



„Nie wieder Hardware im Klassenzimmer? - Entdecke den Packet Tracer!“ - praktische Übungen für PT-Neunutzer

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Christoph Seifert, Hochschule Fulda,





Agenda

- **Präsentation PT**
 - kurze Vorstellung, wozu PT? (Simulation → Emulation → HW)
 - Kurzvorstellung der Oberfläche
 - PT - Netzwerktechnik
 - PT - IoT
 - Berührungspunkte PT mit Kursen
- **Vorführung PT und Workaround auf NetSpace**
 - Download des PT (jetzt auch für Mac!)
 - PT Einführungskurs
 - PT Environment Checker als Vortest der Umgebung
 - PT - aus Curriculum (Labs), Assessments (Chapter Exams, Skill)
 - Einführung anhand eines kurzen Beispiels (Live Demo)

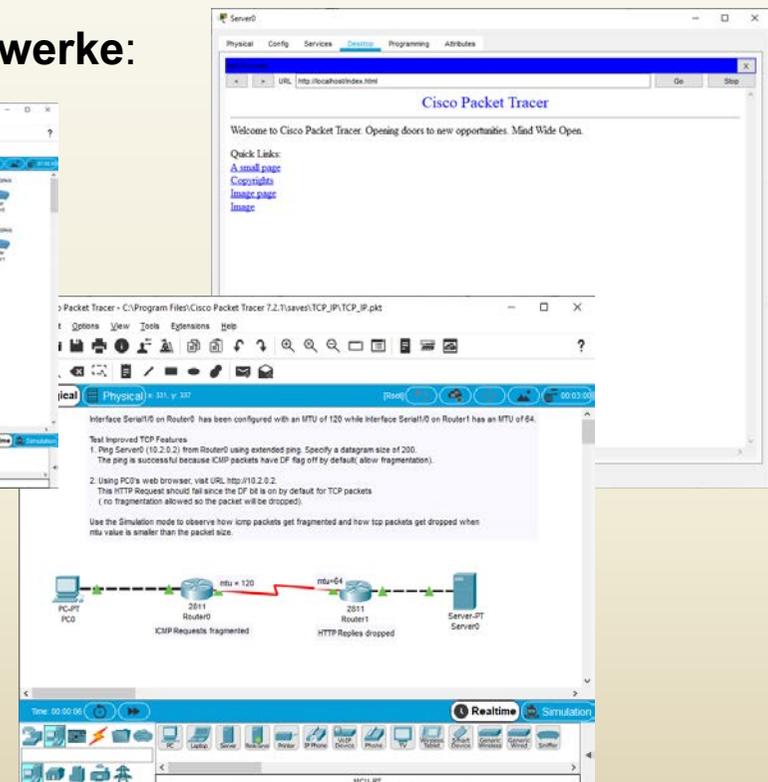
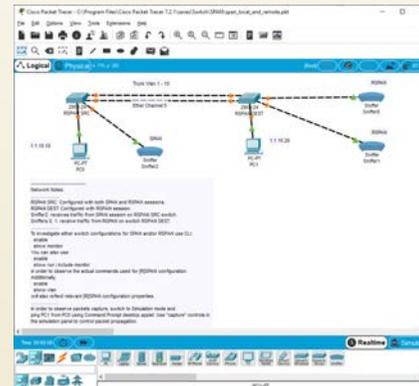




PT – Wozu?

Packet Tracer ist eine Software, **für Computer-Netzwerke:**

- komplexe Computernetzwerke,
- die Netzwerkanalyse und
- die Netzwerkkommunikation ausprobieren und visualisieren
- Programmierung wird 1:1 in die „echte“ Welt übertragen
- Hardware „ohne“ Grenzen!

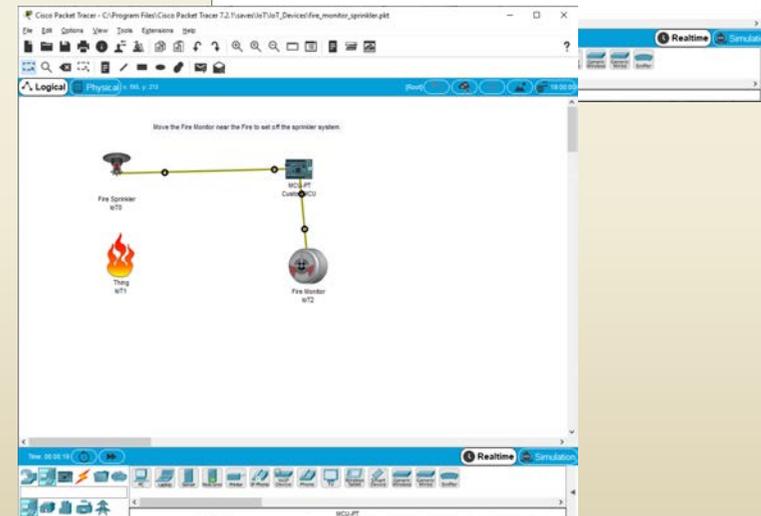
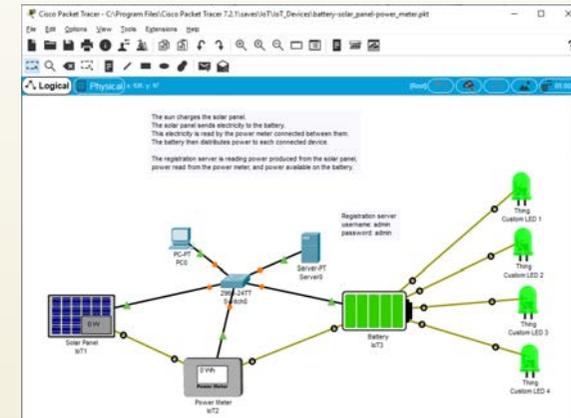




PT – Wozu?

