.
  Note that these URLs will not be accessible from the zVA image itself, they must be accessed from your local images.
  Each of these URLs contain exercises that can be performed using this image. Note that the exercises for the non-administration/security exercises can be performed in any sequence. For the administration/security exercises you have a choice to make. You can either start with exercises *zCEE Customization Basic Configuration(1of2)* and *zCEE Customization Basic Security(2of2)* (performed in this order) *or* start with exercise *zOSSEC1 Quick Start*. At the completion of either of these sets of exercises, a basic z/OS Connect server with SAF security enabled. This is required to complete the remaining exercises.

- Credential passwords. At various times you will be required to enter a password. The passwords for the identities are:

  - ***USER1*** is the password for identity *USER1* (USER1 is a RACF identity)
  - ***fredpwd*** is the password for *Fred* (Fred is not a RACF identity and case matters) in the developing API exercises. For the security exercises, the password for *Fred* is ***Fred***.
    - Below is section entitled ***Personal Communication Tips.*** Review this section before performing any steps involving 3270 access to TSO or CICS. This document includes important information such as key mappings for the 3270 **Enter** and **Clear** keys.

Please do not shut Windows down, just close the session or disconnect from the remote desktop.

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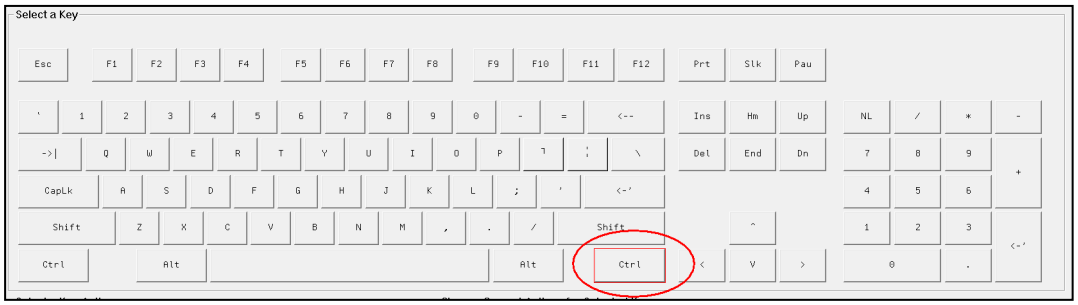
Personal Communications Tips

Note: The 3270-terminal sessions and OMVS screen shots in these exercises are shown in reverse video simply for printing purposes.

It is recommended to use a remote desktop client to access the exercise's Windows desktop. There have been 3270-emulator keyboard mapping issues encountered when the Windows desktop is accessed using a browser.

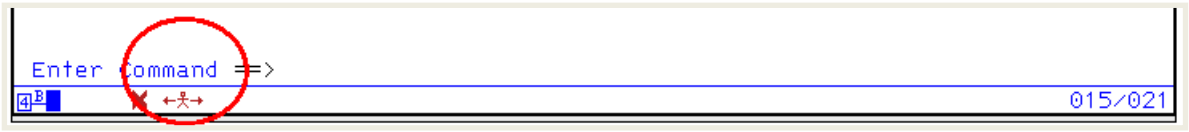
• The 3270-emulator used for this workshop (IBM Personal Communication) maps the 3270 enter key to the right **Ctrl** key (see below) and the **Shift-Enter** key combination. If the right **Ctrl** key does not work, try using **Shift-Enter** sequence.



Any references to the *Enter* key in non-3270 windows, OMVS terminal session, etc. refers to the key labeled *Enter* on the keyboard.

• Which key clears a 3270 screen depends on which method is used to access the Windows desktop. The clear action is mapped to the **Pause** key. If this does not work, try a **Shift-Pause** or a left **Ctrl-Pause** key sequence.

