Azure Virtual Environment Manual

Contents

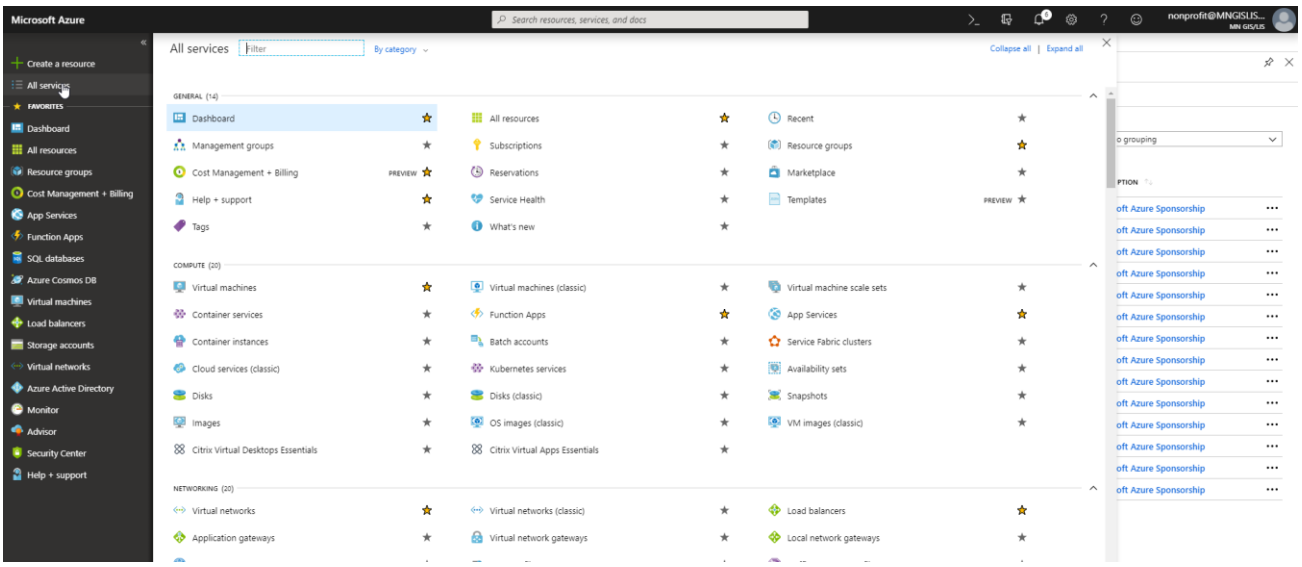
Azure MN GIS/LIS Board Admins

- ***For individuals who will be*** *administer for the billing, virtual machine configuration, and, Azure Lab creation.*
- ***Learning Objectives:*** Learn how to manage the entire Azure Portal, monitor billing, create new VMs, and new "Azure Labs" for future workshop instructors.

Overview of Azure Portal

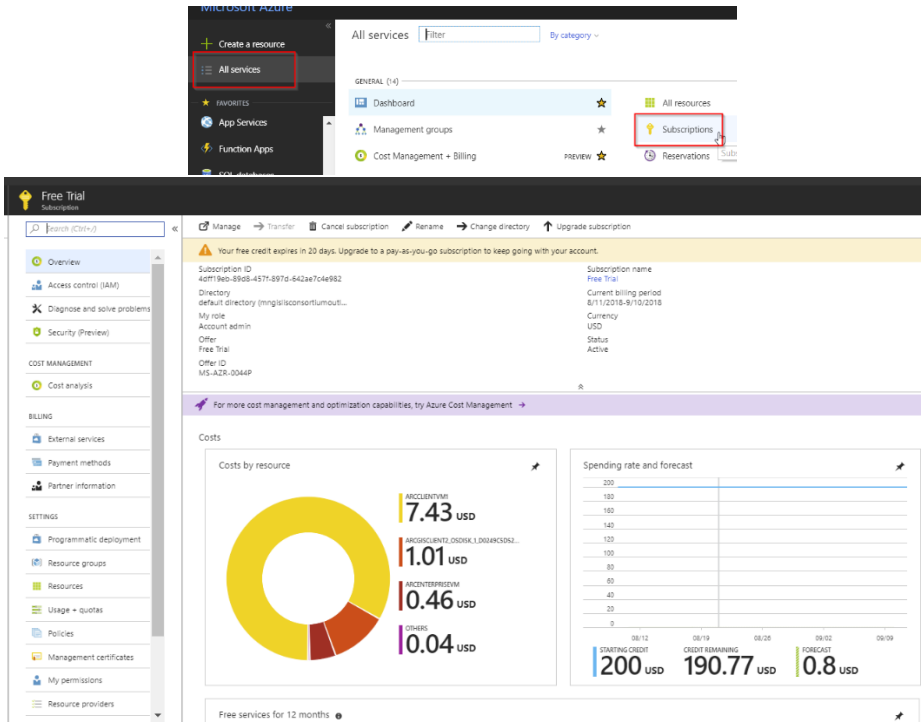
Administration Console (Azure “Portal”)