Packet Tracer ist eine Software,
für **Internet-of-Things (IoT)**:

- Physikalische Simulationsumgebung mit Sensoren und Datenaufnahme
- Datenaufbereitung und Verarbeitung, sowie die Sensor - Netzwerke aufbauen und analysieren
- Programmieren und Visualisieren der Funktionen / Daten in Python





PT – Wozu?

- **Packet Tracer – Laborübungen (ohne Hardware)**
- **Programmieren in HTML – Grundlagen**
- **Programmieren in Java (Script)**
- **Programmieren in Python**
- **Eigene Assessments / Klausuren / Arbeiten für Schüler**
erstellen, in Kursen zum Download und als Prüfungen/Hausaufgaben
abgeben und bewerten lassen

The screenshot shows a web browser window with a code editor. The code editor contains the following JavaScript code:

```
1 function onLoad() {
2   guiEvent('onLoad');
3 }
4
5 function action() {
6   guiEvent('click', 'some arg');
7 }
8
9 function update(type, arg) {
10  document.getElementById('label').innerHTML = type + ' ' + JSON.stringify(arg);
11 }
12
```

The output area at the bottom of the browser shows the following log messages:

```
guiEvent: click, "some arg"
guiEvent: invoked, ["example_cmd", "1", "2", "3"]
```

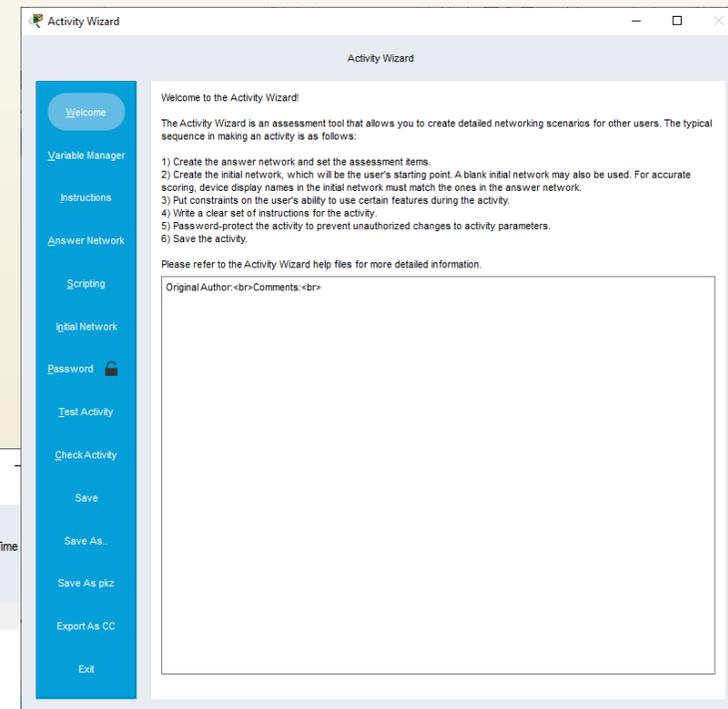
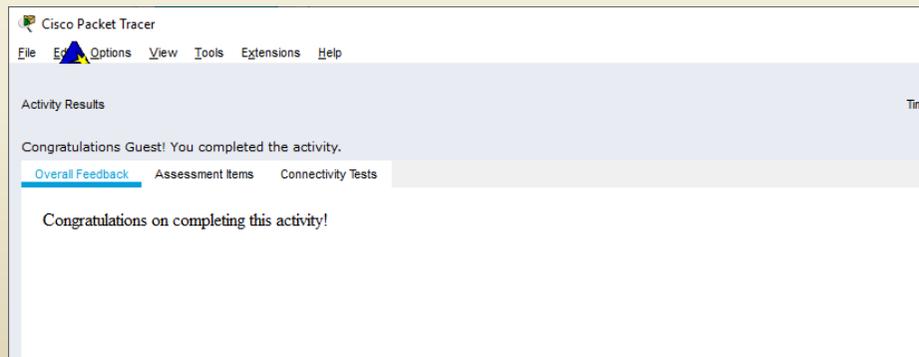




PT – Wozu?

- **Activity Wizard**
Eigene Assessments / Klausuren / Arbeiten

Erstellen, in Kursen zum Download und als Prüfungen/Hausaufgaben abgeben und bewerten lassen





PT – Features – (... nur eine Auswahl !)

- **Logische** und **physikalische** Arbeitsumgebung
- **Real-time** und **Simulations** Modus
- “Global event list” (**Packet Sniffer**);
- **LAN**: Ethernet (inkl. CSMA/CD), 802.11 wireless-LAN
- **Switching**: VLANs, 802.1q, trunking, VTP, DTP, STP,
- TCP/IP: HTTP, DHCP, Telnet (with SSH), TFTP, DNS, TCP, UDP, IP, ICMP, and ARP including IPv6
- **Routing**: static, default, RIPv1, RIPv2, EIGRP, OSPF (single and multiple area), inter-VLAN routing and Route Redistribution
- **WAN**: Frame Relay, PPP, HDLC
- **Multuser Connection** – Verbindungen zwischen verschiedenen Kurs-Teilnehmern in einem realem Netzwerk!
- **VPN, IDS, IPS, IPSec, CBAC, Outside NAT, AAA, GRE, SNMPv1 and 2, parser views, NTP (with a PT based server), Firewall and Zone based firewall, Syslog, Diffserv QOS**





PT – Features – kurze Vorstellung (Auswahl !)

