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Michael Kemper

# CHALLENGE LAB V4 QUICKSTART



## Introduction

The purpose of this document is to provide Skillable's customers with best practices and information about how to start building Challenge Labs.

## Background

Challenge Labs are different from traditional step-by-step labs and ask learners to prove their skills by doing instead of following prescriptive step-by-step instructions. Learners learn by doing and, sometimes, failing. That's acceptable as long as they are failing forward and learning from mistakes.

Challenge Labs may be leveraged across a learner's skills development journey, which spans from skills acquisition to skills validation. Please refer to the [Challenge Labs Use Case](#) section of this document for specific examples.

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#### CHALLENGE LAB QUICKSTART - SETTING UP THE LAB

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 ADDING VERIFICATION SCRIPTS TO A CHALLENGE LAB

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 COPY TEXT / TYPE TEXT

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 HINTS

 IMAGES

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-  TOGGLERS
-  CHALLENGE LAB STRUCTURE
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-  ADDING THE CHECK YOUR WORK SECTION
-  ADDING THE SUMMARY SECTION

# CHALLENGE LABS PRODUCT DEFINITIONS

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## Background

Challenge Labs are short, scenario-based, hands-on labs that enable learners to validate skills quickly, simply, and effectively. Challenge Labs (also referred to as Challenges) contain varying degrees of clarity and detail in requirements, depending upon type, and contain scored assessments that enables a learner to judge success. Learners learn by doing and by receiving feedback as they progress through a Challenge.

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## Challenge Lab Series

A Challenge Lab Series is a set of related Challenge Labs that are developed in a hierarchical model anchored to a set of skills or learning objectives. A Challenge Lab Series can be used to quickly determine whether a person has the skills needed for a specific job, and, if not, which skills are lacking.

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## Assessments

Assessments can be used to validate learners' competencies or skill sets and can be based on knowledge or performance. Getting Started Labs use Knowledge-based Assessments or self-verification exercises, while Guided, Advanced, Expert and Capstone Challenge Labs use Activity-based Assessments and Performance-based Testing, respectively.

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## Knowledge-based Assessment

This format presents learners with a series of questions—multiple choice or short answer—that they are required to answer/verify.

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## Activity-based Assessment (ABA)

This format evaluates the learner's environment in an automated fashion and encourages a try-fail-learn-repeat model.

The learner completes the task that's presented. The task is then assessed automatically, and the learner receives real-time feedback and guidance on any corrective action needed.

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## Evidence-based Testing (PBT)

Similar to Activity-based Assessments, Performance-based Testing engages the learner directly and validates skills by providing the learner with a scored result when all required activities are completed. The scored results are usually presented as pass/fail.

# CHALLENGE LAB TYPES

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## Getting Started Lab

Serving as an introduction to Challenge Labs, a Getting Started Lab incorporates more goal- oriented steps than a Guided Challenge and is designed for the learner who needs to acquire specific skills before proceeding to the Guided, Advanced or Expert Challenge Labs.

Getting Started Labs are based on a scenario similar to what's referenced in companion Challenge Labs, but with simplified instructions that contain tips and hints for guidance. Getting Started Labs should last 60-75 minutes.



Getting Started labs are no longer developed, however Skillable does continue to maintain existing Getting Started labs.



- A Getting Started lab is intended for learners who are new to a product or technology.
- This is a traditional step-by-step lab that provides comprehensive steps on how to complete a task. Each Getting Started lab contains a series of 6-10 tasks that help learners to become familiar with the concepts that are covered in the challenge series.
- Each Getting Started lab should take a learner 90 minutes to complete, on average.

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### Guided Challenge Lab

Similar to a traditional lab, a Guided Challenge Lab replaces the click-by-click instructions with goals and objectives, along with detailed hints, images or videos, to ensure the learner can complete the required tasks. Guided Challenge Labs should last 30 minutes and consist of two to four tasks.



- A Guided challenge is intended for learners who have basic familiarity with a concept, but who may be lacking experience and knowledge.
- Each Guided challenge contains a series of 3–5 related tasks that focus on real-world skills.
- This type of challenge should take a learner 30 minutes to complete, on average.
- Learners are provided with task-based instructions that simulate a real-world experience.
- Instructions are action-based and include the input required to complete the task.
- For learners who need some guidance on how to perform a task, detailed hints are provided in the form of step-by-step instructions, videos, and detailed syntax for commands.
- Learners can choose to use a hint as needed.

- Each task is evaluated by using a script so that learners can determine whether or not they completed the task successfully.
- 

## Advanced Challenge Lab

This type of Challenge Lab is based on a series of tasks built around an overall objective. It employs Activity-based Assessments and enables learners to determine which tasks they know how to perform and then focus on the tasks they need to work on further. Advanced Challenge Labs should last 30-45 minutes and include three to six tasks.



- An Advanced challenge is intended for learners who have a functional knowledge of a product and want to test their level of understanding.
- Each Advanced challenge contains a series of 3-6 related tasks that focus on real-world skills.

- This type of challenge should take a learner 45 minutes to complete, on average.
  - For learners who need some guidance, each task contains hints in the form of a URL that takes learners to the product documentation where they can get more information on how to complete the task.
  - Each task is evaluated by using a script so that learners can determine whether or not they completed the task successfully.
  - Each task can be repeated, giving learners the opportunity to test their skills and correct any errors they made while performing a task.
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## Expert Challenge Lab

This lab is a true Performance-based Assessment. A learner completes a large configuration task spanning multiple technologies and platforms. The learner receives no guidance and, upon completion, is issued a pass/fail score.

Expert Challenge Labs should last 45–60 minutes and consist of four to eight tasks.



## Expert

- An Expert challenge is intended for learners who want to test themselves to find gaps in knowledge and skill.
- This is a true, activity-based assessment.
- Each Expert challenge contains a series of 3-8 related tasks that focus on real-world skills.
- This type of challenge lab should take a learner 60 minutes to complete, on average.
- Learners are provided with task-based instructions that contain the input required to complete the task; however, learners are not provided with any information on how to complete the task.
- Each challenge lab is scored after all tasks are completed.

Capstone Challenge Lab

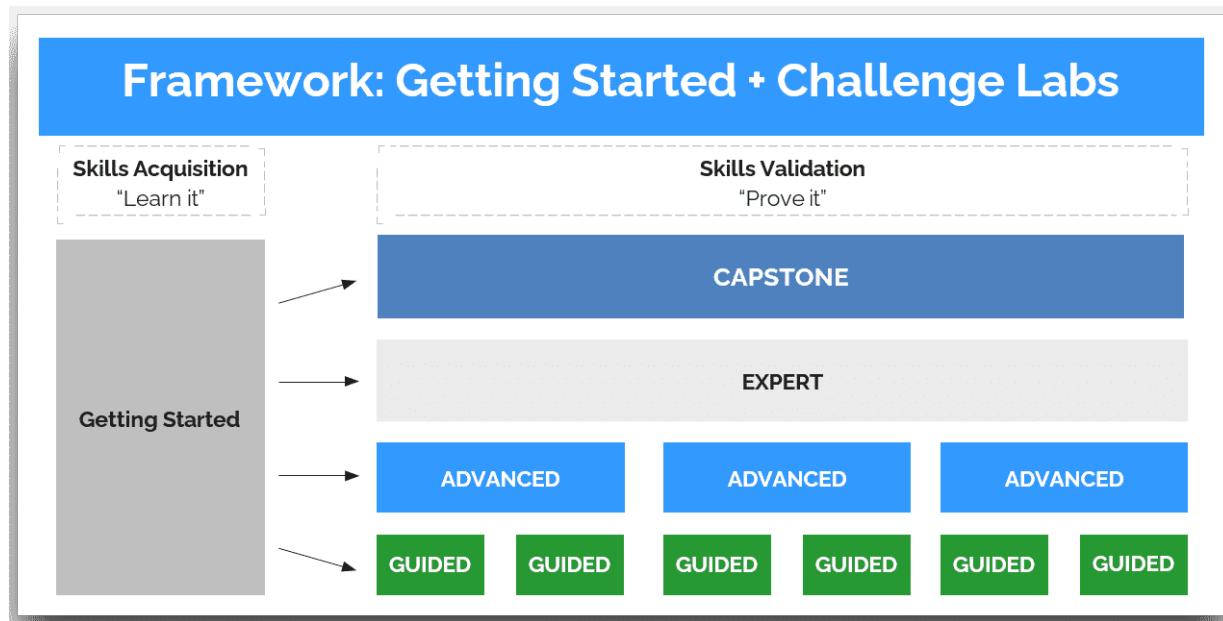


CONTINUE

# CHALLENGE LAB OVERVIEW

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## FRAMEWORK: GETTING STARTED + CHALLENGE LABS



Framework: Getting Started + Challenge Labs

## Challenge Labs Series Development

- **Getting Started Labs** are available to a learner needing to acquire specific skills before proceeding to Challenge Labs.
- In a **Guided Challenge Lab**, a learner is required to perform an activity, such as creating an S3 bucket. As needed, the learner receives hints that provide explicit and complete guidance on creating the S3 bucket.

- Automated scripting is used to verify whether the learner performed the activity correctly and to provide direct feedback to the learner if corrective steps are needed.
- In an **Advanced Challenge Lab**, the learner must perform an activity similar to what was performed in the preceding Guided Challenge Lab, such as creating an S3 bucket. However, in place of explicit guidance on how to perform the activity, the learner is provided a link to product documentation.
  - Automated scripting is used to verify whether the learner performed the activity correctly and to provide direct feedback to the learner if corrective steps are needed.
- In an **Expert Challenge Lab**, the learner is required to perform a significant percentage (more than 60%) of the same or similar activities that were performed in all preceding Guided and Advanced Challenge Labs combined. However, the learner receives no guidance for completing the activities. There is only one Expert Challenge Lab per lab series.
  - The Expert Challenge Lab uses automated scripts to issue the learner a pass/fail grade. The learner does not receive feedback throughout the lab like they do in Guided and Advanced Challenge Labs.

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## Challenge Labs Key Characteristics

### Challenge Labs:

- Get to the point as quickly as possible.
- Avoid presenting information until it is needed.
- Encourage exploration and learning by “failing fast and failing forward.”

# CHALLENGE LABS USE CASES

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Challenge Labs support the life cycle of skills development (acquisition to validation).

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## Skills Acquisition

- Combine Challenges with existing training activities.
  - Create a blended learning experience.
  - Incorporate as pre-class and post-class Assessments.
  - Extend/add to existing hands-on labs.
- Design a stand-alone self-paced subscription (All Access Pass).
  - Includes Learning Path or Goals associated to a timeline.

- Provides the learner freedom to focus on the topics or tasks they choose.
  - Deliver a Challenge Lab course.
    - Provide microlearning by design.
- 

## Skills Validation

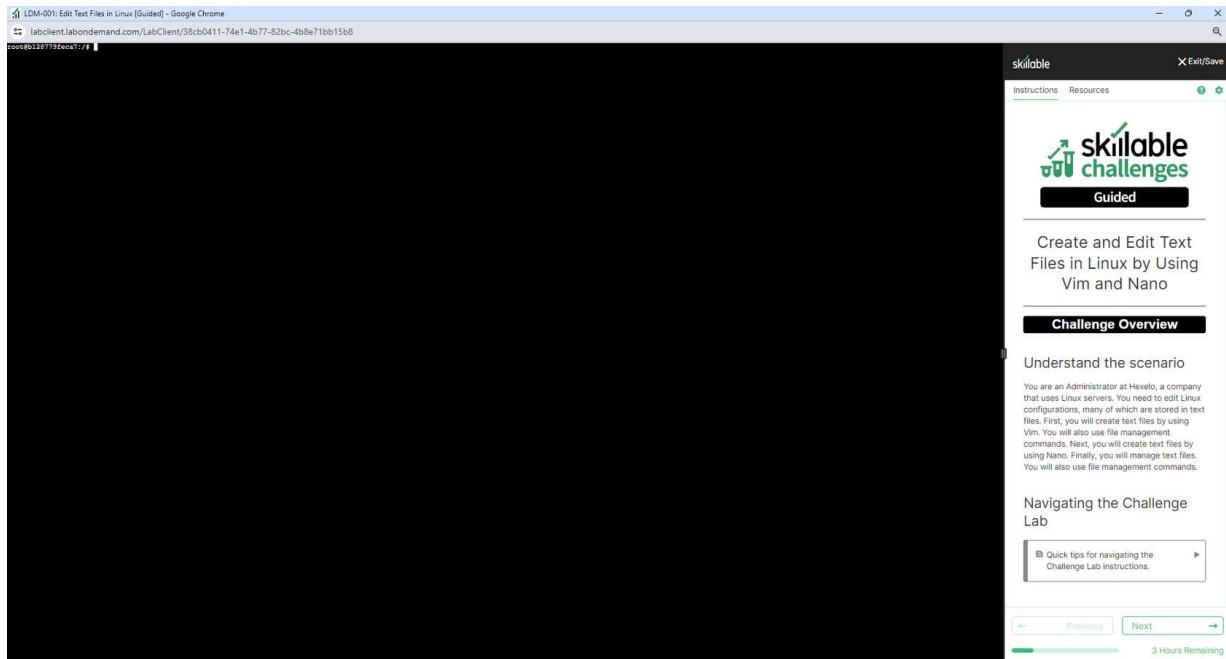
- Use Challenges to provide additional hands-on practice tied to vendor certification exam objectives.
- Challenges provide learners with the same model of scoring and requirements they will see on a Performance-based Testing exam.

# CHALLENGE LAB VIEWS

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## Launched Lab View



## Edit Instructions Lab View



The screenshot displays a challenge lab interface for "Create and Edit Text Files in Linux by Using Vim and Nano". The left pane contains the challenge instructions and steps, while the right pane shows a preview of the challenge page.

**Challenge Instructions:**

```
1 <-- 5/16/2023 - Challenge: LDH-001r(141042) - Converted to v3.00 using 'MarkDown' -->
2 <-- 10/02/2020, Added/modifid feedback URL. Removed excess CSS. Ben Nadeau -->
3 <-- 5/30/23 Create v3 update review -->
4
5 [INSTRUCTIONS]([https://raw.githubusercontent.com/100DaysContent/Challenges-V3-Framework/main/Templates/Sections/Intro.md])
6
7 > [challenge-title]:Create and Edit Text Files in Linux by Using Vim and Nano
8
9 > [challenge-desc]:
10 > You are an @lab.Variable(GlobalAdministrator) at @lab.Variable(GlobalCompany), a company that uses Linux servers. You need to edit Linux configurations, many of which are stored in text files. First, you will create text files by using Vim. You will also use file management commands. Next, you will create text files by using Nano. Finally, you will manage text files. You will also use file management commands.
11 >
12 >
13 > --- 
14 > <!-- Begin Requirement [1] section-->
15 >
16 > # Create text files by using Vim
17 >
18 [INSTRUCTIONS]([https://raw.githubusercontent.com/100DaysContent/Challenges-V3-Framework/main/Templates/Sections/Topics.md])
19 > [knowledge]: You have been automatically signed into the system as ++root++ by using ++$ssor#rd123++ as the password.
20 >
21 > - Switch to the user ++user01++ by using the ++su++ command.
22 >
23 :::steps(ShowSteps=True)
24 > [hint]: Expand this hint for guidance on using the ++su++ command.
25 >
26 > Execute the following command to switch to the ++user01++ user:
27 >
28 > >>> bash
29 > >>> su user01
30 > >>> 
31 > >>> 
32 > >>> 
33 > >>> 
34 > >>> 
35 > Change to the ++user01++ home folder, and then create a directory named +++text-files+++
36 >
37 :::steps(ShowSteps=True)
38 > [hint]: Expand this hint for guidance on creating a directory.
39 >
40 > Execute the following commands:
41 >
42 > >>> bash
43 > >>> cd /home/user01
44 > >>> 
45 > >>> 
46 > >>> bash
47 > >>> mkdir text-files
48 > >>>
```

**Challenge Overview:**

### Create and Edit Text Files in Linux by Using Vim and Nano

**Understand the scenario:**

You are an Administrator at Hexelo, a company that uses Linux servers. You need to edit Linux configurations, many of which are stored in text files. First, you will create text files by using Vim. You will also use file management commands. Next, you will create text files by using Nano. Finally, you will manage text files. You will also use file management commands.

**Navigating the Challenge Lab:**

Quick tips for navigating the Challenge Lab instructions.

Previous Next

2 Hours Remaining

# QUICK START CHECKLIST

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- Clone the **Challenge Lab** template and create a brand New **Challenge Lab**. **DO NOT EDIT the Template**, you will need it to build the remainder of your **Challenge Labs**.
- Add/set your **Variables**. This is where you will specify the lab difficulty, environment, company name, job role, and additional details such as whether to show Hints, hidden toggles or custom messaging.
- Add and Group **Verification Scripts**.
- Enable **Scoring**.
- Create the Challenge Lab Title.
- Create the Overview and Scenario.
- Insert the Tokens for the Global Variables you are using.
- Add the Requirements. (repeat for all requirements)
- Add Tasks to the Requirements. (repeat for all requirements)

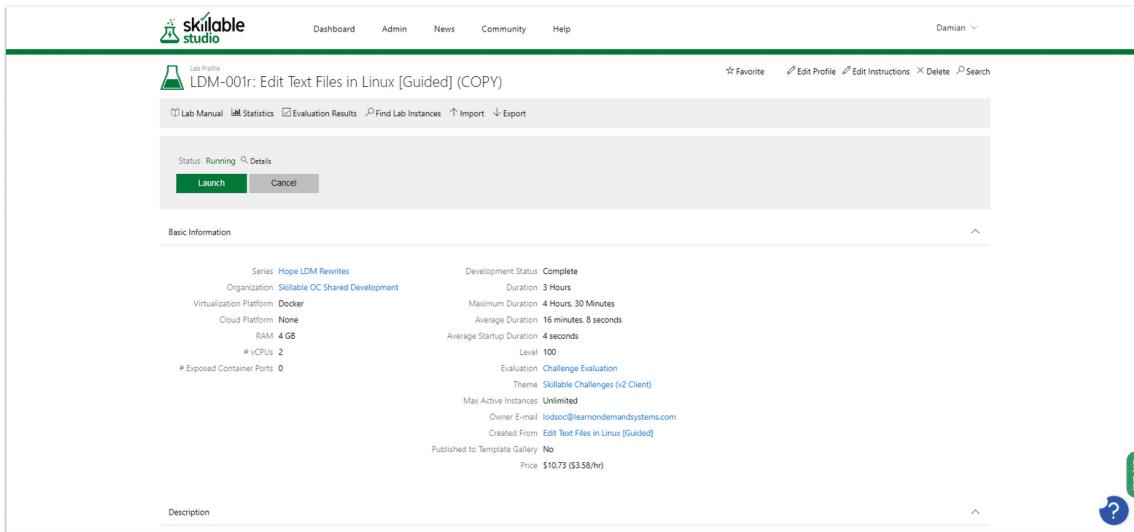
- Add Hints or Links to Hints to the Tasks. (repeat for all requirements)
- Add Alerts, Notes, or Knowledge Blocks to the Requirements. (repeat for all requirements)
- Add Code Blocks (if needed). (repeat for all requirements)
- Add Verification scripts to Check Your Work. (repeat for all requirements)
- Add the Challenge Lab title to the Summary.
- List the accomplished Requirements.
- List ALL other labs within the series.
- Run the lab and test verification scripts.
- Review formatting.

# CREATE A NEW CHALLENGE LAB FROM A TEMPLATE

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## Lab Profile



The screenshot shows the 'Lab Profile' page for a challenge lab named 'LDM-001r: Edit Text Files in Linux [Guided] (COPY)'. The page has a header with the Skillable studio logo, navigation links (Dashboard, Admin, News, Community, Help), and a user dropdown for 'Damian'. Below the header is a toolbar with actions: Favorite, Edit Profile, Edit Instructions, Delete, and Search. The main content area displays the lab's status as 'Running', with 'Launch' and 'Cancel' buttons. Under 'Basic Information', detailed settings are listed:

Setting	Value
Series	Hope LDM Rewrites
Organization	Skillable OC Shared Development
Virtualization Platform	Docker
Cloud Platform	None
RAM	4 GB
# vCPUs	2
# Exposed Container Ports	0
Development Status	Complete
Duration	3 Hours
Maximum Duration	4 Hours, 30 Minutes
Average Duration	16 minutes, 8 seconds
Average Startup Duration	4 seconds
Level	100
Evaluation	Challenge Evaluation
Theme	Skillable Challenges (v2 Client)
Max Active Instances	Unlimited
Owner E-mail	lkdsc@learnondemandsystems.com
Created From	Edit Text Files In Linux [Guided]
Published to Template Gallery	No
Price	\$10.73 (\$3.58/hr)

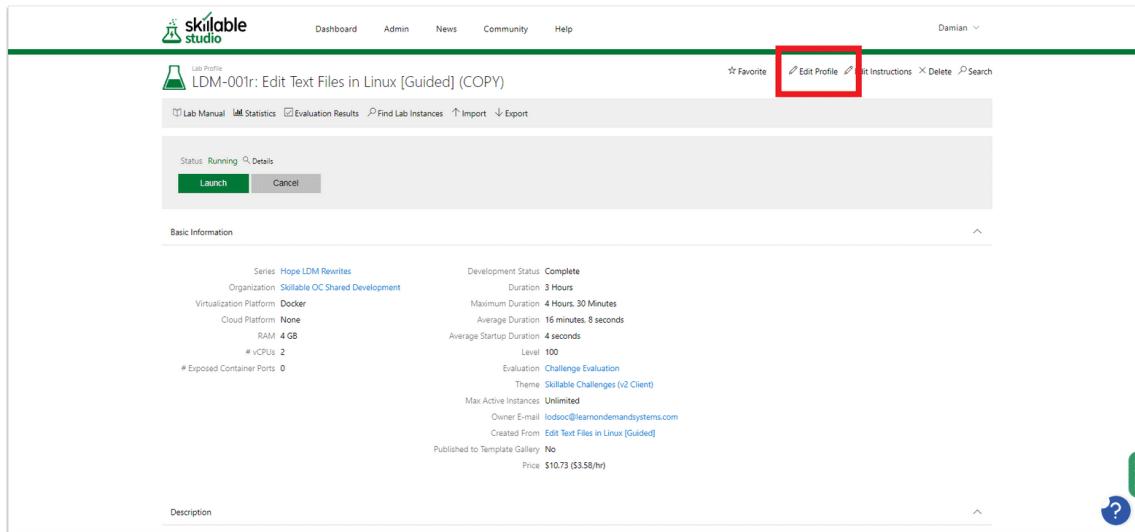
At the bottom of the page, there is a 'Description' section and a blue 'Edit' button.

From the Lab Profile page, you are able to edit the Challenge Lab profile settings and instructions, view the lab manual, and/or launch the Challenge Lab.

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CONTINUE

## Step 1: Select Edit Profile



The screenshot shows the Skilable studio interface. At the top, there's a navigation bar with links for Dashboard, Admin, News, Community, and Help. On the far right, it shows the user's name, Damian. Below the navigation, there's a toolbar with icons for Lab Manual, Statistics, Evaluation Results, Find Lab Instances, Import, and Export. The main content area displays a lab profile titled "LDM-001r: Edit Text Files in Linux [Guided] (COPY)". It includes sections for Basic Information, Development Status, and various configuration details like RAM, CPU, and theme. A prominent "Edit Profile" button is located in the top right corner of the profile card, which is highlighted with a red rectangle.