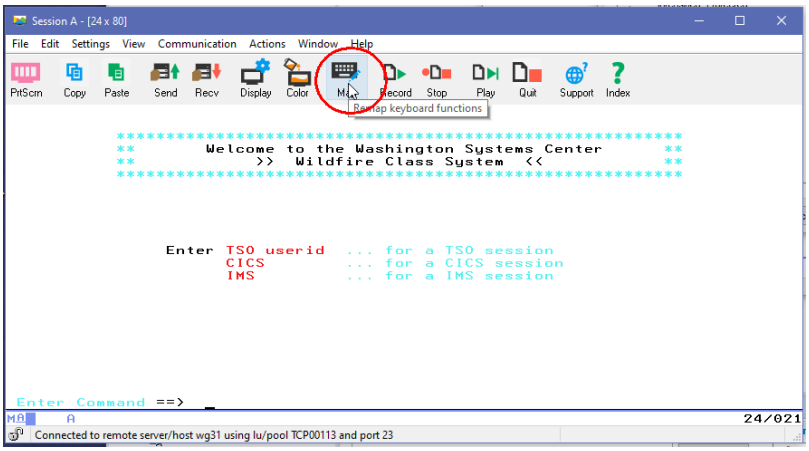
• z/OS Updates Different 3270-terminal emulators will display an icon like the *Personal Communications*' icon below at the bottom of the screen when the keyboard is locked. If this occurs use the ***left-Ctrl*** key to reset or free the keyboard.



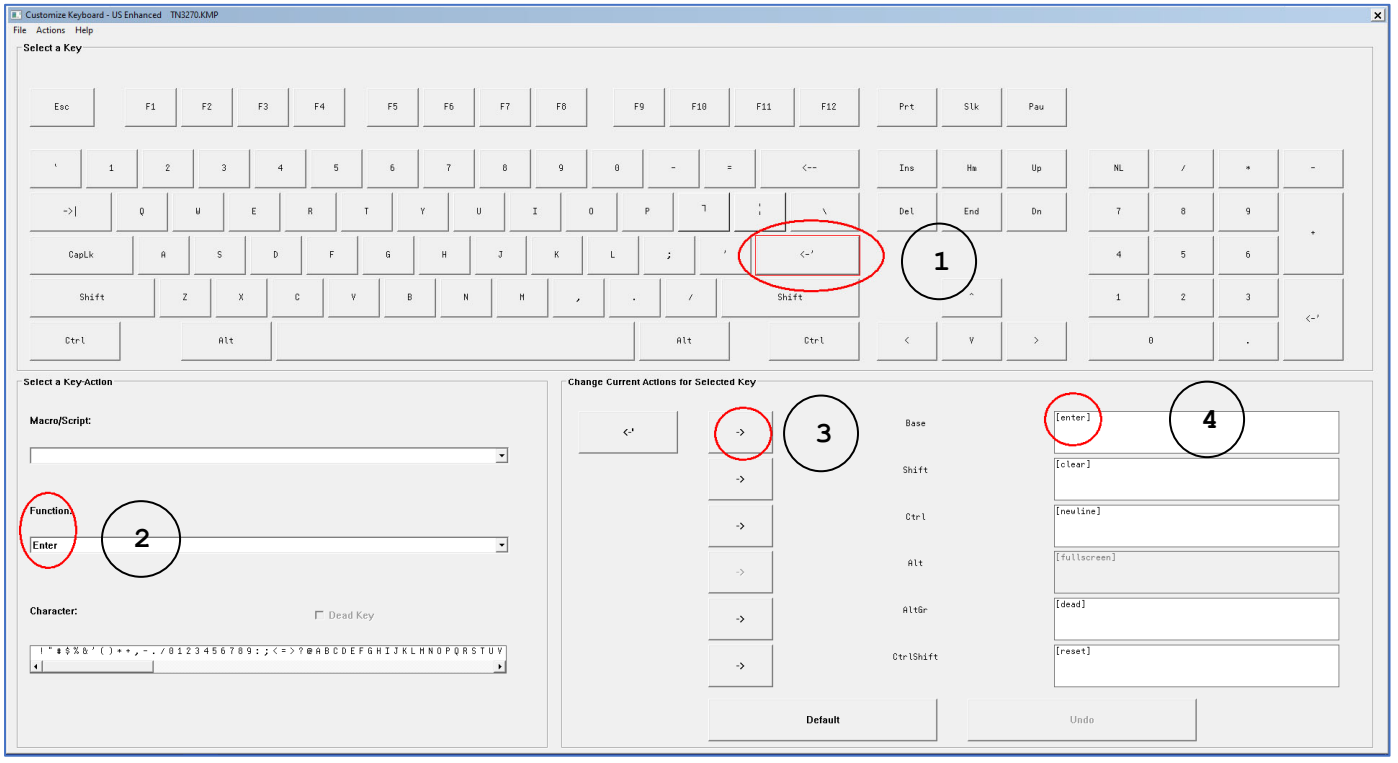
• In this emulator the **Pause** key is mapped to the clear function. If your laptop has a **Pause** key use it to clear the screen. For newer laptops without a **Pause** key, use the key sequence **Fn-P** to clear the screen. If none of these works, try a **Break** key or an **Alt-C** key sequence.