- **Internet of Things (IoT)**

- **Sensoren, Aktoren, Raspberry Pi, Arduino Boards**

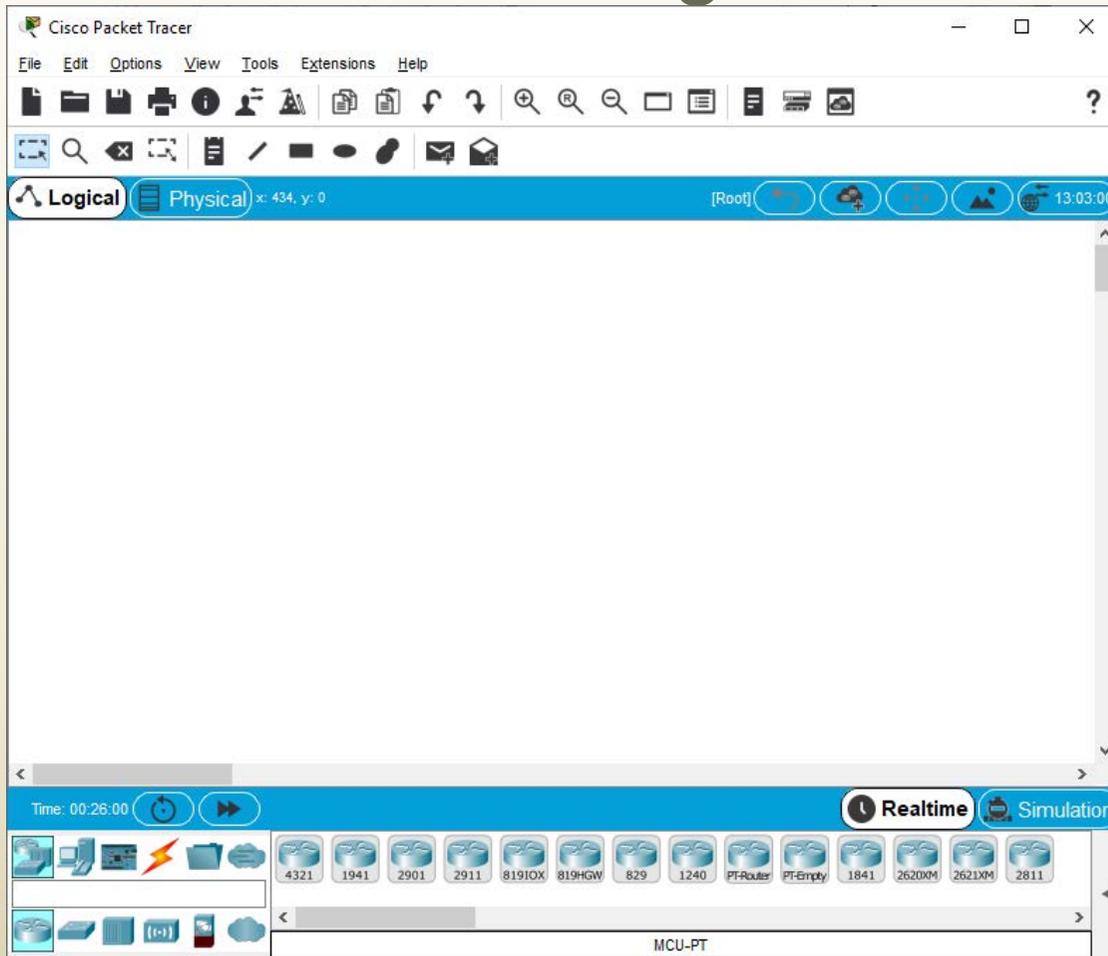


- **Activity wizard** – Erweiterungen – Klausuren & Prüfungen
Assessments selbst erstellen
- **Assessments** –
Prüfungen mit Laboraufgaben im Paket-Tracer bearbeiten und bewerten lassen





