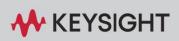
CY101EDU Keysight Cyber Training Simulator



USER'S GUIDE

Notices

Copyright Notice

© Keysight Technologies 2023 No part of this manual may be reproduced in any form or by any means (including electronic storage and retrieval or translation into a foreign language) without prior agreement and written consent from Keysight Technologies as governed by United States and international copyright laws.

Manual Part Number

CY101-90004

Edition

Edition 1, October 2023

Printed in

Printed in Malaysia

Published by

Keysight Technologies Bayan Lepas Free Industrial Zone 11900 Penang, Malaysia

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Declaration of Conformity

Declarations of Conformity for this product and for other Keysight products may be downloaded from the Web. Go to http://www.keysight.com/go/conformity. You can then search by product number to find the latest Declaration of Conformity.

U.S. Government Rights

The Software is "commercial computer software," as defined by Federal Acquisition Regulation ("FAR") 2.101. Pursuant to FAR 12.212 and 27.405-3 and Department of Defense FAR Supplement ("DFARS") 227.7202, the U.S. government acquires commercial computer software under the same terms by which the software is customarily provided to the public. Accordingly, Keysight provides the Software to U.S. government its customers under standard commercial license, which is embodied in its End User License Agreement (EULA), a copy of which can be found at https://www.keysight.com/my/en/ass ets/ndx/9018-08126/exhibits/9018-

08126.pdf. The license set forth in the EULA represents the exclusive authority by which the U.S. government may use, modify, distribute, or disclose the Software. The EULA and the license set forth therein, does not require or permit, among other things, that Keysight:

(1) Furnish technical information related to commercial computer software or commercial computer software documentation that is not customarily provided to the public; or (2) Relinquish to, or otherwise provide, the government rights in excess of these rights customarily provided to the public to use, modify, reproduce, release, perform, display, or disclose commercial computer software or commercial computer software documentation. No additional government requirements beyond those set forth in the EULA shall apply, except to the extent that those terms, rights, or licenses are explicitly required from all providers of commercial computer software pursuant to the FAR and the DFARS and are set forth specifically in writing else- where in the EULA. Keysight shall be under no obligation to update, revise or otherwise modify the Software. With respect to any technical data as defined by FAR 2.101, pursuant to FAR 12.211 and 27.404.2 and DFARS 227.7102, the U.S. government acquires no greater than Limited Rights as defined in FAR 27.401 or DFAR 227.7103-5 (c), as applicable in any technical data.

Warranty

THE MATERIAL CONTAINED IN THIS DOCUMENT IS PROVIDED "AS IS," AND IS SUBJECT TO BEING CHANGED, WITHOUT NOTICE, IN FUTURE EDITIONS. FURTHER, TO THE MAXIMUM EXTENT PERMITTED BY **APPLICABLE** LAW, **KEYSIGHT** DISCLAIMS ALL WARRANTIES. EITHER EXPRESS OR IMPLIED, WITH REGARD TO THIS MANUAL AND ANY INFORMATION CONTAINED HEREIN. INCLUD ING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. KEYSIGHT SHALL NOT BE LIABLE FOR ERRORS OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CON-NECTION WITH THE FURNISHING, USE, OR PERFORMANCE OF THIS DOCUMENT OR OF ANY INFORMATION CON-TAINED HEREIN. SHOULD KEYSIGHT AND THE USER А SEPARATE WRITTEN HAVE AGREEMENT WITH WARRANTY TERMS COVERING THE MATERIAL IN THIS DOCUMENT THAT CONFLICT WITH THESE TERMS, THE WAR-RANTY TERMS IN THE SEPARATE AGREEMENT SHALL CONTROL.

Safety Information

CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Sales and Technical Support

To contact Keysight for sales and technical support, refer to the support links on the following Keysight websites:

- Product-specific information and support, software, and documentation updates www.keysight.com/find/CY101EDU (Keysight Cyber Training Simulator)
- Worldwide contact information for repair and service www.keysight.com/find/assist

Table of Contents

Notices	1
Introduction	5
PathWave Lab Operations for Remote Learning	5
Keysight Cyber Training Simulator	5
Characteristics and Specifications	5
Intended Use of the User's Guide	6
First-Time Setup	6
User Interface Overview	7
Home View	7
Bench Management View	8
Instructor Settings View	9
Schedule Remote Lab Session View	
Reporting and History View	11
User Menu	12
Registration and Login	13
Schedule a Remote Lab Session	
Connect to a Scheduled Session	17
Extend a Scheduled Session	
Manage Virtual Lab Sessions	
Map Virtual Labs to LMS Course	
Schedule a Virtual Lab Session	
Connect to a Virtual Lab Session	
Management Menu	28
Keycloak Administration Console	
Configure Roles	
Add User	
Manage User	

Email Settings	35
Set Up Single Sign-On (SSO)	35
Set Up Email Settings	36
Mail Settings	36
Client Details	36
Guest Approval View	38
Install the Remote Agent	39
Add a New Bench	41
Session Management View	43
Manage Scheduled Sessions	43
Manage Remote Benches	44
License Management	45
License and Support View	45
License Installation and Activation	45
(Optional) Learning Tools Interoperability (LTI) Features	47
Integrate Moodle and PathWave Lab Operations for Remote Learning into LTI 1.3	47
Registering LTI 1.3 Tool	47
Integrate PathWave Lab Operations for Remote Learning into LTI 1.3 Blackboard	50
Add External Tools in Blackboard Platform	53
Obtain the Deployment ID	57
Add Details to the Application	58
Launch the Application in Blackboard	59
General Troubleshooting	60
Seeing a Blank Screen	60
Application Ceases to Respond or Bench Freeze	60
VRF Settings	60
Frequently Asked Questions	61
Recommended Password Practices	62
Criteria for Warranty Claims	63

Introduction

PathWave Lab Operations for Remote Learning

Online learning has been a part of many educational institutions since the spread of the Internet. Now, new norms such as physical distancing and limits on face-to-face interaction is dramatically accelerating the shift from traditional in-building learning to virtual classes offered remotely on digital platforms. The availability of online courses opens opportunities to international and distance learning students, and remote learning offers students the flexibility of learning anytime, anywhere. With these benefits, online learning is expanding exponentially, and educational institutes must rapidly transform to keep pace with this megatrend.

Keysight's industry-ready remote access lab solution offers you a convenient way to make the switch to online learning. This end-to-end solution is designed for complete remote setup of your basic instrument lab and covers your needs from web-based lab management and scheduling administration to instrument control and remote access for measurement and analysis. And since your students continue working with industry-grade test and measurement instruments and software, they will gain the similar practical skills and application knowledge as industry engineers conducting their work in the lab today.

Keysight Cyber Training Simulator

Demand for industry-ready cyber warriors is intense. There's no shortage of bad actors in cyberspace. But there is a serious shortage of trained professionals to counter them. Businesses, government agencies, education institutions, and other critical organizations have openings they're anxious to fillimmediately. An academic program that produces professionals who can step quickly into their roles would attract top students and forge strong relationships with the foremost hiring institutions.

Keysight Cyber Training Simulator is a complete, turnkey cyber range designed to prepare students for employers' real challenges daily. The cyber range has a critical difference: our educational solution is based on Keysight BreakingPoint, the gold standard application and security traffic generator used by our global enterprise and government agency customers.

With a full range of hands-on red and blue team exercises based on the Cyber Kill Chain model, students hone their defense strategies on customizable, realistic scenarios that are continuously updated by Keysight's Global Application and Threat Intelligence Team (ATI)—the same team that keeps our professional customers one step ahead of the bad guys.

Characteristics and Specifications

For the characteristics and specifications of the Keysight Cyber Training Simulator, refer to the Data Sheet at https://www.keysight.com/sg/en/assets/3122-1436/data-sheets/Keysight-Cyber-Training-Simulator-CY101KCTS.pdf.

Intended Use of the User's Guide

This User's Guide is intended for use by students, lecturers, and University Teaching Lab Managers as a guide for set up the Keysight Cyber Training Simulator application and its subsequent applications.

First-Time Setup

Before you use the Keysight Cyber Training Simulator application for the first time, take note of the following items:

- Ensure that your PC meets the software prerequisites listed below and that the instruments are set up on your bench.
- For security purposes, it is recommended to change the password of the Account Console.
 Go to Keycloak Administration Console for the instructions.
- By default, the User registration setting is set as OFF. This is the recommended setting to prevent other users from registering an account using the link. For more information, go to Add User.

Software Required

- 1 Google Chrome or Firefox web browser
- 2 Remote Agent (provided by Keysight personnel)
- 3 (Optional) VPN access to range of IPs

NOTE

Before you can use Keysight Cyber Training Simulator, you must set up the PathWave Lab Operations for Remote Learning application as described above and learn the features that you can access according to the roles assigned to your account.

- To install the license(s) to use the platforms and application in Keysight Cyber Training Simulator, follow the instructions as described in License Installation and Activation.
- Administrators must link the PathWave Lab Operations for Remote Learning application to the university's LMS platform manually. Go to (Optional) Learning Tools Interoperability (LTI) Features for information to link Moodle or Blackboard platform. Lecturers must then log in from an existing course in LMS which you have mapped to PathWave Lab Operations for Remote Learning application.

Once you have completed the setup, you may log in to PathWave Lab Operations for Remote Learning application via the LMS or from the link provided.

User Interface Overview

Home View

This view displays a summary of the lab benches scheduled and the lab sessions that you are invited to join.

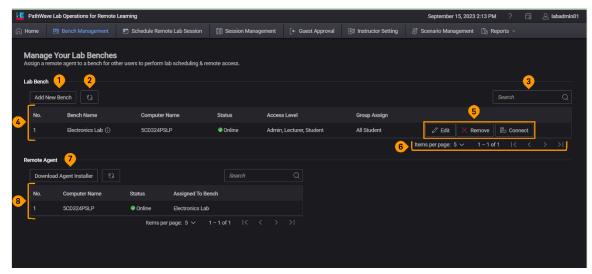
🚾 P	athWav	e Lab Operations for Remote I	Learning				May 10	2022 2:41 PM		으 labad	min01	@ Soft	tware
		💷 Bench Management	Schedule Remote Lab Session	👬 Session Man	agement	[← Guest Approval	🔝 Instructor Setting	🗋 Reporting		listory			
Mar		ne, labadmin01! heduled lab sessions.											
		/Upcoming Sessions V										a	
	No.	Bench/Scenario Name	Bench Status		Date ^	Time Slot	Other Users	Sess	ion Statu	15			
					No sessions	s found.	ltems p	er page: 5 🗸	0 of 0				
Sch	eduled	by Others											
	Active,	/Upcoming Sessions \vee										a	
	No.	Bench/Scenario Name	Bench Status	Date ^	Time Slot	Schedule	d By Other U	sers	Session	Status			
					No sessions	s found.							
							items p	er page: 5 🗸	0 of 0	K	<	> >	

Subject to the roles assigned to your account, you may see the following tabs on your home page:

- Bench Management (accessible by Administrator and Lecturer access levels)
- Schedule Remote Lab Session (accessible by Administrator, Lecturer, and Student access levels)
- Session Management (accessible by Administrator access level only)
- Instructor Settings View (accessible by Lecturer access level only)
- Reporting and History View (information shown will differ subject to Student or Lecturer access levels)

Bench Management View

For this page, administrators can manage the bench or set up a new remote agent while those with Lecturer and Student access levels can only view and connect to the bench.



No.	Function	Description
1	Add New Bench	 Bench Name: Name the bench. Bench Description: Describe the usage of this bench. Bench Location: State the physical location of this bench. Bench Instruments: Lists the instruments available to this bench. Agent: Assign a Remote agent to this bench. Access Level: Select the type of accounts allowed to use this bench.
2	Refresh button	Refresh the list of benches available or assigned.
3	Search bar	Enter the keywords here to filter the list of benches available.
4	List of Lab Bench	Click any of the header in the table to sort the list.
5	Lab Bench Controls	 Manage the settings for the respective lab bench: Edit: Modify the details of selected lab bench or change the assigned remote agent. The list will only show the unassigned agents that you can use (even it is offline). Remove: Remove the bench from the list. This will also remove the remote agent assigned to the bench (when applicable). Connect: Connect to the bench remotely and begin the remote lab session. A countdown timer will appear when it is 15 minutes before the scheduled session. You will not be able to connect to the bench when the status is 'Offline'.
6	View	Set the number of items to view in the table in each page.
7	Download Agent Installer	Download the Remote Agent installation package to add a new PC to the Keysight Cyber Training Simulator application server.
8	List of Remote Agents	Lists the remote agents available in the server for management purposes and display the status of each remote agent and assigned bench. To remove a remote agent from the list, you must first ensure that it is not assigned to any bench.

Instructor Settings View

NOTE The information in this page is retrieved from the course you have set up in Learning Management System (LMS) and linked to Keysight Cyber Training Simulator application. Go to (Optional) Learning Tools Interoperability (LTI) Features for more details.

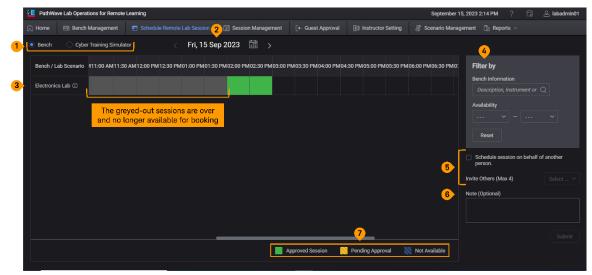
In this view, lecturers will select the desired scenarios (as populated from the LMS) to map it to the course that the students will go through the lab and exercises during the scheduled session.