Configuring the Keyboard with Mac keyboards

• To reconfigure the IBM Personal Communications keyboard when using a Mac keyboard, click on *View* on the tool bar and select the **Tool Bar** option. Next click on the *Remap Keyboard functions* icon (see below)



• To set the **Return** key to perform the *enter* function, click on the **Return** (1) key, use the pull down arrow to select *Enter* from the function list menu (2), and then in the *Change Current Actions for Selected Key* section, click on the arrow to the left of *Base (3)* to set the default function of pressing the **Return** key to *[enter]* (*refer to the picture below*).



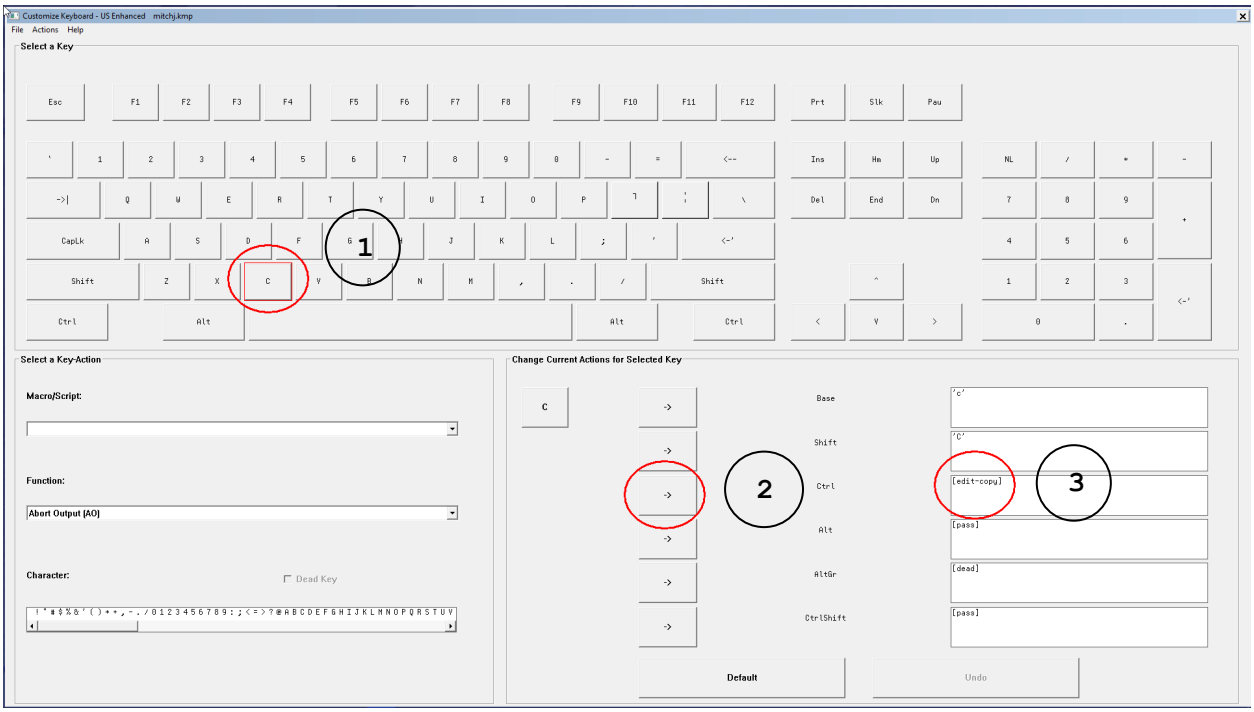
• To set the **Return** key to perform the *clear the screen* function, click on the **Return** (1) key, use the pull down arrow to select *Clear Screen* from the function list menu (2), and then in the *Change Current Actions for Selected Key* section, click on the arrow to the left of *Shift (3)* to set the default function of pressing the **Shift-Return** key sequence *[clear]*.