PT - Kurzvorstellung der Oberfläche

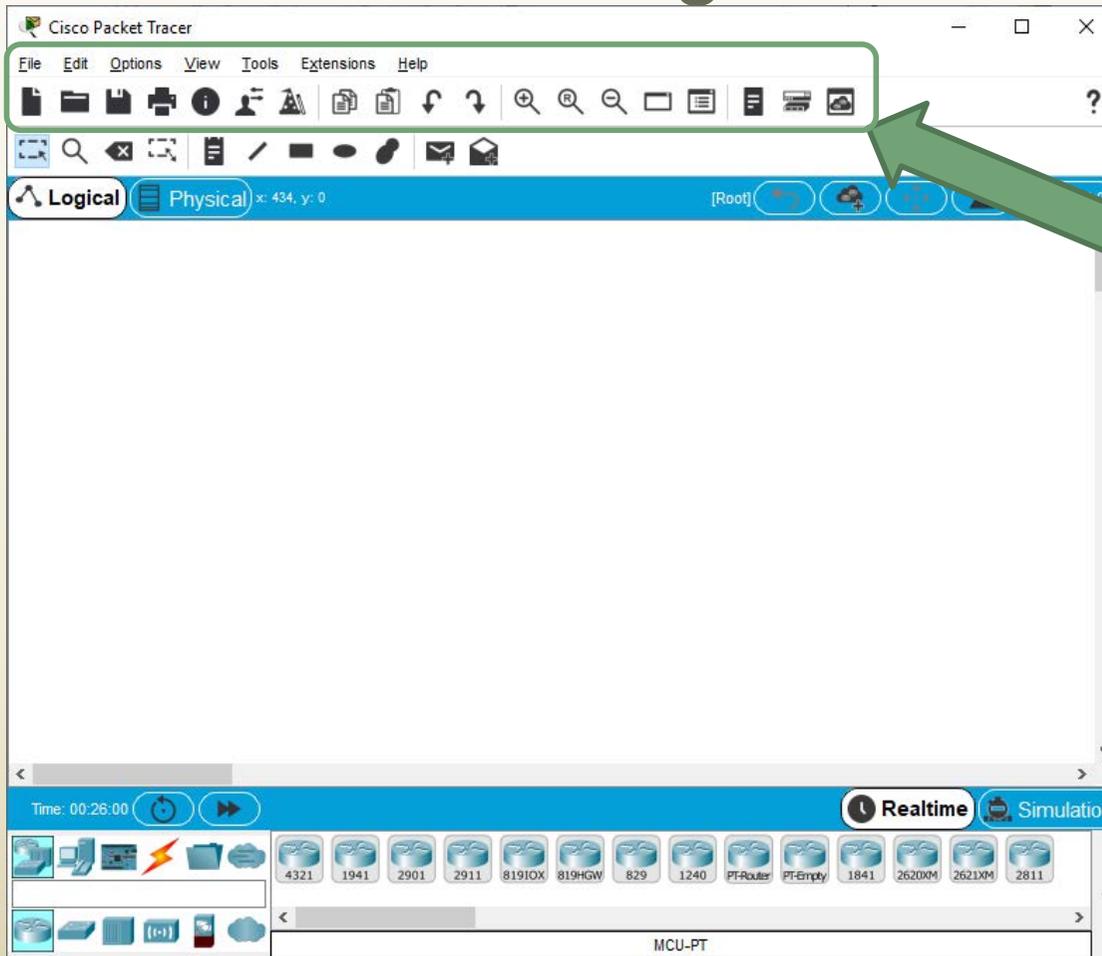


- Menü
- Einstellungen
- Logische / Physikalische Umgebung
- Urban Environment
- Realtime / Simulation
- Hardware





PT - Kurzvorstellung der Oberfläche



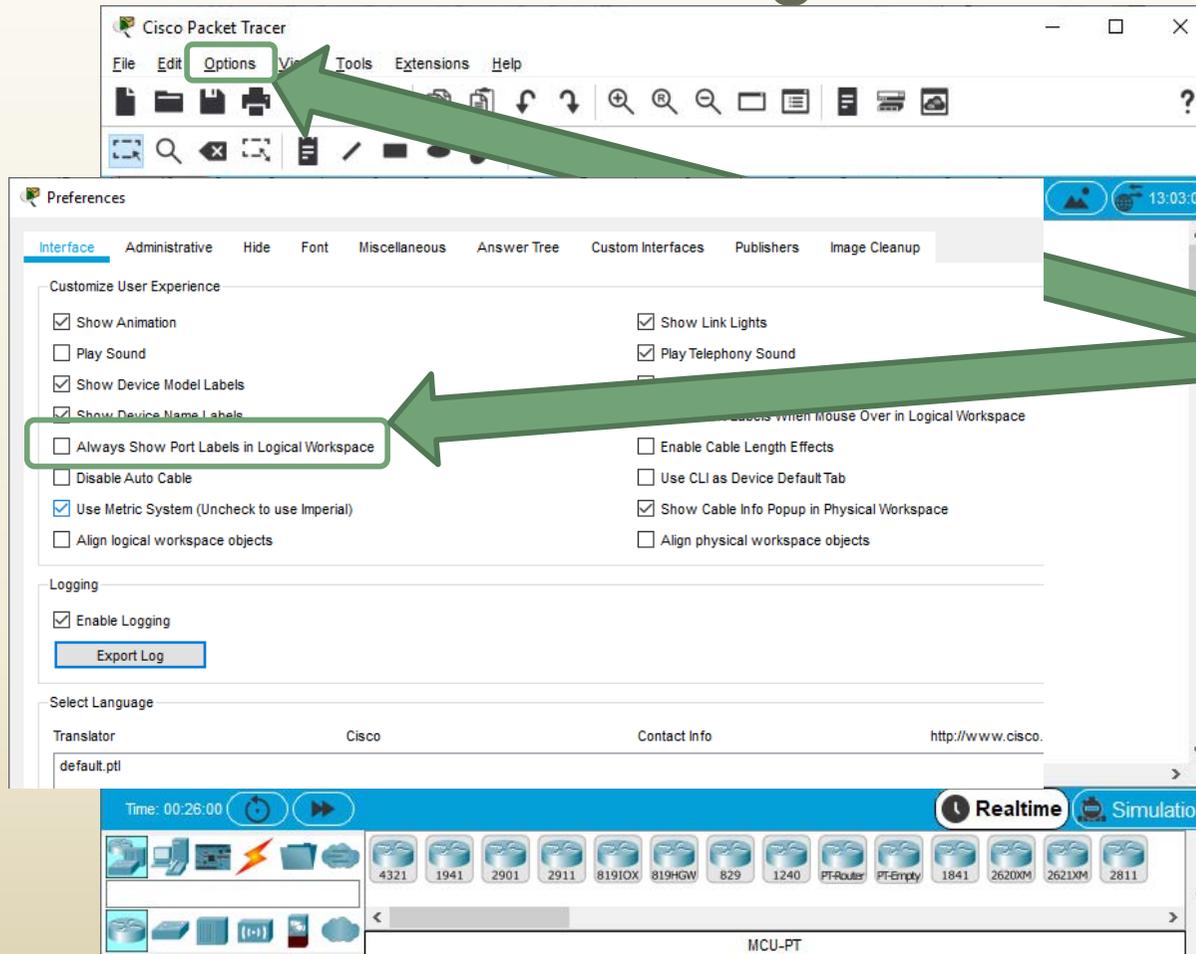
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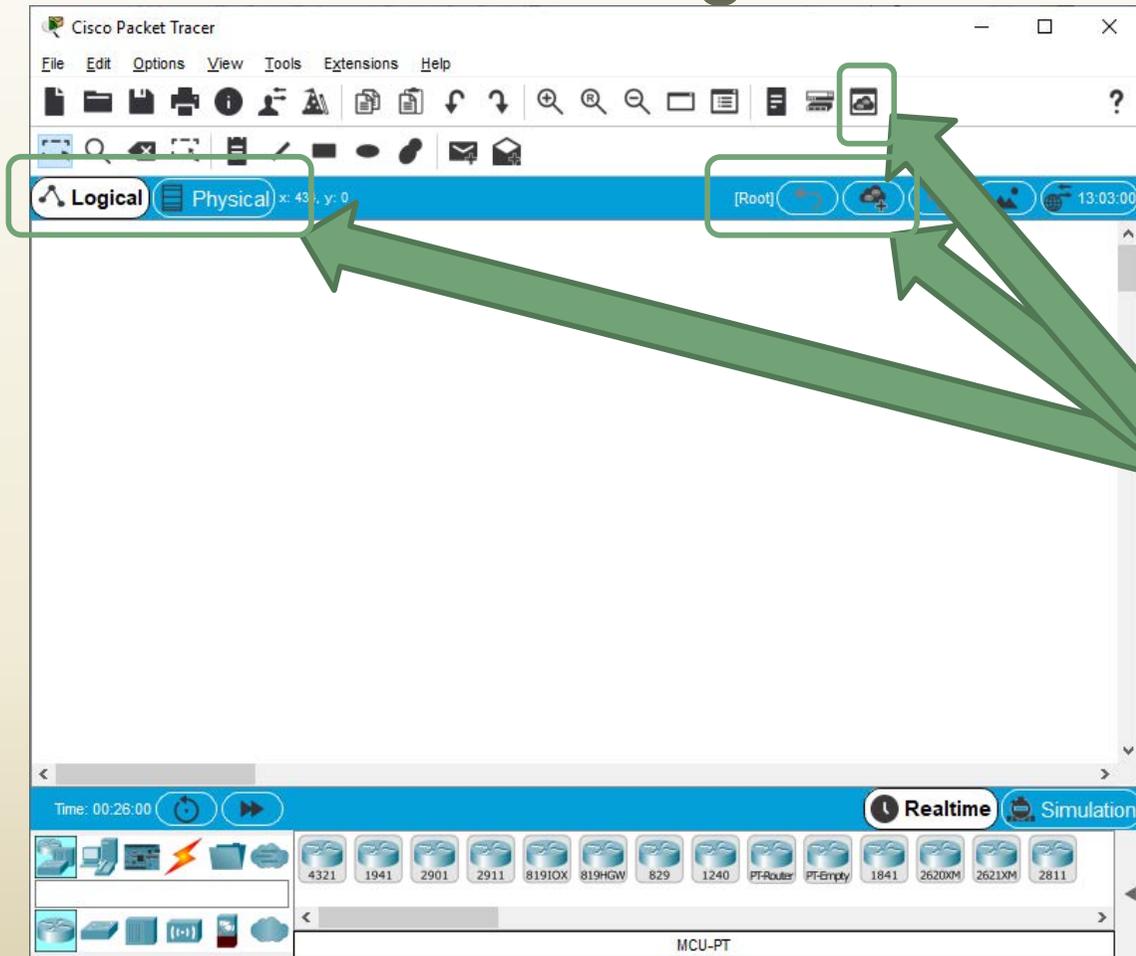