PathW	PathWave Lab Operations for Remote Learning April 26, 2022 11:26 AM ? April 26, 2022 11:26 AM ? April 26, 2022									Software
යි Home	📴 Bench Man	agement	Schedule Remote Lab Session	Session Management	[+ Guest Approval		Reporting	Ilistory		
Instructo	or Setting									
Cours	se LMS: Ethical Had	king Part 1	Submit							
Sea	arch									
Acti	on No.	Scen	arlo	Cla	legory: Defend ssification: Defend					
		B-0-0	1149-HTTP-Slowforis		rel: Hard 💿 60 🕾 ?Us : 20 Memory requirem	ant : 29.5 Diek ram imman	117 Vetral ence	bloos count : 5		
		B-MS	0124-APT-Fancy-Bear							
		B-MS	-0125-APT-Red-October	85	istributed denial-of-service (a server, website or other ne	twork resource, and cause a	denial of service for	r users of the target	ed resource. The floo	od of
		B-V-0	001-Portscan-Vertical	inc shi util	orning messages, connectio it down, thereby denying ser izing partial HTTP requests.	vice to legitimate users or s The attack functions by ope	okets to the target s ystems. Slowloris is ming connections to	an application layer a targeted Web ser	ow down or even cra attack which operat ver and then keeping	ish and les by a those
		B-V-0	026-Cross-Site-Scripting	cor bar	nections open as long as it idwidth. Unlike bandwidth-co	can. Slowloris is designed to onsuming reflection-based (o allow a single mac DoS attacks such a	hine to take down a is NTP amplification.	server without using this type of attack u	g a lot of uses a low
		B-V-0	0027-SQL-Injection	am	ount of bandwidth, and inste nic regular traffic. It falls in t ny threads available to hand	ad aims to use up server re he category of attacks know	sources with reques on as "low and slow'	ts that seem slower attacks. The target	than normal but oth ed server will not hav	terwise ve so
		B-V-0	0088-Malware-delivery-Drive-bys	req	uest to complete, which nev inection will not be answere	er occurs. When the server's	s maximum possible	connections is exce	eded, each addition	al
		B-V-0	1168-CVE-2020-17530-Apache-Struts							
		B-V-0	0169-CVE-2020-13693-BBPress-Priv-Esc	alation						
		B-V-0	0170-CVE-2020-10189-Manage-Engine-D	eserialization						
		lterns pe	r page: 10 ∨ 1 − 10 of 29 <	$\langle \rangle \rangle$						
PathW	Vave Lab Operations	for Remote	Learning				Sentemb	er 15, 2023 2:16 PM	? 5.	은 labadmin01
A Home	El Bench Man		Schedule Remote Lab Session	E Session Management	t - Guest Approval	Instructor Setting		inagement 🔀 Re		
Instruct	or Setting									
Cour	se LMS: <builtin> Al</builtin>	I Users S								
Sei	arch									
	(Select All)	No.	Scenario	1	Name: B-D-0199-Wi-Fi-Au	thentication				
			Adri1		Category: WiFi Classification: Defend Level: Easy 한 90 橬					
			Adrian-WS-D		Resources:					
			B-C-0211-Introduction-to-data-acqui	sition-and-analysis	vCPUs: 4 Memory requ	irement : 11.81 GB Disk re	quirement : 20 GB	Virtual machines co	unt:1 VMs	
			B-D-0198-Wi-Fi-Security-Concepts-D		Description: This scenario we demons	strate the importance of eva	luating Wi-Fi authen	tication configuratio	ns periodically and a	auditing whether
		5	B-D-0199-Wi-Fi-Authentication		your communication is se During this scenario, we:	ecure. We perform traffic an 1. check the station's conne	alysis for 2 use case ctivity with the Acce	es: Open Authenticat ess Point. 2. create a	ion and Shared Auth monitoring interfact	hentication. e on one of the
2			B-MS-0124-APT-FancyBear		802.11 authentication ha	fic using Wireshark. 3. we di ndshake illustrated in the op any encryption. We also ana	oen authentication o	verview. 4. generate	some traffic using th	he iPerf tool to
					the AP.	, and phone the algo und	, and the spendulation	extension from the second	geneenteentine	
			B-MS-0125-APT-Red-October							
			B-MS-0125-APT-Red-October B-MS-9002-APT-Fancy-Bear							
 ✓ ✓ ✓ 										
			B-MS-9002-APT-Fancy-Bear	K < > >I						

For more instructions, go to Map Scenario to LMS Course.

Schedule Remote Lab Session View

This page is accessible across all access levels.



No.	ltem	Description
1	Application	 Select Bench to use Keysight Cyber Training Simulator and schedule a lab session Select Cyber Training Simulator to schedule a lab scenario.
2	Date	Set the desired date of your lab session. For the monthly view, click the Calendar icon.
3	Bench or Scenario	Subject to the application selected, the table will show a list of benches or scenarios available for the remote lab session.
4	Filter by (for PathWave Lab Operations for Remote Learning only)	Filter the benches according to the keywords or available time slots. Click Reset to clear the information.
5	Schedule or Invite (for PathWave Lab Operations for Remote Learning only)	 There are two options to schedule a remote lab session: Select 'Schedule on behalf of another person' check box to submit a request for booking. For this case, you will be able to invite up to five participants to access this test bench at the selected booking timeframe. Use 'Invite Others' field to invite four other participants (maximum) in the same session. Note: You may only invite the participants with the same access level as you are. Those with the administrator roles can invite participants of all access roles.
6	Note (Optional)	You may enter the information of the session here.
7	Legend	The visual representation of the indicator on the chart when identifying the time slots available.

Reporting and History View

Subject to your access level, the information shown in these pages may differ.

- Lecturer: A list of virtual labs completed and quiz scores for each student.
- Student: A list of virtual labs completed.

PathWave Lab Operations	for Remote Learning					September 15, 2023	2:16 PM ? 🗄	3 🗠 labadmin(
) Home 🛛 🖼 Bench Mana	agement 🖻 Schedu	le Remote Lab Session	🛗 Session Management	[← Guest Approval		📳 Scenario Management		
							A Reporting	
Instructor Setting								
Course LMS: <builtin> All</builtin>	Users Submit						History	
Course LMS. Summer An	Submit							
PathWave Lab Operations for F	Re 🗙 🐼 CySOP-Fronten	d × +					~	- 0
→ C n kca-dev-co	ysop.png.is.keysight.com//	₹/reporting					e x	* 🗄 🖬 🕥
						eremy Bytes: Back 🔌 c# - Prope		
Orion2.0 - Agile Bo 🤇 Log	gin to Frog 🧭 Conditions of	of Custo 👋 Lookup In Li	NQ 🥖 installation - How t 🕒	InstallShield: Walk-t	Windows Installer C UB	eremy Bytes: васк 🧝 с# - Ргоре	r way to	Other bookm
Back							🖊 CYBER SECURITY OPI	RATIONS PLATFORM
Scenarios Library								
	Scenarios	Events			Q Search scenario sco			
Events								
History	Progress Dashboar	d						
) History	User 🕈	Scenario		Qu	estions Minimum	score Maximum scor	e Attempts	PASS
Reporting	admin	B-V-0026-Cross-Site	≻Scripting					
	admin001	B-MS-9002-APT-Far	ncy-Bear					
	admin001	B-MS-9003-APT-Re	l-October		40			
	admin001	B-V-0026-Cross-Site	≻Scripting					
Teams	admin001	R-E-0045-AMSI-Eva	sions					
jireaniis	admin03yahoo	B-MS-9002-APT-Far	icy-Bear					
Scenarios	admin2admin2	B-MS-9002-APT-Far	ncy-Bear					
	adminexample	B-MS-9002-APT-Far	ncy-Bear					
Inventory	adminexample	B-V-0026-Cross-Site	⊱Scripting					
	Execution History							
3. VLAN Editor		Scenario	Started At	Completed At	Minimum	score	Score	Result

The History tab lists the scenarios launched and the timestamps of each session.

PathWave Lab Operations for Re	× CySOP-Frontend	× +				×	~ - 🛛 ×
← → C 🗎 kca-dev-cys	op.png.is.keysight.com/#/history					iê ☆	* 🗄 🖬 🕥 🗄
😨 Orion2.0 - Agile Bo 🔇 Login	n to Frog 🧭 Conditions of Custo	🐴 Lookup In LINQ 🏾 👌 installa	tion - How t 🔹 InstallShield: Walk-t	Windows Installer C DB Jerem	iy Bytes: Back 🏄 c# - Proper w	ay to	» Other bookmarks
€ Back						CYBER SECURITY OP	ERATIONS PLATFORM
Scenarios Library	Scenario		Started At 🗸	Completed At	Minimum Score	Score	Result
Events	B-V-0175-CVE-2020-35578-N	lagios-XI-Injection	15 Sep 2023, 14:20	15 Sep 2023, 14:20	40	20	FAIL
• History							
MANAGEMENT							
ළි Teams							
Scenarios							
Inventory							
甴 VLAN Editor							
Active Sessions							

User Menu

This section covers the commonly used functions that you will need to navigate around the PathWave Lab Operations for Remote Learning application.

The features that you can access in this software may vary depending on the roles assigned to your account. New accounts will be assigned with the Guest roles upon registration. To change the roles assigned, consult your lecturer or lab managers.

Here are the three access levels or roles that you can assign to the accounts:

Student

- Schedule Remote Lab Session (only invite other users with the Student role)
- View and Connect to Scheduled Sessions
- Connect to Test Bench (via scheduled session)

Lecturer

- Schedule Remote Lab Session (only invite other users with the Lecturer and Student role)
- View and Connect to Scheduled Sessions
- Connect to Test Bench (via scheduled session)

Administrator

Go to Management Menu for more information.

This section covers the commonly used functions that you will need to navigate around the Keysight Remote Laboratory application. First time users will need to go through the following sections.

NOTE

Before you begin, ensure that PC is connected to the internet.

By default, the **User registration** setting is set as **OFF**. This setting will only allow accounts with administrator roles to register new users and set the appropriate roles and access. To change this setting to ON, go to Add User.

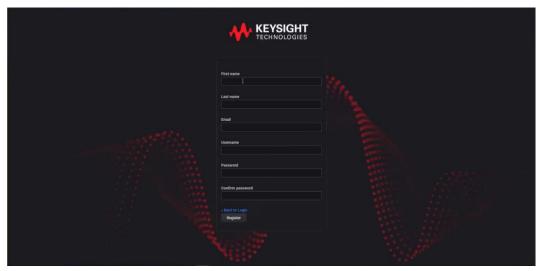
Registration and Login

New users will need to register and create a new account. Go to **Step 4** to log in with your existing account.

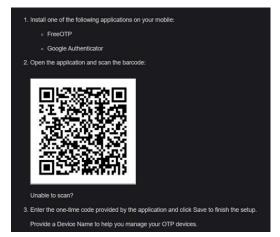
1 Launch your web browser and enter the link provided (subject to the hostname) in the address bar to launch the Keysight Remote Lab Application. First time users will need to click **Register** and create a new account.



2 Enter the details to set up your account. By default, new accounts are assigned with the Guest role. Accounts with Guest role will not be able to log in until the administrator approves your registration.



3 When prompted, set up a Mobile Authenticator to activate your account. It is recommended to set up either FreeOTP or Google Authenticator to secure your account with a one-time password.



4 Log in with your details when see this page.

Username Password	
Forget Password? Log In	
New user? Register	

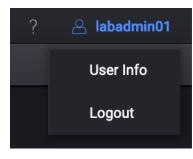
5 Once you are logged in, you should see the Home View. Click your username at the top-right corner to access information about your profile and account.

E Pa	athWave	e Lab Operations for Remote	e Learning				September 15, 2023 2	2:04 PM ?	🗟 😤 labadmin01
		🕮 Bench Management	Schedule Remote Lab Session	E Session Management	[← Guest Approval	Instructor Setting	F Scenario Management	🛅 Reports 🗸	
		ne, labadmin01! heduled lab sessions.							
Sche	neduled by	by Me							
	Active/	/Upcoming Sessions $ imes $						Search	
	No.	Bench/Scenario Nar	ame Benc	h Status D	Date Time Slot	t Other Use	ers Sessio	on Status	
					No sessions found.				
0.1							Items per page: 5 🗸	0 of 0 <	
		by Others /Upcoming Sessions ~						Search	
	No.	Bench/Event Name	Bench Status	Date Tin	ime Slot Sch	eduled By	Other Users S	Session Status	
				N	No sessions found.				
							lterns per page: 5 $ \sim$	0 of 0 <	

6 In User Info, click **Edit account on Keycloak** to modify your account details and password in a separate window.

User Info	
Username	labadmin01
First Name	
Last Name	
Email	
Role	LabAdmin
Edit account on Keycloak 🛛	

7 At the end of your session, click your account name (top-right corner) and click **Logout**.



Schedule a Remote Lab Session

1 Click **Schedule Remote Lab Session** tab and select the **Bench** option. It will show the available test benches at 30-minute intervals according to the time of your PC.

PathWave Lab Operations for Remote Learning		September 15, 2	2023 2:29 PM ? 🗔 🖉 labadmin01
🎧 Home 🖾 Bench Management 🛅 Schedule Remote Lab Session	Session Management [← Guest Approval	🗄 Instructor Setting 🗐 Scenario Manager	ient 🛅 Reports ~
CYSOP session in ongoing in another browser	tab. Closing this KCTS tab will log ye	ou out from the CYSOP sessions in	the other tab.
Bench Oyber Training Simulator < Fri, 15 Se	ep 2023 🛗 >		
Bench / Lab Scenario 12:00 AM12:30 AM01:00 AM01:30 AM02:00 AM02:30	AM03:00 AM03:30 AM04:00 AM04:30 AM05:00 AM05:	30 AM06:00 AM06:30 AM07:00 AM07:30 AM0	Filter by Bench Information
			Description, Instrument or Q Availability
			Schedule session on behalf of another person. vite Others (Max 4)
		N	ote (Optional)
	Approved Session	Pending Approval 🛛 📉 Not Available	

- 2 Use the forward (>) and back (<) button to switch between the dates or click the calendar icon to see the monthly view. You can schedule bookings up to 30 days.
- **3** Select one or more time slots for your session. Refer to the legend to identify the time slots available.

	Approved Session 🔀 Pending Approval 📉 Not Available
4	You can also enter keywords in the Filter by bar or enter the desired time slots to only show the available benches. For more information about the session, move your mouse over the info icon.
5	Select the Schedule on behalf of another person check box to submit a request for booking. If you are hosting the remote session, you can invite four other participants to join the lab session.
	You can only schedule a session on behalf of another person if you have the Lecturer or Administrator roles assigned to your account.

6 Before you click **Submit**, you may add notes about this session which will be visible to the attendees and those with administrator access. The bookings submitted will then be approved by those with administrator roles.

NOTE

Connect to a Scheduled Session

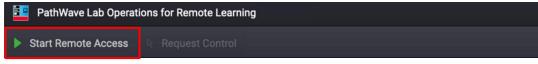
1 When it is 15 minutes before the session, you will see a timer counting down to the scheduled session. The **Connect** button will only appear when it is time to start the scheduled session or when the host or participant has started the session.