• To set the **Return** key to perform the *new line* function, click on the **Return** (1) key, use the pull down arrow to select *New Line* from the function list menu (2), and then in the *Change Current Actions for Selected Key* section, click on the arrow to the left of *Ctrl (3)* to set the default function of pressing the **Ctrl-Return** key sequence to move the cursor down a line *[newline]*.

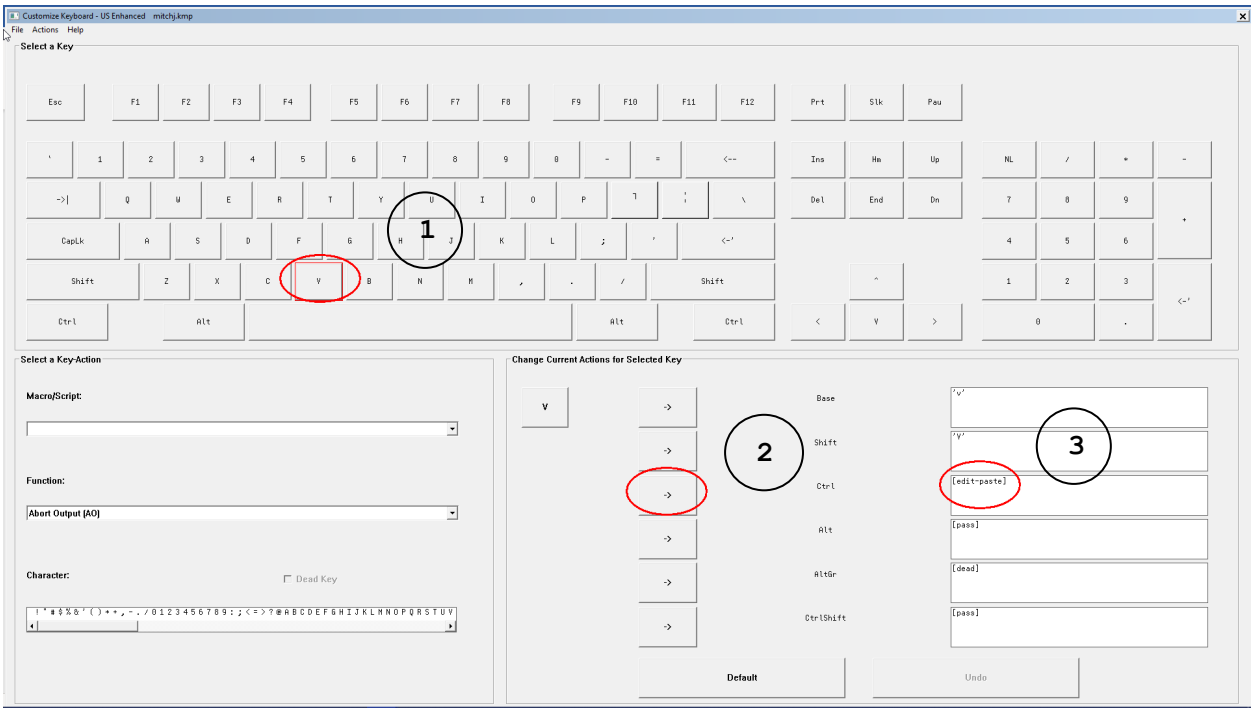
• To set the **Return** key to reset a locked keyboard, click on the **Return** (1) key, use the pull down arrow to select *Reset* from the function list menu (2), and then in the *Change Current Actions for Selected Key* section, click on the arrow to the left of *CtrlShift (3)* to set the default function of pressing the **Ctrl-Shift-Return** key sequence to reset or unlock a key board *[reset]*.

When finished, your keyboard actions for the **Return** key should match the picture above.

• To set the **Ctrl-C** key sequence to perform the *copy* function, click on the **C** key (1) and then in the *Change Current Actions for Selected Key* section, click on the arrow to the left of *Ctrl (2)* to set the default function of pressing the **Ctrl-C** key sequence to *[edit-copy] (3)* (*refer to the picture below*).



• To set the **Ctrl-V** key sequence to perform the *paste* function, click on the **V** key (1) and then in the *Change Current Actions for Selected Key* section, click on the arrow to the left of *Ctrl (2)* to set the default function of pressing the **Ctrl-V** key sequence to *[edit-paste] (3)* (*refer to the picture below*).