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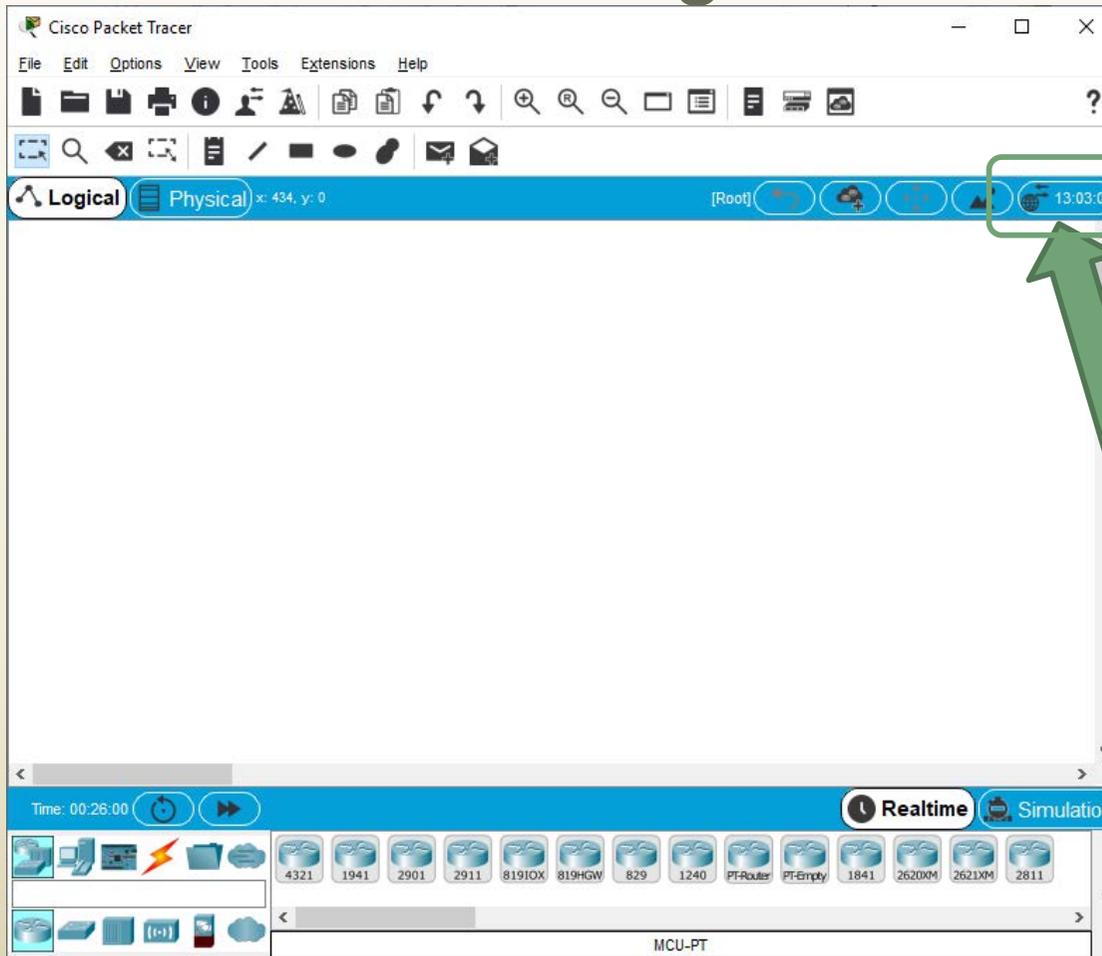