No.	Bench Name	Bench Status	Date ^	Time Slot	Other Users	Session Status	
	TestBenchAfeeq-Temp		2020-11-27	04:00 PM - 05:00 PM		Session Started	🗈 Connect
	TestBenchAfeeq-Temp		2020-11-27	05:00 PM - 06:00 PM (Start in 14:54 minutes)			imes Cancel Booking

NOTE

When you click **Connect** on a Lab Bench that is currently online, you will not see a timer. You will return to the Bench Management page upon exit.

2 Follow the on-screen instructions. As the host, click the **Start Remote Access** button in the Remote Access page.



3 A successful connection to the remote agent will show the screen of PC. Click the **Request Control** button to take control the PC.



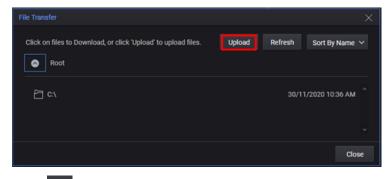
WARNING

Performing the actions below during a scheduled session may cause the application to freeze and cease to respond:

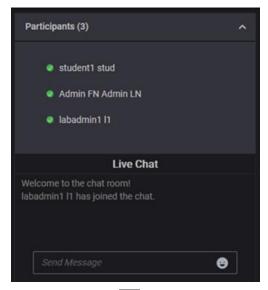
- It is not recommended to stream videos on the remote bench PC.
- The application does not support the action of switching Windows user account.
- Participants must avoid uploading or downloading large files simultaneously during a session. The application can only support a maximum of two users performing these actions simultaneously.

e.	_	
뜨모	- V I	1.4

- 4 When you are currently controlling the remote desktop, this icon () will appear next to your username. Other participants in the session can click the **Request Control** button and it will send a notification to the current presenter to Allow or Deny the request.
- **5** Here are a few other controls that you can access during the Remote Lab Session.
 - Open File (**Line**): Click this button to upload or download any files. Click **Upload** and browse to the directory of the file. The speed to upload the files is subject to your network bandwidth.



- Chat (I): Click this button to expand the Chat panel and view the list of Participants. Use this panel to send messages to other participants in the session.



- Full Screen Mode (E): Click this button to view in full screen. Press the **Esc** button to return to this window.
- 6 To disconnect from the Remote Lab Session, click Stop Remote Access.

Disconnect Remote Session	×
Programs on the remote computer will continue to run after disconnecti You may reconnect back into this remote session before the session en	
Disconnect Cance	ancel
Click the Close ($\overset{\frown}{\overset{Close}}$) button to exit the session a	n and re

Extend a Scheduled Session

NOTE You can only extend the ongoing session for the next 30 minutes provided the next slot is available. Only the users who scheduled the session can see this prompt and extend the session accordingly.

1 When it is 15 minutes before the session ends, you will see a countdown timer and a prompt asking if you want to extend the ongoing session as shown below.

Stop Remote Access 🗟 Request Control 🔺		Time: 03:30 PM - 04:00 PM 🛛 🛣 Remaining time:	00:14:41	
BenchVue 2020	Welcome to BenchVue Automatic and the strategy is provided instruments, and the strategy and explores for quark access to your strategy and Particle and		Instruments Hadd Hadd Waterstein Hadd Waterstein Hadd Waterstein Waterstei	
P Type here to search	e 🖻 🖬 🖬 ڬ 🛄 🛄	@^*	■ 12 << 500 M 6/27/2021 1	

2 Click **Yes** will update the information and the timer as shown in the example below.

Keysight BenchV BenchVue 2020	ue 📫 Home 🛩	0	► O O - □ ×	
	Welcome to BenchVue BedNive makes it simple to connect, control instruments, and submitted tere expendence for quark access to spot form instrud. Start here	What do you want to do? ose Connect to my intruments - Nore Topos	Add	
	the second	Recent Activity Recent Applications: NA OSC SRL 90 M	Constant and a set of the set of	
	Data Manager Recall previously-stored text results and export to different formats.	Recent Files: Rod: SimpleHearurement. During C hyperscherzeger der beitre den bener betreuterte angelerkenz, Simpleman. Orocilisecorgen C - hyperscherzeger den bisker beste bisker beste der angeler sampler Besteren C - hyperscherzeger den bisker bisker beste der angeler sampler bisker beste der		

Manage Virtual Lab Sessions

NOTE Administrator must manually link the PathWave Lab Operations for Remote Learning application to the university's LMS platform.

Go to (Optional) Learning Tools Interoperability (LTI) Features for information to link Moodle or Blackboard platform.

Once you have completed the setup, you have the option to log in to PathWave Lab Operations for Remote Learning application via the LMS or from the link provided.

Map Virtual Labs to LMS Course

- 1 From the Home view of the PathWave Lab Operations for Remote Learning application, click **Instructor Setting** tab.
- 2 Select the desired virtual lab(s) to map it to your course and click **Submit**.

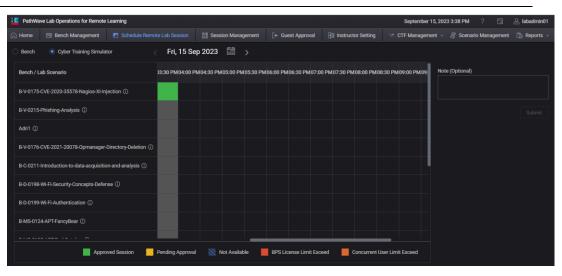
PathW	ave Lab Operations fo	r Remote	Learning				September 15, 2023	3:29 PM ? 🗔	🛆 labadmin01		
🕞 Home	🔄 Bench Manage	ement	Schedule Remote Lab Session	Ession Management	[← Guest Approval		📳 Scenario Management	🛅 Reports ~			
Instruct	or Setting										
Cour	se LMS: <builtin> All U:</builtin>	sers	Submit								
Sea	arch										
	(Select All)	No.	Scenario	1	Category: Digital Forensic	tion-to-data-acquisition-and s	1-analysis				
			Adri1		Classification: Contain Level: Easy ⓒ 120 원	\$					
			Adrian-WS-D		Resources: vCPUs:9 Memory requi	irement : 18.91 GB Disk re	equirement : 46 GB Virtual mad	chines count : 2 VMs			
•			B-C-0211-Introduction-to-data-acqu	sition-and-analysis	Desertations						
			B-D-0198-Wi-Fi-Security-Concepts-D	efense	Description: Digital forensics and incid security incidents. Digital	lent response (DFIR) is a sp forensics includes collecti	specialized field focused on identifying, remediating, and investigating cyber ting, preserving, and analyzing forensic evidence to paint a full, detailed pictur				
			B-D-0199-Wi-Fi-Authentication		of events. This exercise is Response investigations.	recommended to cybersed	curity professionals who want to the possibility to organizations	gain experience in Digital	Forensics Incident		
			B-MS-0124-APT-FancyBear		threat.						
			B-MS-0125-APT-Red-October								
			B-MS-9002-APT-Fancy-Bear								
			R-MS-9003-APT-Red-October								
		ite	erns per page: 10 ∨ 1 – 10 of 50	<							

3 Successfully mapped virtual lab(s) will appear in the **Schedule Remote Lab Session** tab where students can use to schedule a remote session.

PathWave Lab Operations for Remote Learning			September 15, 2023 3:32 PM ? 🗔 🐣 labadmin01
G Home 🖾 Bench Management 🖬 Schedule Remote La	b Session Management	[← Guest Approval []] Instructor Sett	ing 🔄 Scenario Management 🛛 🛅 Reports 🗸
Bench Cyber Training Simulator <	Fri, 15 Sep 2023 🛗 >		
Bench / Lab Scenario A02	:00 PM02:30 PM03:00 PM03:30 PM04:00 Pf	M04:30 PM05:00 PM05:30 PM06:00 PM06:3	0 PM07:00 PM07:30 PM0 Note (Optional)
B-V-0175-CVE-2020-35578-Nagios-XI-Injection ①			
B-V-0215-Phishing-Analysis ①			Submit
Adri1 ①			
B-V-0176-CVE-2021-20078-Opmanager-Directory-Deletion ①			
B-C-0211-Introduction-to-data-acquisition-and-analysis ()			
B-D-0198-Wi-Fi-Security-Concepts-Defense ①			
B-D-0199-Wi-Fi-Authentication ①			
B-MS-0124-APT-FancyBear ()			
		BPS License Limit Exceed Concur	rent User Limit Exceed

Schedule a Virtual Lab Session

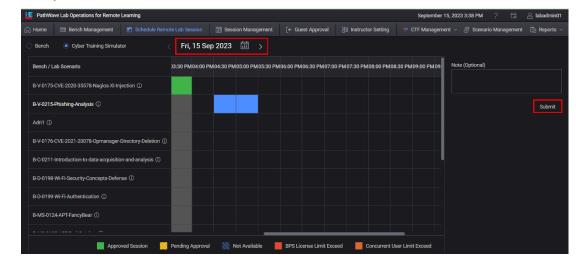
- 1 From the Home view, click Schedule Remote Lab Session tab and select the Cyber Training Simulator option.
- **NOTE** The Bench option is only applicable for those who are using the benches in the PathWave Lab Operations for Remote Learning application.



There are two additional indicators added to the legend:

Approved Session 🛛 📉 Pending App	oroval 🛛 📉 Not Available	BPS License Limit Exceed	Concurrent User Limit Exceed
----------------------------------	--------------------------	--------------------------	------------------------------

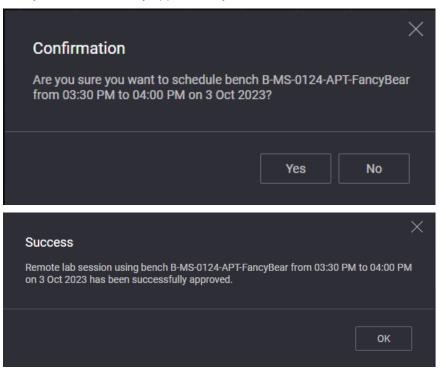
- **a BPS License Limit Exceed** is only applicable for virtual labs with the BreakingPoint (BPS) license tag.
- **b Concurrent User Limit Exceed** indicates that the time slot has achieved the maximum concurrent virtual lab scheduled (45 per design).
- 2 Modify the date and select the desired time slot to schedule a session. Click **Submit**.



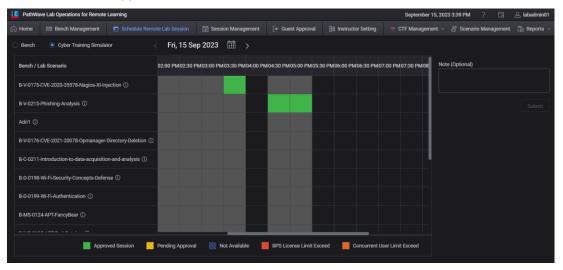
NOTE

You can only schedule one virtual lab at any one time slot.

3 Click **Yes** to confirm the scheduled session and you will see the confirmation message as below. The system automatically approves any scheduled sessions.



When you return to the Schedule Remote Lab Session view, you will notice that the selected slot is now marked as 'Approved Session'.



4 Back in home page, you will also see the information about the scheduled session.

PathWa	ve Lab Operations for Remote	Learning				September 1	15, 2023 3:40 PI	M ? 🗔	🕾 labadmin
	📴 Bench Management	Schedule Remote Lab Session	🛗 Session Management	[+ Guest Approval	Instructor Se	tting 🛛 🐡 CTF Manageme	ent - 🖉 Sce	nario Management	Pa Reports
	me, labadmin01! cheduled lab sessions.								
	е/Upcoming Sessions ∨							Search	
No.	Bench/Scenario Name	Bench Sta	atus Date Tin	ne Slot	Other Users	Session Status			
	B-V-0175-CVE-2020-35578-	Nagios-XI-Injection ①	2023-09-15 03:	30 PM - 04:00 PM (Ready)		Approved X C	ancel Session	🗈 Connect Scen	ario
	B-V-0215-Phishing-Analysis	0	2023-09-15 04:	30 PM - 05:30 PM		Approved 🔀 C	ancel Session		
-b-d-d-	l by Others					Items per page: 5	✓ 1-2 c	f2 < <	
	e/Upcoming Sessions 🗡							Search	
No.	Bench/Event Name	Bench Status	Date	Time Slot Sc	heduled By	Other Users	Session	i Status	
				No sessions found.					
						Items per page	£5∨ 0c	ro I< <	

Connect to a Virtual Lab Session

1 When it is time to start your virtual lab session, click **Connect Scenario** to begin. It will take some time for the application to create the virtual lab.