- Access the Azure administrative portal: https://portal.azure.com
- This portal holds links and interfaces to all tools to manage permissions, VMs, billing, networks…etc.

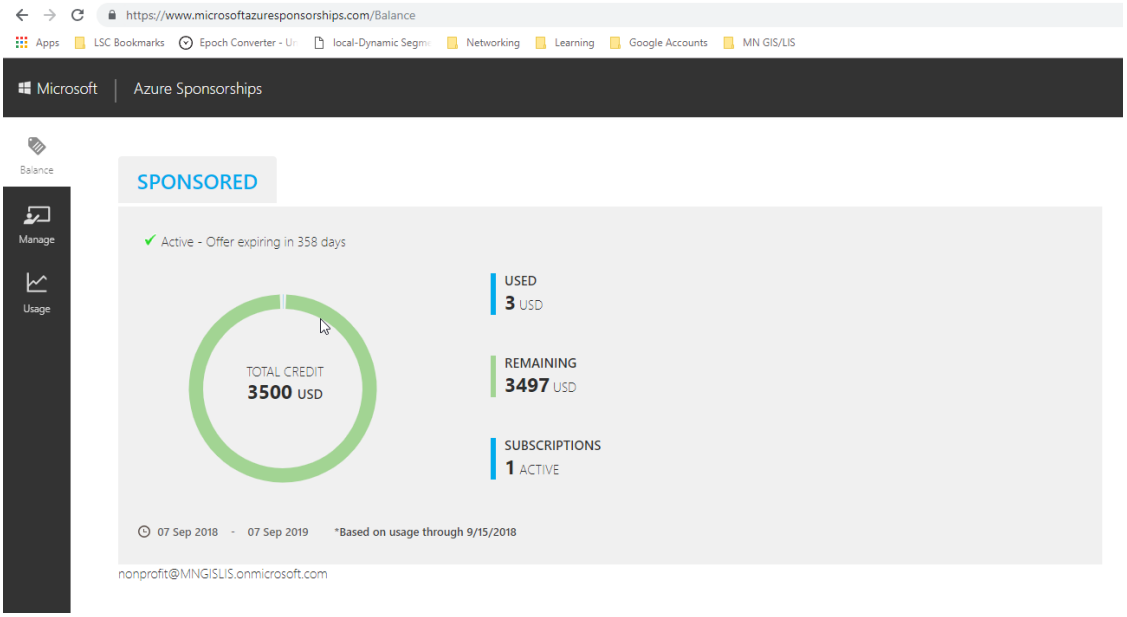


Manage Billing

- For regular or free Azure accounts, the billing system would list costs.