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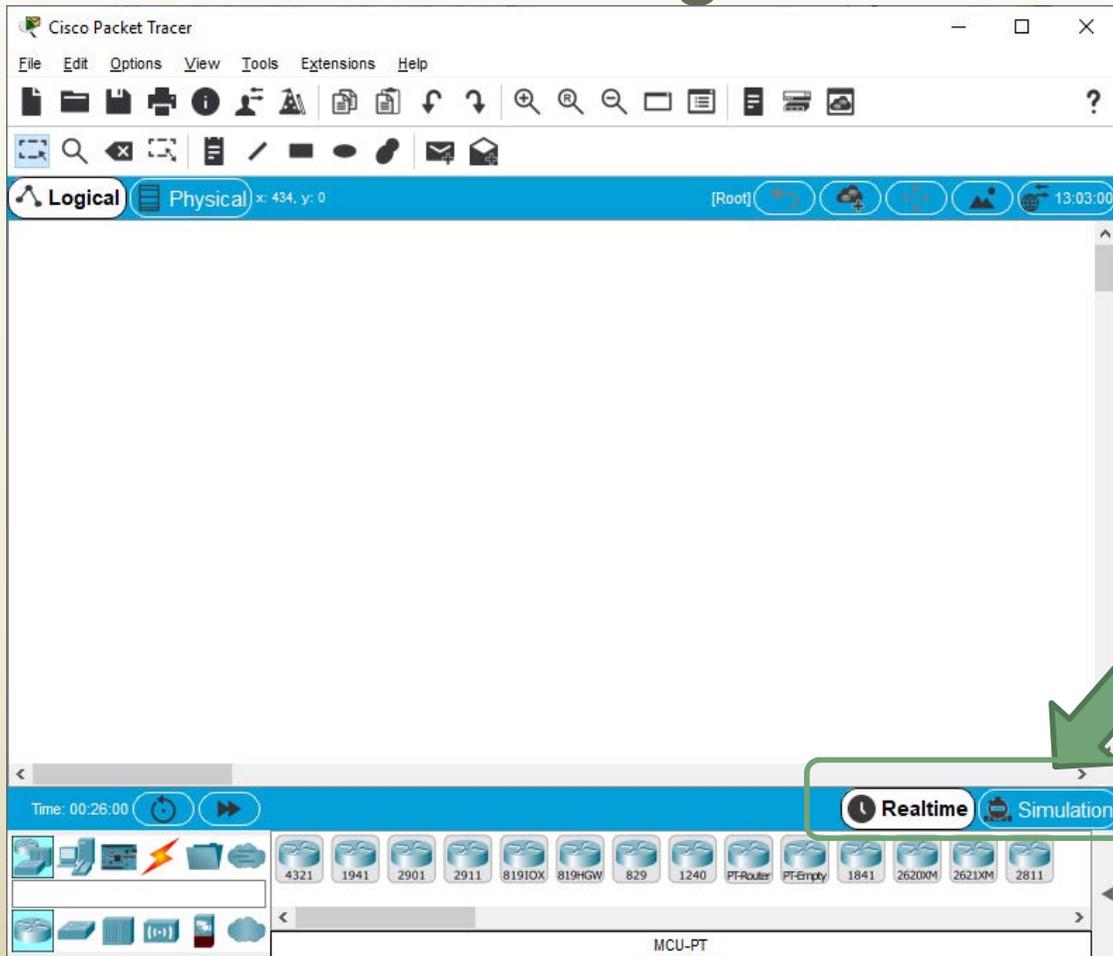


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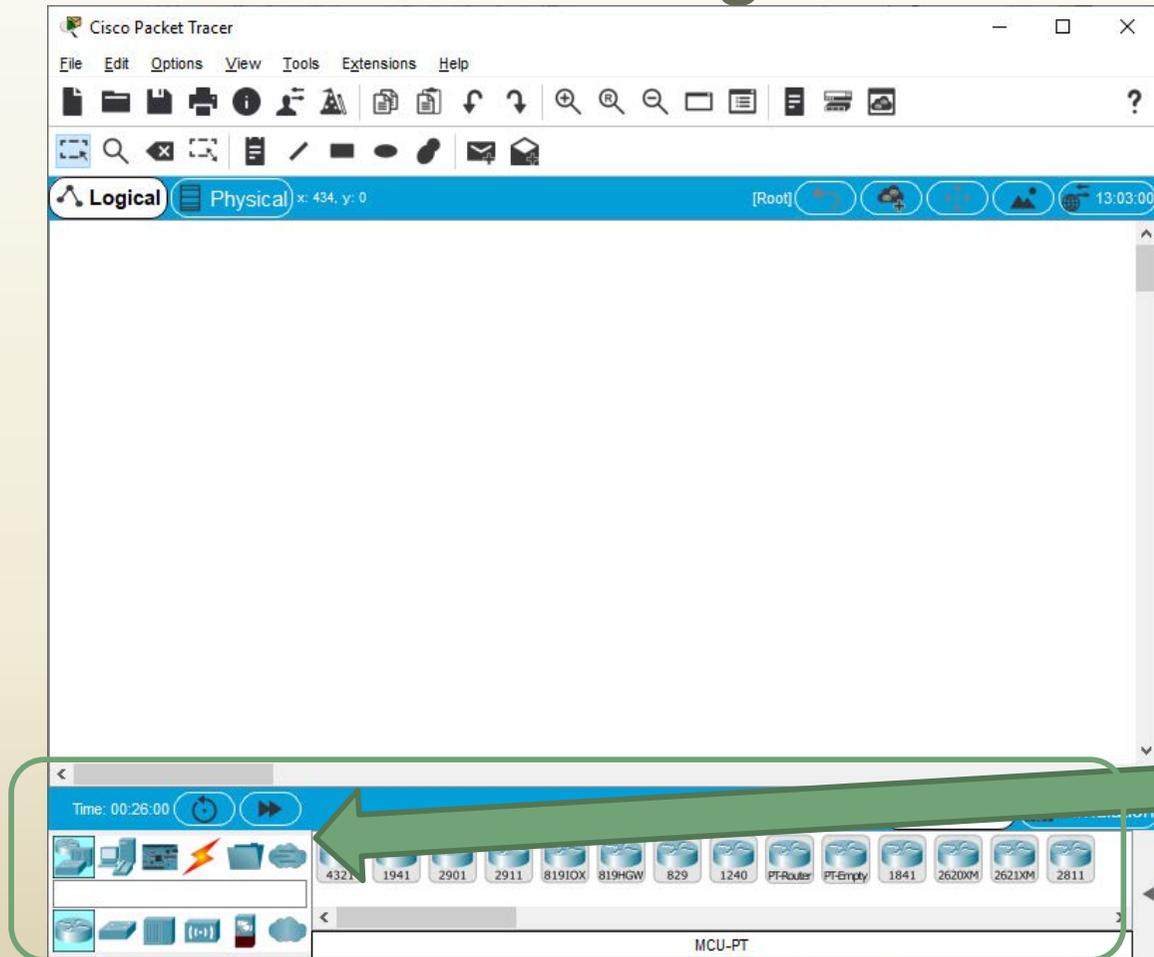