The Lab Profile page with the Edit Profile button highlighted in red.



Select **Edit Profile** from the Lab Profile page to access the Edit Profile page.

CONTINUE

## Edit Profile: Basic Information Tab



Edit Lab Profile

## LDM-001r: Edit Text Files in Linux [Guided] (COPY)

Basic Information Networks Containers Volumes Cloud Life Cycle Tags Advanced

Number

LDM-001r \*

Name

Edit Text Files in Linux [Guided] (COPY) \*

Series

Hope LDM Rewrites X

Choose

Organization

Skillable OC Shared Development

Choose

Virtualization Platform

Docker ▾

Code Lab Fabric

Parent ⓘ

None

Choose

Development Status

Complete

▼

Duration

3

Hours ▾

Prompt User to Extend Time

By

15

Minutes When

10

Minutes Remain

Level

100

▼

Evaluation

Challenge Evaluation X

Choose

Advertising Campaign

None

Choose

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled

Enable Bug Reporting

Bug Report Email Address ⓘ

support@learnondemand.zendesk.com

Owner Name

Owner E-mail

lodsoc@learnondemandsystems.com

Override Start Page

**Save**

Save As

Cancel

The **Basic Information** tab allows you to change the Lab Number, Name, Series, Description and more.

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**CONTINUE**

## Step 2: Create a New Challenge Lab Number

Edit Lab Profile

### LDM-001r: Edit Text Files in Linux [Guided] (COPY)

Basic Information Networks Containers Volumes Cloud Life Cycle Tags Advanced

Number  \*

Name  \*

Series

Organization

Virtualization Platform

Code Lab Fabric

Parent

Development Status

Duration  Hours

Prompt User to Extend Time  By  Minutes When  Minutes Remain

Level

Evaluation

Advertising Campaign

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled

Enable Bug Reporting

Bug Report Email Address

Owner Name

Owner E-mail

Override Start Page

The Challenge Lab template Number defaults to **V3-Challenge Lab Template**.

In this example, we will be using **LAB-001** as the Lab Number. The Challenge Lab template defaults to **V3-Challenge Lab Template**.



- On the Basic Information tab, in the Number textbox, replace **V3-Challenge Lab Template** with **LAB-001**, and then press **Tab** to advance to the **Name** textbox.

**CONTINUE**

### **Step 3: Create a New Challenge Lab Name**



Edit Lab Profile

## LDM-001r: Edit Text Files in Linux [Guided] (COPY)

[Basic Information](#) [Networks](#) [Containers](#) [Volumes](#) [Cloud](#) [Life Cycle](#) [Tags](#) [Advanced](#)Number  \*Name  \*Series  [Choose](#)Organization  [Choose](#)Virtualization Platform  [▼](#)Code Lab Fabric Parent [None](#) [Choose](#)Development Status  [▼](#)Duration  [Hours](#) [▼](#)Prompt User to Extend Time  By  Minutes When  Minutes RemainLevel  [▼](#)Evaluation  [Choose](#)Advertising Campaign [None](#) [Choose](#)

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled Enable Bug Reporting Bug Report Email Address [support@learnondemand.zendesk.com](#)Owner Name Owner E-mail Override Start Page [Save](#)[Save As](#)[Cancel](#)

We will be using **New Challenge Lab Name** as the Lab Name. By default, the Challenge Lab Name defaults to **Challenge Lab Template - (V3) (COPY)**.



- On the Basic Information tab, in the Name textbox, replace **New Challenge Lab Name** with the name of your new Challenge Lab, and then press **Tab** to advance to the **Series** textbox.

**CONTINUE**

#### **Step 4: Change the Challenge Lab Series**



Edit Lab Profile

## LDM-001r: Edit Text Files in Linux [Guided] (COPY)

[Basic Information](#) [Networks](#) [Containers](#) [Volumes](#) [Cloud](#) [Life Cycle](#) [Tags](#) [Advanced](#)Number  \*Name  \*Series  [Choose](#)Organization  [Choose](#)Virtualization Platform  [▼](#)Code Lab Fabric Parent [None](#) [Choose](#)Development Status  [▼](#)Duration  [Hours](#) [▼](#)Prompt User to Extend Time  By  Minutes When  Minutes RemainLevel  [▼](#)Evaluation  [Choose](#)Advertising Campaign  [Choose](#)

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled Enable Bug Reporting Bug Report Email Address [support@learnondemand.zendesk.com](#)Owner Name Owner E-mail Override Start Page [Save](#)[Save As](#)[Cancel](#)

We will be using our **Sandbox** as the Lab **Series**. By default, the Challenge Lab series defaults to **Challenge Labs Sandbox**.

- On the Basic Information tab, to the right of the Series textbox, select the **Choose** button.
- On the Choose Lab Series page, in the Name search box, enter the name of your **Sandbox**, and then select **Search**.
- Select your sandbox from the list of **Lab Series Found**, and then select **OK**.
- Back on the Basic Information tab, in the Series textbox, press **Tab** to advance to the **Organization** textbox.

**CONTINUE**

### Step 5: Change the Challenge Lab Organization



Edit Lab Profile

## LDM-001r: Edit Text Files in Linux [Guided] (COPY)

[Basic Information](#) [Networks](#) [Containers](#) [Volumes](#) [Cloud](#) [Life Cycle](#) [Tags](#) [Advanced](#)Number  \*Name  \*Series  [Choose](#)Organization  [Choose](#)Virtualization Platform Code Lab Fabric Parent [None](#) [Choose](#)Development Status Duration  HoursPrompt User to Extend Time  By  Minutes When  Minutes RemainLevel Evaluation  [Choose](#)Advertising Campaign  [Choose](#)

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled Enable Bug Reporting Bug Report Email Address [support@learnondemand.zendesk.com](#)Owner Name Owner E-mail Override Start Page [Save](#)[Save As](#)[Cancel](#)

We will be using **Skillable OC Shared Development** as the Lab Organization. By default, the Challenge Lab series defaults to **Skillable OC Shared Development**.

- Verify that the Challenge Lab Organization is set to **Skillable OC Shared Development**.
- If the **Organization** is not set to **Skillable OC Shared Development**, select the **Choose** button directly to the right of the **Organization** textbox.
- On the Choose Organization page, in the Name search box, enter **Skillable OC Shared Development**, and then select the **Search** button.
- Select **Skillable OC Shared Development** from the list of **Organizations Found**, and then select **OK**.
- Back on the Basic Information tab, in the Organization textbox, press **Tab** to advance through until you reach the **Duration** textbox.

**CONTINUE**

### Step 6: Change the Challenge Lab Duration

Edit Lab Profile

### LDM-001r: Edit Text Files in Linux [Guided] (COPY)

Basic Information Networks Containers Volumes Cloud Life Cycle Tags Advanced

Number	LDM-001r *
Name	Edit Text Files in Linux [Guided] (COPY) *
Series	Hope LDM Rewrites X Choose
Organization	Skillable OC Shared Development Choose
Virtualization Platform	Docker
Code Lab Fabric	<input type="checkbox"/>
Parent	(None) Choose
Development Status	Complete
Duration	3 Hours
Prompt User to Extend Time	<input checked="" type="checkbox"/> By 15 Minutes When 10 Minutes Remain
Level	100
Evaluation	Challenge Evaluation X Choose
Advertising Campaign	(None) Choose
Description	<p>In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.</p> <p>Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.</p>
Enabled	<input checked="" type="checkbox"/>
Enable Bug Reporting	<input checked="" type="checkbox"/>
Bug Report Email Address	(support@learnondemand.zendesk.com)
Owner Name	
Owner E-mail	lodsoc@learnondemandsystems.com
Override Start Page	<input type="checkbox"/>

**Save** **Save As** **Cancel**

By default, the Challenge Lab **Duration** is set to (1) hour. It is important to note that different lab levels have different durations. For example, a Guided Challenge Lab

might have a duration of (30-45) minutes, while an Advanced Challenge Lab could be (45-60) minutes, and an Expert or Capstone Challenge Lab could easily be in excess of (1) hour.



On the Basic Information tab, in the Duration textbox, set the duration to **(1) Hour**, and then press **Tab**.

**CONTINUE**

### Step 7: Update the Challenge Lab Description

Edit Lab Profile

### LDM-001r: Edit Text Files in Linux [Guided] (COPY)

Basic Information Networks Containers Volumes Cloud Life Cycle Tags Advanced

Number  \*

Name  \*

Series

Organization

Virtualization Platform

Code Lab Fabric

Parent

Development Status

Duration  Hours

Prompt User to Extend Time  By  Minutes When  Minutes Remain

Level

Evaluation

Advertising Campaign

Description

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled

Enable Bug Reporting

Bug Report Email Address

Owner Name

Owner E-mail

Override Start Page

By default, the Challenge Lab Description text displays:

In this Challenge Lab, you will create an Advanced Challenge Lab.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

*The following is an example of a Challenge Lab description:*

In this Challenge Lab, you will implement an Azure load balancer. First, you will create an Azure load balancer. Next, you will configure a backend pool for the load balancer, and then you will configure an HTTP health probe. Finally, you will create a load balancing rule.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.



Challenge Lab descriptions generally follow the following format:

In this Challenge Lab you will \_\_\_\_\_. First, you will \_\_\_\_\_, and then you will \_\_\_\_\_. Next, you will \_\_\_\_\_, and then you will \_\_\_\_\_. Finally, you will \_\_\_\_\_.



On the Basic Information tab, in the **Description** textbox, enter your new Challenge Lab description.

**CONTINUE**

## Step 8: Select Save As

Edit Lab Profile

## LDM-001r: Edit Text Files in Linux [Guided] (COPY)

Basic Information Networks Containers Volumes Cloud Life Cycle Tags Advanced

Number  \*

Name  \*

Series

Organization

Virtualization Platform

Code Lab Fabric

Parent

Development Status

Duration

Prompt User to Extend Time  By  Minutes When  Minutes Remain

Level

Evaluation

Advertising Campaign

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files.

Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Enabled

Enable Bug Reporting

Bug Report Email Address

Owner Name

Owner E-mail

Override Start Page

**IMPORTANT!** Be sure to select **Save As**, instead of selecting **Save**. **Save As** will save the current Challenge Lab template as your new **Challenge Lab**, while simply selecting

**Save** will overwrite your template.



Select **Save As** to create your new Challenge Lab template.

**CONTINUE**

## Step 9: Verify the Save As Window changes

The screenshot shows the 'Save As' dialog box with the following fields:

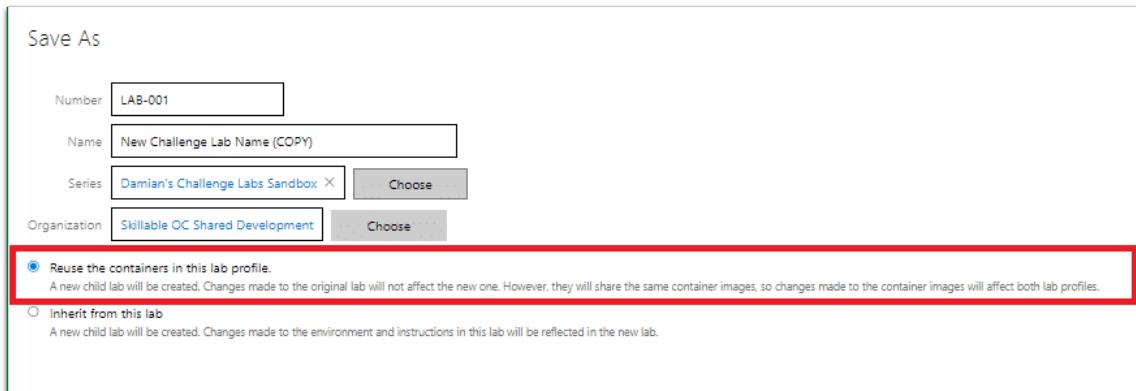
- Number:** LAB-001
- Name:** New Challenge Lab Name (COPY)
- Series:** Damian's Challenge Labs Sandbox
- Organization:** Skillable OC Shared Development

Below the fields are two radio button options:

- Reuse the containers in this lab profile.**  
A new child lab will be created. Changes made to the original lab will not affect the new one. However, they will share the same container images, so changes made to the container images will affect both lab profiles.
- Inherit from this lab**  
A new child lab will be created. Changes made to the environment and instructions in this lab will be reflected in the new lab.

The Save As window with a new Challenge Lab Name and Number using the Sandbox series, Skillable OC Shared Development Organization, and Clone this lab selected.

**\*For Labs with only VM's.**



The Save As window with a new Challenge Lab Name and Number using the Sandbox series, Skillable OC Shared Development Organization, and Reuse the virtual machine profiles in this lab profile selected.

- On the Save As window, in the Number textbox, enter **LAB-001**, and then select **Tab** to advance to the **Name** textbox.
- In the Name textbox, enter your new **New Challenge Lab Name**, and then select **Tab** to advance to the **Series** textbox.
- In the Series textbox, enter your new **Sandbox Name**, and then select **Tab** to advance to the **Organization** textbox.
- In the Organization textbox, enter **Skillable OC Shared Development**, and then verify that **Clone this lab** is selected.
- Select **OK** to save create your new Challenge Lab template.

**CONTINUE**

# Your Cloned Challenge Lab

Creation Successful

Lab Profile LAB-001: New Challenge Lab Name (COPY)

Launch on Host Launch in Datacenter Lab Manual Lab Statistics Evaluation Results Find Lab Instances Import Export

Status Not Running

Launch

**Basic Information**

Series	Challenge Labs Sandbox	Development Status	Complete
Organization	Skillable OC Shared Development	Duration	3 Hours
Virtualization Platform	Docker	Maximum Duration	4 Hours 30 Minutes
Cloud Platform	None	Average Duration	---
RAM	4 GB	Average Startup Duration	---
# vCPUs	2	Level	100
# Exposed Container Ports	0	Evaluation	Challenge Evaluation
		Theme	Skillable Challenges
		Max Active Instances	Unlimited
		Owner E-mail	l0dsc@learnondemandsystems.com
		Created From	Edit Text Files in Linux [Guided] (COPY)
		Published to Template Gallery	No

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files. Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Open Bug Reports (0)

Launch URLs

LTI Launch URL: <https://labondemand.com/LTI/Launch/154571>

Containers (1)

Your cloned Challenge Lab template.

**Creation Successful**

 Lab Profile    Dashboard    Admin    News    Community    Help

**LAB-001: New Challenge Lab Name (COPY)**

Launch on Host   Launch in Datacenter   Lab Manual   Lab Statistics   Evaluation Results   Find Lab Instances   Import   Export

Status: Not Running   **Launch**

**Basic Information**

Series: Challenge Labs Sandbox	Development Status: Complete
Organization: Skilable OC Shared Development	Duration: 3 Hours
Virtualization Platform: Docker	Maximum Duration: 4 Hours, 30 Minutes
Cloud Platform: None	Average Duration: ...
RAM: 4 GB	Average Startup Duration: ...
# vCPUs: 2	Level: 100
# Exposed Container Ports: 0	Evaluation: Challenge Evaluation
Theme: Skilable Challenges	
Max Active Instances: Unlimited	
Owner E-mail: lodsoc@learnondemandsystems.com	
Created From: Edit Text Files in Linux [Guided] (COPY)	
Published to Template Gallery: No	

**Description**

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files. Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Open Bug Reports (0)

Launch URLs

LTI Launch URL: <https://labondemand.com/LTI/Launch/154571>

Containers (1)

Your new Challenge Lab **Title** highlighted in **Red**.

---

Congratulations! You have successfully Cloned your template and are ready to create your New Challenge Lab.

# ADDING VARIABLES TO A CHALLENGE LAB

 Michael Kemper

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## Creating Your Challenge Lab Variables

The following step-by-step instructions will help guide you through the process of adding/setting your Challenge Lab variables.

### [The Lab Profile Page](#)

**Creation Successful**

 Lab Profile

Dashboard Admin News Community Help

**LAB-001: New Challenge Lab Name (COPY)**

Launch on Host Launch in Datacenter Lab Manual Lab Statistics Evaluation Results Find Lab Instances Import Export

Status Not Running

Launch

**Basic Information**

Series	Challenge Labs Sandbox	Development Status	Complete
Organization	Skilable OC Shared Development	Duration	3 Hours
Virtualization Platform	Docker	Maximum Duration	4 Hours, 30 Minutes
Cloud Platform	None	Average Duration	---
RAM	4 GB	Average Startup Duration	---
# vCPUs	2	Level	100
# Exposed Container Ports	0	Evaluation	Challenge Evaluation
		Theme	Skilable Challenges
		Max Active Instances	Unlimited
		Owner E-mail	l0dsc@learnondemandsystems.com
		Created From	Edit Text Files in Linux [Guided] (COPY)
		Published to Template Gallery	No

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files. Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Open Bug Reports (0)

Launch URLs

LTI Launch URL: <https://labondemand.com/LTI/Launch/154571>

Containers (1)

From the Lab Profile page, you are able to edit the Challenge Lab profile settings and instructions, view the lab manual, and/or launch the Challenge Lab.

**CONTINUE**

## Step 1: Select Edit Instructions

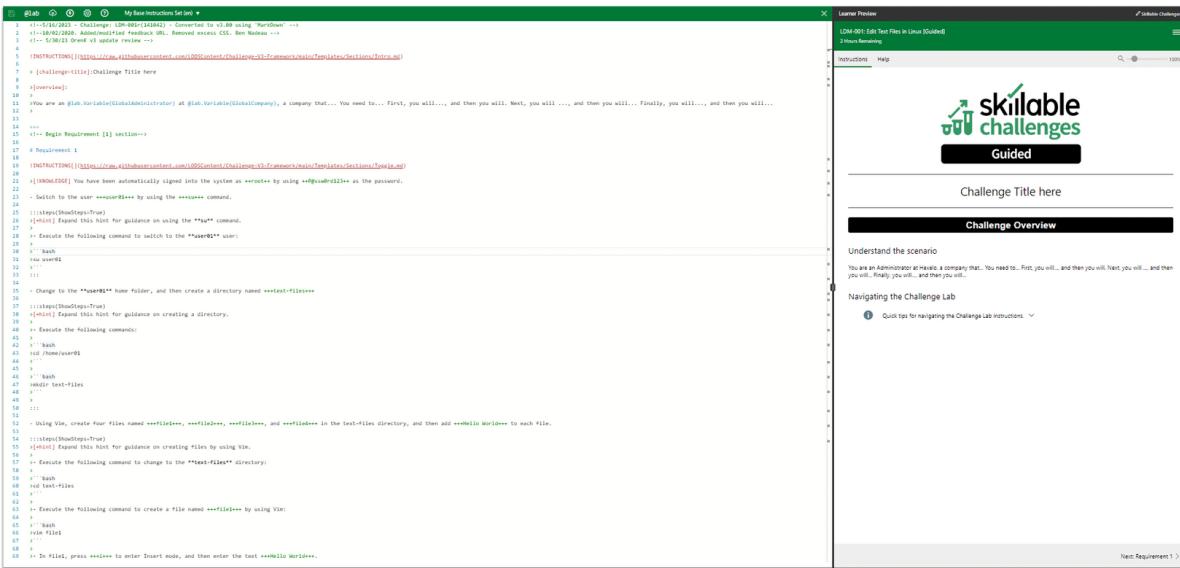
The screenshot shows the Skilable studio interface. At the top, there's a navigation bar with links for Dashboard, Admin, News, Community, and Help. A blue banner at the top right says "Creation Successful". Below the banner, the page title is "LAB-001: New Challenge Lab Name (COPY)". On the right side of the title, there are several buttons: "Favorite", "Edit Profile", "Edit Instructions" (which is highlighted with a red box), "Delete", and "Search". Under the title, there are links for "Launch on Host", "Launch in Datacenter", "Lab Manual", "Statistics", "Evaluation Results", "Find Lab Instances", "Import", and "Export". Below these links, the status is shown as "Not Running" with a "Launch" button. The main content area is titled "Basic Information" and contains various configuration details. At the bottom of this section, it says "Published to Template Gallery: No". Below this, there's a "Description" section with a note about the challenge lab. Further down are sections for "Open Bug Reports (0)", "Launch URLs", and "Containers (1)".

The Lab Profile page with the Edit Instructions button highlighted in red.



Select **Edit Instructions** from the Lab Profile page to access the Edit Instructions page.

## The Edit Instructions Window



The Edit Instructions window with the iDLX editor and markdown script on the left, and lab manual visible on the right.

**CONTINUE**

## Step 2: Select the Tokens, Variables, and Replacements Button (@lab).

The screenshot shows two windows side-by-side. On the left is the 'Edit Instructions' window titled 'My Base Instructions Set (set 1)'. It contains a large block of text instructions for a challenge, starting with 'You are an `glan-Variable(GlobalAdministrator)` at `glan-Variable(GlobalCompany)`, a company that... You need to... First, you will..., and then you will... Next, you will ..., and then you will... Finally, you will..., and then you will...'. The text includes several numbered steps and terminal command examples. A red square highlights the 'Add Lab Variables' button in the top-left corner of this window. On the right is the 'Learner Preview' window titled 'LDM-001: Edit Test Files in Linux (Guided)'. It shows a simplified version of the challenge instructions with a 'Challenge Title here' placeholder and a 'Challenge Overview' section.

The Add Lab Variables button highlighted in red in the upper left corner of the Edit Instructions window.

---



Select the **@Lab** icon located in the upper left-hand corner of the Edit Instructions window to access the Lab Variables.

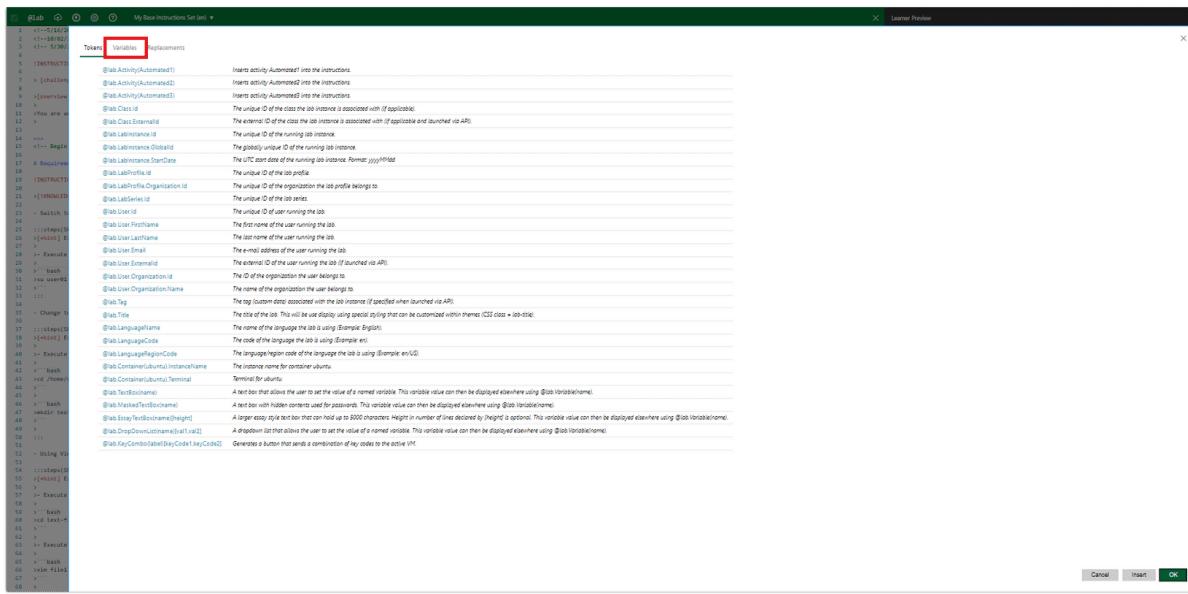
## The Tokens Tab



Once you select the **@Lab** icon, the Lab variables page opens placing you on the **Tokens** tab.