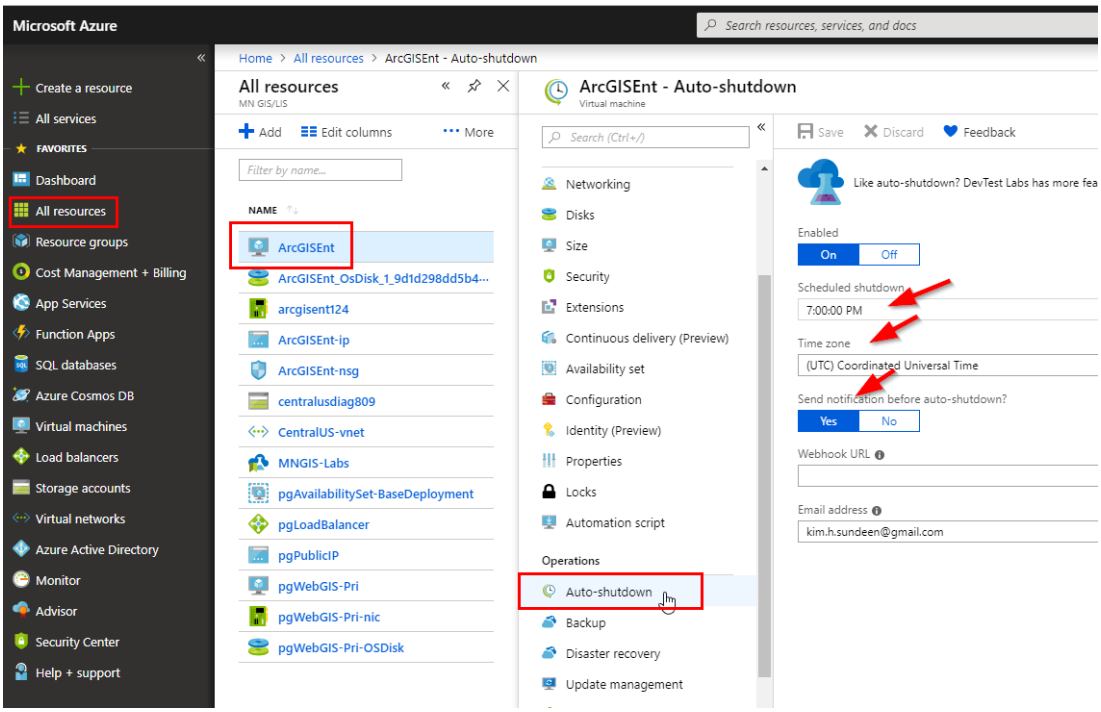
- However, as this is a non-profit account that uses a Non-Profit Sponsored Subscription, the billing and costs are managed through a different portal: https://www.microsoftazuresponsorships.com/balance
    - View amount used and usage costs from the Sponsored credits, who to send emails to regarding usage.