Velcome, labadmin01! nange scheduled lab sessions. hetduled by Me Active/Upcoming Sessions ✓ No. Bench/Scenario Name Bench/Scenario Name Bench Status 1 B+4-0175-CVE-2020-35578 Haigios XHipiection ① 20224-09-15 2 B+0-0175-CVE-2020-35578 Haigios XHipiection ① 20224-09-15 2 B+0-015-CVE-2020-35578 Haigios XHipiection ② 20224-09-15 2 B+0-015-CVE-2020-35578 Haigios XHipiection ② 20224-09-15 2 B+0-015-CVE-2020-35578 Haigios XHipiection ③ 20224-09-15 4 Evence X Cancel Session 1 Evence X Cancel Session X 2 B+0-0215-Phileshing Analysis ③ 1 = 2012 (< > >) hetdueld by Others X X X X	PathWa	ve Lab Operations for Remote									
Hander Hander Hall He besteden hander Under Hander Hande		🕮 Bench Management	Schedule Remote La	b Session	📆 Session Managerr	nent [+ Guest Approva	I 🔄 Instructor Se	etting 😽 CTF	Management - 📲	Scenario Management	🔁 Repor
Activity Bench Status Bench Status Date Time Sick Other Users Season Status 1 8 v0715C0/C 2020-35377-PMaglax X lipection 0 2023 0913 0130 PM - 0130 PM / 0140 PM / 014											
No. Derich Status Date Time Solt Other Usan Section Status 1 8x V0175 CVC 2020 33578 Halpices 30 algorithm 2023 094 - 04.00 PM (liked)) Approved Cancel Section In Cancel Se	cheduled	d by Me									
1 8 V4073-CV6-2002-30578 Madgios Na Higheriton () 2022 00-15 0.520 PM - 04009 PM ((mode)) Approved Canced Season Image: Conced Season 2 8 V20215P Habing Analysis () 2023 00-15 0.420 PM - 05.00 PM Approved Canced Season Image: Conced Season <t< td=""><td>Activ</td><td>e/Upcoming Sessions 🗡</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Search</td><td></td></t<>	Activ	e/Upcoming Sessions 🗡								Search	
2 BV2215PHalaking Analysis C 202249-15 6430 PM-6530 PM Approved Cancel Seasion heteAded by Other Search Search Search Concel heteAded by Other Search Search Concel Concel No. Bench/Sent Name Bunch Status Date Time Sick Schedded by Other Users Search Concel No. Bench/Sent Name Bunch Status Date Time Sick Schedded by Other Users Search Concel heteAded by Other Schedded Bunche Lab Search Search Search Search Concel Search Concel heteAded by Other Schedded Bunche Lab Search Search Management Search Management Search Management Search Management Search Concel Search Concel heteAded by Other Schedded Bunche Lab Search Search Management Status St	No.	Bench/Scenario Name		Bench Status	Date	Time Slot	Other Users	Session Status			
Active/Licorning Sessions v Active/Licorning Sessions v Active/Licorning Sessions v Search Status No. Bench/Sevent Name Bench Status Bench Status Date Time Soft Scheduled by Others Search No. Bench/Sevent Name Bench Status Bench Status Date Time Soft Scheduled by Others Session Status No. Bench/Sevent Name Bench/Sevent Name Bench/Sevent Name Bench/Sevent Name Schedule Bench Sevents		B-V-0175-CVE-2020-35578	Nagios-XI-Injection ①		2023-09-15	03:30 PM - 04:00 PM (Read	y)	Approved	X Cancel Sessi	ion 🚯 Connect Sce	nario
ActiveL/Locaring Sessions are into provide Users Session Status No. Bench/Event Name Bonch Status Date Time Sol Scheddel BY Other Users Session Status No. Bench/Event Name Bonch Status Date Time Sol Scheddel BY Other Users Session Status Public View Lab Operations for Remote Lab Session Public View Lab Operations for Remote Lab Session Session Management * Caust Approval Sinteractor Setting * CTF Management * Bonch Status Public View Lab Operations for Remote Lab Session Public View Lab Operations for Remote Lab Session Session Management * Caust Approval Sinteractor Setting * CTF Management * Bonch Status Public View Lab Operations for Remote Lab Session No. Bench/Exercity Sessions Session Redirect Status Status View User Scheddel Div Operations Status Status <		B-V-0215-Phishing-Analysis	: ①		2023-09-15	04:30 PM - 05:30 PM		Approved	X Cancel Sessi	ion	
ActiveUpcoming Besions Bench Status Date Time Slot Scheduld Sy Other Users Seesion Status No sessions found Items per page: 5 < 0 of 0								ltems p	er page: 5 ∨ 1 -	-2 of 2 < <	
No. Bench/Event Name Bench Status Date Time Solt Scheduled By Other Users Season Status No. Bench/Event Name September 15, 2023 340 PM ? PathWave Lab Operations for Remote Learning September 15, 2023 340 PM ? PathWave Lab Operations for Remote Learning September 15, 2023 340 PM ? PathWave Lab Operations for Remote Learning September 15, 2023 340 PM ? PathWave Lab Operations for Remote Lab Session . Session Management	cheduled	l by Others									
No sessions found. PathWave Lab Operations for flemrote Learning September 15, 2023 34 0 PM ?	Activ	e/Upcoming Sessions 🗡								Search	
PathWave Lab Operations for Remote Learning Pathwave Lab Operation Status Pathwave Lab Operation Status <td>No.</td> <td>Bench/Event Name</td> <td>Bench</td> <td>Status</td> <td>Date</td> <td>Time Slot</td> <td>Scheduled By</td> <td>Other Use</td> <td>rs Ses</td> <td>sion Status</td> <td></td>	No.	Bench/Event Name	Bench	Status	Date	Time Slot	Scheduled By	Other Use	rs Ses	sion Status	
PathWave Lab Operations for Remote Learning September 15, 2023 3:40 PM ?						No sessions found.					
PathWave Lab Operations for Remote Learning September 15, 2023 3:40 PM ?											
Active/Lpcoming Sessions Scenario End Session Redirect Status 1 B+0175 CVE-2020 35578 Maglos X8 Anjection Image: Solution Status 2 B+0215 Prior Maglos X8 Anjection Image: Solution Status 4 Cancel Session Image: Solution Status 4 Cancel Session Image: Solution Status 6 Cancel Session Image: Solution Status 7 Other Image: Solution Status 7 Maglos X8 Anjection Image: Solution Status 8 Other Image: Solution Status								2020			
No. Bench/Scenario Name Scenario End Session Redirect nd Status 1 B4/0175 CVE 2020 35578 Magios XM rijection nd Cancel Session nd Cancel Session nd Cancel Session nd No. Cancel Session nd Cancel Session nd No. Cancel Session nd No. Scenario End Status No. Schwe/Apoconing Sessions V No. Schwe/Apoconing Sessions found. No. No. Schwe/Apoconing Sessions found. No. Schwe/Apoconing Sessions found. No. No. Schwe/Apoconing Sessions found. No. No.	ome /elcor anage se	Bench Management Me, labadmin01! cheduled lab sessions.		b Session 🛛 🖞		ent [+ Guest Approval	31 Instructor Se	Se	ptember 15, 2023 3:40) PM ? 🗔	🛆 labadi
1 B 4/0175-CVE-2020-335378 Magios-XM injection © Scenario End Session Redirect You will be automatically redirected from the Scenario page when the session ended. Image: Cancel Session Ima	ome felcor anage so hedulec	Bench Management Me, labadmin01! cheduled lab sessions. Hoy Me		b Session 🛛 🖞	證 Session Managem	ent [+ Guest Approval	El Instructor Se	Se	ptember 15, 2023 3:40	D PM ? 🗔	은 labadr টি Rept
2 B V0215-Phishing Analysis ○ You will be automatically redirected from the Scenario page when the session ended. d Cancel Session heduled by Others Items per page: 3 ~ 1 - 2 of 2 < < > >1	ome felcor anage si heduled Activi	Bench Management Me, labadmin01! cheduled lab sessions. Hoy Me a/Upcoming Sessions		b Session	î]] Session Managem	ent [+ Guest Approval	El Instructor Se	Se	ptember 15, 2023 3:40	D PM ? 🗔	ු labadr
hedulad by Others Items per page: 5 v 1-2 of 2 < < > > Active/Upcoming Sessions v Search No. Bench/Event Name Bench/Event Name Bench Status Date Time Slot Scheduled By Other Users No sessions found.	ome /elcor anage si theduled Active No.	El Bench Management me, labadmin011 cheduled lab sessions. Hy Me ar/Upcoming Sessions Bench/Scenario Name					[3] Instructor Se	Se	ptember 15, 2023 3-40 Management <i>~ 음</i> (3 PM ? [] Scenario Management Search	ු labadn ී Repo
Active/Upcoming Sessions ~ OK No. Bench/Event Name Bench Status Date Time Slot Scheduled By Other Users Session Status	ome /elcon anage se heduled Active No. 1	Ell Bench Management me, labadmin011 cheduled lab sessions. iby Me Perchy/Scenario Name B+0175 CVE-2020-35578-		Scena	rio End Session I	Redirect		Se tting >* CTF M	ptember 18, 2023 3-46 Management - @ : X Cancel Sessic	3 PM ? . Scenario Management Search an E Connect Scen	ු labadr ී Repo
	ome /elcor anage s heduled Active No. 1	Ell Bench Management me, labadmin011 cheduled lab sessions. iby Me Perchy/Scenario Name B+0175 CVE-2020-35578-		Scena	rio End Session I	Redirect		Se tting >* CTF M Status ded.	ptember 18, 2023 3-40 Aanagement - A S Cancel Sessic Cancel Sessic	D PM ? E3 Scenario Management Search an []: Connect Scenario an []: Connect Scenario	Labadr
	ence Active No. 1	Ell Bench Management The, labadmin011 cheduled lab sessions. tby Me exUpcoming Sessions Bench/Scenario Name Be+0175 CVE-2020 35578- B-V-0215 Phishing-Analysis		Scena	rio End Session I	Redirect	ye when the session en	Se tting Tree CTFA Status ded. Id Items pe	ptember 18, 2023 3-40 Aanagement - A S Cancel Sessic Cancel Sessic	D PM ? E3 Scenario Management Search an []: Connect Scenario an []: Connect Scenario	2 labadr 12 Repo C ario
	Velcor anage si heduled No. 1 2	Ell Bench Management Tee, labadmin011 cheduled lab sessions. Hoy Me Bench/Scenario Name B-V-0175-CVE-2020-35578- B-V-0215 Phishing-Analysis Hoy Others		Scena	rio End Session I	Redirect	ye when the session en	Se tting Tree CTFA Status ded. Id Items pe	ptember 18, 2023 3-40 Aanagement - A S Cancel Sessic Cancel Sessic	3 PM ?	A labadn Ta Repo C ario > →1
	Active Active Active Active Active	E2 Bench Management me, labadmin011 cheduled lab sessions. thy Me Bench/Scenario Name B-V0175-CVE-2020-35578- B-V0215-Phishing-Analysis thy Others e/Upcoming Sessions. ~		E Scena You will	rrio End Session I	Redirect Frected from the Scenario pay	ge when the session en	Se tting >= CTF A ed ed ed Rems pe	ptember 15, 2023 3-40 Management -	3 PM ?	A labadn Ta Repo C ario > →1
	Active Active Active Active Active	E2 Bench Management me, labadmin011 cheduled lab sessions. thy Me Bench/Scenario Name B-V0175-CVE-2020-35578- B-V0215-Phishing-Analysis thy Others e/Upcoming Sessions. ~		E Scena You will	rrio End Session I	Redirect Frected from the Scenario pay	ge when the session en	Se tting >= CTF A ed ed ed Rems pe	ptember 15, 2023 3-40 Management -	3 PM ?	A labadr C Repo C ario > >1
	hedulec Active hedulec No. 1 2 Active	E2 Bench Management me, labadmin011 cheduled lab sessions. thy Me Bench/Scenario Name B-V0175-CVE-2020-35578- B-V0215-Phishing-Analysis thy Others e/Upcoming Sessions. ~		E Scena You will	rrio End Session I	Redirect rected from the Scenario pay	ge when the session en	Se tting >= CTF A ed ed ed Rems pe	ptember 15, 2023 3-40 Management -	3 PM ?	A labadr C Repo C ario > >1

← → C 🔒 kca-dev-cysop.p	ong.is.keysight.com/#/active-scenario						ළි 1	***
😧 Orion2.0 - Agile Bo 🔇 Login to F	Frog 🧭 Conditions of Custo 🦄 Lookup In LINQ 🤌 ii	nstallation - How	t 🖸 (nstallShie	ld: Walk-t	Windows Insta	aller C JB Jeremy Bytes: Back	🍰 c# - Proper way to	»
4 Back								TY OPERATIONS PLATFORM
Scenarios Library				0 % Session	created successfu	ully		
Events	B-V-0175-CVE-2020-35578-Nagios-XI-Injection Do	cumentation	Diagram					<u>i</u>
Active Scenario		Viscator Pr	nest/Delest	Autometion	SIEM NGFW			
• History	The States in		X	密				
			30 min	120	40/50 points	1 5 questions		
MANAGEMENT		4	巴		Ē			
ළු Teams								
」 『 Scenarios	B-V-0175-CVE-2020-35578-Nagios-Xi-Injection		n 2.1.2172.EA_Patch ay Keysight Technolog					
Inventory								
_்	This attack exploits a command injection vulnerab							uploadedfile' multipart
	filename. The flaw may be exploited by an authenti	cated attacker	to execute arbitra	ry code in the	e context of the	e Nagios user on the target serve	27. 17.	

2 Once a session starts, you must complete it within the allocated time (as indicated in the timer).

Back							CYBER SECURITY OPERATIONS PLA	TFORM
Scenarios Library	Mark as complete				ant ID 2 - 10.20. running (owner co		O O O Meretes	5
Active Scenario	B-V-0175-CVE-2020-35578-Nagios-XI-Injection	Documentation	Diagram					
B History			tect / Detect Detection	Automation				
	E C	Easy	30 min	120	40/50 points	5 questions		
දි Teams	in the second	7 vCPU Scenario versio	11.5 GB	82 GB (6e88d697)				
Scenarios	B-V-0175-CVE-2020-35578-Nagioe-XI-Injection	Last modified b	y Keysight Technologie					
스_ VLAN Editor	This attack exploits a command injection vuln filename. The flaw may be exploited by an aut						ient validation of the 'uploadedfile' multip	art
- Active Sessions								

In the Documentation view, click **Next** or **Previous** buttons to navigate through the content.

Back			
Scenarios Library	Mark as complete	Tenant ID 2 - 10.20.49.43	0049
Events		Scenario running (owner connected).	Alizatés Secolos
Active Scenario	B-V-0175-CVE-2020-35578-Nagios-XI-Injection Documentation Page ◯ 1 / 14 ④ ⊖ ⊕ □	Diagram	
* History	Page © 1 /14 🛛 📿 🕀 🗌		a 1
MANAGEMENT			
ළු Teams	CVE 2020 255	78 - Nagios XI Manage Plugins Comr	nand Injection
Scenarios	GVE-2020-333	10 - Nagios Al Mallage Flugilis Colli	
Inventory	Table of Contents		
-스- VLAN Editor	Overview		2
Active Sessions	Exercises		
	Objectives		
	Stage 1 – Generating sce	enario's traffic	4
	Step 1 – Traffic genera	ted for this scenario	4

The Connection Table view will show a list of virtual machine(s) (with its network and login information) running in the virtual lab. Refer to the lab content to identify which device(s) require access in each virtual lab.