**CONTINUE**

### Step 3: Select the Variables Tab



The **Variables** tab highlighted in red in the upper left corner of the Edit Instructions window.



Select the **Variables** tab located in the upper left-hand corner of the Edit Instructions window to access the Lab Variables.

CONTINUE

## The Variables Tab

@lab.LabProfile.Id	The unique ID of the lab profile.		
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.		
@lab.LabSeries.Id	The unique ID of the lab series.		
@lab.User.Id	The unique ID of user running the lab.		
@lab.User.FirstName	The first name of the user running the lab.		
<b>@lab.User.LastName</b>	<b>The last name of the user running the lab.</b>		
@lab.User.Email	The e-mail address of the user running the lab.		
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).		
@lab.User.Organization.Id	The ID of the organization the user belongs to.		
@lab.User.Organization.Name	The name of the organization the user belongs to.		
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).		
@lab.Title	The title of the lab. This will be used for display using special styling that can be customized within themes (CSS class = lab-title).		
@lab.LanguageName	The name of the language the lab is using (Example: English).		
@lab.LanguageCode	The code of the language the lab is using (Example: en).		
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).		
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.		
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.		
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.KeyCombo(label)[keyCode1,keyCode2]	Generates a button that sends a combination of key codes to the active VM.		
Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
ShowToggle	Yes	@lab.Variable>ShowToggle	X Delete + Insert
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert

+ Add Variable

The above image shows all of the variables which are included by default in a new Challenge Lab.

CONTINUE

## Step 4: Set the Lab Difficulty

@lab.LabProfile.Id	The unique ID of the lab profile.
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.
@lab.LabSeries.Id	The unique ID of the lab series.
@lab.UserId	The unique ID of user running the lab.
@lab.User.FirstName	The first name of the user running the lab.
<b>@lab.User.LastName</b>	<b>The last name of the user running the lab.</b>
@lab.User.Email	The e-mail address of the user running the lab.
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).
@lab.User.Organization.Id	The ID of the organization the user belongs to.
@lab.User.Organization.Name	The name of the organization the user belongs to.
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).
@lab.Title	The title of the lab. This will be used for display using special styling that can be customized within themes (CSS class = lab-title).
@lab.LanguageName	The name of the language the lab is using (Example: English).
@lab.LanguageCode	The code of the language the lab is using (Example: en).
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).
@lab.KeyCombo(label)[keyCode1,keyCode2]	Generates a button that sends a combination of key codes to the active VM.

Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
ShowToggle	Yes	@lab.Variable>ShowToggle	X Delete + Insert
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert

+ Add Variable

The lab **variables** tab with the **Difficulty** variable highlighted in red.

The **difficulty** variable should be set according to which lab you are building. In the above screen capture, the Challenge Lab is set to **Advanced**, which means the author intends for this lab to be an Advanced Challenge Lab. Other options include: **Guided**, **Expert**, and **Capstone**.



On the variables page, enter a value of **Advanced** for the lab difficulty, and then select **Tab** to advance to the **CloudEnvironment** variable.



By entering **Advanced** as the difficulty level, we are preparing an **Advanced Challenge Lab**.

**CONTINUE**

### Step 5: Set the Lab Cloud Environment

@lab.LabProfile.Id	The unique ID of the lab profile.		
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.		
@lab.LabSeries.Id	The unique ID of the lab series.		
@lab.User.Id	The unique ID of user running the lab.		
@lab.User.FirstName	The first name of the user running the lab.		
@lab.User.LastName	The last name of the user running the lab.		
@lab.User.Email	The e-mail address of the user running the lab.		
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).		
@lab.User.Organization.Id	The ID of the organization the user belongs to.		
@lab.User.Organization.Name	The name of the organization the user belongs to.		
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).		
@lab.Title	The title of the lab. This will be used for display using special styling that can be customized within themes (CSS class = lab-title).		
@lab.LanguageName	The name of the language the lab is using (Example: English).		
@lab.LanguageCode	The code of the language the lab is using (Example: en).		
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).		
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.		
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.		
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.KeyCombo(label)[keyCode1,keyCode2]	Generates a button that sends a combination of key codes to the active VM.		
Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
ShowToggle	Yes	@lab.Variable>ShowToggle	X Delete + Insert
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert

+ Add Variable

The lab variables tab with the CloudEnvironment variable highlighted in red.

The **cloudEnvironment** variable should be set to **CloudSlice** if you are building a Challenge Lab that requires a Cloud Environment. If the **Value** field is empty, the Challenge lab will default to **No Cloud Environment** and the Cloud related verbiage located below the Challenge Lab overview will not display. In the above screen capture, the Challenge Lab is set to **CloudSlice**, which means the author intends for this lab to be a Challenge Lab that requires a Cloud Environment.



On the variables page, enter a value of **CloudSlice** for the **CloudEnvironment**, and then select **Tab** to advance to the

## GlobalCompany variable.

CONTINUE

### Step 6: Set the Company Name

@lab.LabProfile.Id	The unique ID of the lab profile.		
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.		
@lab.LabSeries.Id	The unique ID of the lab series.		
@lab.UserId	The unique ID of user running the lab.		
@lab.User.FirstName	The first name of the user running the lab.		
<b>@lab.User.LastName</b>	<b>The last name of the user running the lab.</b>		
@lab.User.Email	The e-mail address of the user running the lab.		
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).		
@lab.User.Organization.Id	The ID of the organization the user belongs to.		
@lab.User.Organization.Name	The name of the organization the user belongs to.		
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).		
@lab.Title	The title of the lab. This will be use display using special styling that can be customized within themes (CSS class = lab-title).		
@lab.LanguageName	The name of the language the lab is using (Example: English).		
@lab.LanguageCode	The code of the language the lab is using (Example: en).		
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).		
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.		
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.		
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.KeyCombоХаll[.keyCode1.keyCode2]	Generates a button that sends a combination of key codes to the active VM.		
Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	<span>X Delete</span> <span>+ Insert</span>
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	<span>X Delete</span> <span>+ Insert</span>
<b>GlobalCompany</b>	<b>Hexelo</b>	<b>@lab.Variable(GlobalCompany)</b>	<b><span>X Delete</span> <span>+ Insert</span></b>
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	<span>X Delete</span> <span>+ Insert</span>
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	<span>X Delete</span> <span>+ Insert</span>
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	<span>X Delete</span> <span>+ Insert</span>
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	<span>X Delete</span> <span>+ Insert</span>
GlobalSummary		@lab.Variable(GlobalSummary)	<span>X Delete</span> <span>+ Insert</span>
ShowHints	Yes	@lab.Variable>ShowHints	<span>X Delete</span> <span>+ Insert</span>
ShowToggle	Yes	@lab.Variable>ShowToggle	<span>X Delete</span> <span>+ Insert</span>
ShowSteps	True	@lab.Variable>ShowSteps	<span>X Delete</span> <span>+ Insert</span>

[+ Add Variable](#)

The lab **variables** tab with the **GlobalCompany** variable highlighted in red.

---

The **GlobalCompany** variable is, by default, set to **Hexelo**. This name can be changed to accommodate any Company Name, and changing the value here will update all occurrences of the Company Name within the Challenge Lab.



On the variables page, enter a value of **Hexelo** for the **GlobalCompany**, and then select **Tab** to advance to the **Global Job Role** variables.

**CONTINUE**

### Step 7: Set the Job Role

@lab.LabProfile.Id	The unique ID of the lab profile.		
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.		
@lab.LabSeries.Id	The unique ID of the lab series.		
@lab.User.Id	The unique ID of user running the lab.		
@lab.User.FirstName	The first name of the user running the lab.		
@lab.User.LastName	The last name of the user running the lab.		
@lab.User.Email	The e-mail address of the user running the lab.		
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).		
@lab.User.Organization.Id	The ID of the organization the user belongs to.		
@lab.User.Organization.Name	The name of the organization the user belongs to.		
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).		
@lab.Title	The title of the lab. This will be use display using special styling that can be customized within themes (CSS class = lab-title).		
@lab.LanguageName	The name of the language the lab is using (Example: English).		
@lab.LanguageCode	The code of the language the lab is using (Example: en).		
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).		
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.		
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.		
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.KeyCombo(label)[keyCode1,keyCode2]	Generates a button that sends a combination of key codes to the active VM.		
Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
ShowToggle	Yes	@lab.Variable>ShowToggle	X Delete + Insert
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert

+ Add Variable

The lab variables tab with the Global Job Role variables highlighted in red.

---

In the above screen capture, the **Global Job Roles** are selected. None of these values need to be changed. Select the Job Role which you wish to use in your Scenario, and simply insert the `@lab.variable(JobRole)` in place of the actual Job Role. You will only use 1 of these Job Roles for your Challenge Lab. All Job Roles must fall within one of the above categories. While, these do not need to be edited, you will need to select a job role and insert the Token into your Challenge Lab.

For example, if the Challenge Lab is written for an Administrator, you would insert `@lab.variable(Administrator)` in place of the word **Administrator**, within the markdown of your Scenario. More on this when we discuss **Scenarios**.



On the variables page, review the provided **Job Role** variables, and then select **Tab** to advance to the **GlobalIntroduction** variable.

**CONTINUE**

## **Step 8: Set the Introduction, Summary, Header, and Footer**

@lab.LabProfile.Id	The unique ID of the lab profile.		
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.		
@lab.LabSeries.Id	The unique ID of the lab series.		
@lab.UserId	The unique ID of user running the lab.		
@lab.User.FirstName	The first name of the user running the lab.		
<b>@lab.User.LastName</b>	<b>The last name of the user running the lab.</b>		
@lab.User.Email	The e-mail address of the user running the lab.		
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).		
@lab.User.Organization.Id	The ID of the organization the user belongs to.		
@lab.User.Organization.Name	The name of the organization the user belongs to.		
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).		
@lab.Title	The title of the lab. This will be use display using special styling that can be customized within themes (CSS class = lab-title).		
@lab.LanguageName	The name of the language the lab is using (Example: English).		
@lab.LanguageCode	The code of the language the lab is using (Example: en).		
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).		
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.		
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.		
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.KeyCombo(label)[keyCode1,keyCode2]	Generates a button that sends a combination of key codes to the active VM.		
Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
ShowToggle	Yes	@lab.Variable>ShowToggle	X Delete + Insert
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert
<a href="#">+ Add Variable</a>			

The lab variables tab with the **GlobalIntroduction**, **GlobalSummary**, **GlobalReqHeader**, and **GlobalReqFooter** variables highlighted in red.

The **GlobalIntroduction**, **GlobalSummary**, **GlobalReqHeader**, and **GlobalReqFooter** values are empty by default. These will only display within a Challenge Lab if they have values.

They are not required for your lab to function properly.



On the variables page, you can enter custom messages for the **GlobalIntroduction**, **GlobalSummary**, **GlobalReqHeader**, and **GlobalReqFooter** variables.



Select Tab to advance to the ShowHints variable.

CONTINUE

## Step 9: Set the Challenge Lab to Show Hints

Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
ShowToggle	Yes	@lab.Variable>ShowToggle	X Delete + Insert
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert

+ Add Variable

The lab **variables** tab with the **ShowHints** variable highlighted in red.

---

The **ShowHints** variable is turned **OFF (No)** by default. The **ShowHints** variable allows the author to either hide or display Hints within a Challenge Lab.

In most use cases, Guided and Advanced Challenge Labs would have a value of **Yes**, while Expert Challenge Labs would have a **ShowHints** value of **No**.



On the variables page, enter a value of **No** for the **ShowHints** variable, and then select **Tab** to advance to the **ShowToggle** variable.

**CONTINUE**

## Step 10: Set the Challenge Lab to the Hints Toggle

@lab.LabProfile.Id	The unique ID of the lab profile.		
@lab.LabProfile.Organization.Id	The unique ID of the organization the lab profile belongs to.		
@lab.LabSeries.Id	The unique ID of the lab series.		
@lab.User.Id	The unique ID of user running the lab.		
@lab.User.FirstName	The first name of the user running the lab.		
<b>@lab.User.LastName</b>	<b>The last name of the user running the lab.</b>		
@lab.User.Email	The e-mail address of the user running the lab.		
@lab.User.ExternalId	The external ID of the user running the lab (if launched via API).		
@lab.User.Organization.Id	The ID of the organization the user belongs to.		
@lab.User.Organization.Name	The name of the organization the user belongs to.		
@lab.Tag	The tag (custom data) associated with the lab instance (if specified when launched via API).		
@lab.Title	The title of the lab. This will be use display using special styling that can be customized within themes (CSS class = lab-title).		
@lab.LanguageName	The name of the language the lab is using (Example: English).		
@lab.LanguageCode	The code of the language the lab is using (Example: en).		
@lab.LanguageRegionCode	The language/region code of the language the lab is using (Example: en/US).		
@lab.Container(ubuntu).InstanceName	The instance name for container ubuntu.		
@lab.Container(ubuntu).Terminal	Terminal for ubuntu.		
@lab.TextBox(name)	A text box that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.MaskedTextBox(name)	A text box with hidden contents used for passwords. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.EssayTextBox(name)[height]	A larger essay style text box that can hold up to 5000 characters. Height in number of lines declared by (height) is optional. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.DropDownList(name)[val1,val2]	A dropdown list that allows the user to set the value of a named variable. This variable value can then be displayed elsewhere using @lab.Variable(name).		
@lab.KeyCombo(label)[keyCode1,keyCode2]	Generates a button that sends a combination of key codes to the active VM.		
Name	Value	Token	
Difficulty	Guided	@lab.Variable(Difficulty)	X Delete + Insert
cloudEnvironment	None	@lab.Variable(cloudEnvironment)	X Delete + Insert
GlobalCompany	Hexelo	@lab.Variable(GlobalCompany)	X Delete + Insert
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)	X Delete + Insert
GlobalIntroduction		@lab.Variable(GlobalIntroduction)	X Delete + Insert
GlobalReqHeader		@lab.Variable(GlobalReqHeader)	X Delete + Insert
GlobalReqFooter		@lab.Variable(GlobalReqFooter)	X Delete + Insert
GlobalSummary		@lab.Variable(GlobalSummary)	X Delete + Insert
ShowHints	Yes	@lab.Variable>ShowHints	X Delete + Insert
<b>ShowToggle</b>	<b>Yes</b>	<b>@lab.Variable&gt;ShowToggle</b>	<b>X Delete + Insert</b>
ShowSteps	True	@lab.Variable>ShowSteps	X Delete + Insert

+ Add Variable

The lab **variables** tab with the **ShowToggle** variable highlighted in red.

The **ShowToggle** variable is turned **ON (Yes)** by default. The ShowToggle variable allows the author to make the Toggle either hidden or visible. The Toggle allows a User to either display, or hide Hints, if the Challenge Lab level supports them. Depending on which level Challenge Lab you are building, you may or may not wish to display the Toggle. In most use cases, Guided and Advanced Challenge Labs would have a value of Yes, while Expert Challenge Labs would have a ShowHints value of No.



On the variables page, enter a value of **Yes** for the **ShowToggle** variable.

CONTINUE

## Step 10: Select OK to save your Variables

The screenshot shows the 'Variables' tab of a configuration interface. A list of variables is displayed with their descriptions. The 'ShowToggle' variable is highlighted with a red box. At the bottom right of the list, there is an 'OK' button, which is also highlighted with a red box.

Name	Value	Tokens
Difficulty	Guided	@lab.Variable(Difficulty)
cloudEnvironment	None	@lab.Variable(CloudEnvironment)
GlobalCompany	Mexico	@lab.Variable(GlobalCompany)
GlobalAdministrator	Administrator	@lab.Variable(GlobalAdministrator)
GlobalIntroduction		@lab.Variable(GlobalIntroduction)
GlobalRepeater		@lab.Variable(GlobalRepeater)
GlobalRePoster		@lab.Variable(GlobalRePoster)
GlobalSummary		@lab.Variable(GlobalSummary)
ShowHints	Yes	@lab.Variable>ShowHintz)
ShowToggle	Yes	@lab.Variable>ShowToggle)
ShowSteps	True	@lab.Variable>ShowStepz)

The lab **variables** tab with the **OK** button variable highlighted in **red**.



In the lower-right corner of the Variables tab, select **OK** to save your variable values, and then return to the **Edit Instructions** screen.

**CONTINUE**

# ADDING VERIFICATION SCRIPTS TO A CHALLENGE LAB



Michael Kemper

---

## Creating Your Challenge Lab Scripts

The following step-by-step instructions should help guide you through the process of adding verification Scripts to your Challenge Labs.

## The Lab Profile Page

**Creation Successful**

 Lab Profile

Dashboard Admin News Community Help

**LAB-001: New Challenge Lab Name (COPY)**

Launch on Host Launch in Datacenter Lab Manual Lab Statistics Evaluation Results Find Lab Instances Import Export

Status Not Running

Launch

**Basic Information**

Series	Challenge Labs Sandbox	Development Status	Complete
Organization	Skilable OC Shared Development	Duration	3 Hours
Virtualization Platform	Docker	Maximum Duration	4 Hours, 30 Minutes
Cloud Platform	None	Average Duration	---
RAM	4 GB	Average Startup Duration	---
# vCPUs	2	Level	100
# Exposed Container Ports	0	Evaluation	Challenge Evaluation
		Theme	Skilable Challenges
		Max Active Instances	Unlimited
		Owner E-mail	l0dsc@learnondemandsystems.com
		Created From	Edit Text Files in Linux [Guided] (COPY)
		Published to Template Gallery	No

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files. Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Open Bug Reports (0)

Launch URLs

LTI Launch URL: <https://labondemand.com/LTI/Launch/154571>

Containers (1)

From the Lab Profile page, you are able to edit the Challenge Lab profile settings and instructions, view the lab manual, and/or launch the Challenge Lab.

**CONTINUE**

## Step 1: Select Edit Instructions

The screenshot shows the Skilable studio interface. At the top, there's a navigation bar with links for Dashboard, Admin, News, Community, and Help. A blue banner at the top right says "Creation Successful". Below the banner, the page title is "LAB-001: New Challenge Lab Name (COPY)". There are several action buttons at the top right: Favorite, Edit Profile, **Edit Instructions** (which is highlighted with a red box), Delete, and Search. Under the title, there are links for Launch on Host, Launch in Datacenter, Lab Manual, Lab Statistics, Evaluation Results, Find Lab Instances, Import, and Export. The main content area has a "Basic Information" section with various configuration details like Series, Organization, Virtualization Platform, Cloud Platform, RAM, #vCPUs, #Exposed Container Ports, Development Status, Duration, Maximum Duration, Average Duration, Average Startup Duration, Level, Evaluation, Theme, Max Active Instances, Owner Email, Created From, and Published to Template Gallery. Below this is a "Description" section with a note about the challenge lab. Further down are sections for Open Bug Reports (0), Launch URLs, and Containers (1).

The Lab Profile page with the **Edit Instructions** button highlighted in red.



Select **Edit Instructions** from the Lab Profile page to access the **Edit Instructions** page.

*Note: If you are already in the Edit Instructions window, proceed to the next step.*

## The Edit Instructions Window

The screenshot shows the iDLX editor interface. On the left, there is a code editor window titled "My Base Instructions Set (set 1)" containing a markdown script. The script includes instructions for switching to root, creating files, and using vim. On the right, there is a "Learner Preview" window showing the challenge title and overview.

```

1 #!/bin/bash
2 # My Base Instructions Set (set 1)
3 # Last updated: 2020-05-28
4 # Associated Feedback Job: Removed excess CSE. Ben Nause ...
5 # (INSTRUCTION) [https://www.udemycontent.com/100Content/Challenge/v3/Template/main/Tutorial/Tutorial.ng]
6
7 # [ChallengeTitle]Challenge title here
8
9 # [Overview]
10
11 # You are an $lab.Variable(GlobalAdministrator) at $lab.Variable(GlobalCompany), a company that... You need to... First, you will..., and then you will. Next, you will ... , and then you will... Finally, you will..., and then you will...
12
13
14 # [BeginRequirement $1] section>
15
16 # Requirement 1
17
18 # (INSTRUCTION) [https://www.udemycontent.com/100Content/Challenge/v3/Template/main/Tutorial/Tutorial.ng]
19
20 # [INSTRUCTION] You have been automatically signed into the system as ***root*** by using ***#su -c id33*** as the password.
21
22 # Switch to the user ***user01*** by using the ***su user01*** command.
23
24 # [INFO] Expand this note for guidance on using the ***su*** command.
25
26 # [INFO] Expand this note for guidance on using the ***tar*** command.
27
28 # > Execute the following command to switch to the ***user01*** user:
29
30 #   ```
31 #     su user01
32 #   ```
33
34
35 # Change to the ***user01*** home folder, and then create a directory named ***text***#tar
36
37 # [INFO] Expand this note for guidance on creating a directory.
38
39 # [INFO] Expand this note for guidance on creating a file.
40
41 # > Execute the following commands:
42
43 #   ```
44 #     cd /home/user01
45 #     tar -czf text.tar text-files
46 #   ```
47
48
49 # Using Vim, create four files named ***file1***, ***file2***, ***file3***, and ***file4*** in the text-files directory, and then add ***Hello World*** to each file.
50
51 # [INFO] Expand this note for guidance on creating files by using Vim.
52
53 # [INFO] Expand this note for guidance on creating a file by using Vim.
54
55 # > Execute the following command to change to the ***text-files*** directory:
56
57 #   ```
58 #     cd text-files
59 #   ```
60
61 # > Execute the following command to create a file named ***file1*** by using Vim:
62
63 #   ```
64 #     vim file1
65 #   ```
66
67 # > In file1, press ***i*** to enter Insert mode, and then enter the text ***Hello World***.
68
69
70 # Next Requirement >

```

The Edit Instructions page with the iDLX editor and markdown script on the left, and lab manual visible on the right.