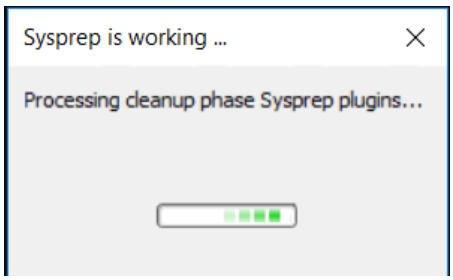
Viewing & Creating Resources

1. **Creating a Virtual Machine (VM)**

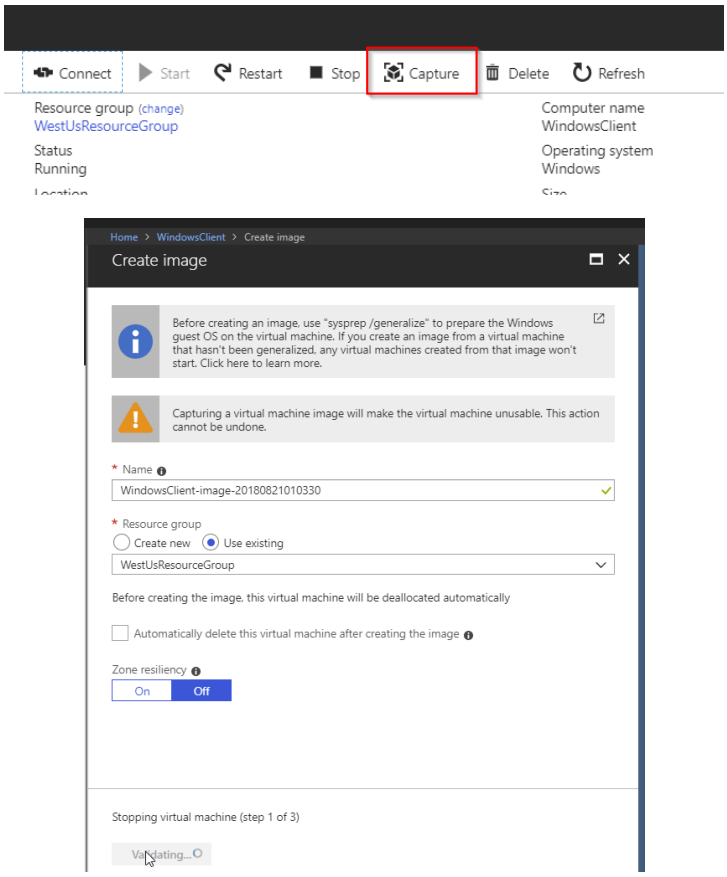
a. Follow Azure's instructions: https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-portal
b. **Example parameters to use for basis Windows os machine:** Windows 10 Pro, Version 1709
c. Enable Remote Desktop Connections
    i. This will allow you to ensure any users can connect to the VM outside of the Azure portal.
    ii. Use the same method to enable remote desktop connection and add Window's account users to the VM.
        1. Same method → Settings→ Accounts…
        2. Enable RDP access for this account in user account settings (add to Remote Desktop Users Group)
d. Setting a Virtual Machine schedule
    i. Set up when you create the VM.
    ii. After your resource if created, change auto-shutdown time and if an email is generated to alert you to the shutdown. Remember to update the time zone!



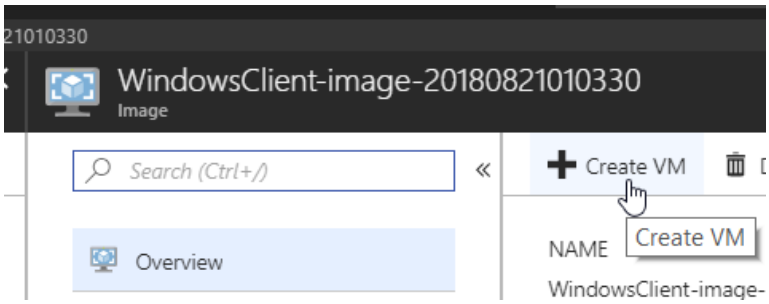
2. Converting VMs to Images
a. Once you create a template VM, you can convert this to a template Image to re-dploy the exact configurations and quickly create multiple VMs as needed.
b. Steps:
    i. Install all software you want before creating the image.
    ii. (Optional: make a copy of vm if you want to reuse it later)
    iii. Generalize the image (run sysprep.exe in VM by double-clicking the .exe.)
        1. Follow instructions under "Generalize" https://docs.microsoft.com/en-us/azure/virtual-machines/windows/capture-image-resource



iv. Click capture once generalized



3. Using an Image to Create new VMs



4. Creating an Azure DevTest Lab Service

a. **Overview**: This is a simplified environment that provides a template for a vm to spin up for a lab environment to allow students or teams easy registration and use of vms. Per Azure's documentation, you can "quickly set up an environment for your team (for example: development environment, test environment, classroom lab environment) in the cloud.