	Display Name	Description	Management IP Address	Remote Access Connections
۲	Internet Router		100.100.0.3	[SSH]
۲	Elasticsearch		100.100.0.16	[HTTP]
۲	trafficGen		100.100.0.30	[RDP]
۰	External Firewall - Firewall		100.100.0.4	[HTTP] [SSH]

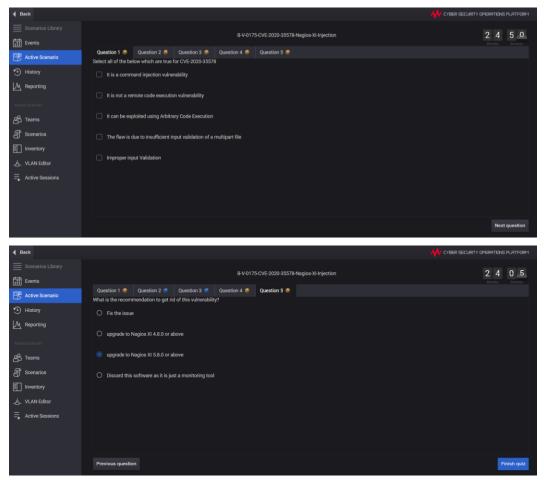
The Diagram view will display the network topology for the current virtual lab.

VE trafficGen	
External Firewall DMZ	External Internet Segment
External Firewall Firewall	

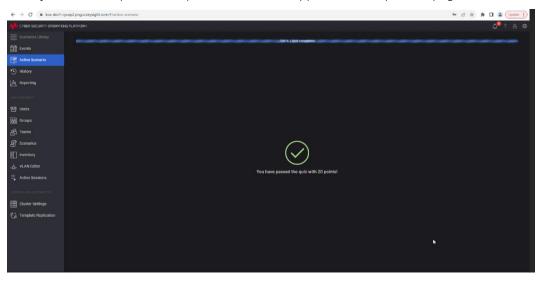
3 At the end of the document, click **Mark as complete to complete the lab** (Mark as complete Certain virtual labs come with a quiz which students must complete to test their knowledge.

∢ Back	W CYBER SECURI	TY OPERATIONS PLATFORM
Scenarios Library	Mark as completes Column Science Scien	0157
Active Scenario	B+V9175-CVE-2020 35578-Nagios-XI-Injection Documentation Diagram	
History M Reporting		
MANAGEMENT		
은 Teams	Click the Start button to complete the process.	
Scenarios	Compared constraints and	
-占- VLAN Editor	print A Autocopy Materia Materia Materia print A Strategies Materia Materia Materia print A Strategies Materia Materia Materia	
➡ Active Sessions	horms E O Juniana. O Linter O Astron. Unit of	
	A stream P of the stream P of	
	arte: 0	

4 An example of the quiz is shown below. Students must answer the question accordingly and click **Submit Answer** to proceed to the next question.



5 Once you have completed the quiz, the score will appear at the top of the page.



6 You can view the data for the scenarios in the History tab.

4 Back				**	CYBER SECURITY (PERATIONS P
Scenarios Library	Scenario	Started At 🗸	Completed At	Minimum Score	Score	Result
Events	B-V-0175-CVE-2020-35578-Nagios-XI-Injection	15 Sep 2023, 15:42	15 Sep 2023, 15:46	40	20	FAIL
	B-V-0175-CVE-2020-35578-Nagios-XI-Injection	15 Sep 2023, 14:20	15 Sep 2023, 14:20	40	20	FAIL
• History						
Reporting						
ළු Teams						
Scenarios						
Inventory						
스 VLAN Editor						
Active Sessions						

7 Close the tab to return to the main page of Keysight Cyber Training Simulator system.

Management Menu

This section covers the additional functions available for those with administrator roles to manage users, benches, and sessions scheduled in the Keysight PathWave Lab Operations for Remote Learning application.

Keycloak Administration Console

To access the Keycloak Administration Console, you will need to use the default credentials as below:

- Username: admin
- Password: K3yCloak@Order Number (you may contact Keysight support to retrieve your Order Number)

It is recommended to change the password before you begin to use the application.

1 On a web browser, copy the link provided by Keysight Technologies (in the URL Notification Sheet) and add port ":8443" at the end of the link. For example, the link will be https://dev.realremotelab.keysight.com:8443/. When you see the page below, click Administration Console and log in with details above.



Welcome to Keycloak

Administration Console >	User Guide, Admin REST API and	🖾 Keycloak Project >
Centrally manage all aspects of the Keycloak server	Javadocs	☑ Mailing List >
		瀧 Report an issue >

2 Go to the **development** realm as shown below.

Select realm ~	Realms
	Realm development

- 3 Go to Users on the left panel and click View All Users. For the account "admin", click Edit.
- 4 Go to the **Credentials** tab and under **Manage Password**, enter a new secure password and disable **Temporary** option. Click **Reset Password**.

Once you have access to the development realm, you can perform the following tasks:

- Configure Roles

This section describes the steps to create or configure the types of roles that you could later assign to the accounts.

- Add User

This is an optional step provided you have the User registration setting as Off (default). Follow the step-by-step instructions in this section to manually add users.

- Manage User

Perform the steps in this section to assign the types of roles to the registered accounts.

- Email Settings

Perform the steps in this section to turn on the 'Forgot Password' feature.

- Set Up Single Sign-On (SSO)

This is an optional step to set up the social sign in for your application.

Configure Roles

This section describes the steps to set and assign the roles to an account. The types of roles assigned will determine the access level to the application. With the administrator role, you can set the default role to assign to new accounts and assign specific roles to each account.

1 Go to the **Roles > Realm Roles** to view the type of roles available. These are the roles that you can assign to an account.

Development v	Roles				
Configure	Realm Roles D	efault Roles			
₩ Realm Settings	Search	Q View all roles			Add Role
Client Scopes	Role Name	Composite	Description	Actions	
Roles	Guest	False		Edit	Delete
	LabAdmin	False	EduLab LabAdmin	Edit	Delete
Identity Providers	Lecturer	False	EduLab Lecturer	Edit	Delete
User Federation	Student	False	EduLab Student	Edit	Delete
Authentication	offline access	False	\${role offline-access}	Edit	Delete

2 Go to the **Default Roles** tab to view or modify the default roles assigned to new accounts. By default, new accounts are assigned with Guest role during registration.

Development v	Roles		
Configure	Realm Roles Defa	ault Roles	
辩 Realm Settings	Realm Roles	Available Roles 🛿	Realm Default Roles 🛿
Clients		Guest LabAdmin	Student
🙈 Client Scopes		Lecturer offline_access	
📑 Roles		uma_authorization	
User Federation	Client Roles	Select a client	×

NOTE

You can only add or remove one role at a time. To change the default role, you must first select the Guest role and click **Remove Selected** button. Then, select the desired role and click **Add Selected** to set it as the Realm Default Role.

3 To add a new role, return to **Realm Roles** tab and click the **Add Role** button.

Roles				
Realm Roles Def	fault Roles			
	٩			Add Role
Role Name	Composite	Description	Actions	
Lab Assistant	False		Edit	Delete
	False	EduLab LabAdmin	Edit	Delete
	False	EduLab Lecturer	Edit	Delete
	False	\${role_offline-access}	Edit	Delete
	False	EduLab Student	Edit	Delete
	False	EduLab	Edit	Delete
uma_authorization	False	\${role_uma_authorization}	Edit	Delete

4 Enter the name and click the **Save** button. The example below will create a Guest role.

Development v	$\textbf{Roles} \rightarrow \textbf{Add} \ \textbf{Role}$	
Configure	Add Role	
₩ Realm Settings	* Role Name	Guest
Clients	Description	
🗞 Client Scopes		
Roles		
User Federation		Save Cancel
Authentication		

5 Successful creation of the role will prompt the following message. You should now see the new role listed in the Realm Roles tab.

Roles → Guest	Success! The role has been created.
Guest 👕	
Details Attributes	Users in Role
Role Name	Guest
Description	
Composite Roles 😡	OFF Save Cancel

Add User

NOTE

By default, the **User registration** setting is set as **OFF**. This is the recommended setting to prevent other users from registering an account using the link to the application.

KEYSIGHT Development Development 👕 General Login Email Localization Cache Themes 11 Realm Settings User registration @ OFF Clients OFF Edit username Ø 🚓 Client Scopes Forgot password @ ON Roles Remember Me Ø OFF # Identity Providers Verify email @ ON User Federation Login with email @ OFF • Duplicate emails @ OFF Require SSL @ none 🛃 Groups Save Cancel 🔒 Users

Go to Realm settings > Login to view this setting.

- When the User registration setting is set as **OFF**, only accounts with administrator roles assigned will be able to register new users and set the appropriate roles and access.
- When the User Registration is set to **ON**, any users with the link to the application will be able to register on their own with the default Guest role.
- 1 From the side panel, click **Users** to view the **Add user** page as shown below. At minimum, you will need to enter the desired Username. Click **Save** when you have completed the form.

Development ~	Users » Add user	
Configure	Add user	
111 Realm Settings		
Clients	Created At	
Client Scopes	Username -	
Roles		
	Email	
User Federation	First Name	
Authentication	Last Name	
Manage	Last Marie	
L Groups	User Enabled 😡	89
1 Users	Email Verified O	OFF
Sessions	Required User Actions O	
m Events		Save Cancel
집 Import		
Export		

2 You will be redirected to the **Credentials** tab where you will need to perform the following steps:

Development ~	Users → ain			
Configure	Ain 👕			
開 Realm Settings	Details Attributes	Credentials Role Mappings	Groups Cons	ents Sessions
Clients	Manage Credentials			
& Client Scopes				
Roles	Position	Туре	User Label	
dentity Providers		password		
User Federation	Reset Password			
Authentication	Password			
Manage				
🛓 Groups	Password Confirmation			
LUSERS	Temporary 🛛	ON		

- **a** In the Manage Password section, enter the desired password as shown above.
- **b** Enable the **Temporary** option to create a temporary password.

NOTE When the **Temporary** option is enabled, users are required to change the password when they first log in to the application. You may turn off the **Temporary** option if you prefer to create a permanent password for the user.

- **c** In the Credential Reset section, select the appropriate Reset Actions from the drop-down list. The recommended options are:
 - i Verify Email: This option will send an email to the user to verify their email address.
 - **ii** Update Password: You will be prompted to enter a new password when you first log in to the application.
 - **iii** Expires in: This is the duration set before the link expires. You will need to request for another link to verify your account.
- 3 Click **Change Password** to update the password to the newly created account. Click **Reset Password** to activate the new password.
- 4 Click **Send email** to send out the email as per the settings above. When the user has verified the account, the Verified switch will change to 'ON'.

Manage User

Perform the following steps to assign the types of roles to the registered accounts.

1 To modify the assigned roles for an account, go to **Manage > Users** and click **View all users**.

Development ~	Users
Configure	Lookup
111 Realm Settings	Search Q View all users
Clients	Please enter a search, or click on view all users
🚓 Client Scopes	
📰 Roles	
identity Providers	
User Federation	
Authentication	
Manage	
粗 Groups	
1 Users	
 Sessions 	

2 You should now see a list of users and their registered accounts. Click **Edit** in the Action column.

Users							
Lookup							
	Q View all users					Unlock users	Add user
	Username	Email	Last Name	First Name	Actions		
		demolecturer@gmail.com		admin01		Impersonate	Delete

3 Go to the **Role Mappings** tab to view the role assigned. Note that you must first remove the assigned role (if any) before you can assign a new role to an account. The changes will take effective immediately.

Users » ad	Imin								
Admin	†								
Details	Attributes	Credentials	Role Mappings		Consents				
	Re	alm Roles	Available Roles 🕑			Assigned Roles 🕑	Effecti	ve Roles 🕑	
		Guest Lab Assistant Lecturer offline_access		< >	A LabAdmin	Lab	Admin	<	
	Ci	ient Roles	Select client to view						

Email Settings

NOTE In order to turn on the 'Forgot Password' feature, you will need to complete the Email Settings. Go to https://wjw465150.gitbooks.io/keycloakdocumentation/content/server_admin/topics/realms/email.html for instructions on how to enable Email Settings in Keycloak.

Keycloak sends emails to users to verify their email address, when they forget their passwords, or when an administrator needs to receive notifications about a server event. To enable Keycloak to send emails, you need to provide Keycloak with your SMTP server settings. This is configured per realm. Go to the Realm Settings left menu item and click the Email tab.

Set Up Single Sign-On (SSO)

An identity provider is usually based on a specific protocol that is used to authenticate and communicate authentication and authorization information to their users. It can be a social provider or cloud-based identity service that you want to integrate with PathWave Lab Operations for Remote Learning Solution.

Once you have set up an identity provider, you may sign in to the PathWave Lab Operations for Remote Learning Solution application using any of the social provider such as Facebook, Google or Twitter.

Refer to the https://www.keycloak.org/docs/latest/server_admin/#_identity_broker for specific instructions to set up the Identity Brokering.

Here are a few examples:

OpenID Connect v1.0 Identity Providers.

OpenID Connect (OIDC) is an authentication protocol that is an extension of OAuth 2.0. While OAuth 2.0 is only a framework for building authorization protocols and is mainly incomplete, OIDC is a full-fledged authentication and authorization protocol.

Go to https://www.keycloak.org/docs/latest/server_admin/#_identity_broker_oidc

SAML v2.0 Identity Providers

Security Assertion Markup Language (SAML) is an open standard that allows identity providers (IdP) to pass authorization credentials to service providers.

Go to https://www.keycloak.org/docs/latest/server_admin/#saml-v2-0-identity-providers

NOTE The authentication and authorization process uses Keycloak solution which is designed following standard security protocols to provide dynamic single sign-on solution. University IT can configure PathWave Lab Operations for Remote Learning Solution to access the university's active directory. This addresses security concerns, helps eliminate tedious registration process and streamlines the authentication and authorization process.

Keycloak's documentation: https://www.keycloak.org/docs/latest/server_admin/

Set Up Email Settings

This feature will send a confirmation email to the users to inform them of the status of the sessions in PathWave Lab Operations for Remote Learning Solution. The setup will depend on the SMTP server setup in the university.

Mail Settings

Enter the information regarding your server.