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- Einstellungen
- Logische / Physikalische Umgebung
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PT - Kurzvorstellung der Oberfläche



- **Menü**
- **Einstellungen**
- **Logische / Physikalische Umgebung**
- **Urban Enviroment**
- **Realtime / Simulation**
- **Hardware**





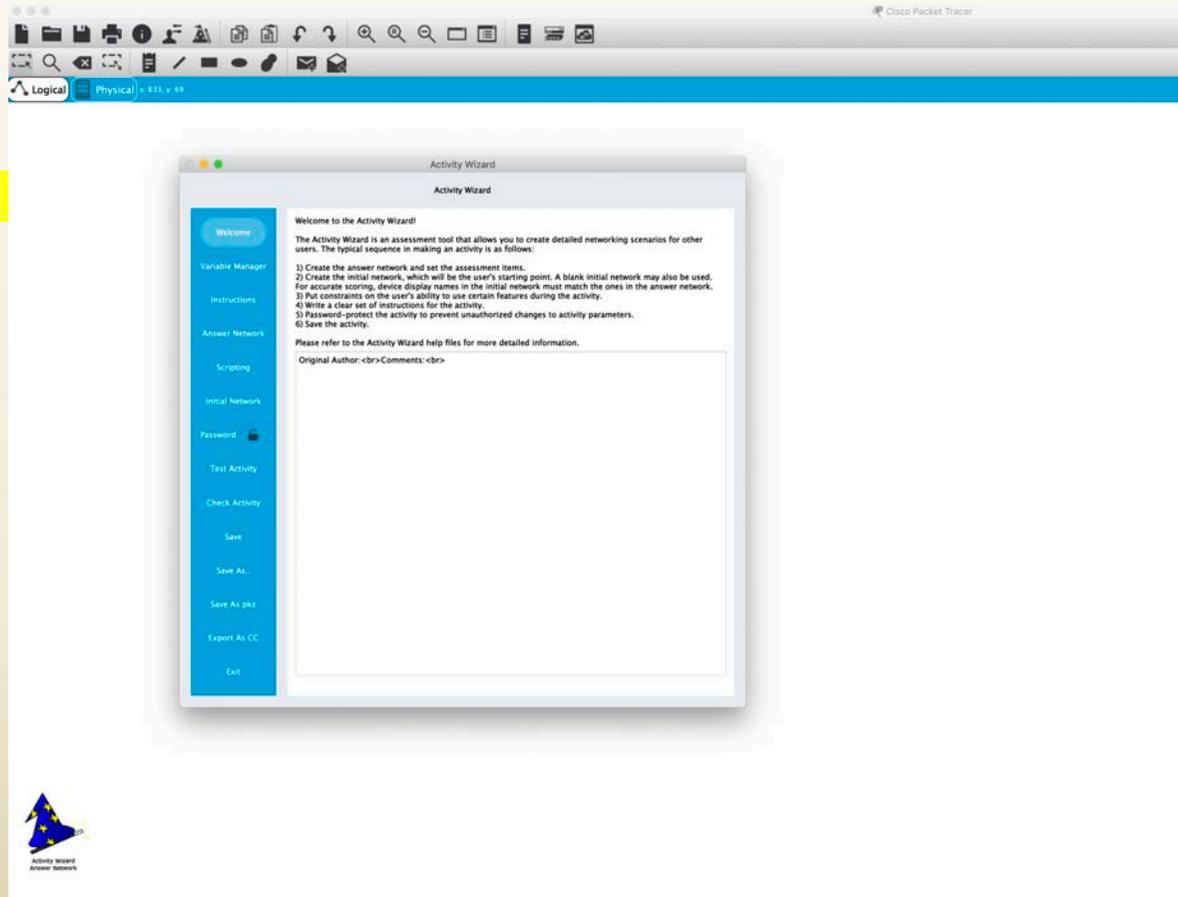
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Activity Wizard für individuelle Übungen



Kennwort bei „Routing and Switching“ ist: **PT_ccna6**

Hinweis: Je nach Version ändert sich die abschließende Zahl!





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Information auf der NetAcad Startseite

The screenshot shows the Cisco Networking Academy homepage. At the top, there is a navigation bar with the Cisco logo, 'Networking Academy', and links for 'My NetAcad', 'Courses', 'Careers', and 'About Us'. A search icon and a user profile icon labeled 'Christoph' are also present. The main content area features a large blue banner with the headline 'An opportunity of a lifetime' and a sub-headline: 'For 20 years, Cisco Networking Academy has changed the lives of 9.2 million students in 180 countries by providing education, technical training, and career mentorship.' Below this is a 'Meet Soso' button and a photograph of a young woman. Underneath the banner, a paragraph reads: 'An incredible opportunity is waiting for you. Technology is changing the world by connecting billions of devices and improving how we live, work, play and treat our planet. No industry is immune. Are you ready to change your life, and possibly make the world a better place?' Below this text is a row of six circular icons representing different fields: Networking, Internet of Things, Programming, Security, OS & IT, and Packet Tracer. The Packet Tracer icon is highlighted with a yellow border. Below the icons is a 'Watch overview' button. At the bottom of the page, a dark blue bar contains the text 'The world needs Cyber Superheroes. Will you answer the call?' and an 'Enroll now' button.