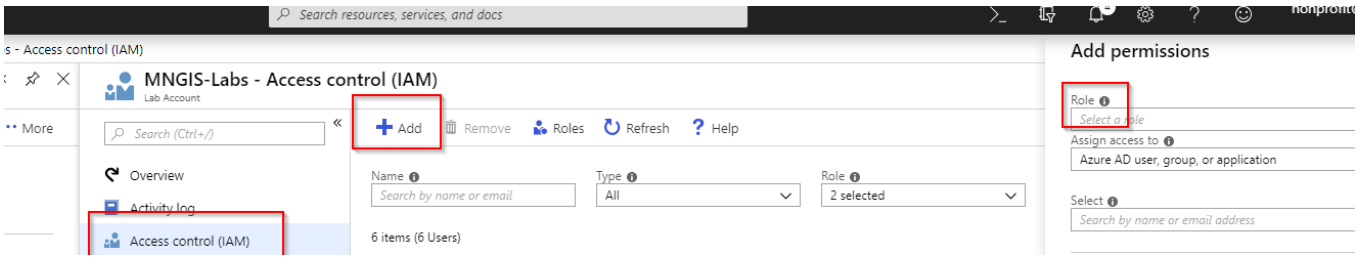
b. **Other benefits**:
   - A lab owner creates a lab, provisions Windows or Linux virtual machines, installs the necessary software and tools through reusable templates, and makes them available to lab users.
   - Lab users connect to virtual machines in the lab, and use them for their day-to-day work, short-term projects, or classroom exercises. Once users start utilizing resources in the lab, the lab admin can analyze cost and usage across multiple labs, and set overarching policies to optimize your organization or team's costs.
   - Azure Lab Services handles all management of the Azure infrastructure for the lab, from spinning up the VMs to handling errors, and scaling the infrastructure. If you want to manage all infrastructure and configuration yourself within your own subscription, you can create a custom lab in Azure DevTest Labs.

c. Assigning Permissions for Instructors

i. Decide if you want to enable each workshop instructor to create new Azure Workshop, or if instructors should manage their own Azure Lab Service. ***Do you want workshop instructors to only have access to their own Lab Service or to all use the same Azure Lab Services?*** ***IMPACT: ****this may use more service credits by allowing each workshop instructor to create their own Azure Lab Service.*

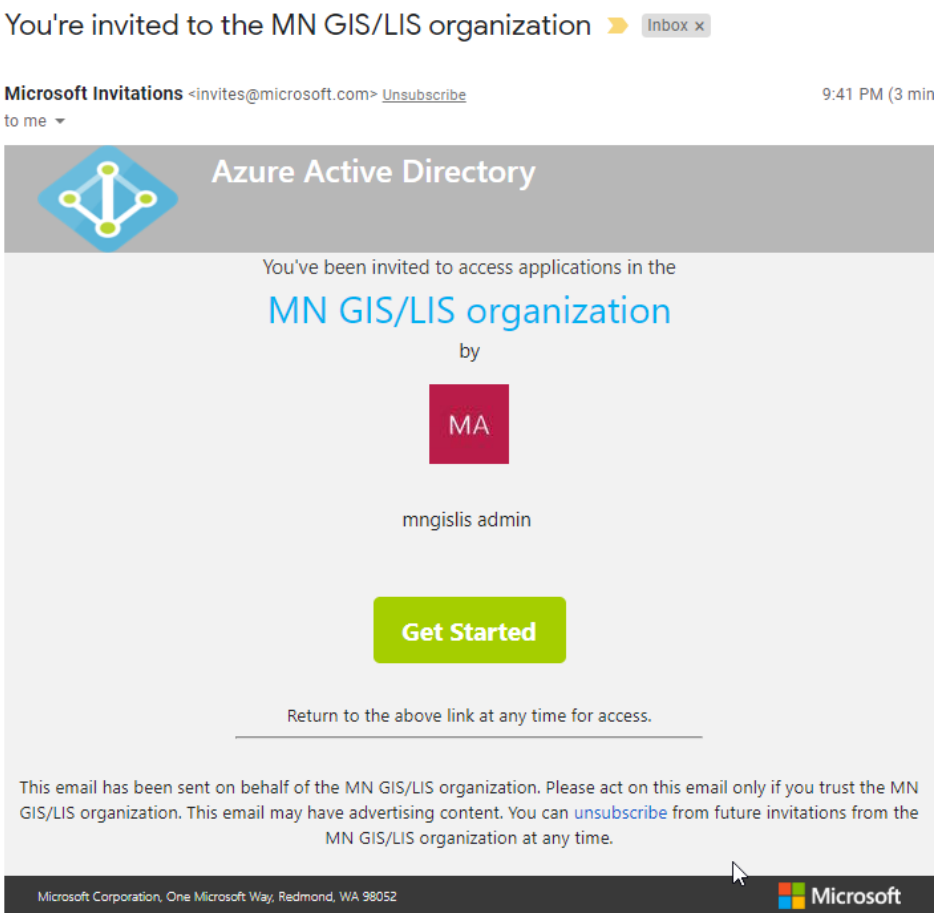
1. **Multiple Azure DevTest Lab Service:** *each workshop instructor owns and manages the Azure Lab Service they created. They will not be able to see labs created by other users.*
   a. Assign Workshop Instructor "Lab Creator" permission.
   b. Permits individuals to create their own Azure Lab Service and multiple labs within the service.
2. **1 Azure DevTest Lab Service**: *each workshop instructor can view and edit Azure lab resources.*
   a. Assign Workshop Instructor: "Owner" permission.
   b. Permits individuals to create, manage, and delete Azure Lab workshops.
   c. Users will be able to see labs created by other users.