**CONTINUE**

## Step 2: Select the Activities Button (lightening bolt icon).

The screenshot shows two windows from the Skilable Challenges platform. On the left, the 'Edit Instructions' window displays a text editor with a large amount of terminal command history. A red box highlights the 'Activities' icon in the top-left corner of this window. On the right, the 'Learner Preview' window shows a simplified version of the challenge instructions, including a title, overview, scenario, and navigation links. The 'Activities' icon is also present here.

```

My Basic Instructions Set (set 1)
1 LDM-001 - Activities - Last modified: 10/14/2023 - Converted to xAMM using "MarkDown" -->
2 <!-- 30-Nov-2023: Put feedback link. Removed excess CSE. Ben Novak -->
3 <!-- 17-Mar-23: Update x3 update review -->
4
5 [INSTRUCTION]([https://www.skilablechallenges.com/L001Content/Challenge/v3/Template/main/Templates/Requirements/Requirement1.html#])
6 > [ChallengeTitle]Challenge Title here
7 > [Overview]
8 > [Scenario]
9 > You are an @lab.Variable{GlobalAdministrator} at @lab.Variable{GlobalCompany}, a company that... You need to... First, you will..., and then you will. Next, you will ..., and then you will... Finally, you will..., and then you will...
10 >
11 >
12 >
13 >
14 >
15 > Begin Requirement [1] section-->
16 > Requirement 1
17 > [INSTRUCTION]([https://www.skilablechallenges.com/L001Content/Challenge/v3/Template/main/Templates/Requirements/Requirement1.html#])
18 > [!NOTE] You have been automatically signed into the system as ***root*** by using ***#@user@123*** as the password.
19 > Switch to the user ***user@123*** by using ***su user@123*** command.
20 > [!TIP]([ShowSteps:True]) Repeat this host for guidance on using the ***su*** command.
21 > [!NOTE] Repeat this host for guidance on using the ***su*** command.
22 > Execute the following command to switch to the ***user@123*** user:
23 >
24 > `ls` & hash
25 > `cd /` & hash
26 > `cd ~` & hash
27 > `ls` & hash
28 > Change to the ***user@123*** home folder, and then create a directory named ***text*** & hash
29 > `cd ~user@123` & hash
30 > [!TIP]([ShowSteps:True]) Repeat this host for guidance on creating a directory.
31 > Execute the following commands:
32 > `cd ~user@123` & hash
33 > `cd ~user@123/text` & hash
34 > `touch file1` & hash
35 > `touch file2` & hash
36 > `touch file3` & hash
37 > `touch file4` & hash
38 > Using VIM, create four files named ***file1***, ***file2***, ***file3***, and ***file4*** in the text+files directory, and then add ***Hello World*** to each file.
39 > [!TIP]([ShowSteps:True]) Repeat this host for guidance on creating files by using VIM.
40 > [!NOTE] Repeat this host for guidance on creating files by using VIM.
41 > Execute the following command to change to the ***text+files*** directory:
42 > `cd ~user@123/text` & hash
43 > `cd text+files` & hash
44 > `vim file1` & hash
45 > `vim file2` & hash
46 > `vim file3` & hash
47 > `vim file4` & hash
48 > Execute the following command to create a file named ***file5*** by using VIM:
49 > `vim file5` & hash
50 > In file5, press ***i*** to enter Insert mode, and then enter the text ***Hello World***.
51 >
52 >
53 >
54 >
55 >
56 >
57 >
58 >
59 >
60 >
61 >
62 >
63 >
64 >
65 >
66 >
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85 >
86 >
87 >
88 >
89 >
90 >
91 >
92 >
93 >
94 >
95 >
96 >
97 >
98 >
99 >
100 >

```

The **Add Lab Variables** button highlighted in red in the upper left corner of the **EditInstructions** page.



Select the **Activities** icon located in the upper left-hand corner of the **Edit Instructions** window to access the **Activities** page.

**CONTINUE**

## The Activities Window

Activities

Passing Score  /7 Scoring Results Detailed ▾

**Requirement 1 Title** @lab.ActivityGroup(requirement1) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 1	Automated	3	@lab.Activity(requirement1)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 2 Title** @lab.ActivityGroup(requirement2) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 2	Automated	2	@lab.Activity(requirement2)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 3 Title** @lab.ActivityGroup(requirement3) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 3	Automated	2	@lab.Activity(requirement3)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 4 Title** @lab.ActivityGroup(requirement4) [Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

The **Activities** panel allows an author to create verification scripts and group them.  
This is how a learner is scored.

#### Step 4: Set the Passing Score

Activities

Passing Score  /7 Scoring Results Detailed ▾

**Requirement 1 Title** @lab.ActivityGroup(requirement1) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 1	Automated	3	@lab.Activity(requirement1)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 2 Title** @lab.ActivityGroup(requirement2) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 2	Automated	2	@lab.Activity(requirement2)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 3 Title** @lab.ActivityGroup(requirement3) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 3	Automated	2	@lab.Activity(requirement3)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 4 Title** @lab.ActivityGroup(requirement4) [Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

The **Passing Score** textbox displaying a score of 7/8, highlighted in red.



On the **Activities** page, in the **Passing Score** textbox, enter a value that calculates to a minimum of 80%.



The passing score should be calculated so that the learner must achieve a minimum score of 80% to successfully receive credit for the Challenge Lab.

**CONTINUE**

## Activity Groups

Activities

Passing Score  /7 Scoring Results Detailed ▾

**Requirement 1 Title** @lab.ActivityGroup(requirement1) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 1	Automated	3	@lab.Activity(requirement1)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 2 Title** @lab.ActivityGroup(requirement2) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 2	Automated	2	@lab.Activity(requirement2)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 3 Title** @lab.ActivityGroup(requirement3) [Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
Requirement 3	Automated	2	@lab.Activity(requirement3)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 4 Title** @lab.ActivityGroup(requirement4) [Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

The **Activities** page with the **@lab.ActivityGroup(requirement1)** Activity Group highlighted in red.

Activity groups are containers for Lab Activities (verification scripts).



All **Lab Activities** (verification scripts) **must** reside within an **Activity Group**.

## Activities (verification scripts)

Activities

Passing Score  /7 Scoring Results

Requirement 1 Title	@lab.ActivityGroup(requirement1)				Edit	Delete	Insert
Activity	Type	Score	Token				
Requirement 1	Automated	3	@lab.Activity(requirement1)	Edit  Delete  Insert			
<a href="#">+ New Question</a> <a href="#">+ New Automated Activity</a>							

Requirement 2 Title	@lab.ActivityGroup(requirement2)				Edit	Delete	Insert
Activity	Type	Score	Token				
Requirement 2	Automated	2	@lab.Activity(requirement2)	Edit  Delete  Insert			
<a href="#">+ New Question</a> <a href="#">+ New Automated Activity</a>							

Requirement 3 Title	@lab.ActivityGroup(requirement3)				Edit	Delete	Insert
Activity	Type	Score	Token				
Requirement 3	Automated	2	@lab.Activity(requirement3)	Edit  Delete  Insert			
<a href="#">+ New Question</a> <a href="#">+ New Automated Activity</a>							

Requirement 4 Title	@lab.ActivityGroup(requirement4)				Edit	Delete	Insert
<a href="#">+ New Question</a> <a href="#">+ New Automated Activity</a>							

The **Activities** page with the `@lab.Activity(requirement1)` Activity Group highlighted in red.

---



All **Lab Activities** (verification scripts) **must** reside within an **Activity Group**.

## Step 5: Add a New Activity Group

## Activities

### Requirement 2 Title

@lab.ActivityGroup(requirement2)

[Edit](#) [Delete](#) [+Insert](#)

Activity	Type	Score	Token
----------	------	-------	-------

Requirement 2	Automated	2	@lab.Activity(requirement2)
---------------	-----------	---	-----------------------------

[Edit](#) [Delete](#) [+Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

### Requirement 3 Title

@lab.ActivityGroup(requirement3)

[Edit](#) [Delete](#) [+Insert](#)

Activity	Type	Score	Token
----------	------	-------	-------

Requirement 3	Automated	2	@lab.Activity(requirement3)
---------------	-----------	---	-----------------------------

[Edit](#) [Delete](#) [+Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

### Requirement 4 Title

@lab.ActivityGroup(requirement4)

[Edit](#) [Delete](#) [+Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

### Requirement 5 Title

@lab.ActivityGroup(requirement5)

[Edit](#) [Delete](#) [+Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

### Requirement 6 Title

@lab.ActivityGroup(requirement6)

[Edit](#) [Delete](#) [+Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

[+ New Group](#)

The **Activities** page with the **New Group** button highlighted in red.



On the **Activities** page, select **+ New Group** to create a new **Activity Group**.

## CONTINUE

### Step 6: Name the New Activity Group and Token

New Activity Group

Name	Requirement 7 Title
Replacement Token Alias	requirement1
Randomize	<input type="checkbox"/>
On-demand evaluation	<input type="checkbox"/>

The **Edit Activity Group** page with the **Name** and **Replacement Token Alias** highlighted in red.

---

- On the Edit Activity Group page, in the **Name** textbox, enter **Requirement 1 Title**.
- In the **Replacement Token Alias** textbox, enter **Requirement1**, and then select **Save**.
- On the Activities page, verify the new **Activity Group** has been created.

## Activities

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 3 Title** @lab.ActivityGroup(requirement3)

[Edit](#) [Delete](#) [+ Insert](#)

Activity	Type	Score	Token
----------	------	-------	-------

Requirement 3	Automated	2	@lab.Activity(requirement3)
---------------	-----------	---	-----------------------------

[Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 4 Title** @lab.ActivityGroup(requirement4)

[Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 5 Title** @lab.ActivityGroup(requirement5)

[Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 6 Title** @lab.ActivityGroup(requirement6)

[Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

**Requirement 7 Title** @lab.ActivityGroup(requirement7)

[Edit](#) [Delete](#) [+ Insert](#)

[+ New Question](#) [+ New Automated Activity](#)

[+ New Question](#) [+ New Automated Activity](#) [+ New Group](#)

The Activities page with the **New Activity Group** highlighted in red.

**CONTINUE**

## Step 7: Create a New Automated Activity (verification script)

Activities

+ New Question + New Automated Activity

Requirement 3 Title	@lab.ActivityGroup(requirement3)			Edit	Delete	+ Insert
Activity	Type	Score	Token			
Requirement 3	Automated	2	@lab.Activity(requirement3)	Edit	Delete	+ Insert

+ New Question + New Automated Activity

Requirement 4 Title	@lab.ActivityGroup(requirement4)			Edit	Delete	+ Insert
Activity	Type	Score	Token			
Requirement 4	Automated	2	@lab.Activity(requirement4)	Edit	Delete	+ Insert

+ New Question + New Automated Activity

Requirement 5 Title	@lab.ActivityGroup(requirement5)			Edit	Delete	+ Insert
Activity	Type	Score	Token			
Requirement 5	Automated	2	@lab.Activity(requirement5)	Edit	Delete	+ Insert

+ New Question + New Automated Activity

Requirement 6 Title	@lab.ActivityGroup(requirement6)			Edit	Delete	+ Insert
Activity	Type	Score	Token			
Requirement 6	Automated	2	@lab.Activity(requirement6)	Edit	Delete	+ Insert

+ New Question + New Automated Activity

Requirement 7 Title	@lab.ActivityGroup(requirement7)			Edit	Delete	+ Insert
Activity	Type	Score	Token			
Requirement 7	Automated	2	@lab.Activity(requirement7)	Edit	Delete	+ Insert

+ New Question + New Automated Activity - New Group

The Activities page with **New Automated Activity** highlighted in red.



On the Activities page, in the Requirement 7 Title Activity group, select **New Automated Activity**, to open the **New Automated**

## Activity window.



A New Automated Activity can also be created and added separately to an Activity Group.

CONTINUE

New Automated Activity

Name (Optional)

Replacement Token Alias: Automated4

Instructions (Optional)

Group: Requirement 7 Title

Scored:

Display Scripts as Task List:

On-demand evaluation:

Show Results in Reports:

Script 1

Target: Custom Language: PowerShell Version: PS 7.1.3 Score Value: 1 Replies: 0 Enable:

+ Add Powershell Gallery Module

Start from Scratch

Cancel Save Save and Insert

The New Automated Activity page.

Create a New Automated Activity in the New Activity Group.

New Automated Activity

**Script 1**

Text	Verify that you have created Requirement 7 Task 7.
Correct Answer Feedback	Congratulations! You have created Requirement 7 Task 7.
Incorrect Answer Feedback	You still need to create Requirement 7 Task 7.

Target: Custom Language: PowerShell Version: PS 7.1.3 Score Value: 1 Retries: 4 Show Output To User:  Enable:

+ Add PowerShell Gallery Module

**Script Description**  
Edit this to add a description of this script for others to reference later! Example: This script is scoring that the user successfully accomplished XYZ.

**Script Editor**

```

34 } Else {
35 $result = $false
36
37
38 # This is optional debug output. This will only output if $script:Debug is set to $true
39 if ($script:Debug) {Write-Output "Error output: `n`$error" | Out-String}
40
41 # Using the Return keyword here to return the True or False value.
42 Return $result

```

+ Add Outcome

Cancel Save Save and Insert

The Edit Automated Activity page with values populated.

---

## Step 8: Name the New Automated Activity

New Automated Activity

Name (Optional)	Automated4
Replacement Token Alias	Automated4
Instructions (Optional)	
Group	Requirement 7 Title
Scored	<input checked="" type="checkbox"/>
Display Scripts as Task List	<input checked="" type="checkbox"/>
Custom Evaluation Button Text	Verify
Evaluation Button Placement	Below Task List
Allow retries	<input checked="" type="checkbox"/>
Maximum Attempts	0
Required for submission	<input type="checkbox"/>
Blocks page navigation until evaluated	<input type="checkbox"/>
Show Results in Report	<input checked="" type="checkbox"/>

**Script 1**

Text	Verify that you have created Requirement 7 Task 7.
Correct Answer Feedback	Congratulations! You have created Requirement 7 Task 7.
Incorrect Answer Feedback	You still need to create Requirement 7 Task 7.

Cancel Save Save and Insert

The Edit Automated Activity page with Name textbox highlighted in red.

---



On the Edit Automated Activity page, in the **Name** textbox, enter **Requirement 7**.

**CONTINUE**

## Step 9: Edit the Replacement Token Alias

New Automated Activity

Name  (Optional)

Replacement Token Alias **Automated4**

Instructions  (Optional)

Group **Requirement 7 Title**

Scored

Display Scripts as Task List

Custom Evaluation Button Text  Verify

Evaluation Button Placement **Below Task List**

Allow retries

Maximum Attempts

Required for submission

Blocks page navigation until evaluated

Show Results in Reports

Script 1

**Text:** Verify that you have created Requirement 7 Task 7.

**Correct Answer Feedback:** Congratulations! You have created Requirement 7 Task 7.

**Incorrect Answer Feedback:** You still need to created Requirement 7 Task 7.

**Buttons:** Cancel, Save, Save and Insert

The Edit Automated Activity page with the **Replacement Token Alias** highlighted in **red**.



In the **Replacement Token Alias** textbox, enter **requirement7**.

**CONTINUE**

## Step 10: Set the Activity Group



The Edit Automated Activity page with the **Group** highlighted in red.



In the **Group** dropdown menu, select **Requirement 7 title**.



Since we created the New Activity within a Group, we do not need to change this value. If we had created the new Activity outside of group, we would add it here. Additionally, you can change the Activity Group if needed.

**CONTINUE**

## Step 11: Enabling Scoring, Displaying Scripts, and Adding Custom Button Text

The screenshot shows the 'New Automated Activity' configuration page. A red box highlights the 'Scored', 'Display Scripts as Task List', and 'Custom Evaluation Button Text' sections. The 'Scored' checkbox is checked. The 'Display Scripts as Task List' checkbox is checked. The 'Custom Evaluation Button Text' checkbox is checked, and the text 'Verify' is entered in the associated input field. Below these, the 'Evaluation Button Placement' dropdown is set to 'Below Task List'. Other visible settings include 'Allow retries' checked, 'Maximum Attempts' set to 0, and 'Required for submission' unchecked.

The Edit Automated Activity page with the **Scored**, **Display Scripts as Task List**, and **Custom Evaluation Button Text** highlighted in red.



Verify that **Scored** is selected.



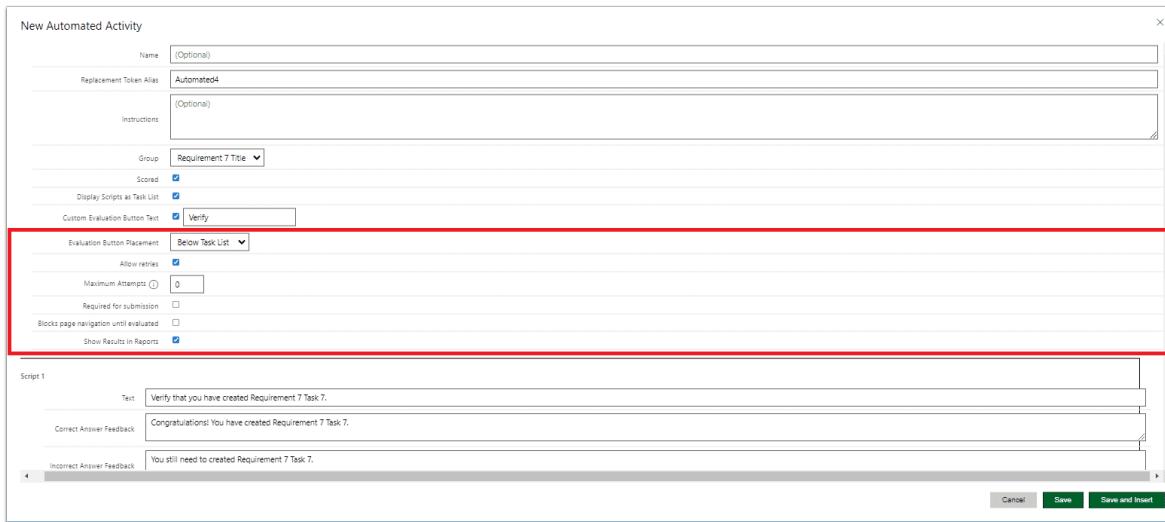
Verify that **Display Scripts as Task List** is selected.



Verify that **Custom Evaluation Button Text** is selected, and then in the textbox enter **Verify**.

**CONTINUE**

## Step 12: Setting Button Placement, Retries, and Showing Results

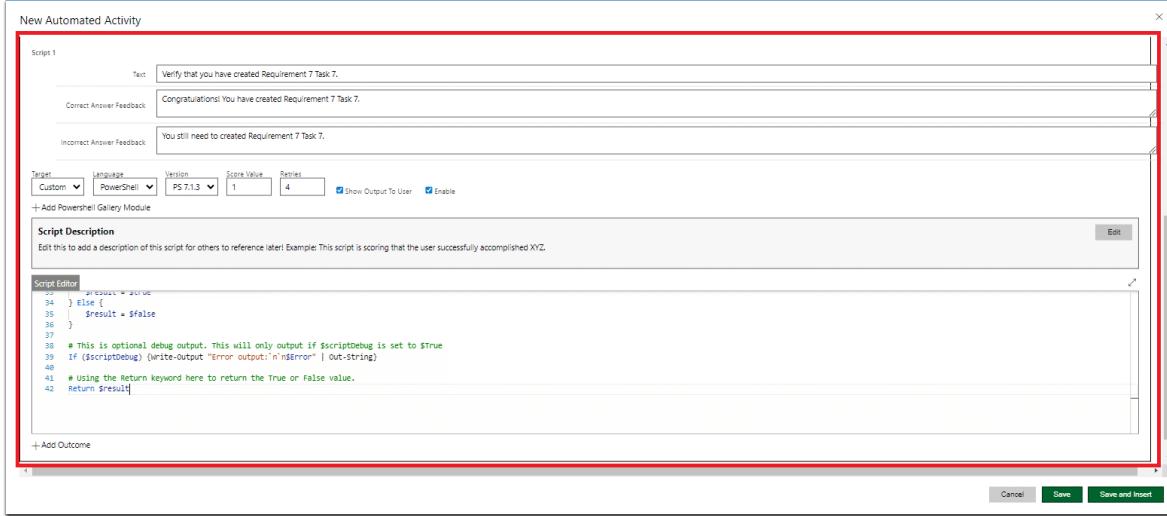


The **Edit Automated Activity** page with the **Evaluation Button Placement**, **Allow Retries**, and **Show Results in Reports** highlighted in red.

- In **Evaluation Button Placement**, select **Below Task List** from the dropdown menu box.
- Verify that **Allow retries** is selected.
- Verify that **Maximum Attempts** has a value of **0**.
- Verify that **Required for submission** is deselected.
- Verify that **Blocks page navigation until evaluated** is deselected.
- Verify that **Show Results in Reports** is selected.

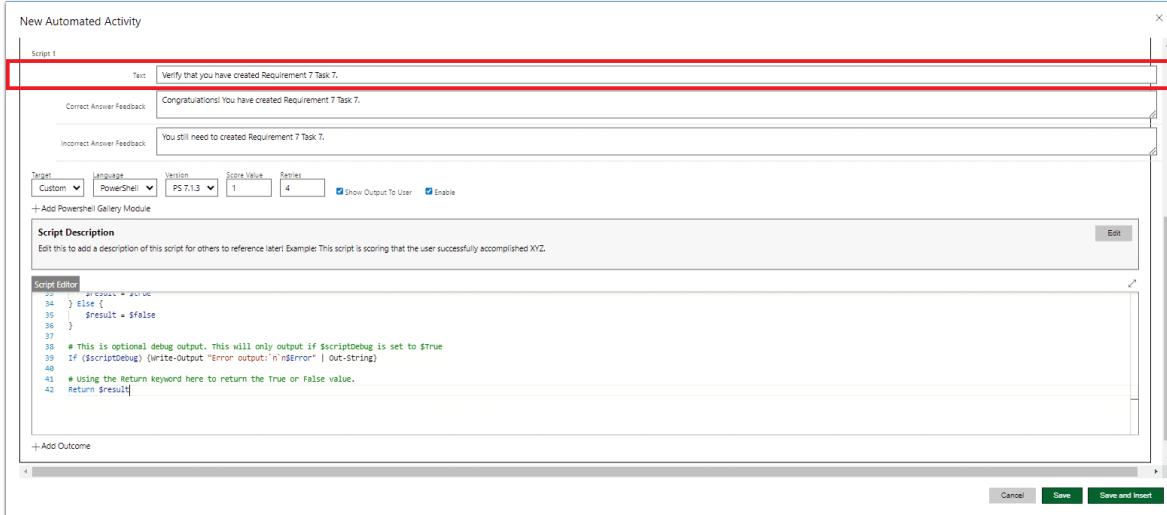
**CONTINUE**

## Creating Script 1



The Edit Automated Activity page with **Script 1** highlighted in red.

## Step 13: Editing the Script 1 Text



The Edit Automated Activity page with the **Script 1** text highlighted in red.

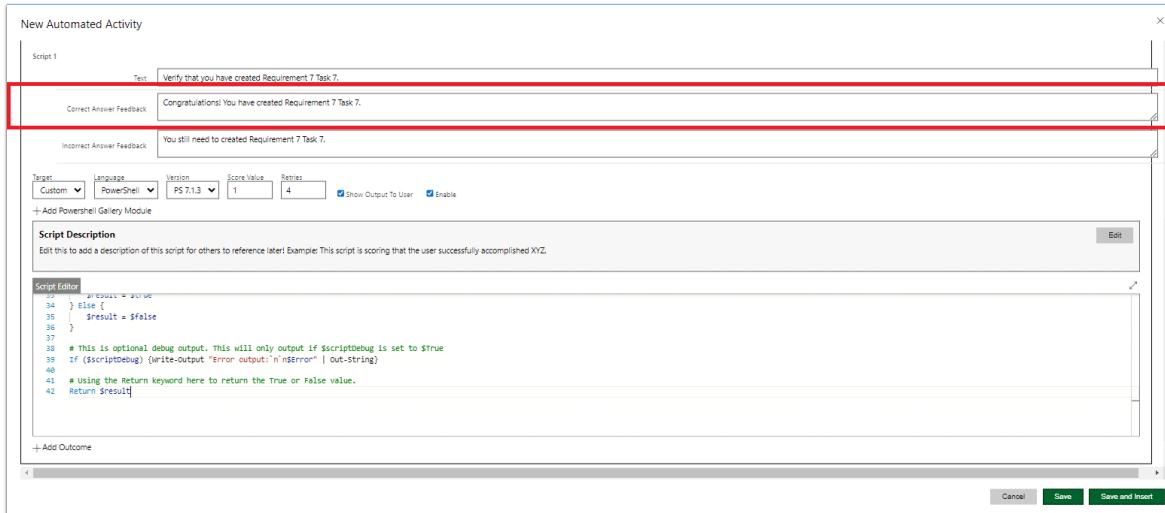
---



In Script 1, in the Text textbox, enter **Verify that you have created Requirement 7 Task 7.**

CONTINUE

## Step 14: Editing the Correct Answer Feedback



The Edit Automated Activity page with the **Correct Answer Feedback** highlighted in red.