Set	tings				×
	URL Setting	SMTP Server	email-smtp.ap-southeast-1.amazon	aws.com	
	External Tool	From			
	Mail Setting	Port	587		
	Client Details	Enable SSL			
		Username	AKIA370XPTHS45ZHXWME		
		Password	•••••		
				Save	Cancel

Client Details

1 Go to Realm > Master Realm.

	KEYCLOAK										
Mast	er 🗸	Master									
Config		General	Login	Keys	Email	Themes	Localization	Cache	Tokens	Client Registration	Security Defenses
1 61	Realm Settings		* N	ame	master						
Ŷ	Clients		Display p		Keycloak						
æ	Client Scopes	Display name Ke		Reycloak							
	Roles	HTML Display name			<div class:<="" th=""><th>="kc-logo-text";</th><th></th></div>	="kc-logo-text";					
≓	Identity Providers	Frontend URL @									
	User Federation		Enable	ed 😡	ON						
_	Authentication										
Mana		User-M	anaged Acce	ss 😡	OFF						
	Groups		Endpoin	ts 🔞	-	ndpoint Config					
	Users				SAML 2.0	dentity Provide	er Metadata				
0					Save Ca	incel					
	Import										
	Export										
	capore										

2 In the Clients tab, select **account**.

Master	 Clients 					
	Lookup 😡					
111 Realm Settings	Search	Q				Creat
🕤 Clients	Client ID	Enabled	Base URL	Actions		
\delta Client Scopes	account	True	https://elab2.realremotelab.keysight.com:8443/auth/auth/realms/master/account	Edit	Export	Delete
Roles	account-console	True	https://elab2.realremotelab.keysight.com:8443/auth/realms/master/account/	Edit	Export	Delete
Identity Providers	admin-cli	True	Not defined	Edit	Export	Delete
	broker	True	Not defined	Edit	Export	Delete
User Federation	development-realm	True	Not defined	Edit	Export	Delete
Authentication	master-realm	True	Not defined	Edit	Export	Delete
	security-admin-console	True	/auth/admin/master/console/index.html	Edit	Export	Delete

3 Click the **Credentials** tab and copy the information in the Secret field.

Clients > account					
	Roles Client Scopes Mappers	Scope @ Authorization	Revocation Sessions @	Offline Access @ Clu	stering
Client Authenticator	Client Id and Secret 2f7eab77-6b62-4d70-b91c-32816afc67c6	Regenerate Secret			
Registration access token 😡		Regenerate registration ac	ccess token		

4 Return to the PathWave Lab Operations for Remote Learning Solution and paste the information under the **Client Details > Master Client Secret** field.

Set	tings			×
	URL Setting	Master Client ID	account	
	External Tool	Master Client Secret	2f7eab77-6b62-4d70-b91c-32816afc67c6	
	Mail Setting			
	Client Details			
			Save Can	icel

Guest Approval View

Accounts with administrator access level can approve and assign the appropriate access levels to new users. By default, new accounts registered will be assigned with the Guest role.



To assign and approve roles for new accounts, go to the Role column and click **Select Role** to display the available options in a drop-down list. Assign the desired role and click **Approve** for the changes to take effect.



Install the Remote Agent

A remote agent is a .exe installation file that you will need run and install in the PC at the benches.

Before you can use the PC as a remote agent, you must perform the following steps to download and run the Remote Agent installation package to add it as an agent in the server.

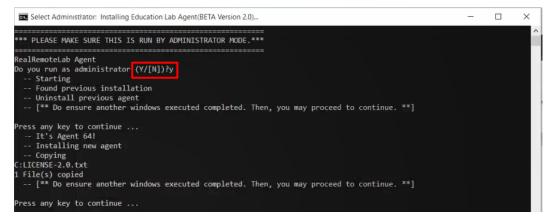
1 Click **Download Agent Installer** to see the pop-up window below. Click the installation.zip link.

thWar	ve Lab Operations for Remote	Learning							
	ge Your Lab Benche ernote agent to a bench for ot								
				Download the rem	ote agent installer to add your PC as a remote a	gent in			
				the PathWave Lab Operations for Remote Learning application.					
				Remote Agent	installation.zip ret in installation.zip file. Right-click the				
				agentBetaVersion.b.	at file and run it with administrator privileges.				
						Close			
ote A									
lown	iload Agent Installer 🕄								

2 Unzip the content in installation.zip file to the PC that acts as the remote agent. Right-click the **agentBetaVersion.bat** file and run it with administrator privileges.

🗹 📜 🖛		Manage	installation				- 0	2
le Home Share	e View	Application Tools						~
→ ~ ↑ 💷 > T	This PC > OS	GDISK (C:) > Users >	Fhonghoo > Download	ls > installation	~ O	Search installa	tion	
Desktop	* ^	Name	2.5	Date modified	Type	1	Size	
Downloads		agentBetaVersig	n hat	8/28/2020 2-55 DM	Windo	ws Batch File	3 KB	
Documents	*	LICENSE-2.0.txt	Open		Text D	ocument	12 KB	
BookReading	*	🗋 w32	Edit		File		3,655 KB	
Keysight		🗋 w64	Print		File		3,260 KB	
BenchVue	*		👽 Run as administrate	or N				
repos	*		X Open with Code					
Logs	*		Run Elevated					

3 You should see a Command Prompt window where you will need to enter **Y** to initiate the installation process. Close this window when the installation has completed.



NOTE

If you have previously installed an older version of the Agent in the same PC, running the batch file will uninstall the existing version before installing the latest version.

4 Return to the Home view and click **Refresh** to update the list of Remote Agent. You should now see the newly added Agent in the list.

Downloa	nd Agent Installer ೯೩		Sea	arch	Q
No.	Computer Name	Status	Assigned To Bench		
1	5CD929339S	Offline	LocalTestLaptop2		
2	4CE8374P58	Online	MC Desktop		
3	4CE0262PSP	Online	BC Desktop		
4	5CD929339S	Online		× Remove	

5 Repeat **Step 1** to **4** to set up a new Remote Agent in another PC.

Proceed to the next section to assign a bench to the newly added agent.

Add a New Bench

A bench is a location where you have set up the hardware connections and which the PC assigned as the remote agent will interact with.

1 Click **Add New Bench** and enter the required details in the pop-up window below.

athWave L	ab Operations for Remote	Learning						August 3, 202	1 3:40 PM ?	🚊 labadr
	Your Lab Benche ste agent to a bench for ot									
Add New	Bench E3 Bench Name			Bench Name *	Enter a unique bench name Bench name la required.					
				Bench Description						
				Bench Location						
				Bench Instruments						
				Agent	Select remote agent's computer $$					
te Agen				Access Level *	Set who can access this bench ${\scriptstyle\smile}$					
				Group Level	Set which group can this bench $$					
			Assigned To Bench		Add	Cancel				

2 The example below assigns the Agent GEMSQA09V7 and the Administrator, Lecturer, and Student Access Levels. Accounts with Admin, Lecturer, and Student roles will be able to see this bench. Click **Add** when you have completed the form.

Add New Bench	×
Bench Name *	Demonstration
Bench Description *	This is only for demonstration purposes
Bench Location	University Lab
Bench Instruments	PS, DMM and FG
Agent *	GEMSQA09V7 V
Access Level *	Admin, Lecturer, Student $$
	Add Cancel

3 Upon successful setup, you should see the newly assigned remote agent to the respective bench.

	Your Lab Benches note agent to a bench for oth		ab scheduling & remote access.						
Bench									
Add New	v Bench 🕄								
	Bench Name		Computer Name	Status	Access Level				
	TestBench04 ①		5CD033HQW7	• Online	Admin, Lecturer, Student	Remove	Ib Connect		
	TestBench01 (5CD0348X2W	Offline	Admin, Lecturer, Student	K Remove			
	TestBench02 (5CD0348X2X	 Online 	Admin, Lecturer, Student	Remove	15 Connect		
	Adrian-TestBerk	ch01 ①	Adrian-F30VM	Offline	Admin, Lecturer, Student	Remove			
	TestBench03 (5CD033HQW6	 Online 	Admin, Lecturer, Student	S Remove	15 Connect		
						lerns per page:		of 10 < <	i i i i
note Ager	nt								
Downloa	ad Agent Installer								
	Computer Name	Status	Assigned To Bench						
	5CD0348X2W	Offine	TestBench01						
	5CD0348X2X	• Online	TestBench02						
	5CD033HQW6	Online	TestBench03						
4	5CD033HQW7	• Online	TestBench04						
	GEMSQA09V7	• • Online	Demonstration						

4 Unzip the content in installation.zip file to the PC that acts as the remote agent.

NOTE

It is recommended that you disable the power saving and sleep mode of the Remote PC. This is so that the PC can continue to run as necessary without any disruption.

On the Start menu, search for 'Power & sleep settings' and turn all the settings to **Never** as shown below.

Settings		- 6 ×
🕼 Home	Power & sleep	
Find a setting P System Display	Screen On battery power, turn off after Never	Save energy and battery life Make your battery last longer by choosing shorter times for screen and sleep settings.
句》 Sound	When plugged in, turn off after Never	Related settings Additional power settings
 Notifications & actions Focus assist 	Sleep	Help from the web Changing power mode
 Power & sleep Battery 	On battery power, PC goes to sleep after Never	Get help
📼 Storage	When plugged in, PC goes to sleep after Never	
Tablet		
川 Multitasking		
Projecting to this PC		

Session Management View

In this view, you will find the Active Sessions or Past Sessions as shown in the table below. Only the administrators can access this page and view the information of each session such as date, time, and status of the scheduled session.

E Path	Nave Lab Operations for Remo	te Learning					Au	gust 3, 2021 2:35 PM ?	🔒 labadmin01
🙃 Home	📴 Bench Management	E Schedule Remote Lab Session		[+ Guest Approval					
Pahada	led Sessions								
Act	live Sessions 🗸								
No	. Bench Name	Bench Status	Access Level	Date	Time Slot	Scheduled By	Invited	Session Status	
1	QA Bench 03 🗋	Online	Admin, Lecturer, Student	2021-08-03	02:00 PM - 03:00 PM	dimiel			
							Items per page: 10		

Manage Scheduled Sessions

Click **Session Management** to manage and view the status of the scheduled sessions. Use the dropdown list to only view either Active Sessions or Past Sessions in the table. Similarly, you can enter the keywords in the Search bar to filter and show only the sessions with the keywords.

PathWa	ave Lab Operations for Remo	ote Learning							July	28, 2021 8:59 PM	gyulinch
lome	🔄 Bench Management	🗂 Schedule	Remote Lab Session		agement [+ Guest	Approval					
hedule	ed Sessions										
	ve Sessions 🗠									Search	
No.	Bench Name	Bench Status	Access Level	Date	Time Slot	Calculated Dec		Session Status			
140.		benon otatao	Access Level	Date	Time alor	Scheduled By	Invited	Session Status			

The sessions submitted will approved by those with the administrator roles. Once approved, the system will send a confirmation email to the organizer (as per the username in the Scheduled By column).

The requests that are rejected will remain in the "Reject" status until the administrator removes or deletes it from the database. Administrators can reschedule sessions that falls under the Reject/Not approved category as shown below.

Edit Booking			×
Bench Name *	test23456		
Date *	6/16/2021	ta de la companya de	
Availability	11:00 AM \vee 🛛 –	12:00 PM 🗡	
		Edit	Cancel

NOTE

Students and lecturers are encouraged to check the information regarding your session in Home View as the administrator may reschedule your session.

Manage Remote Benches

Click **Bench Management** the view a list of test benches that you can sort according to their names, status, or access levels.

For each of the test bench, you have the option to Edit or Remove it from the table. The Connect button will only appear when the specific test bench is online.

PerformanceTestBench 🕜 CND74506V1 Online Admin, Lecturer, Student 🧷 Edit 🔀 Remove 🖏 Connect

License Management

This section covers matters pertaining to the application and software license.

License and Support View

Go to **Software > Licenses and Support** to view license-related information:

- Platform License: The license to use PathWave Lab Operations for Remote Learning and Keysight Cyber Training Simulator appear here.
- Cyber Training Simulator Component License: The license(s) to use BreakingPoint and Ixia
 Cyber Range appear here.

PathWave Lab Operation	s for Remote Learning machine is "ba0f7b607d87" .				May 13, 2022 1:15	РМ
	ate license (*.lic)			3		
Product	Description		License Expiration	Maintenance	Expiration	
PW9200EDU	PathWave Lab Operations for Remote Learning		12/13/2022 23:59:59	12/13/2022 2	23:59:59	
PW9201A	Keysight Cyber Training Simulator		12/13/2022 23:59:59	12/13/2022 2	23:59:59	
Cyber Academy Compone	nt License Activate license with activation code	Deactivate license with	activation code			
Product	Description				License Expiration	Quar
ProfessionalServicesSW	Ixia Cyber Range - Subscription License, FLOATING				16-Aug-2022	
BPS-Virtual	IXIA, L47 Promotional Cyber Security University Bun	dle for 15 seats x Breakin	gPoint VE 1Gbps floating 1-year subsc	ription license	06-Jul-2022	

No.	Item	Description
1	FlexNet Host ID	This is the Host ID assigned to your machine/PC. The platform license(s) will use this ID.
2	License Activation	Click the respective buttons (next to each section) to activate or deactivate the license(s). Once activated, it will populate the information in the summary table.
3	License and Maintenance Expiration	This is when your license to use the application expires along with KeysightCare support and maintenance. After this date, you will not be able to access this application and will need to renew your license to continue using the application.

License Installation and Activation

For first time setups, Keysight will install and activate these license(s) on your behalf.

If you renewed your license(s), follow the steps below to install and activate it accordingly. Refer to your entitlement certificate and redemption email for more details.

1 Click on **Software > Licenses and Support** next to your Username to view the license(s) and related support services.

September 19	9, 2023 7:48 AM	?	G
	Licenses and	d Supp	ort
	Settings		
	KCTS Setting	gs	

- 2 Use any of the options below to proceed with the license renewal/installation:
 - a Click Activate license (*.lic) and browse to the location of your license file. Select it and click **Open** to upload it to the server.