ii. Assign Permission using Azure Portal for Lab Service:



d. Enabling Permissions

i. Once you assign user the permission or "Lab Creator" or "Owner" for the Azure Lab Services, the user will receive an email like:

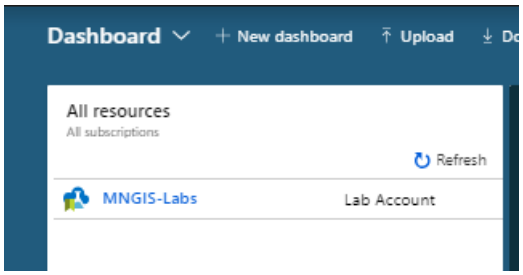


Workshop Instructors

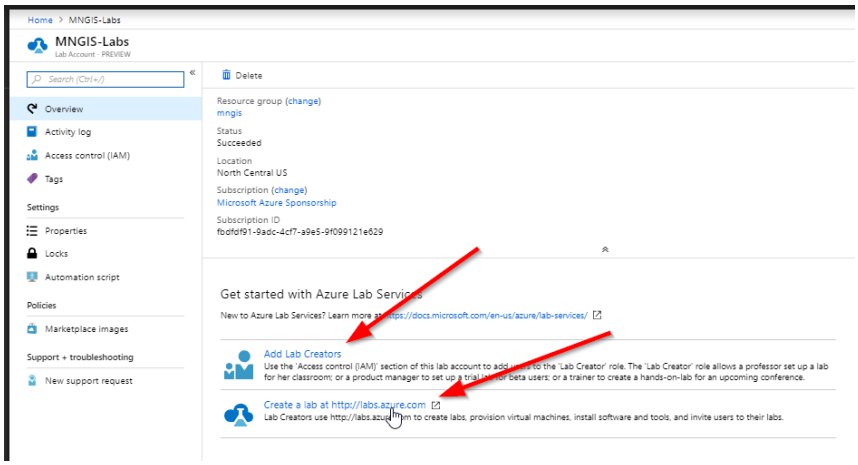
- ***For individuals who will be*** *instructors of workshops to manage template virtual machines for students and to troubleshoot VM connection issues.*
- ***Learning Objectives:*** Learn how to start/stop their Azure Labs and virtual machines for students, create new template VM machines for their students, and monitor the usage.