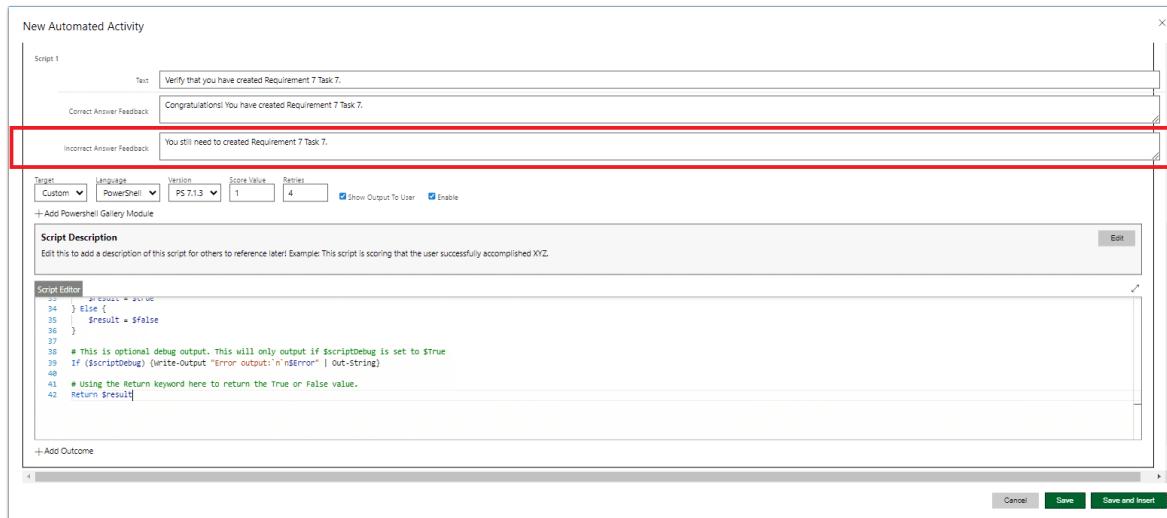
---



In the **Correct Answer Feedback** textbox, enter **Congratulations! You have created Requirement 7 Task 7.**

CONTINUE

## Step 15: Editing the Incorrect Answer Feedback



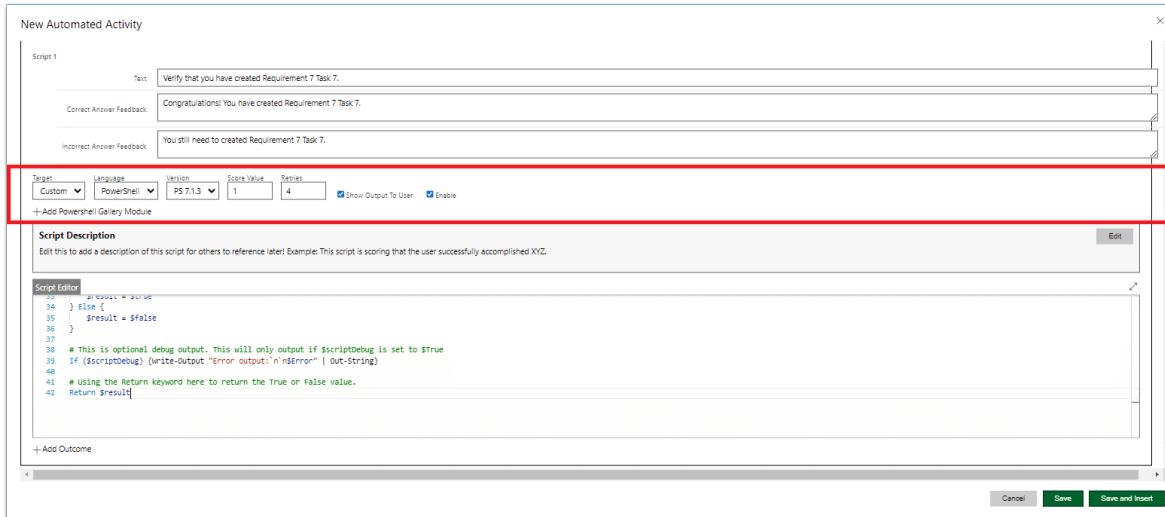
The Edit Automated Activity page with the **Incorrect Answer Feedback** highlighted in red.



In the **Incorrect Answer Feedback** textbox, enter **You still need to create Requirement 7 Task 7.**

CONTINUE

## Step 16: Set the Target, Language, Version, Score Value, and Retries



The **Target**, **Language**, **Version**, **Score Value**, and **Retries** page with the **Incorrect Answer Feedback** highlighted in **red**.

---



In **Target**, select **Custom** from the dropdown menu box.



In **Language**, select **Powershell** from the dropdown menu box.



In **Version**, select **PS 7.1.3** from the dropdown menu box.



In the **Score Value** textbox, enter **1**.



In the **Retries** textbox, enter **4**.



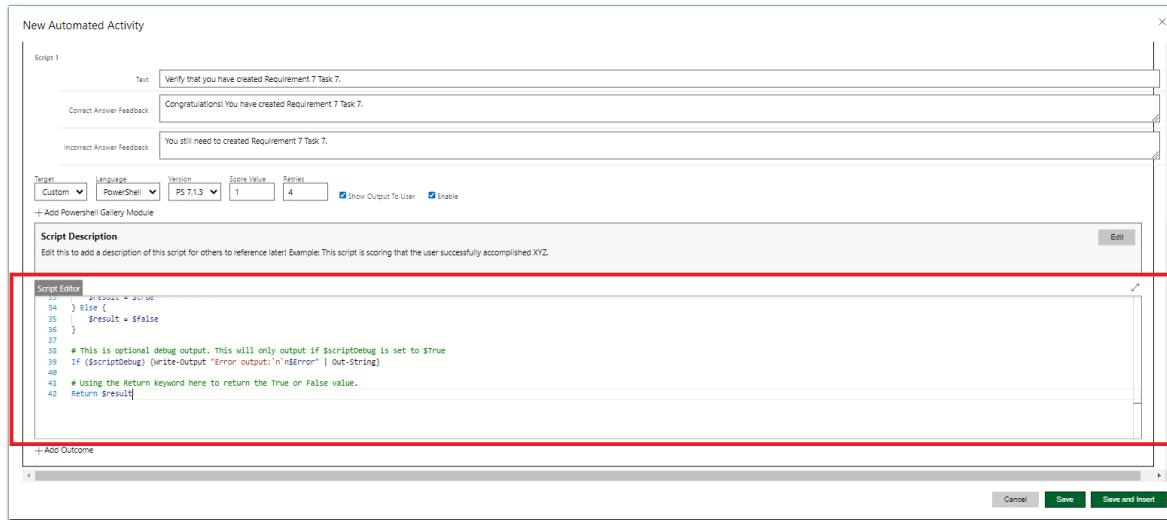
Verify that **Show Output To User** is **selected**.



Verify that **Enable** is **selected**.

CONTINUE

## Step 18: Add the Script



The Edit Automated Activity page with the **Script** highlighted in red.



In the Script 1, below [+Add Powershell GalleryModule](#), enter the Activity to Script 1, and then select Save.

CONTINUE

# ALERT BLOCKS

MK

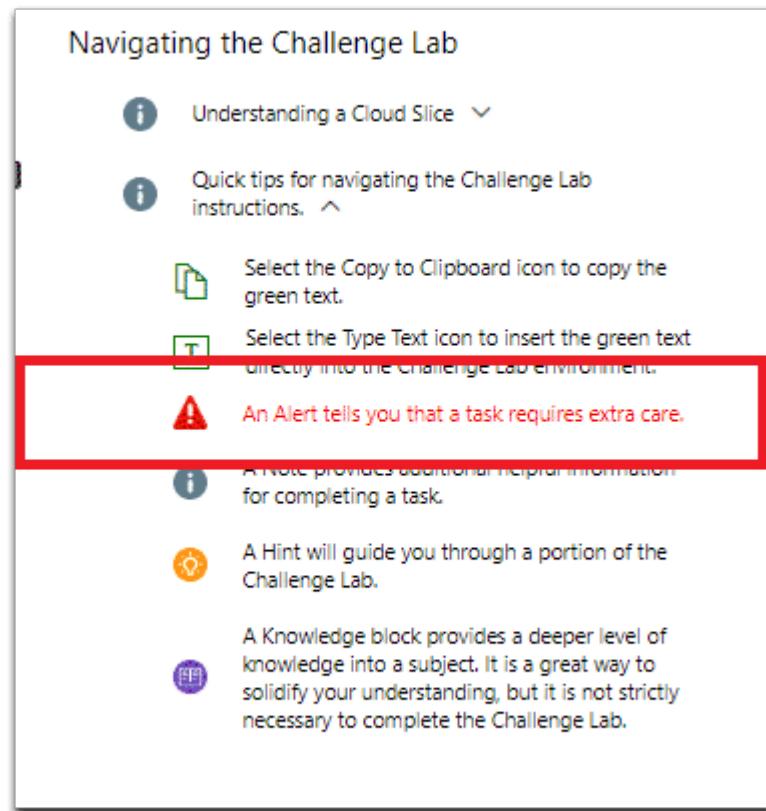
Michael Kemper

---

---

Use an **alert** to warn learners to take care when performing a task if the outcome of the task might impact the results later in the Challenge Lab. Use these sparingly!

[Lab Manual View](#)



The Lab Manual with an **Alert block** highlighted in red.

---

## iDLX Editor View

```
#### Alert blocks
>[!alert] This is a standard Alert block.

>[+alert] Expand this Alert for important details about...
>
> Alerts should be used to grab the student's attention for something very important that they should not miss.
>
> There must be at least one blank line before the expandable content.
>
```

The iDLX editor with **Alert block** markdown, highlighted in red.

---

Copy the below markdown to create an Alert block:



#### #### Alert blocks

>[!alert] This is a standard Alert block.

>[+alert] Expand this Alert for important details about...

>

> Alerts should be used to grab the student's attention for something very important that they should not miss.

>

> There must be at least one blank line before the expandable content.

>

**Example of an Alert block**



Expand this hint for guidance on creating a load balancing rule. ▾



The health probe may take a few minutes to become fully available. If it does not appear, wait a few minutes and refresh the page.



You can create a load balancing rule to define how traffic will be distributed to the virtual machines that are in the backend pool.

The **Lab Manual** with an **Alert block** highlighted in red.

---

## Creating an Alert block

1

In the iDLX editor, locate the Alert markdown. The markdown should look like the following:

>[!alert] This is a standard Alert block.

>[+alert] Expand this Alert for important details about...

>

> Alerts should be used to grab the student's attention for something very important that they should not miss.

>

> There must be at least one blank line before the expandable content.

>

2

Select the **Brief description of alert**. text, and then replace it with the **new alert text**.

3

Repeat the above steps to add additional **Alert blocks**.

## Additional Information

- In alerts, avoid the use of bold formatting. If you need to call out a specific item, use italics.
- An alert should be indented at the same level as the item that preceded it.

CONTINUE

# CODE BLOCKS

MK

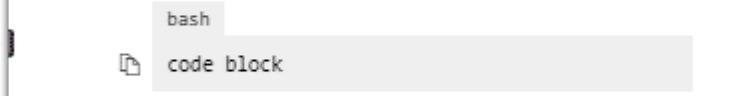
Michael Kemper

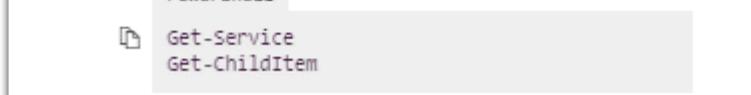
---

## Lab Manual View

Code blocks:

(To indent the code block, precede it with a bulleted item, then indent the content. There must be a blank line following the bullet before the code block.)

- Run the following command in a terminal session:  


```
bash
code block
```
- Run the following command in a PowerShell session:  


```
PowerShell
Get-Service
Get-ChildItem
```

The **Lab Manual** with a **Code block**.

---

## iDLX Editor View

```
#### Code blocks:  
(To indent the code block, preceed it with a bulleted item, then indent the content. There must be a blank line following the bullet before the code block.)  
- Run the following command in a terminal session:  
  ```bash  
  code block  
  ```  
- Run the following command in a PowerShell session:  
  ```PowerShell  
  Get-Service  
  Get-ChildItem  
  ```
```

The iDLX editor with **Code block** markdown.

---

**Copy the below markdown to create a Code block:**



```PowerShell

Get-Service

Get-ChildItem

...

**Example of a Code block**

- In Windows PowerShell ISE, add the following code to create a Windows PowerShell module:

The screenshot shows the Windows PowerShell ISE interface. The title bar says "Powershell". In the center, there is a code editor window containing a PowerShell function named "Get-Uptime". The code includes documentation blocks (.Synopsis, .DESCRIPTION, .EXAMPLE, .NOTES) and a parameter block (Param). The function uses WMI objects to get the last boot time of one or more computers and calculates the uptime. A "Copy" button is visible in the top right corner of the code editor.

```
Function Get-Uptime {  
    <#  
    .Synopsis  
    Get the uptime of one or more computers  
    .DESCRIPTION  
    Get the amount of time that one or more computers  
    have been running since their last reboot  
    .EXAMPLE  
    Get-Uptime -ComputerName Server1  
    .EXAMPLE  
    Get-Uptime Server1,Server2,Server3  
    .NOTES  
    Written by: Student  
    #>  
    Param (  
        # Provide the Computer Name  
        [string[]]$ComputerName = ".")  
          
    foreach ($Computer in $ComputerName) {  
        $os = Get-WmiObject Win32_OperatingSystem -ComputerName $Computer  
        $LastBoot = $os.ConvertToDateTime($os.lastbootup)  
        $UpTime = (Get-Date) - $LastBoot  
        $UpTimeObj = New-Object PSObject -Property @{{  
            Days=([int]$UpTime.Days);  
            Hours=([int]$UpTime.Hours);  
            Minutes=([int]$UpTime.Minutes);  
            Seconds=([int]$UpTime.Seconds)}  
        Write-Output $UpTimeObj  
    }  
}
```

💡 Want to learn more? Review the documentation on [how to write a PowerShell script module](#).

The Lab Manual with a **Code block** highlighted in red.

## Creating a Code block

1

In the iDLX editor, locate the **Code Block** markdown. The markdown should look like the following:

```
```bash
```

code block

```

- Run the following command in a PowerShell session:

```
```PowerShell
```

Get-Service

Get-ChildItem

```

2

Select the **code block** text, and then replace it with the **new code block text**.

3

Repeat the above steps to add additional **Code blocks**.

## Additional Information

- Code that contains quotation marks should be placed in a fenced code block or should use the Copy to clipboard or Type Text features.

**CONTINUE**

# COPY TEXT / TYPE TEXT

MK

Michael Kemper

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---

Everything that you want a learner to enter into a text box, a configuration setting, or a code window should be configured to use [copyable text](#). This saves time for learners, prevents typing errors, and allows learners to focus on the learning concepts of your lab rather than on entering text.



There are two available options for copyable text: [Copy to clipboard](#) and [Type Text](#). The markdown syntax and the display of the two options is slightly different, but the benefit to the learner is the same.

[Lab Manual View](#)

- Sign in to Delta as HEXELO\Administrator by using Passw0rd! as the password.

Review the following video on logging in to a Virtual Machine (VM):

- Select the Type Text icon to enter the associated text into the virtual machine.

The **Lab Manual** with [Copy to clipboard / Markdown](#) text.

---

## iDLX Editor View

>[!note] Select the +++Type Text+++ icon to enter the associated text into the virtual machine.

The **iDLX editor** with [Copy to clipboard / Type text](#) markdown.

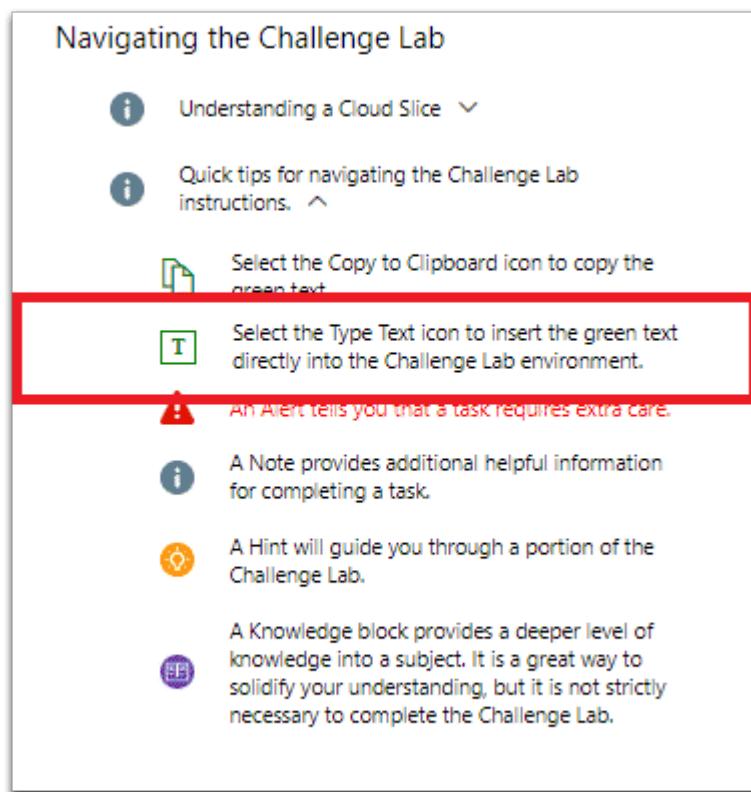
---

[Copy the below markdown to create Copy to clipboard / Type text:](#)



>[!note] Select the +++Type Text+++ icon to enter the associated text into the virtual machine.

## Example of Copy to clipboard / Type text



The Lab Manual with **Copy to clipboard / Type text** highlighted in red.

## Creating Copy to Clipboard / Type Text

1

In the iDLX editor, locate the Copy to clipboard markdown. The markdown should look like the following:

>[!note] Select the +++Type Text+++ icon to enter the associated text into the virtual machine.

2

Select the text which you wish to convert to Copy to clipboard / Type Text/

3

Place "++" directly before and after the text.

4

Repeat the above steps to create additional Copy to clipboard / Type text/

Use the following phrases as a tip the first time you use copyable text in your Challenge Lab instructions:

- Select the **Copy to clipboard** icon to copy the text string to the clipboard.
- Select the **Type Text** icon to enter the associated text into the virtual machine.

## Additional Information

- The **Copy to clipboard** feature in the markdown allows you to define text or code items that a learner can copy from the instructions and paste into a web browser in the lab environment.
- To use the **Copy to clipboard** feature, surround the copyable text with two + signs.
- The **Type Text** feature in the markdown is used in a virtual machine environment and allows a learner to enter text or code items directly into a virtual machine.

- To use the [Type Text](#) feature, surround the copyable text with three + signs.
- When working with the [Copy to clipboard](#) and [Type Text](#) features, ensure that there is no space between the + signs and the text contained between them.
- [Copyable text](#) can contain a + sign.
- In instructional text, when you want the learner to enter the value, display exactly what the learner should enter, preferably using the [Copy to clipboard](#) or [Type Text](#) features.
- Use the [Type Text](#) or [Copy to clipboard](#) features instead of bold format where possible.
- Code that contains quotation marks should be placed in a fenced code block or should use the [Copy to clipboard](#) or [Type Text](#) features.

CONTINUE

# FONT FORMATTING

MK

Michael Kemper

---

In the IDLx, you only apply **bold** format to UI elements which a learner interacts. This formatting style is designed with the UI of the Lab on Demand platform in mind. You want to draw the learner's attention to the UI elements with which a learner interacts.

## Creating Bold Text

1

In the iDLX editor, locate the markdown which you wish to **bold**.

2

In the markdown, use two asterisks (\*\*) or an underscore on either side of the text to which you want to apply **bold** format.

3

Repeat the above steps to **bold** additional **text**.

```
<!-- End Requirement 6 section -->
=====
<!-- Begin Summary section -->

!INSTRUCTIONS[]
(https://raw.githubusercontent.com/L0DSContent/Challenge-V3-Framework/main/Templates/Sections/Summary.md)
```

>[recap]:  
>Congratulations, you have completed the  
\*\*CHALLENGE LAB TITLE?\*\* Challenge Lab.

✓ You have accomplished the following:

The iDLX editor with the **Bolded Challenge Title** highlighted in red.

---

## Additional Information

### Use Bold:

- For something in the UI that a learner must select.
- For something that a learner must verify.
- For keys on the keyboard.
- In the IDLx, only apply **bold** formatting to UI elements with which a learner interacts.
- The settings are all items with which a learner interacts, so they should either use copyable text or **bold** format.

- Use **bold** format for the ellipsis, but not the parentheses.

### Do Not Use Bold:

- For labels.
- For menus.
- For verbs that are part of an instruction but are not part of an instruction to select a UI element.
- To call out parts of an instructional sentence that are not something in the UI that a learner must select.
- To help identify the location of an item on a page.
- In knowledge blocks, notes, alerts, and tips, avoid the use of **bold** formatting. If you need to call out a specific item, use *italics*.
- You don't need to format the table heading using a bold font format. Table headings are automatically displayed in **bold**.
- Row headings do not use **bold** format.



- Use Type Text or Copy to clipboard for values that a learner must type.

**CONTINUE**

## Creating Italic Text

1

In the iDLX editor, locate the markdown which you wish to *italicize*.

2

In the markdown, use one asterisk (\*) on either side of the text to which you want to apply *italic* format.

3

Repeat the above steps to *italicize* additional **text**.

**CONTINUE**

# HIDDEN ITEM SECTIONS

 Michael Kemper

---

**Hidden Item Sections** allow an author to hide additional items such as images and notes, that might not fall within a Hint or by default be hidden.

## [Lab Manual View](#)

You would NOT see a **hidden item section** on the Lab Manual side of a **Challenge Lab**, because it is hidden by default.

## [iDLX Editor View](#)

```
#### Hidden items:  
(Any item can be hidden by wrapping the markdown in a "HiddenItem" section. It will be hidden when hints are off.)  
<!-- Begin hidden item section -->  
:::hiddenItem  
<!-- Use for items that should be hidden when hints are disabled but are not included in hints/knowledge blocks. -->  
- Run the following command in a PowerShell session:  
  
```powershell  
Get-Service  
  
Get-Service | Where Name -like *win* | Out-File .\WinServices.txt  
  
```  
:::  
<!-- End hidden item section -->
```

The iDLX editor with [Hidden Item Section](#) markdown.

---

[Copy the below markdown to create a Hidden Item Section:](#)



<!-- Begin hidden item section -->

:::hiddenItem

<!-- Use for items that should be hidden when hints are disabled that  
may not be included in hints/note blocks. -->

- Run the following command in a PowerShell session:

```powershell

Get-Service

Get-Service | Where Name -like \*win\* | Out-File .\WinServices.txt

```

:::

<!-- End hidden item section -->

## Creating a Hidden Item Section

1

In the iDLX editor, locate the Hidden Item Section markdown.  
The markdown should look like the following:

```
<!-- Begin hidden item section -->
:::hiddenitem

<!-- Use for items that should be hidden when hints are disabled
that may not be included in hints/note blocks. -->

```bash
code block
```

:::
<!-- End hidden item section -->
```

2

Select the text below `:::hiddenitem` and `:::`, and then replace it with the text or image that you wish to hide.

**DO NOT REMOVE THE `:::`!**

3

Repeat the above steps to create additional **Hidden Item Sections**.

**CONTINUE**

# HINTS

 Michael Kemper

---

---

Use a **hint** to provide learners with the details of how to perform the action in the Task.

## Guided Hints

---

[Lab Manual View](#)

## Hint Blocks



This is a standard Hint block. Hints will be hidden when hints are off.



Expand this Hint for guidance on...



Hints will be hidden when hints are off.

## Hint Blocks



This is a standard Hint block. Hints will be hidden when hints are off.



Expand this Hint for guidance on...



There must be at least one blank line before the expandable content.

- Expandable hints are typically used for step-by-step style instructions.



All labs must include "Reviewer steps" that will allow a reviewer to complete the lab. Those steps should be included inside an Expandable Hint, like this one, wrapped in a Section with (ShowSteps=True). When the lab is in review, these steps can be made visible by setting a lab variable ShowSteps to True. For production, the ShowSteps variable can be removed or set to False.

Hints will be hidden when hints are off.

The Lab Manual with an **expanded Hint** displayed.

## iDLX Editor View

Hints are contained in specific markdown. The summary tag contains a heading that ties the hint to the instructional step.

The heading will always begin with the phrase "Expand this hint for guidance on", and you will need to complete the sentence as needed for your hint.