PathWave Lab Operations for Remo	Open				×	January 14, 2022 9:52 AM	? 🔐 yulinche 🖭 Softw
🕞 Home 🛛 🕅 Bench Management	+ - + † - This PC > Desktop		v ບ ⊃ Sear	ch Desktop		() Lab Management	
	Organize * New folder			B • D	0		
Platform License Activate license	 This PC 3D Objects 	Name seas-rog-zoz in iznoulog wample.crt		0 021 12:33 PM	7) ^ Si		
Product descript	Desktop	example.key		021 12:33 PM 021 2:01 PM	ĸ	Maintenance Exp	piration
Cyber Academy Component License	Documents Downloads Music Pictures	Trontend.tar Zoom	12/6/2 11/2/2 11/1/2	021 2:01 PM 021 2:23 PM 021 11:18 AM	W. SI SI		
Product des	Wideos	IMG_20211029_100346.jpg 005056a35a09_9001232.lic		021 10:03 AM	JF 1	ity Activation Code	Maintenance Expiration
ProfessionalServicesSW Ixia	Windows (C) SDHC (D:)	Insomnia elab-test.png.is.keysight.com.key	9/B/20	21 4:16 PM 021 12:24 PM	SI K	29DF-970A-856F-A964	12-Mar-2022
BPS-Virtual IXI/	wso_business (\\WSGPEW03) (Z:	private.key	8/24/2	021 9:19 AM	к.~ >	FEE0-F9D8-135C-B0D7	16-Mar-2022
	File name: 005056a35a	09_9001232.lic	~ All Files (*	.*)	~		
			Oper	Canc	el		

b If not already activated, retrieve the activation code from your email and click **Activate license with activation code**. Correspondingly, click **Deactivate license with activation code** to deactivate the desired license.

PathWave Lab Op	perations for Remote Learning					April 18, 202	2 9:28 AM ?
Platform License							
Product		Settings					
PW9200EDU							
PW9201A		Activation code					
Cyber Academy Co		Quantity					
Product							
ProfessionalServio							
BPS-Virtual							
			Save	Cancel			

3 Once you have activated the license to use the platforms and application, the software is now ready to use. Subject to the role assigned to your account, proceed to the User Interface Overview or User Menu to learn more about the Keysight Cyber Training Simulator application.

NOTE To restart the license server if the license does not display after being uploaded, SSH into the virtual machine and issue the following command:

systemctl restart keysight-license

(Optional) Learning Tools Interoperability (LTI) Features

NOTE

This section describes the steps to integrate PathWave Lab Operations for Remote Learning application into Learning Management System (LMS) system such as Moodle and Blackboard.

This is an optional task provided the university has an existing LMS system.

Integrate Moodle and PathWave Lab Operations for Remote Learning into LTI 1.3

You must use LTI version 1.3 in order to integrate Moodle as part of the LMS system.

Registering LTI 1.3 Tool

- 1 Navigate to Site Administration > Plugins > Activity Modules > External Tool > Manage Tools.
- 2 Under Manage Tools, select **Configure a tool manually** option.
- **3** Fill in the following information where you will replace the URL as Keysight provided.
 - **a** Tool name: Enter the desired name for PathWave Lab Operations for Remote Learning application. This is the name that you will see when you launch the course later. This example will use 'Remote Learning Application'.
 - **b** Tool URL: http://<Enter the URL given by Keysight>:30080
 - c LTI version: LTI 1.3
 - d Public Key Type: Keyset URL
 - e Public keyset: https://<Enter the URL given by Keysight>:30080/lti/settingJwkUrl
 - f Initiate login URL: http://<Enter the URL given by Keysight>:30080/lti/launch
 - g Redirection URL(s): http://<Enter the URL given by Keysight>: 30080/lti/tool
 - h Icon URL: https://<Enter the URL given by Keysight>/assets/favicon.png
 - i Secure icon URL: https://<Enter the URL given by Keysight>/assets/favicon.png

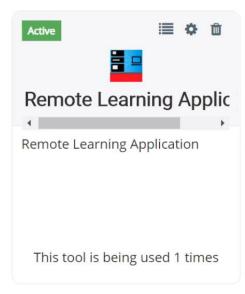
The completed form should appear as follows:

E	xternal tool	confi	-	
Ŧ	Tool settings		► Expand	t all
	Tool name	00		
	Tool URL	00		
	Tool description	0]
	LTI version	0	LTI 1.3 •	<u></u>
	Public key type	0	Keyset URL 🗢	
	Public keyset	0		
	Initiate login URL	0		
	Redirection URI(s)	0		

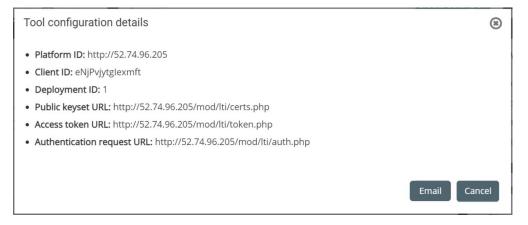
- 4 Tool configuration usage: Show as preconfigured tool when adding an external tool
- **5** Set the default launch container to New Window.

Tool configuration usage	8	Show as preconfigured tool when adding an external tool	\$
Default launch container	0	New window 🗢	
		🗆 Supports Deep Linking (Content-Item Message) 💡	

6 Save the changes and you may begin to use the external tool according to the given tool name. This example will use the 'Remote Learning Application'.



Next, use the following information to set up the PathWave Lab Operations for Remote Learning application.



- 7 Log in to your PathWave Lab Operations for Remote Learning application as an administrator and click **Setting External Tool**.
- 8 Enter the details from Moodle and set up as an External Tool:
 - **a** Tool name: Enter the desired name for PathWave Lab Operations for Remote Learning application. This is the name that you will see when you launch the course later. This example will use the name 'Remote Learning Application'.
 - **b** Issuer: Issuer
 - c Client ID: This will use the Application ID for the Moodle application
 - d Access Token URL: Access Token URL
 - e Authorize URL: Authentication Request URL
 - f JWK URL: Public Keyset URL

The completed settings should appear similar to the example below.

Settings		X
URL Setting	Configured	
External Tool	Tool name	Remote Learning Application
Mail Setting	Issuer	http://52.74.96.205
Client Details	Client ID	eNjPvjytglexmft
	Accesss Token URL	http://52.74.96.205/mod/lti/token.php
	Authorize URL	http://52.74.96.205/mod/lti/auth.php
	JWK URL	http://52.74.96.205/mod/lti/certs.php
	Deployment ID	1
		Save Cancel

Integrate PathWave Lab Operations for Remote Learning into LTI 1.3 Blackboard

You must use LTI version 1.3 to integrate Blackboard as part of the LMS system.

- **1** Go to https://developer.blackboard.com/ and sign up as a new user. Log in with your credentials and password.
- 2 Once you are logged in, click + as shown below.

kboard	Developer Documentation	<u>Explore APIs</u>	<u>My Apps My Gr</u>	roups				
		Man	age Y	our Applica	itions			
		My Applications (++++++++++++++++++++++++++++++++++++						
				u can view the Schools using your a y also delete your application.	pplication. You may also r	equest your		
		🕕 Indicates Gr	oup has Premium A	API access.				
		Name	Description	Application ID	Group			
		Remote Learning Application	External Tools for Remote Learning Application	25b5e7e2-33ce-4c24-91b1-323306e73569	AIN AZLAN			

3 Enter the details below.

Bla

- **a** Domain: Enter the URL given by Keysight.
- **b** Login Initiation URL: https://<Enter the URL given by Keysight>:30080/lti/launch
- c Tool Redirect URI(s): https://<Enter the URL given by Keysight>:30080/lti/tool
- d Tool JWKS URL: https:// <Enter the URL given by Keysight>:30080/lti/settingJwkUrl
- e Signing Algorithm: RS256
- f Custom Parameter: "userName"= "\$User.username".
- **g** Blackboard will provide the information for the Issuer, Public Keyset URL, Auth Token Endpoint, and OIDC Auth Token endpoint.
- 4 Click Register Application and Generate API Key.
- **NOTE** The Application ID is the Client ID that you will use as you set up the PathWave Lab Operations for Remote Learning. This information is auto-generated after creating the application.

5 An example of a completed form is shown below. Click **Update application** when you are done.

Edit application

Enter your applications name and description. Users see this information when adding the application to their environment. Include a version number if there are multiple versions of the application.

* Application Name	
Remote Learning Application	
Description	450 character lim
External Tools for Remote Learning Application	
* Domain(s)	Separate domains with comma
demo2.realremotelab.keysight.com	
Group	
AIN AZLAN 👻	
My Integration supports LTI 1.3	
Login Initiation URL	
https://demo2.realremotelab.keysight.com:30080/lti/launch	
Tool Redirect URL(s)	Separate URLs with comma
https://demo2.realremotelab.keysight.com:30080/lti/tool	
Tool JWKS URL	For a tool's public key acces
https://demo2.realremotelab.keysight.com/lti/settingjwkUrl	
Signing Algorithm	
RS256 -	
Custom Parameters	
"userName"= "\$User.username"	
Issuer	
https://blackboard.com	
Public keyset URL	
https://developer.blackboard.com/api/v1/management/applications/25b5e7e2-33ce-4c24-91b1-323	306e73569/jwks.json
Auth token endpoint	
Auth token endpoint https://developer.blackboard.com/api/v1/gateway/oauth2/jwttoken	
· ·	

Cancel

Update application

6 Go to the page below and click Manage Placement.

Mana	age Y	our Applica	ations	
My Applica	itions My	Site Registrations		\oplus
Application Key		y also delete your application.	application. You may also request your Group	
Remote Learning Application	External Tools for Remote Learning Application	25b5e7e2-33ce-4c24-91b1-323306e73569	AIN AZ Edit Delete Manage Keys Manage Placements	

7 Click + to add a new placement.

Remote Learning Application Manage Placements

You may edit and delete a placement.

Name	Description	Handle	(+)
Remote Learning Application		a9b795ad-3fab-4fd7-bcfe-6738d21af133	
Done			

- 8 Fill in the information accordingly as shown in the image below.
 - a Type: Course Tool
 - **b** Target Link URL: https://<Enter the URL given by Keysight>:30080/lti/tool
 - **c** Select the 'Launch in new window' check box
 - d Click Register placement.

* Placement Name	
Remote Learning Application	
Description	Limit placement description to 1000 characters
	h
Туре	
Course tool *	
✓ Allow students access	
✓ Launch in new window	
* Target link URI	
https://demo2.realremotelab.keysight.com:30080/lti/tool	
Icon URL	
Custom Parameters	
Cancel Update placement	

Add External Tools in Blackboard Platform

Proceed with the steps below to add an external tool in Blackboard.

- 1 Go to your Blackboard LMS system and log in with your username and password.
- 2 Click the **Admin** tab.

В	lackboard
ዶ	Blackboard Administr
	Activity Stream
ē	Courses
ኇ	Organizations
	Calendar
\boxtimes	Messages
e,	Grades
ľ	Tools
R	Admin
Ð	Sign Out

3 Select LTI Tool providers.

Integrations	
Institution Cloud Storage	
Data Integration	
Authentication	
Building Blocks	
Web Services	
LTI Tool Providers	
Respondus Proctoring Integration	
REST API Integrations	

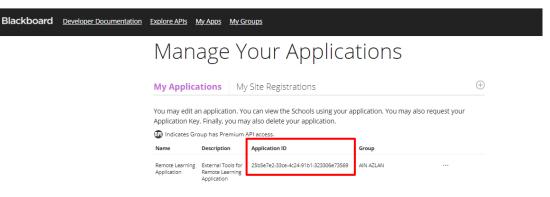
4 Click Register LTI 1.3/Advantage Tool.

LTI Tool Providers

This report is available to show all provider domains in use in the system, including the status. Domains can be approved, excluded, and deleted. Use the Register Provider Domain option to create additional LTI Tool Providers. More Help

Mana	ge Global Properties	Register LTI 1.1	l Provider	Register LTI 1	.3/Advantage Too	1	Synchro	onize LTI 1.3 Tools
P	Approve Exclude	Delete						Refresh
		TOOL TYPE	STATUS	CREDENTIALS	SENDS USER DATA	USER ACKNOWLEDGMENT PAGE	PLACEMENTS	USAGE COUNT
	developer.blackboard.com	n LTI 1.1 Tool	Approved	Per Link	No	No	1	0
Ļ	Approve Exclude	Delete						Refresh
						Displaying 1 to 1 of 1 items	Show All	Edit Paging

5 When prompted for a Client ID, retrieve and enter the Application ID as shown below (refer to step 6 of Integrate PathWave Lab Operations for Remote Learning into LTI 1.3 Blackboard) and click **Submit**.



NOTE

In the case if you have an existing tool that uses the same domain as your Remote Learning Application, you must delete the tool before you continue. You can only use one domain in Blackboard.

To delete a tool, select it from the list and click **Delete**.

\rightarrow	Edit	CO Te						Refresh
	Manage Placements Usage Report	TOOL TYPE	STATUS	CREDENTIALS	SENDS USER DATA	USER ACKNOWLEDGMENT PAGE	PLACEMENTS	USAGE COUNT
	Approve Exclude	LTI 1.1 Tool	Approved	Per Link	No	No	1	0
	Delete	LTI 1.3 Tool	Approved	RS256	Role, Name, Email	No	1	0
\rightarrow	Approve Exclude	Delete						Refresh
						Displaying 1 to 2 of 2 items	Show All	Edit Paging

6 Review the details. Select the Approved option as the tool status.

The following fields are read-only, but you can toggle the status of this tool

Client ID

25b5e7e2-33ce-4c24-91b1-323306e73569

Name

Remote Learning Application

Description

External Tools for Remote Learning Application

Deployment ID

6a39d24e-9e86-41c1-b882-16aeda48ea11

Initiate Login URL

https://demo2.realremotelab.keysight.com:30

Tool Redirect URLs

https://demo2.realremotelab.keysight.com:30

JWKS URL

https://demo2.realremotelab.keysight.com/lti

Domains

demo2.realremotelab.keysight.com

Tool Status

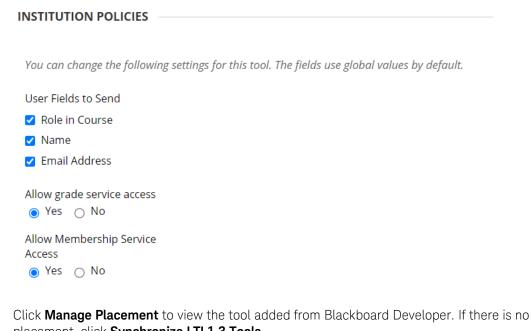
- Approved
- Excluded

Tool Provider Custom Parameters

"userName"= "\$User.username"

Enter any custom parameters required by the tool provider. Parameters must each be on their own line and be entered in "name=value" format.