Managing an Azure Lab Workshop

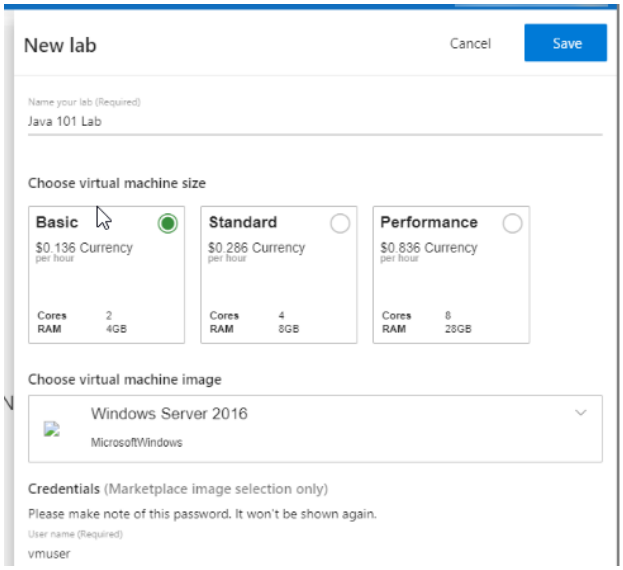
1. Creating Azure Lab Workshops
    a. Use the email provided when user was provided permission as Lab Creator or Owner.
    b. Go to Azure Lab Service (in this case, it's called "MNGISLIS-Labs")



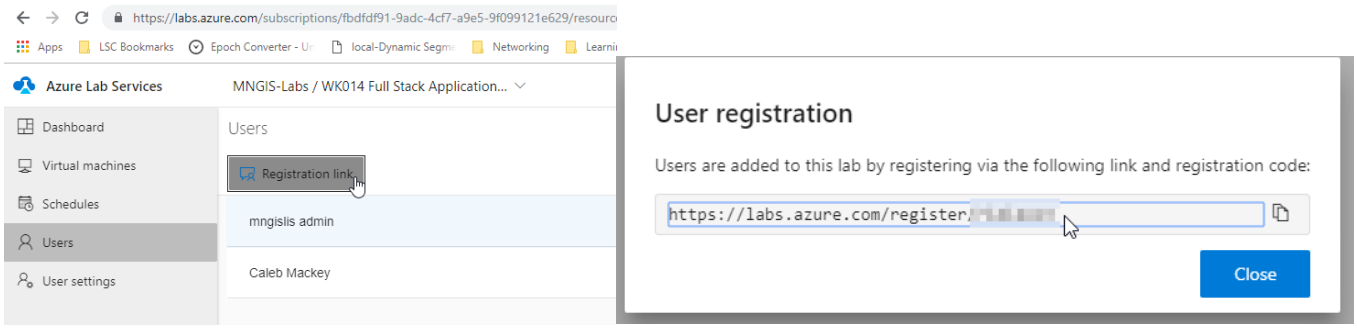
2. Create a new Lab by following link to “Create a Lab” and build a new VM template. Follow Azure instructions to “Set up a classroom lab.” This will set up your template VM to create for each student attending the workshop.



   a. Follow this link (https://docs.microsoft.com/en-us/azure/lab-services/classroom-labs/tutorial-setup-classroom-lab) to do the following:
   b. Create the Workshop Lab (*Classroom Lab):* https://docs.microsoft.com/en-us/azure/lab-services/classroom-labs/tutorial-setup-classroom-lab#create-a-classroom-lab
      i. Set # of VMs to create (“Usage Policy”)
   c. Build VM template: https://docs.microsoft.com/en-us/azure/lab-services/classroom-labs/tutorial-setup-classroom-lab#set-up-the-template-vm
      i. Select size
      ii. Start & connect to VM
      iii. Install software



   d. Publish the VM template: https://docs.microsoft.com/en-us/azure/lab-services/classroom-labs/tutorial-setup-classroom-lab#publish-the-template
   e. Send registration link to all your students: https://docs.microsoft.com/en-us/azure/lab-services/classroom-labs/tutorial-setup-classroom-lab#send-registration-link-to-students



3. Monitor VM Usage and Connections: https://docs.microsoft.com/en-us/azure/lab-services/classroom-labs/tutorial-track-usage
    a. This allows you to start, stop, delete a VM in the Azure Lab.