```
#### Hint Blocks
>[!Hint] This is a standard Hint block. Hints will be hidden when hints are off.
:::steps(ShowSteps=True)
>[+hint] Expand this Hint for guidance on...
>
> There must be at least one blank line before the expandable content.
>
> - Expandable hints are typically used for step-by-step style instructions.
>
>>[note] All labs must include "Reviewer steps" that will allow a reviewer to complete the lab. Those steps should be included inside an Expandable Hint, like this one, wrapped in a Section with (ShowSteps=True). When the lab is in review, these steps can be made visible by setting a lab variable ShowSteps to True. For production, the ShowSteps variable can be removed or set to False.
>
> Hints will be hidden when hints are off.
>
:::
```

The iDLX editor with Hint markdown, highlighted in red.

Copy the below markdown to create a Guided Hint:



>[!Hint] This is a standard Hint block. Hints will be hidden when hints are off.

:::steps(ShowSteps=True)

>[+hint] Expand this Hint for guidance on...

>

> There must be at least one blank line before the expandable content.

```
>

> - Expandable hints are typically used for step-by-step style
instructions.

>

>>[!note] All labs must include "Reviewer steps" that will allow a
reviewer to complete the lab. Those steps should be included inside an
Expandable Hint, like this one, wrapped in a Section with
(ShowSteps=True). When the lab is in review, these steps can be made
visible by setting a lab variable ShowSteps to True. For production, the
ShowSteps variable can be removed or set to False.

>

> Hints will be hidden when hints are off.

>

:::
```

## Example of a Hint

- Using Vim, create four files named `file1`, `file2`, `file3`, and `file4` in the `text-files` directory, and then add `Hello World` to each file.

 Expand this hint for guidance on creating files by using Vim. ►

The **Lab Manual** with a **closed Hint** displayed.

- Using Vim, create four files named `file1`, `file2`, `file3`, and `file4` in the `text-files` directory, and then add `Hello World` to each file.

Expand this hint for guidance on creating files by using Vim. ▾

- Execute the following command to change to the `text-files` directory:

```
bash Copy  
cd text-files
```

- Execute the following command to create a file named `file1` by using Vim:

```
bash Copy  
vim file1
```

- In `file1`, press `i` to enter Insert mode, and then enter the text `Hello World`.
- Press `Esc` to switch to Command mode, and then enter `:wq` to save `file1` and return to the Terminal.
- Repeat the commands above for `file2`, `file3` and `file4`.

The Lab Manual with an expanded Hint displayed.

## Creating a Guided Hint

1

In the iDLX editor, locate the **Guided Hint** markdown. The markdown should look like the following:

>[!Hint] This is a standard Hint block. Hints will be hidden when hints are off.

:::steps(ShowSteps=True)

>[+hint] Expand this Hint for guidance on...

>

> There must be at least one blank line before the expandable content.

>

> - Expandable hints are typically used for step-by-step style instructions.

>

:::

2

Select the ... which directly follows **Expand this hint for guidance on**, and then replace it with the **new guidance text**.

3

Add each step in the Task on it's own line, to the right of the hyphens.

4

Repeat the above steps to add additional **Steps**.

5

Repeat the above steps to add additional **Hints**.

## Additional Information

- Hints can contain a video that steps learners through what they need to do to perform the action in the step.
- Hints can contain a screenshot that shows the correct configuration and any UI elements the learner must select in order to get to the configuration page
- Hints can contain an instructional step that uses the what / where / why structure.
- Hints can contain the complete code syntax of any code that's required.
- Each step in a hint should use a first level bullet. Because you have a limited screen width, avoid using second level bullets.

**CONTINUE**

## Advanced Hints

### [Lab Manual View](#)

 Want to learn more? Review the documentation on using the  **New-Item** command.

The Lab Manual with an Advanced Hint displayed.

---

## iDLX Editor View

In an Advanced challenge, use a hint to provide more information on how to perform the action in a step; however, unlike Guided challenges, the hint should be in the form of a URL that contains information on how to perform the required action.

>[!knowledge] Want to learn more? Review the documentation on using the [New-Item] (<https://learn.microsoft.com/en-us/powershell/module/microsoft.powershell.management/new-item?view=powershell-7.4> "Click here for more information") command.

The iDLX editor with Hint markdown, highlighted in red.

---

**CONTINUE**

# IMAGES

 Michael Kemper

---

## Adding Screen Captures

The following step-by-step instructions will help guide you through the process of adding images to a Challenge Lab.

### [The Lab Profile Page](#)

**Creation Successful**

 Lab Profile

Dashboard Admin News Community Help

**LAB-001: New Challenge Lab Name (COPY)**

Launch on Host Launch in Datacenter Lab Manual Lab Statistics Evaluation Results Find Lab Instances Import Export

Status Not Running

Launch

**Basic Information**

|                           |                                |                               |                                          |
|---------------------------|--------------------------------|-------------------------------|------------------------------------------|
| Series                    | Challenge Labs Sandbox         | Development Status            | Complete                                 |
| Organization              | Skilable OC Shared Development | Duration                      | 3 Hours                                  |
| Virtualization Platform   | Docker                         | Maximum Duration              | 4 Hours, 30 Minutes                      |
| Cloud Platform            | None                           | Average Duration              | ---                                      |
| RAM                       | 4 GB                           | Average Startup Duration      | ---                                      |
| # vCPUs                   | 2                              | Level                         | 100                                      |
| # Exposed Container Ports | 0                              | Evaluation                    | Challenge Evaluation                     |
|                           |                                | Theme                         | Skilable Challenges                      |
|                           |                                | Max Active Instances          | Unlimited                                |
|                           |                                | Owner E-mail                  | l0dsc@learnondemandsystems.com           |
|                           |                                | Created From                  | Edit Text Files in Linux [Guided] (COPY) |
|                           |                                | Published to Template Gallery | No                                       |

In this Challenge Lab, you will learn to utilize the vim and nano text editors, and use a variety of file management tools to manage your text files. Note: Once you begin the Challenge Lab, you will not be able to pause, save, or return to your Challenge Lab. Please ensure that you have set aside enough time to complete the Challenge Lab before you start.

Open Bug Reports (0)

Launch URLs

LTI Launch URL: <https://labondemand.com/LTI/Launch/154571>

Containers (1)

From the Lab Profile page, you are able to edit the Challenge Lab profile settings and instructions, view the lab manual, and/or launch the Challenge Lab.

**CONTINUE**

## Step 1: Select Edit Instructions

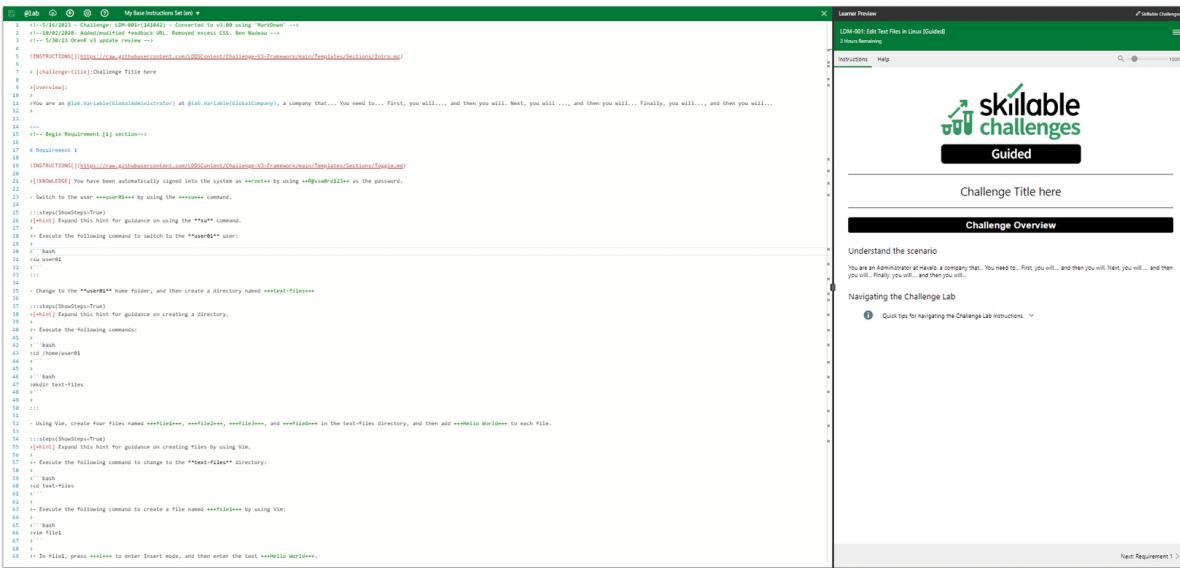
The screenshot shows the Skilable studio interface. At the top, there's a navigation bar with links for Dashboard, Admin, News, Community, and Help. A blue banner at the top right says "Creation Successful". Below the banner, the page title is "LAB-001: New Challenge Lab Name (COPY)". On the right side of the title, there are several buttons: "Favorite", "Edit Profile", "Edit Instructions" (which is highlighted with a red box), "Delete", and "Search". Under the title, there are links for "Launch on Host", "Launch in Datacenter", "Lab Manual", "Statistics", "Evaluation Results", "Find Lab Instances", "Import", and "Export". Below these links, the status is shown as "Not Running" with a "Launch" button. The main content area is titled "Basic Information" and contains various configuration details. At the bottom of this section, it says "Published to Template Gallery: No". Below this, there's a "Description" section with a note about the challenge lab. Further down are sections for "Open Bug Reports (0)", "Launch URLs", and "Containers (1)".

The Lab Profile page with the Edit Instructions button highlighted in red.



Select **Edit Instructions** from the Lab Profile page to access the Edit Instructions page.

## The Edit Instructions Window



The Edit Instructions window with the iDLX editor and markdown script on the left, and lab manual visible on the right.

**CONTINUE**

## Step 2: Select Upload File (the Cloud icon)

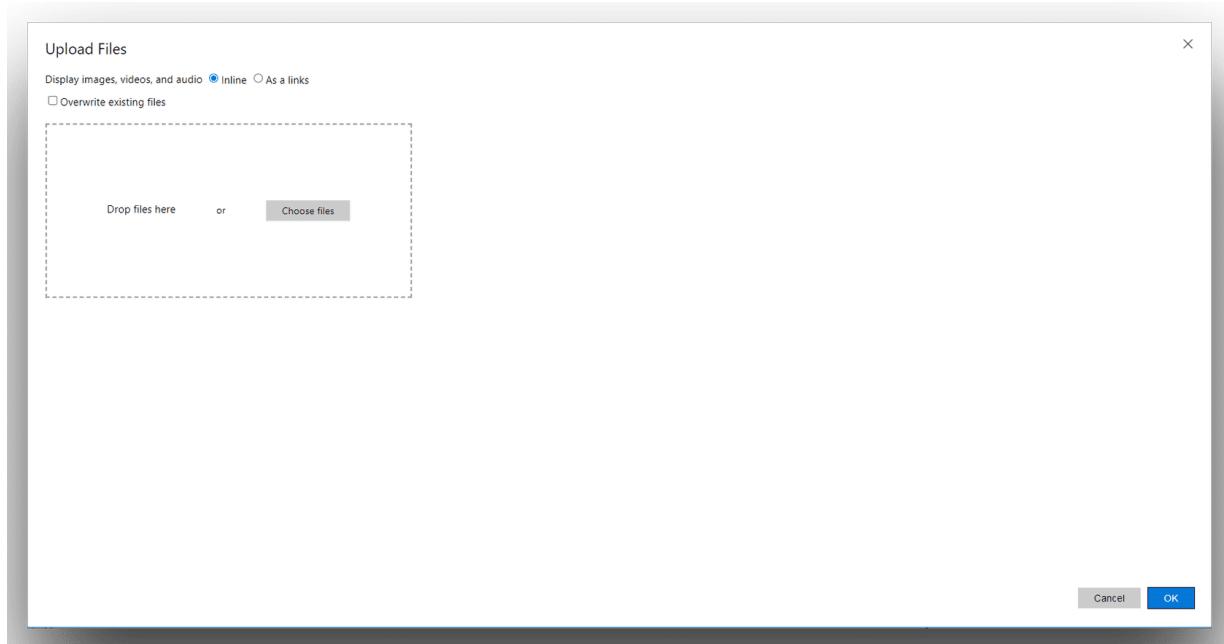
The screenshot shows two windows side-by-side. On the left is the 'Edit Instructions' window titled 'My Base Instructions Set (set)'. It contains a large block of text with several lines highlighted in red, indicating specific steps or sections. On the right is the 'Learner Preview' window titled 'LDM-001: Edit Test Files in Linux (Guide)'. This window shows a simplified version of the instructions, designed for learners. At the top of the preview window, there is a red box highlighting the 'Upload File' button, which is located in the upper-left corner of the preview area.

The Upload File button highlighted in red in the upper left corner of the Edit Instructions window.



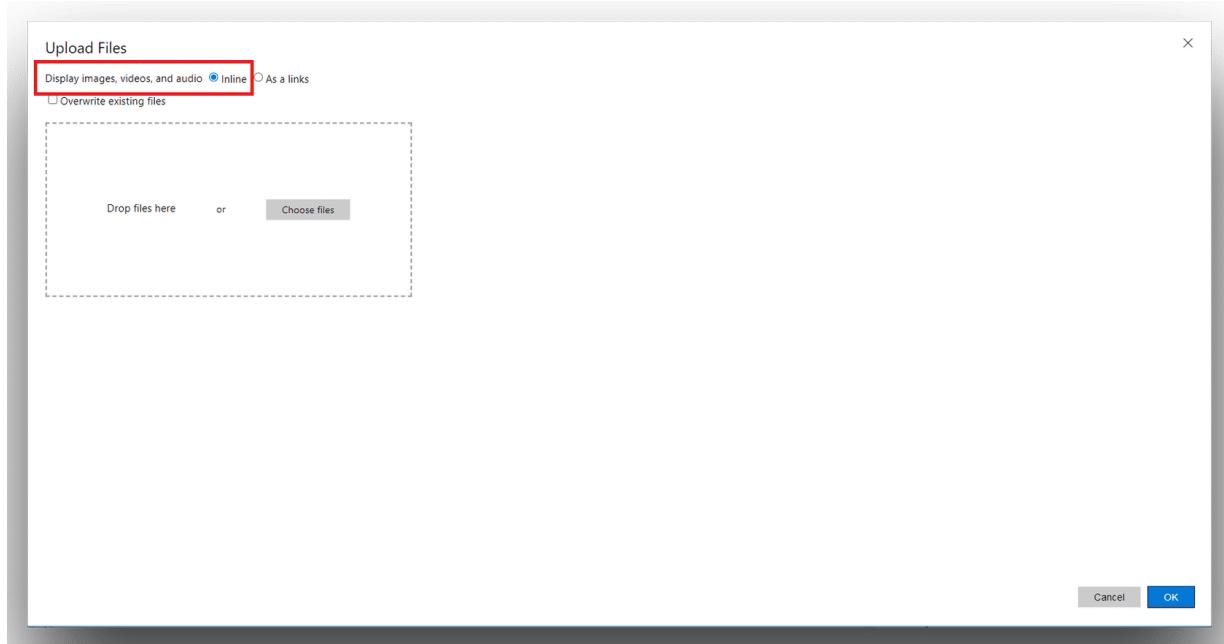
Select the **Upload Image** icon located in the upper left-hand corner of the Edit Instructions window to access the **Upload Files** window.

## The Upload Image Window



Once you select the **Upload Files** icon, the Upload Files window opens.

### Step 3: Select the Variables Tab



**Display images, videos, and audio** highlighted in red in the upper left corner of the Upload Files window.

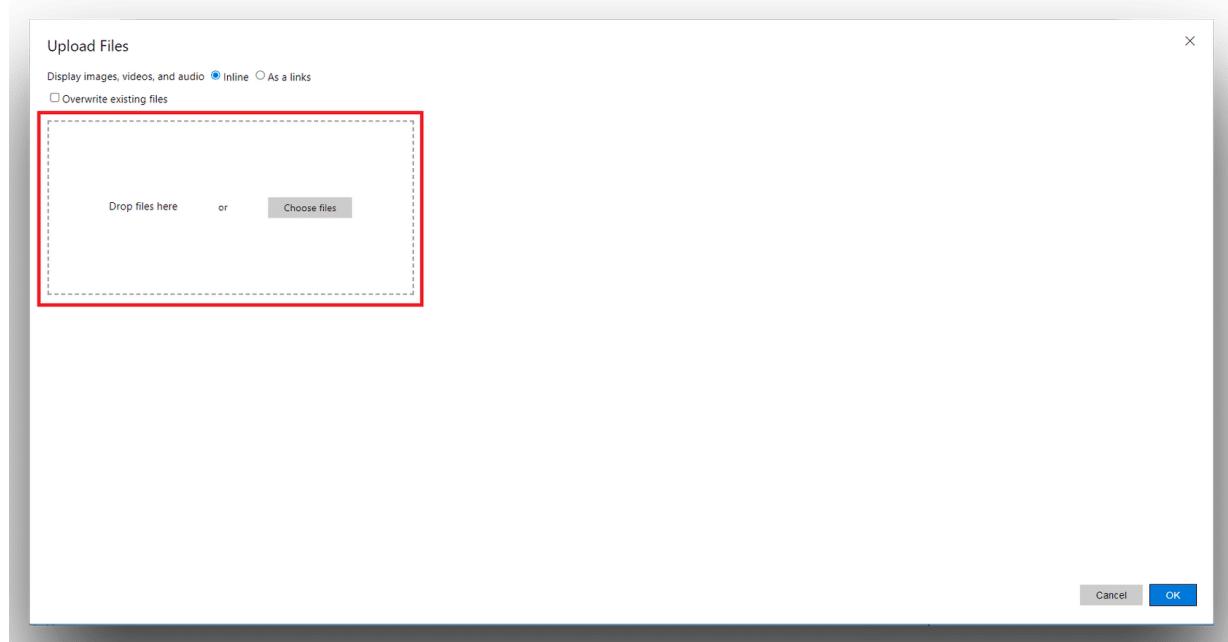
---



On the Upload Files page, in **Display images, videos, and audio**, select **Inline**.

**CONTINUE**

#### Step 4: Choose The Image File



**Drop files here** highlighted in red in the upper left corner of the **Upload Files** window.

---

## Print Screen Method

- Locate the image you wish to use in the new Challenge Lab.
- Select the **Print Screen** button located on your keyboard.
- Determine where you want the image to appear in your Challenge Lab, and then paste the image you just captured.
- Your new image is now visible in the Lab Manual portion of the Challenge Lab.



You may need an image editing program such as Paint, to crop your images as the Upload Image window does not support that functionality.

## Upload Method

- Determine where you want the new image to appear in your Challenge Lab.
- Locate the **image** you wish to use in the new Challenge Lab.
- Open the **Upload Files** icon from the Edit Instructions window.
- On the Upload Files window, select the **Choose files** button, and then navigate to the file you wish to upload.
- Select the **image**, and then select **Open**.



On the [Upload Files](#) window, select **OK**.



Your new image can is now visible in the Lab Manual portion of the Challenge Lab.

**CONTINUE**

# KNOWLEDGE BLOCKS

MK

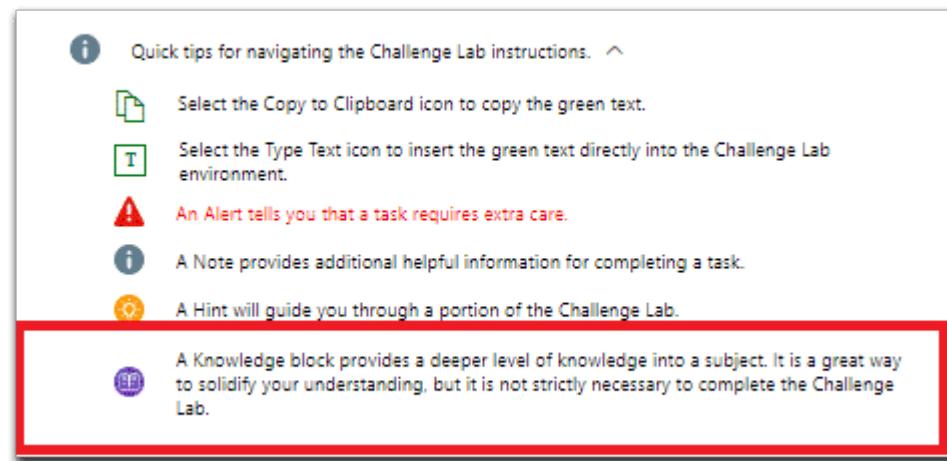
Michael Kemper

---

---

Use a **knowledge block** if you have additional information that you want to convey to learners. This provides a visual separation between your instructional step and the additional information.

## Lab Manual View



The screenshot shows a tooltip or help panel with the following content:

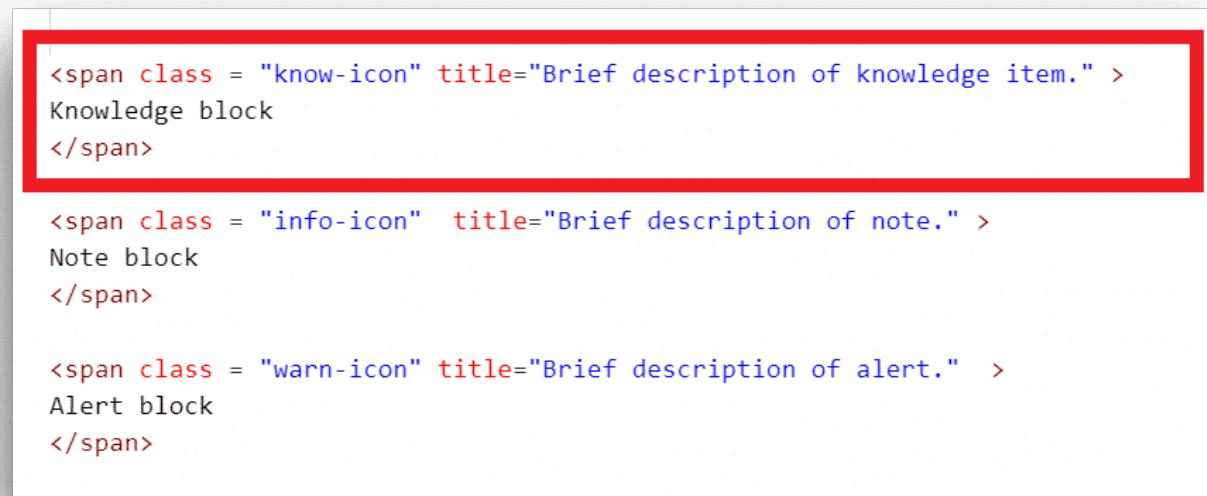
- i** Quick tips for navigating the Challenge Lab instructions. ^
-  Select the Copy to Clipboard icon to copy the green text.
-  Select the Type Text icon to insert the green text directly into the Challenge Lab environment.
-  An Alert tells you that a task requires extra care.
-  A Note provides additional helpful information for completing a task.
-  A Hint will guide you through a portion of the Challenge Lab.

A Knowledge block provides a deeper level of knowledge into a subject. It is a great way to solidify your understanding, but it is not strictly necessary to complete the Challenge Lab.

The Lab Manual with an **Alert block** highlighted in red.

---

## iDLX Editor View