Updating the YAML files for OpenAPI3 APIs

The OpenAPI3 specification YAML files that will be imported in the *Designer* for the OpenAPI3 exercises have been configured with a URL value for the context root in the *servers* field of the specification document, see URL https://swagger.io/specification for more details. This was done because we recommend as a best practice. For z/OS Connect, context root values should always be provided in API's specification document. This is recommended because when multiple APIs are to be deployed into the same z/OS Connect native server, unique context roots are an absolute requirement. And from an administrative point of view, it is easier to provide a context root value before a specification document is imported into the *Designer* rather than later in the deployment process.

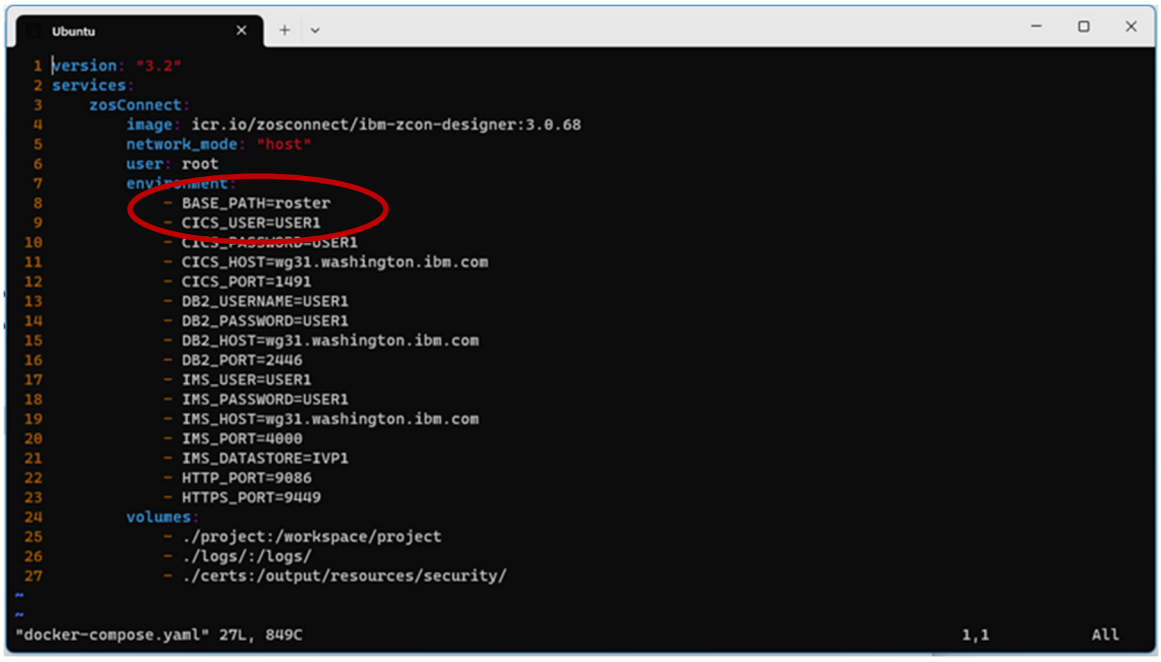
For these exercises, the OpenAPI3 specification YAML files have their *context root* URL values for the *Server Object* to as shown below:

Container short name	Context root	HTTP port	HTTPS port
catalog	/catalog	9082	9445
cscvinc	/cscvinc	9084	9447
employees	/roster	9086	9449
sandbox	/sandbox	9088	9451
phonebook	/phonebook	9092	9555

The containers used for the OpenAPI3 exercises have been configured with an *webApplication* configuration element that set the *contextRoot* attribute to the value of the environment variable BASE_PATH, see below.

```
<webApplication id="myApi" name="${BASE_PATH}" contextRoot="/${BASE_PATH}"
 location="${server.config.dir}dropins/api.war" />
```

The value for environment variable *BASE_PATH* is set in the *docker-compose.yaml* files of each server.



If you want to repeat an OpenAPI3 exercise using a different container, the YAML specification file URL must be updated before it is imported in the *Designer* with the context root value that has been preconfigured for that container. Edit the OpenAPI3 YAML file and change the URL value of the *Server Object* so it matches the context root value above of the new container. For example, if I wanted to import and test the IMS Phone book YAML file in the **cscvinc** container. I would need to edit file *PhonebookAPI.yaml* in directory *C:/z/openApi3/yaml* and change the *Server Object* as shown below to ***usr: /cscvinc***