7 Set the details as shown below and click **Submit**.



placement, click Synchronize LTI 1.3 Tools. Synchronize LTI 1.3 Tools Manage Global Properties Register LTI 1.1 Provider Register LTI 1.3/Advantage Tool Approve Exclude Delete Refresh SENDS USER DATA USAGE COUNT TOOL TYPE USER ACKNOWLEDGMENT STATUS CREDENTIALS PLACEMENTS PAGE developer.blackboard.com LTI 1.1 Tool Approved Per Link No No 0 Remote Learning Application LTI 1.3 Tool Approved RS256 Role, Name, No 0 Email Approve Exclude Delete Refresh

Displaying 1 to 2 of 2 items Show All Edit Paging..

Next, you may proceed to add a user, add a course, and enroll a user to the desired course. NOTE Go to Blackboard Help (https://help.blackboard.com/Learn) for instructions on how to perform these actions.

8

Obtain the Deployment ID

Next, you will log in with your account and launch the PathWave Lab Operations for Remote Learning application.

- 1 Log in to your administrator account on Blackboard.
- 2 Navigate to the **System Admin tab** and click **LTI Tool Providers** as shown below.

	My Institution	Courses	Community	Services	System Admin
	Blackboar	Produ	icts: Course Delivery,	Community Engag	ement. Content
	DIdCKDOdi	Login	gement : bbdemo demo (bbde e: Bb Learn 2016		
Security					
Privileges					
Session Fingerprint Settings					
Gateway Options					
Hostname Configuration					
Alternate Domain for Serving Content					
Safe HTML Filters					
Cookie Disclosure					
Account Lock Settings					
Input Validation Filter					
Integrations					
Data Integration					
Authentication					
Building Blocks					
Web Services					
LTI Tool Providers					
Proctoring Services					
REST API Integrations					

3 Click the **Register LTI 1.3 Tool** tab.

Administrator Panel	LTI Tool Providers	
LTI Tool Provider This report is available to s	S show all provider domains in use in the sy	stem, including the status. Domains can
Manage Global Proper	ties Register Provider Domain	Register LTI 1.3 Tool

- 4 Enter the Client ID, which is the Application ID created in Integrate PathWave Lab Operations for Remote Learning into LTI 1.3 Blackboard. Click **Submit**.
- **5** In the next screen, copy the Deployment ID and paste it in the Deployment ID field.
- 6 Click Activate.
- 7 Make the following changes in Blackboard.
 - a Tool Status: Set as Approved
 - **b** User Fields to Send: Select all three check boxes
 - c Allow grade service access: Set to Yes
 - d Allow Membership Service Access: Set to Yes

Add Details to the Application

- 1 Go to your PathWave Lab Operations for Remote Learning application and log in as an administrator. Click **Setting External Tool**.
- 2 Enter the same information as you did for the LTI 1.3 Tool Provider.
 - a Issuer: Issuer
 - **b** Client ID: Application ID
 - c Access Token URL: Auth token Endpoint
 - d Authorize URL: OIDC Auth request endpoint
 - e JWK URL: Public Keyset URL
 - **f** Deployment ID: Refer to Obtain the Deployment ID.

TOOL STATUS

The following fields are read-only, but you can toggle the status of this tool

Client ID

25b5e7e2-33ce-4c24-91b1-323306e73569

Name

Remote Learning Application

Description

External Tools for Remote Learning Application

Deployment ID

6a39d24e-9e86-41c1-b882-16aeda48ea11

3 The completed form will appear as below.

Issuer	
https://blackboard.com	
Public keyset URL	
https://developer.blackboard.com/api/v1/management/applications/25b5e7e2-33ce-4c24-91b1-323306e73569/jwks.json	
Auth token endpoint	
https://developer.blackboard.com/api/v1/gateway/oauth2/jwttoken	
OIDC auth request endpoint	
https://developer.blackboard.com/api/v1/gateway/oidcauth	

Launch the Application in Blackboard

Before you launch the PathWave Lab Operations for Remote Learning application in Blackboard, you must first log in with your account.

NOTE

For latest information on how to launch application, go to Blackboard Help (https://help.blackboard.com/Learn).

1 Log in to launch the course. You should see this page.

Welcome to the new Blackboard!



You're going to love the delightful details in our modern design. The intuitive, fluid interactions are simple and fun to use.

2 Select the course.

Blackboard	Courses		
A aida amira	Current Courses 🔹		
Activity Stream			
Courses	Cycling Courses		
ዮ Organizations	Assorted Dates Search and filter to find your courses quickly.		
Calendar	Remote Learning Application		
Messages	More may v		
Grades			
Tools			

3 Click Remote Learning Application and scroll downwards until you see the course tool.

Remote Learning Application	Tools	
Home Page		
Information 💼	Academic Materials Hide Link	Glossary Hide Link
Content 💼	Purchase your academic materials here.	View a list of important terms and their definitions.
Discussions		_
Groups	Achievements Hide Link	Goal Performance Hide Link
Tools	Achievements	View goal performance within a course.
Help		
	Announcements Hide Link	Groups Hide Link

4 Click the course tool shown below to launch Remote Learning Application.



General Troubleshooting

Seeing a Blank Screen

A stable internet connection is required when using this application.

- 1 Check your internet connection
- 2 Restart your remote PC at the bench

Application Ceases to Respond or Bench Freeze

This could happen when the participants are downloading large files simultaneously in a session. The application supports a maximum of two users to perform downloads at the same time.

NOTE To optimize the use of this application, it is not recommended to stream videos on the remote bench PC.

- 1 All participants in the session are recommended to exit and rejoin the session.
- 2 Restart the web browser that you are using to access the application.

VRF Settings

The Keysight Cyber Training Simulator utilizes a virtual router to perform Virtual routing and Forwarding (VRF) for users to access the virtual machines in the virtual labs. In the case where the virtual router's IP needs to change (for example, relocating the system to another subnet), follow the steps below to perform network configuration changes to the virtual router.

To access these settings, click **Software > KCTS Settings**.

September 19, 2023 7:48 AM ? 🔂				
	Licenses and	d Supp	ort	
	Settings			
	KCTS Setting	js		

KCTS Settings		×
VRF Settings	FQDN	kca-dev1-vrf2.png.is.keysight.com
	Mac address	76:a8:bf:a8:8f:d0
	IPv4 Binding Type	Static V
	IPv4 Address	141.183.244.44
	Subnet Mask	255.255.252.0
	Gateway	141.183.244.1
		141.183.230.30
		Save Cancel

Follow the steps below to perform network configuration changes to the virtual router.

- 1 Change the IP, subnet mask, gateway, DNS, and FQDN (if required) then click **Save** to apply the changes.
- 2 On the machine that is accessing the VM on the virtual labs, ensure that static route is configured so that the traffic for subnet 100.100.0.0/16 and 100.64.0.0/24 will be routed to the virtual router defined in VRF Setting.
- **3** For example, on a Windows machine that is on the same subnet as the virtual router, you must execute two lines of static route to access the virtual lab environment like example below:

```
route -p add 100.100.0.0 mask 255.255.0.0 VRF_IP
route -p add 100.64.0.0 mask 255.255.255.0 VRF IP
```

NOTE

Before running the command, ensure that VRF_IP is replaced with the new virtual router IP.

Frequently Asked Questions

- 1 Question: How do I reset the Cyber Security Operations Platform (CySOP) admin password? Answer: Contact Keysight support (www.keysight.com/find/assist) to reset the password.
- **2** Question: As Keysight has set up the Cyber Training Simulator system, I do not know the admin login and password to access KCTS. Where can I find the KCTS admin login and password?

Answer: Retrieve the details of the admin account from your entitlement certificate.

3 Question: How do I create my own virtual lab?

Answer: Adding new virtual lab to the system is not supported in the current release and is scheduled for the next upcoming release.

Recommended Password Practices

Passwords are used to protect access to confidential information. This includes Keysight software as well as any personal accounts you may have. A compromised password could result in a leak of your confidential information, an attack on Keysight's systems integrity and availability.

A compromised password means that someone could use your account to access your personal information to which you have been granted permission. At the very least, this could lead to misuse, but it could also result in financial loss. You may be held responsible for the misuse since the account belongs to you.

Here are some tips to keep your password safe and keep it from being compromised.

Choose strong passwords

A strong password consists of a few dimensions. The main dimensions are the length of the password and the character sets used to create the password.

Keysight's password recommendation is a minimum of 12 characters for standard accounts and a minimum of 15 characters for accounts with administrative privileges. The passwords must include a mix of at least 3 of the 4-character sets - upper and lower-case letters, numbers, and special characters.

Do not reuse past passwords

It is possible that older passwords were cracked, so do not repeat previously used passwords.

Do not use dictionary words as your password

Hackers use special computer hardware and software to crack passwords. Dictionary word passwords will not stand up to a password cracking attack.

Do not use terms that can be related to you

These are things such as your name, username, company, company products/terms, the names of your children or relatives, dates, locations, sports teams, pet names, or any combination of these.

Do not use patterns in your password

Keyboard patterns, such as 'qwertyuiop[]', '1qazxcvbnm,.', 'aaaaaabbbbbbb', or '1234567890-=' are well known and easily cracked.

Do not write passwords down, anywhere

Memorize them or use a password management application (see below).

Use a different password for every different account

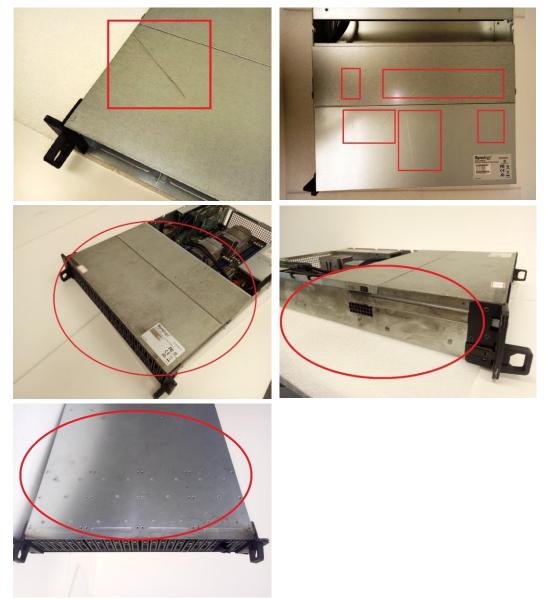
It is the best practice to use a different password for every different account. This way if one account is compromised, then the attacker will not have access to any of your other accounts. Using a password manager helps keep track of different login credentials.

Criteria for Warranty Claims

It is important to ensure that the hardware appearance is in good condition before any warranty claim. The warranty will be voided if Keysight concludes that the hardware appearance is unacceptable.

Here are some examples of hardware appearances which Keysight considers invalid for warranty claim.

- Scratched, rusted, dirty, or dusty surfaces.

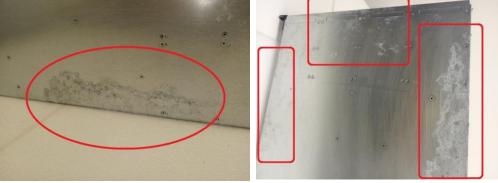


- Pasted with sticky tapes, anti-collision materials, or glue residuals.

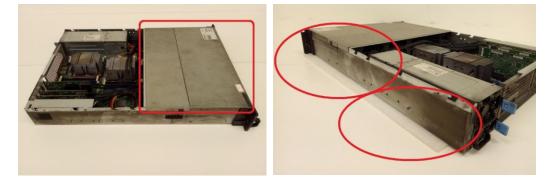


– Dirt marks such as spilled liquid or food.





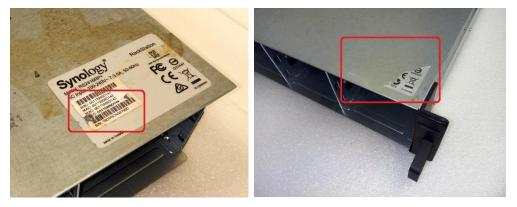
– Burning marks or smoke stains.



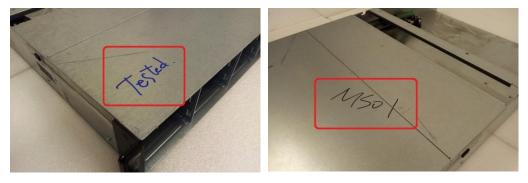
- Rusts on hard drive tray slot.



– Missing or damaged product stickers (serial number), resulting in unreadable information.



- Scribbled texts or marks



- Missing original parts (such as metal handles).



- Rusty fixing screws on handles.



- Deformed body structure or metal handle.



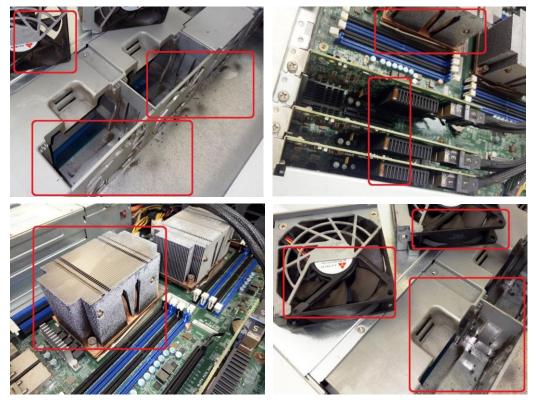
- Change of fixing screws on handles to non-original ones.



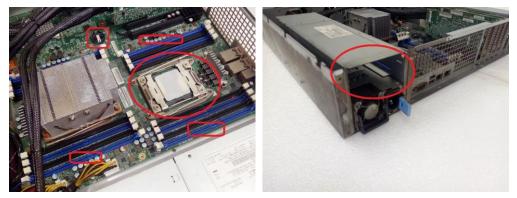
- Mismatched serial number between the motherboard and enclosure.



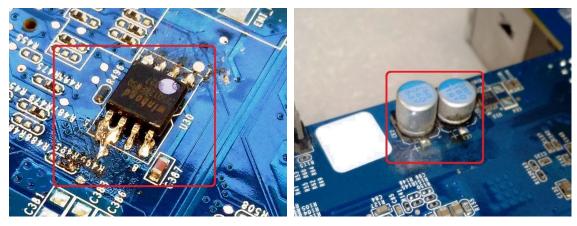
- Rusted, dirty, or dusty components.



 Missing original components (LED boards/cables, battery, heat sink, memories, fans, PSU, and so forth).



- Disassembled or re-welded motherboard components.



This information is subject to change without notice. © Keysight Technologies 2023 Edition 1, October 2023 Printed in Malaysia



CY101-90004 www.keysight.com