```
<span class = "know-icon" title="Brief description of knowledge item." >
Knowledge block
</span>

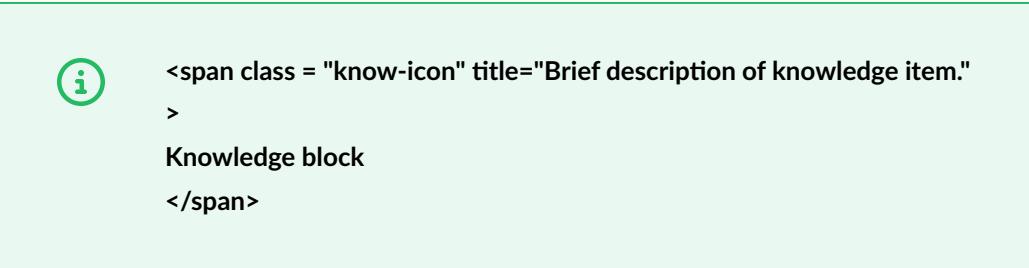
<span class = "info-icon" title="Brief description of note." >
Note block
</span>

<span class = "warn-icon" title="Brief description of alert." >
Alert block
</span>
```

The iDLX editor with **Knowledge block** markdown, highlighted in red.

---

Copy the below markdown to create a Knowledge block:



(i) <span class = "know-icon" title="Brief description of knowledge item."  
>  
Knowledge block  
</span>

**Example of a Knowledge block**

- In file4, add 40 lines of text by using the `T` y and `T` p commands.

 Expand this hint for guidance on adding lines of text by using the `y` and `p` commands.

 Vim uses the `yank` and `put` functions to make duplicating lines of text very easy. You will use this long file in later sections of this challenge.

Working with the Vim text editor allows administrators to manage Linux configuration files.

The Lab Manual with a **Knowledge block** highlighted in red.

---

## Creating a Knowledge block

1

In the iDLX editor, locate the Knowledge Block markdown. The markdown should look like the following:

```
<span class = "know-icon" title="Brief  
description of knowledge item.">  
Knowledge block  
</span>
```

2

Select the **Brief description of knowledge item** text, and then replace it with the **new Knowledge Block text**.

3

Repeat the above steps to add additional **Knowledge blocks**.

## Additional Information

- Add knowledge blocks to provide additional context.
- In knowledge blocks, avoid the use of bold formatting. If you need to call out a specific item, use italics.
- Don't use images in knowledge blocks — place the image in a note instead. Learners need to expand knowledge blocks in order to see more than the first few lines of content, so they may not see your image.
- Use a knowledge block to provide a deeper level of knowledge than can be explained in an instruction step.
- A knowledge block should be indented at the same level as the item that preceded it.

**CONTINUE**

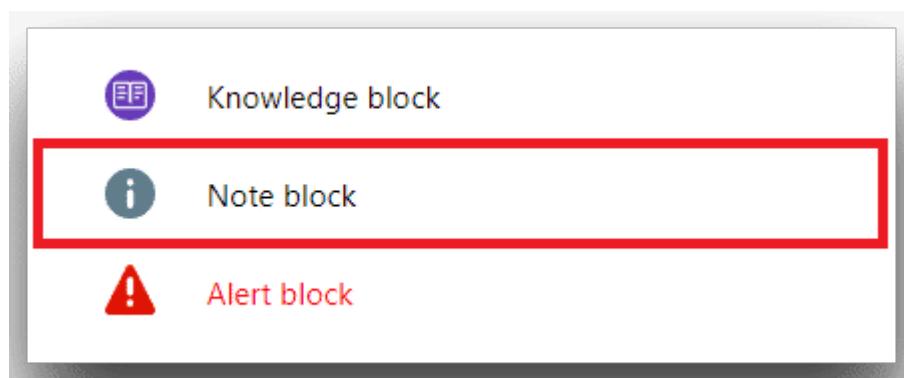
# NOTES

 MK Michael Kemper

---

**Notes** are similar to knowledge blocks. Use a note to convey information about the Getting Started lab or Challenge Lab and the lab environment rather than about the technology in the Getting Started lab or challenge lab.

## Lab Manual View



The Lab Manual with an **Note block** highlighted in red.

---

## iDLX Editor View

```
<span class = "know-icon" title="Brief description of knowledge item." >  
Knowledge block  
</span>  
  
<span class = "info-icon" title="Brief description of note." >  
Note block  
</span>  
  
<span class = "warn-icon" title="Brief description of alert." >  
Alert block  
</span>
```

The iDLX editor with Note block markdown, highlighted in red.

---

Copy the below markdown to create a Note block:



```
<span class = "info-icon" title="Brief description of note." >  
Note block  
</span>
```

Example of a Note block



Select the Copy to clipboard icon to copy the text string to the clipboard.



A cloud slice is a portion of an Azure subscription that has been assigned to a user account that was provisioned for you. This provides you with transient, *just-enough* access to Azure so that you can learn the concepts in this challenge.

The Lab Manual with a Note block highlighted in red.

---

## Creating a Note block

1

In the iDLX editor, locate the Note Block markdown. The markdown should look like the following:

```
<span class = "info-icon" title="Brief  
description of note.">  
Note block  
</span>
```

2

Select the **Brief description of note** text, and then replace it with the **new Note Block text**.

3

Repeat the above steps to add additional **Note blocks**.

## Additional Information



- Add **Note blocks** to provide additional context.

- In **Note blocks**, avoid the use of **bold formatting**. If you need to call out a specific item, use *italics*.
- When you use learning features like **Notes** between steps in a bulleted list, you must indent each learning item four spaces in order to match the indentation of the bullet.
- Don't use images in knowledge blocks — place the image in a **Note** instead. Learners need to expand knowledge blocks in order to see more than the first few lines of content, so they may not see your image.
- A **Note block** should be indented at the same level as the item that preceded it.

CONTINUE

# TABLES

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---

When you want a learner to configure settings or properties, consider using a **table**. **Tables** allow you to display a lot of relevant information in once place without the need to write an instructional step for each setting.

## Lab Manual View

Property	Value
Property 1	Value 1
Property 2	Value 2
Property 3	Value 3
Property 4	Value 4

The **Lab Manual** with a **Table** highlighted in **red**.

---

## iDLX Editor View

Property	Value
:-- :--	
Property 1	**Value 1**
Property 2	**Value 2**
Property 3	**Value 3**
Property 4	**Value 4**

The iDLX editor with **Table** markdown, highlighted in red.

---

Copy the below markdown to create a Table:



```
|Property|Value|
|:--|:--|
|Property 1|**Value 1**|
|Property 2|**Value 2**|
|Property 3|**Value 3**|
|Property 4|**Value 4**|
```

## Example of a Table

- Create a managed disk virtual machine snapshot of the VM1 virtual machine by using the values in the following table:

Property	Value
Resource group	{RESOURCE_GROUP_NAME}
Name	VM1Snap2
Region	(US) East US 2
Source disk	VM1-OSDisk
Storage type	Standard HDD

The Lab Manual with a **Table** highlighted in red.

---

## Creating a Table

1

In the iDLX editor, locate the Table markdown. The markdown should look like the following:

```
|Property|Value|
|:--|:--|
|Property 1|**Value 1**|
|Property 2|**Value 2**|
|Property 3|**Value 3**|
|Property 4|**Value 4**|
```

2

Select the **Property 1** text, and then replace it with the **new Property 1** text.

3

Select the **Value 1** text, and then replace it with the **new Value 1 text**.

4

Repeat steps 2 and 3 until all Properties and Values have been entered.

5

Repeat the above steps to add additional **Tables**.

## Additional Information

- The most commonly used table display is a two-column table that contains left-aligned content.
- In the editor, you only need to indent the first line of your table four spaces to have it indent properly as part of a bulleted or numbered step; however, indenting the entire table makes it easier to identify the table as nested in the raw markdown content.
- You don't need to format the table heading by using a bold font format. Table headings are automatically displayed in bold.
- The settings are all items with which a learner interacts, so they should either use copyable text or bold format.
- Only include items that learners must configure. For all other settings, instruct learners to use the default value.
- In a service-based environment, if you expect the default value to change and getting the correct selection is critical to your configuration, you can provide the value in the table.
- Always check your markdown in the instruction editor preview window.

- Remember to indent at least the first line of the table four spaces.
- Use tables for concise settings that don't require additional information. If you have a complex configuration — for example, developer code — or the setting requires an explanation, use numbered steps
- Use tables when you have four or more values. If you have fewer than four values, use a sentence.

CONTINUE

# TOGGLES

 Michael Kemper

---

## Lab Manual View

Requirement 1	Requirement 1
Hints Enabled No <input type="button" value=""/> Yes	Hints Enabled No <input checked="" type="button" value=""/> Yes

The Lab Manual with a **Toggle** in the **No (off)** position.

The Lab Manual with a **Toggle** in the **Yes (on)** position.

## Example of a Toggle

## Create an Azure load balancer

An Azure load balancer needs to be created before you can create load balancer resources. You will create an Azure load balancer named *MyLoadBalancer*.

Hints Enabled

No  Yes

- Sign in to the Azure portal as  {USERNAME} using  {PASSWORD} as the password

The **Lab Manual** with a **Toggle** highlighted in red.

GlobalReqHeader		@lab.Variable(GlobalReqHeader)
GlobalReqFooter		@lab.Variable(GlobalReqFooter)
ShowHints	No	@lab.Variable>ShowHints
ShowToggle	Yes	@lab.Variable>ShowToggle

The **Lab Variables Window** with **ShowToggle** set to **Yes**, highlighted in red.

### Showing or Hiding the Toggle

1

Select the @Lab icon located in the upper left-hand corner of the Edit Instructions window to access the Lab Variables.

2

Select the **Variables** tab located in the upper left-hand corner of the Edit Instructions window to access the Lab Variables.

3

Set the **ShowToggle** variable value to **Yes**.

4

To turn the Toggle off, repeat the above steps, and then set the variable value to **No**.

## Additional Information

- Toggles are Off by default in Guided and Expert Challenge Labs.
- Toggles are On by default in Advanced Challenge Labs.

**CONTINUE**

# CHALLENGE LAB STRUCTURE

MK

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---

All three types of Challenge Labs share the same basic **structure**. They all contain an overview that sets the scene for the Challenge Lab and outlines the tasks the learner will perform, a series of tasks that contain the configuration requirements the learner will perform, and a summary that highlights what the learner accomplished and provides information about related content that learners can use to build skills.

## No matter the type, each Challenge Lab:

- Contains an overview that sets the scene for the Challenge and outlines the tasks the learner will perform.
- Is driven by a series of tasks that contain the configuration requirements the learner will perform.
- Serves as a means of verification, allowing the learner to gauge success.
- Summarizes and highlights what the learner accomplished and provides information about related content that learners can use to build skills.

**CONTINUE**

# CREATING THE TITLE PAGE



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---

Learner Preview

Skillable Challenges

Challenge Lab Template - (V3) (COPY)

2 Hours Remaining

Instructions Help

100%

 Skillable challenges

Advanced

---

Challenge Title Here

---

**Challenge Overview**

Understand the scenario

You are a Developer at Hexelo, a company that needs to... First, you will [REQUIREMENT 1]. Next, you will [REQUIREMENT 2], and then you will [REQUIREMENT 3]. Finally, you will [REQUIREMENT 4].

Navigating the Challenge Lab

- i** Understanding a Cloud Slice ▾
- i** Quick tips for navigating the Challenge Lab instructions. ^
-  Select the Copy to Clipboard icon to copy the green text.
-  Select the Type Text icon to insert the green text directly into the Challenge Lab environment.
-  An Alert tells you that a task requires extra care.
-  A Note provides additional helpful information for completing a task.
-  A Hint will guide you through a portion of the Challenge Lab.
-  A Knowledge block provides a deeper level of knowledge into a subject. It is a great way to solidify your understanding, but it is not strictly necessary to complete the Challenge Lab.

Next: Markdown styles that can be used: >

The **Lab Manual** with the [Challenge Lab Title](#) page.

---

**CONTINUE**

## Github includes

Every **Challenge Lab** begins with a link to Github named [!INSTRUCTIONS \[ \]](#), directly followed by a link. **DO NOT REMOVE** this link! The link is listed below:



**!INSTRUCTIONS[]**  
(<https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Intro.md>)

## Github view

```
!INSTRUCTIONS[](https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/LevelSpecific/Logos/@lab.Variable(difficulty).md)
```

```
# !INSTRUCTIONS[] [challenge-title]
```

```
:::overviewbutton
```

```
Challenge Overview
```

```
:::
```

```
@lab.Variable(GlobalIntroduction)
```

## Understand the scenario

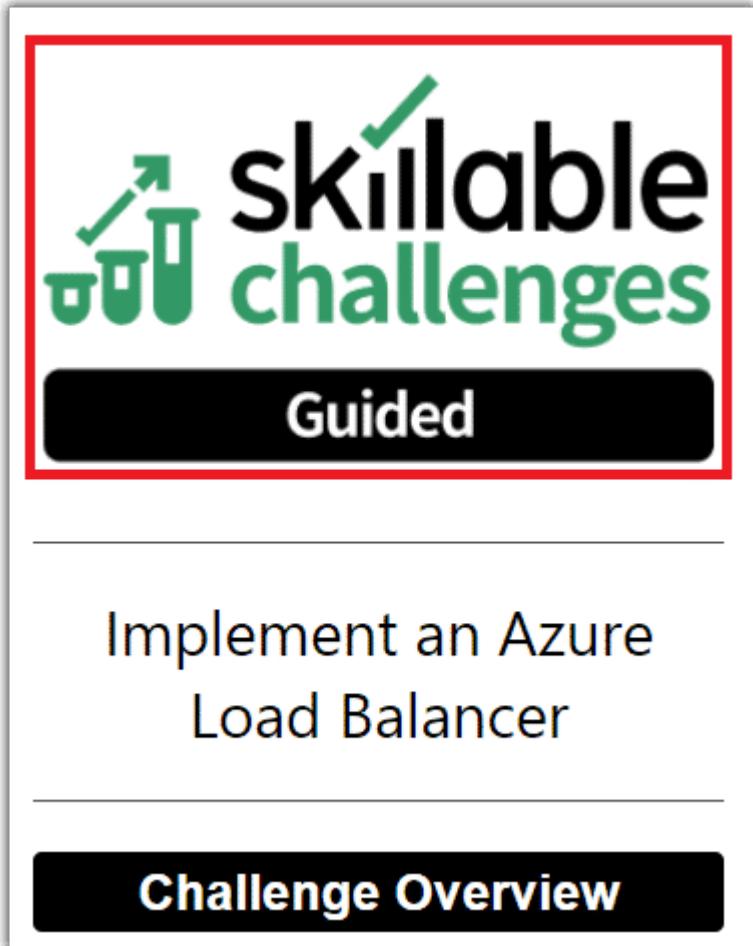
!INSTRUCTIONS[ ][overview]

!INSTRUCTIONS[ ](<https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/LabHelp.md>)

@lab.DropDownList(ShowToggle)[Yes,No]

CONTINUE

 Skillable Challenges logo



The **Lab Manual** with the **Skillable Challenges** logo highlighted in **red**.



**Skillable Challenge logos** that start the lab are set and updated based on the Challenge Lab level selected in the variables window. Entering Guided as the difficulty variable, will change the Challenge Lab image to Guided, Advanced to Advanced, and so on.

**The Challenge Lab Title**

The **title** is one of the most important elements of a Challenge Lab. It tells the learners what they should be able to do when they have completed the challenge lab. All **titles** use title case.

## **Lab Manual View**



Guided

Challenge Title Here

## Challenge Overview

Understand the scenario

Navigating the Challenge Lab



Understanding a Cloud Slice ▾



Quick tips for navigating the  
Challenge Lab instructions. ▾

Select for More..

Next: Requirement 1 >

The **Lab Manual** with the **Challenge Lab Title** highlighted in red.

---

## iDLX Editor View

```
!INSTRUCTIONS[]  
(https://raw.githubusercontent.com//LODSContent/Challenge-V3-Framework/main/Templates/Sections/Intro.md)
```

```
>[challenge-title]: Challenge Title Here
```

```
>[overview]:
```

```
>
```

The **iDLX editor** with the **Title** markdown, highlighted in red.

---

## Example of a Challenge Lab Title



Guided

---

## Implement an Azure Load Balancer

---

**Challenge Overview**

An example of a [Challenge Lab Title](#).

---

### Creating a Title

1

In the iDLX editor, locate the Title markdown. The markdown should look like the following:

>[challenge-title]: Challenge Title Here

2

Select the [Challenge Title Here](#) text, and then replace it with the new Title text.

---

3

The new **Title** is now visible in the Lab Manual window.

## Additional Information

- A Guided challenge **title** must begin with an action verb.
- Some **titles** may contain the name of the product or technology that is featured in the challenge lab.
- If possible, avoid using the word and in a **title**.
- In most cases, when you see the word "and", you have two different Challenge Labs.
- An Advanced or Expert Challenge Lab **title** is phrased in the form of a question and begins with the words “Can You ...?”
- The **title** should reflect the key skills being tested in the Challenge Lab.

CONTINUE

## The Overview

The challenge lab **overview** appears on the title page, under the Challenge Lab title, and contains a description of the

Challenge Lab scenario and a summary of the Challenge Lab environment. Learners must select the overview in order to display the contents, so some learners may not read this information.



The overview format is the same for all three types of Challenge Labs.

### **The Overview is comprised of 3 important elements:**

- 1**      The Scenario
- 2**      The Job Title
- 3**      The Company Name

#### **The Scenario**

# Implement an Azure Load Balancer

---

## Challenge Overview

### Understand the scenario

You are an Administrator for Hexelo, an organization in need of implementing an Azure load balancer.

In this Challenge Lab, you will implement an Azure load balancer. First, you will create an Azure load balancer. Next, you will configure a backend pool for the load balancer, and then you will configure an HTTP health probe. Finally, you will create a load balancing rule.

### Navigating the Challenge Lab

The **Lab Manual** with the **Scenario** highlighted in **red**.

---

### iDLX Editor View

>[overview]: You are an Azure Network Engineer for Hexelo, an organization in the process of migrating on-premises infrastructure and applications to Azure in the cloud.

In this Challenge Lab, you will implement a virtual network gateway in Azure. First, you will create a virtual network, and then you will create a gateway subnet. Next, you will create a virtual network gateway for ExpressRoute. Finally, you will create a virtual network gateway for VPN.

The iDLX editor with the **Scenario** markdown, highlighted in red.

---

## Example of a Scenario

# Implement an Azure Load Balancer

---

## Challenge Overview

### Understand the scenario

You are an Administrator for Hexelo, an organization in need of implementing an Azure load balancer.

In this Challenge Lab, you will implement an Azure load balancer. First, you will create an Azure load balancer. Next, you will configure a backend pool for the load balancer, and then you will configure an HTTP health probe. Finally, you will create a load balancing rule.

### Navigating the Challenge Lab

An example of a [Challenge Lab Scenario](#).

---

### Creating a Scenario

1

In the iDLX editor, locate the Overview markdown. The markdown should look like the following:

>[overview]:

>

>  
>  
>

2

To the right of **Overview**, enter your new Scenario. Don't forget to insert the Global variables for the Job Role and the Company Name.

3

The new **Scenario** is now visible in the Lab Manual window.

## Additional Information

- Each Challenge Lab contains an introductory paragraph that defines the job role, the Company name, and the requirements of the Challenge Lab, and the tasks the learner will perform.
- Use the phrase "you need to" to introduce the main requirement of the Challenge Lab.
- The second sentence should be in the form of a requirements statement that describes the overall goal of the Challenge Lab. Use the phrase “You need to...” to begin your requirements statement. The requirements statement should relate to the title.
- The opening sentence should state one of the supplied Job Role tokens associated with the tasks in the Challenge Lab.

## Challenge Lab Overview



Guided

---

Challenge Title Here

---

**Challenge Overview**

Understand the scenario

Navigating the Challenge Lab



Understanding a Cloud Slice ▾



Quick tips for navigating the  
Challenge Lab instructions. ▾

[Select for More..](#)

Next: Requirement 1 >

The **Lab Manual** with the **Challenge Lab Overview** highlighted in **red**.

---

## iDLX Editor View

```
>[challenge-title]: Challenge Title Here  
  
>[overview]:  
>  
>  
>  
>  
====
```

The **iDLX editor** with the **Overview** markdown, highlighted in **red**.

---

## Example of an Overview

# Implement an Azure Load Balancer

---

## Challenge Overview

### Understand the scenario

You are an Administrator for Hexelo, an organization in need of implementing an Azure load balancer.

In this Challenge Lab, you will implement an Azure load balancer. First, you will create an Azure load balancer. Next, you will configure a backend pool for the load balancer, and then you will configure an HTTP health probe. Finally, you will create a load balancing rule.

### Navigating the Challenge Lab

An example of a [Challenge Lab Overview](#).

---

## Global Variables

Don't forget to select the appropriate Job Role and Company Name token (Hexelo by default) from your list of populated variables, and then insert the [Token](#) into the [Scenario](#).

**Load Balancer**

**Challenge Overview**

Understand the scenario

You are an Administrator for Hexelo, an organization in need of implementing an Azure load balancer.

In this Challenge Lab, you will implement an Azure load balancer. First, you will create an Azure load balancer. Next, you will configure a backend pool for the load balancer, and then you will configure an HTTP health probe. Finally, you will create a [load balancing rule](#).

The **Lab Manual with the Job Role** highlighted in red.

**Load Balancer**

**Challenge Overview**

Understand the scenario

You are an Administrator for Hexelo, an organization in need of implementing an Azure load balancer.

In this Challenge Lab, you will implement an Azure load balancer. First, you will create an Azure load balancer. Next, you will configure a backend pool for the load balancer, and then you will configure an HTTP health probe. Finally, you will create a [load balancing rule](#).

The **Lab Manual with the Company Name** highlighted in red.

Value	Token
Guided	@lab.Variable(difficulty)
CloudSlice	@lab.Variable(cloudEnvironment)
Hexelo	@lab.Variable(GlobalCompanyName)
Administrator	@lab.Variable(GlobalAdministrator)
Analyst	@lab.Variable(GlobalAnalyst)
Architect	@lab.Variable(GlobalArchitect)
Data Scientist	@lab.Variable(GlobalDataScientist)
Developer	@lab.Variable(GlobalDeveloper)
Data Engineer	@lab.Variable(GlobalDataEngineer)
DevOps Engineer	@lab.Variable(GlobalDevOpsEngineer)

## Creating an Overview

1

In the iDLX editor, locate the Overview markdown. The markdown should look like the following:

```
>[overview]:  
>  
>  
>  
>
```

2

To the right of **Overview**, enter your new Overview. Don't forget to insert the Global variables for the Job Role and the Company Name.

3

The new **Overview** is now visible in the Lab Manual window.

## Additional Information

- Stick to the pattern! Challenge Labs should all have a similar look and feel, and learners expect to see the same structure in each challenge lab they perform.
- Authors should review the overview after completing all of the tasks in the challenge lab to ensure that the overview still describes the Challenge Lab correctly.
- Tech reviewers and copy editors should review the overview at the end of their review to ensure that the overview describes the tasks in the Challenge Lab.



**Don't forget to insert the Global variables for the Job Role and the Company Name!**

**CONTINUE**

# CREATING YOUR FIRST REQUIREMENT

MK

Michael Kemper

---

Challenge Labs generally contain a minimum of 3 Requirements. Requirements are made up of Tasks. In Guided and Advanced Challenge Labs, the Tasks also contain Hints, which are made up of steps.

Once you we have created the Challenge Lab Title and Overview, we are ready to create our first **Requirement**. Each Requirement is divided into it's own section.

Requirement sections begin with (*where the number increases as new Requirements are added*):

====

<!-- Begin Requirement 1 section -->

# Requirement 1

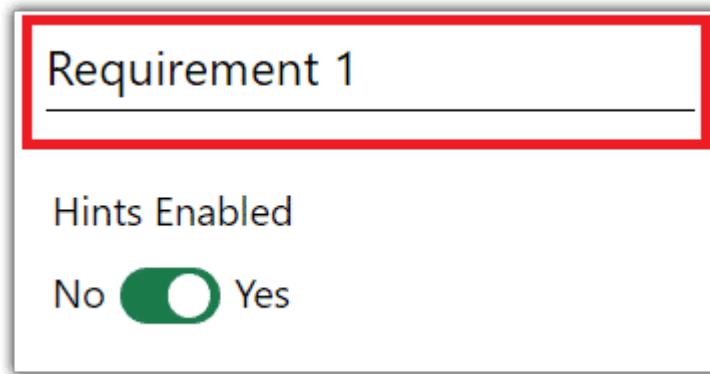
and ends with:

!INSTRUCTIONS[]

(<https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Footer.md>)

<!-- End Requirement 1 section -->

## Add a Requirement



The Lab Manual with a Requirement highlighted in red.

---

## iDLX Editor View

```
==  
<!-- Begin Requirement 1 section -->  
# Requirement 1  
!INSTRUCTIONS[](https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Toggle.md)  
- Task 1.
```

The iDLX editor with Requirement markdown, highlighted in red.

---

Copy the below markdown to create a new Requirement:



# Requirement 1

## Example of a Requirement

Create an Azure load balancer

Hints Enabled

No  Yes

The Lab Manual with a Requirement highlighted in red.

---

## Creating a Requirement

1

In the iDLX editor, locate the Requirement markdown. The Requirement 1 markdown will be located directly below the following:

<!-- Begin Requirement 1 section -->

The markdown should look like the following:

### # Requirement 1

2

Select the **Requirement 1** text, and then replace it with the **new Requirement 1 text**.

**DO NOT REMOVE THE "#" SIGN!**

3

Repeat the above steps to add additional **Requirements**.

## Additional Information

- Before you begin to write the **Requirements** for your Challenge Lab, plan the Challenge Lab structure.
- Think about the overall goal of the Challenge Lab, as well as the **Requirements** you want the learners to perform in order to achieve this goal.
- Think of a **Requirement** as something that, in the real world, you would complete, and then feel that you could take a break.
- Create a heading that calls out the purpose of the **Requirement**.

- If your **Requirement** contains the word "and", review the objectives. You may be trying to combine two **Requirements** into one.

CONTINUE

## Add a Task

### Requirement 1

---

Hints Enabled

No  Yes

- Task 1.

- Task 2.



The **Lab Manual** with a **Task** highlighted in **red**.

---

## iDLX Editor View

```
# Requirement 1

!INSTRUCTIONS[]
(https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Toggle.md)

- Task 1.

<!-- Begin Guided Hint -->
<details class="hint-icon" title="Select the arrow to expand this hint">
<summary>Expand this hint for guidance on ...</summary>
```

The iDLX editor with **Task** markdown, highlighted in red.

---

Copy the below markdown to create a new Task:

(i) - Task 1.

```
:::steps(ShowSteps=True)

>[+hint] Expand this hint for guidance on...

>

> There must be at least one blank line before the expandable content.

>

> Hints will be hidden when hints are off.
```

```
>  
:  
:  
>[!knowledge] Want to learn more? Review the documentation on  
[creating Task #](https://docs.microsoft.com/ "Create Task #  
Guidance"). Knowledge items are hidden when hints are off.
```

## Example of a Task

- Create an **HTTP** health probe named  
 **MyHealthProbe** in **MyLoadBalancer** by using port  
 **80**, and an interval of  **15**.



Expand this hint for guidance on creating a  
heath probe. ▾

The Lab Manual with a **Task** highlighted in red.

## Creating a Task

1

In the iDLX editor, locate the **Task** markdown. The Task 1 markdown will be located directly below the following:

**# Requirement 1**

**!INSTRUCTIONS[]**  
<https://raw.githubusercontent.com/LODSContent/Challenge->

The markdown should look like the following:

- **Task 1.**

:::steps(ShowSteps=True)

>[+hint] Expand this hint for guidance on...

>

> There must be at least one blank line before the expandable content.

>

> Hints will be hidden when hints are off.

>

:::

>[!knowledge] Want to learn more? Review the documentation on [creating Task #](<https://docs.microsoft.com/> "Create Task # Guidance"). Knowledge items are hidden when hints are off.

2

Select the - **Task 1.** text, and then replace it with the **new Task 1 text.**

3

Repeat the above steps to add additional **Tasks.**

## Additional Information

- Write **Tasks** that tell the learner the action to take and the specific Requirements to implement, but not how to perform the action.

### Add Hints

- For **Guided** Challenge Labs, don't forget to add detailed, step-by-step **Hints** to each **Task**.
- For **Advanced** Challenge Labs, don't forget to add **Hints** in the form of Links for additional learning to each **Task**.

CONTINUE

# ADDING THE CHECK YOUR WORK SECTION

MK

Michael Kemper

---



Each Requirement in a Guided or Advanced Challenge Lab must contain a **Check your work** section after the tasks.

[Lab Manual View](#)

## Check your work

- Verify that you have created Requirement 1 Task 1.
- Verify that you have created Requirement 1 Task 2.
- Verify that you have created Requirement 1 Task 3.

**Verify**

The **Lab Manual** with a **Check Your Work** section.

---

## iDLX Editor View

```
## Check your work
@lab.ActivityGroup(requirement1)

!INSTRUCTIONS[]
(https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Footer.md)

<!-- End Requirement 1 section -->
===
<!-- Begin Requirement 2 section -->
```

The iDLX editor with **Check Your Work** markdown, highlighted in red.

---

Copy the below markdown to create a Check Your Work section:



## ## Check your work

```
@lab.ActivityGroup(requirement1)
```

```
!INSTRUCTIONS[]
```

```
(https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Footer.md)
```

```
<!-- End Requirement 1 section -->
```

```
====
```

Example of a Check Your Work section

## Check your work

- Verify that you have successfully created a backend pool.
- Verify that you have successfully created a health probe.
- Verify that you have successfully created a load balancing rule.

Verify

The Lab Manual with a **Check Your work** section.

---

Each script contains three text elements:

- **Text** — Contains the verification label that describes what the script verifies.
- **Correct Answer Feedback** — Contains the success message to display if the learner performed the configuration correctly.
- **Incorrect Answer Feedback** – Contains feedback to let the learner know what still needs to be configured



The incorrect answer feedback should be specific enough that the learner can determine what was missed.

## Creating a Check Your Work section

1

In the iDLX editor, locate the **Check Your Work** markdown. The markdown should look like the following:

### ## Check your work

```
@lab.ActivityGroup(requirement1)
```

```
!INSTRUCTIONS[]  
(https://raw.githubusercontent.com/LODSContent/Challenge-  
V3-Framework/main/Templates/Sections/Footer.md)
```

```
<!-- End Requirement 1 section -->
```

```
====
```

2

Select the **@lab.ActivityGroup(requirement1)** token, and then replace it with the **new Requirement Group** token from the **Activities** window.

3

Repeat the above steps to add additional **Check Your Work** sections.



Tech reviewers should execute the script before performing the Requirement. The script should display the incorrect answer feedback text if no configuration has been performed.

Copy editors will need to run the Challenge Lab to see the script text, and then execute the script to view the incorrect answer feedback

message. The script is included in a Word document for review, so copy editors can edit the text, including punctuation.

## Additional Information

- Each point should begin with the word Confirm.
- Each point should represent a key outcome of the Requirement, but may not map directly to each task .
- Check your work statements will map to the individual Tasks. They should never contain information that was not covered in the Requirement.
- Do not put verification instructions in the Check your work section. If learners should perform a verification step, include this in the tasks.
- The check your work section in an Advanced Challenge Lab should contain at least one activity script that will verify whether or not a learner has successfully performed the configuration required in the task.
- The script should verify that the key outcome of the task was completed, and may also verify additional configuration changes required by the task.

**CONTINUE**

# ADDING THE SUMMARY SECTION

MK

Michael Kemper

---

---

The **Summary** section summarizes the tasks learners performed in the Challenge Lab. The list of Requirements should relate directly to the abstract you used in the Challenge Lab Overview. Always use the past tense, and use active verbs.

[Lab Manual View](#)

Challenge Lab Template - (V3) (COPY)

2 Hours Remaining

Instructions Help

Summary

Congratulations, you have completed the **CHALLENGE LAB TITLE?** Challenge Lab.

You have accomplished the following:

- Past tense list of requirements.

Your feedback is important!

As you end your Challenge Lab, please take a few minutes to complete the short survey that will appear in the next window.

Alternatively, you may provide your feedback directly to [Challenge Labs feedback](#).

Be sure to check out the other Challenge Labs in this series:

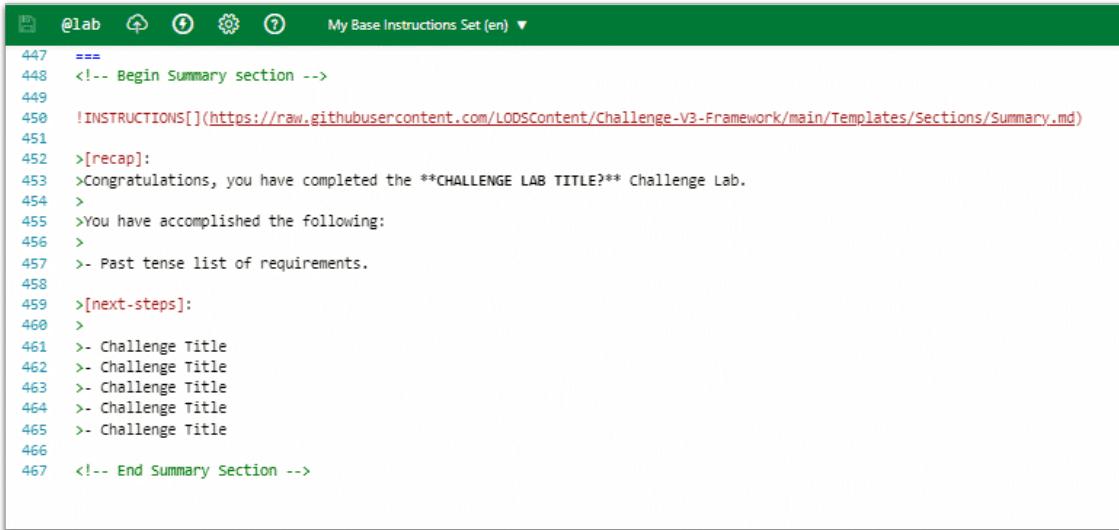
- Challenge Title

< Previous

End >

The **Lab Manual** with a [Summary](#) section.

## iDLX Editor View



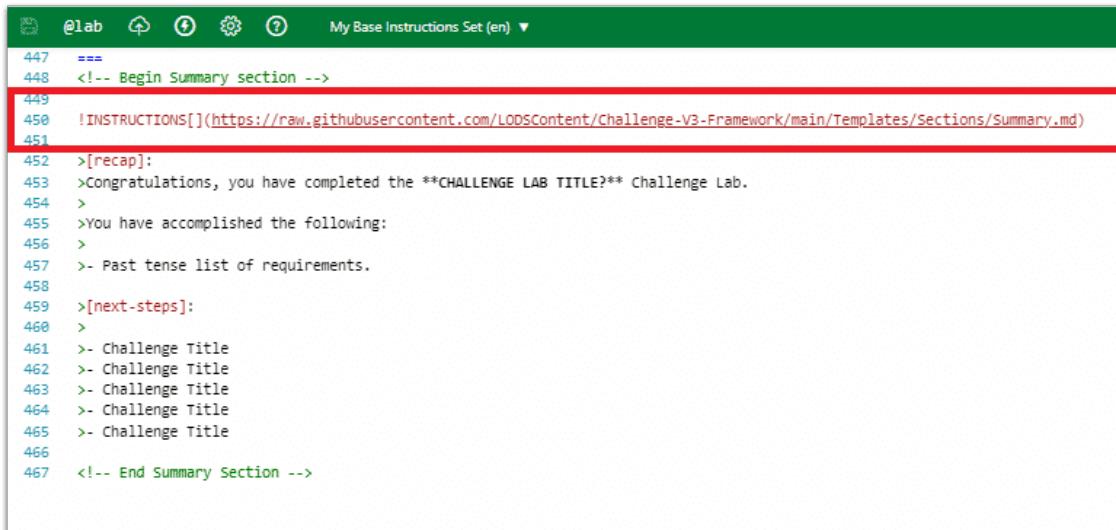
The screenshot shows the iDLX Editor interface with a green header bar containing icons for file, save, refresh, settings, and help, and the text "My Base Instructions Set (en) ▾". The main editor area displays the following code:

```
447 ===
448 <!-- Begin Summary section -->
449
450 !INSTRUCTIONS[](https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Summary.md)
451
452 >[recap]:
453 >Congratulations, you have completed the **CHALLENGE LAB TITLE?** Challenge Lab.
454 >
455 >You have accomplished the following:
456 >
457 >- Past tense list of requirements.
458
459 >[next-steps]:
460 >
461 >- Challenge Title
462 >- Challenge Title
463 >- Challenge Title
464 >- Challenge Title
465 >- Challenge Title
466
467 <!-- End Summary Section -->
```

The iDLX editor with **Summary** markdown, highlighted in red.

---

## Summary Section: Github



```
447 ===
448 <!-- Begin Summary section -->
449
450 !INSTRUCTIONS[](https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Summary.md)
451
452 >[recap]:
453 >Congratulations, you have completed the **CHALLENGE LAB TITLE?** Challenge Lab.
454 >
455 >You have accomplished the following:
456 >
457 >- Past tense list of requirements.
458
459 >[next-steps]:
460 >
461 >- Challenge Title
462 >- Challenge Title
463 >- Challenge Title
464 >- Challenge Title
465 >- Challenge Title
466
467 <!-- End Summary Section -->
```

The iDLX editor with **Github** markdown, highlighted in **red**.

---

Below is a description of what is included within the Github link:



### # Summary

```
<!-- Show submit warning on expert labs -->
!INSTRUCTIONS[](https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/LevelSpecific/Summary/@lab.Variable\(difficulty\).md)
```

**!INSTRUCTIONS[]][recap]**

```
!INSTRUCTIONS[](https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Feedback.md)
```

**### Be sure to check out the other Challenge Labs in this series:**

```
!INSTRUCTIONS[]][next-steps]
```

```
@lab.Variable(GlobalSummary)
```

## Summary Section: Challenge Lab Title

```
<!-- End Requirement 6 section -->
=====
<!-- Begin Summary section -->

!INSTRUCTIONS[]
(https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Summary.md)

>[recap]:
>Congratulations, you have completed the
**CHALLENGE LAB TITLE?** Challenge Lab.

>You have accomplished the following:
```

The iDLX editor with **Challenge Lab Title** markdown, highlighted in red.

---

## Summary

Congratulations, you have completed the  
**CHALLENGE LAB TITLE?** Challenge Lab.

You have accomplished the following:

- Past tense list of requirements.

Your feedback is important!

The **Lab Manual** with **Challenge Lab Title**, highlighted in red.

## Summary

Congratulations, you have completed the **Implement an Azure Load Balancer** Challenge Lab.

You have accomplished the following:

- Created a standard load balancer.
- Configured load balancer resources, including a backend pool, a health probe, and a load balancing rule.

Your feedback is important!

As you end your Challenge Lab, please take a few minutes to complete the short survey that will appear in the next window.

Alternatively, you may provide your feedback directly to [Challenge Labs feedback](#).

An Example with **Challenge Lab Title**, highlighted in red.

**Summary Section: List of Requirements**

```
>[recap]:  
>Congratulations, you have completed the  
**CHALLENGE LAB TITLE?** Challenge Lab.  
>  
>You have accomplished the following:  
>  
>- Past tense list of requirements.  
  
>[next-steps]:  
>  
>- Challenge Title is Guided
```

The iDLX editor with [Challenge Lab Requirements](#) markdown, highlighted in red.

---

## Summary

---

Congratulations, you have completed the  
**CHALLENGE LAB TITLE?** Challenge Lab.

You have accomplished the following:

- Past tense list of requirements.

The Lab Manual with [Challenge Lab Requirements](#), highlighted in red.

---

## Summary

---

Congratulations, you have completed the **Implement an Azure Load Balancer** Challenge Lab.

You have accomplished the following:

- Created a standard load balancer.
- Configured load balancer resources, including a backend pool, a health probe, and a load balancing rule.

Your feedback is important!

As you end your Challenge Lab, please take a few minutes to complete the short survey that will appear in the next window.

---

An Example with **Challenge Lab Requirements**, highlighted in red.

## Summary Section: List of other Challenge Labs in series

```
>- Past tense list of requirements.
```

```
>[next-steps]:
```

```
>
```

- ```
>- Challenge Title [Guided]  
>- Challenge Title [Guided]  
>- Challenge Title [Advanced]  
>- Challenge Title [Expert]  
>- Challenge Title [Capstone]
```

```
<!-- End Summary Section -->
```

---

The iDLX editor with additional **Challenge Labs** markdown, highlighted in red.

Be sure to check out the other Challenge Labs in this series:

- Challenge Title [Guided]
- Challenge Title [Guided]
- Challenge Title [Advanced]
- Challenge Title [Expert]
- Challenge Title [Capstone]

The **Lab Manual** with additional **Challenge Labs**, highlighted in red.

---

Be sure to check out the other Challenge Labs in this series:

- Implement Azure Virtual Networking [Guided]
- Implement Azure Virtual Network Routing [Guided]
- Implement Network Security Groups and Application Security Groups [Guided]
- Can You Configure Azure Virtual Networking? [Advanced]
- Configure an Azure VNet-to-VNet Connection [Guided]
- Configure Azure Virtual Network Peering [Guided]
- Can You Configure and Control Network Traffic? [Advanced]
- Implement Azure Backup for Azure Virtual Machines [Guided]
- Migrate an Azure Virtual Machine by Using a Recovery Services Vault [Guided]
- Create an Azure Virtual Machine Snapshot [Guided]
- Can You Implement Azure Data Protection? [Advanced]
- Can You Manage Azure Network Connectivity and High Availability? [Expert]

An **Example** with additional **Challenge Labs**, highlighted in red.

---

**Copy the below markdown to create a Summary section:**



<!-- Begin Summary section -->

!INSTRUCTIONS[]

(<https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Summary.md>)

>[recap]:

>Congratulations, you have completed the \*\*CHALLENGE LAB TITLE?  
\*\* Challenge Lab.

>

>You have accomplished the following:

>

>- Past tense list of requirements.

>[next-steps]:

>

>- Challenge Title

<!-- End Summary Section -->

## Example of a Summary section

## Summary

Congratulations, you have completed the **Implement an Azure Load Balancer** Challenge Lab.

You have accomplished the following:

- Created a standard load balancer.
- Configured load balancer resources, including a backend pool, a health probe, and a load balancing rule.

### Your feedback is important!

As you end your Challenge Lab, please take a few minutes to complete the short survey that will appear in the next window.

Alternatively, you may provide your feedback directly to [Challenge Labs feedback](#).

Be sure to check out the other Challenge Labs in this series:

- Implement Azure Virtual Networking [Guided]
- Implement Azure Virtual Network Routing [Guided]
- Implement Network Security Groups and Application Security Groups [Guided]
- Can You Configure Azure Virtual Networking? [Advanced]
- Configure an Azure VNet-to-VNet Connection [Guided]
- Configure Azure Virtual Network Peering [Guided]
- Can You Configure and Control Network Traffic? [Advanced]
- Implement Azure Backup for Azure Virtual Machines [Guided]
- Migrate an Azure Virtual Machine by Using a Recovery Services Vault [Guided]
- Create an Azure Virtual Machine Snapshot [Guided]
- Can You Implement Azure Data Protection? [Advanced]
- Can You Manage Azure Network Connectivity and High Availability? [Expert]

The **Lab Manual** with a **Summary** section.

## Creating a Summary

1

In the iDLX editor, locate the **Summary** section markdown. The markdown should look like the following:

====

<!-- Begin Summary section -->

!INSTRUCTIONS[]

(<https://raw.githubusercontent.com/LODSContent/Challenge-V3-Framework/main/Templates/Sections/Summary.md>)

>[recap]:

>Congratulations, you have completed the \*\*CHALLENGE LAB TITLE?\*\* Challenge Lab.

>

>You have accomplished the following:

>

>- Past tense list of requirements.

>[next-steps]:

>

>- Challenge Title [Guided]

>- Challenge Title [Guided]

>- Challenge Title [Advanced]

>- Challenge Title [Expert]

>- Challenge Title [Capstone]

<!-- End Summary Section -->

2

Select the \*\*CHALLENGE LAB TITLE?\*\*, and then replace it with the new Challenge Lab Title.

3

Select the - Past tense list of requirements., and then replace it with the new list of requirements.

4

Repeat the above step to add additional Requirements.

5

Below [next-steps], select the – **Challenge Title [Guided]**, and then replace it with the **new list of Challenge Labs** in the series.

*List ALL of the Challenge Labs in the series.*

6

Repeat the above step to add additional **Challenge Labs**.

## Additional Information

- At the end of the Summary, provide a list ALL of other, related Challenge Labs in the series.
- The Summary section contains some boilerplate text as part of the template. You will need to add your Challenge Lab Title.

*Please ensure that this matches the final title for the Challenge Lab.*

CONTINUE