Networking Academy My NetAcad Courses Careers About Us

Search Christoph

An opportunity of a lifetime

For 20 years, Cisco Networking Academy has changed the lives of 9.2 million students in 180 countries by providing education, technical training, and career mentorship.

Meet Soso

An incredible opportunity is waiting for you. Technology is changing the world by connecting billions of devices and improving how we live, work, play and treat our planet. No industry is immune. Are you ready to change your life, and possibly make the world a better place?

- Networking
- Internet of Things
- Programming
- Security
- OS & IT
- Packet Tracer

Watch overview

The world needs Cyber Superheroes. Will you answer the call? Enroll now





Informationen zu Packet Tracer

The screenshot shows the Cisco Networking Academy website for Packet Tracer courses. The page has a white header with the Cisco logo, 'Networking Academy', and navigation links for 'Courses', 'Careers', and 'About Us'. There is a search bar, a language selector set to 'English', and a 'Log In' button. Below the header, the breadcrumb 'Courses / Packet Tracer Courses' is visible. The main content area is divided into several sections:

- Cisco Packet Tracer**: A green section with the text 'An innovative and powerful networking simulation tool used for practice, discovery and troubleshooting.' and a yellow-bordered button labeled 'Explore courses'.
- Image**: A photograph of three students in a classroom setting, looking at a laptop screen.
- How to download Packet Tracer**: A white section with a blue circular icon containing a yellow download symbol. It includes a list of steps for downloading the software and a blue button labeled 'Enroll to download Packet Tracer'.
- About Packet Tracer**: A dark blue section with white text describing the tool's purpose and providing information about the Networking Academy program.





Informationen zu Packet Tracer



Online self-paced

Intro to Packet Tracer

Enroll to download your free copy of Packet Tracer and learn basic skills with the tool.



Beginning

[Learn More](#)

Packet Tracer

Introduction to Packet Tracer

Discover and troubleshoot using powerful networking simulation tool.



Enroll, download and start learning valuable tips and best practices for using Cisco's innovative simulation tool, Packet Tracer. This self-paced course is designed for beginners with no prior networking knowledge. It teaches basic operations of the tool with multiple hands-on activities helping you to visualize a network using everyday examples, including Internet of Things (IoT). Introductory course is extremely helpful for anyone who plans to take one of the Networking Academy courses which utilizes the powerful simulation tool.

[Sign up today!](#)

 Length: 10 hours

 Cost: Free*

 Level: Beginning

 Learning Type: Online self-paced

 Languages: English, Український

*Self-paced classes at NetAcad.com are free. Cost for instructor-led classes is determined by the institution.





Download Packet Tracer über Ressourcen

My NetAcad 99+ News and Events Support **Resources** Christoph

tion simulation tool,
cer to:

use it and for each new OS login session. (1)

INSTRUCTOR RESOURCES

- Course Resources
- Assessment Resources
- Packet Tracer Resources
- Marketing and Program Resources
- Instructor Professional Development

Cisco Recognition Program

Instructor Training Locator

ASC Locator

STUDENT RESOURCES

- Course Catalog
- Cisco Certifications and Vouchers
- Find an Academy
- Download Packet Tracer**
- All Resources
- Career Resources
- Career Webinars

Cisco Packet Tracer

The best way to learn about networking is to do it. Cisco Packet Tracer, an innovative network configuration simulation tool, helps you hone your networking configuration skills from your desktop or mobile device. Use Packet Tracer to:

- Sharpen your skills for a job interview
- Prepare for a certification exam
- Practice what you learn in networking courses

Download

Choose the OS you are using and download the relevant files. Read the [FAQ](#). [View Tutorials](#).

NOTE: Packet Tracer requires authentication with your NetAcad.com login and password when you first use it and for each new OS login session. (1)

Windows Desktop Version 7.2.1 English

[64 Bit Download](#) [32 Bit Download](#)

Linux Desktop Version 7.2.1 English

[64 Bit Download](#)

macOS Version 7.2.1 English

[Download](#)

Mobile

IOS Version 3.0 English



Android Version 3.0 English



Packet Tracer Courses

Introduction to Packet Tracer is a 10-hour course that includes hands-on networking and IoT activities & labs with chapter quizzes and a final assessment. Students enrolled in any of the Networking Academy courses that use the Cisco Packet Tracer simulation tool can enroll in the self-paced course -- it is a helpful learning resource that provides additional practice time using the tool before needing it class. [Enroll into the self-paced Introduction to Packet Tracer.](#)

Additionally, **Introduction to Packet Tracer Mobile** is designed for users of mobile devices, specifically Android and iOS. The self-paced Mobile course is a little over an hour long. Enroll into the self-paced [Introduction to Packet Tracer Mobile](#) course.





In den PT Einführungskurs einschreiben



Für Introduction to Packet Tracer cga 0119 einschreiben

Sie sind im Begriff, sich für **Introduction to Packet Tracer cga 0119** einzuschreiben.

[Datenschutzrichtlinien anzeigen](#)

[Für Kurs einschreiben](#)



Mein
NetAcad



Konto



Admin



Dashboard



Kurse



Kalender



Posteingang



Hilfe





In den PT Einführungskurs einschreiben

The screenshot shows the Cisco NetAcad interface for the course 'Introduction to Packet Tracer cga 0119'. On the left is a navigation sidebar with icons for 'Mein NetAcad', 'Konto', 'Admin', 'Dashboard', 'Kurse', 'Kalender', 'Posteingang', and 'Hilfe'. The main content area has a 'Start' button and a list of options: 'Module', 'Quizze', 'Aufgaben', 'Diskussionen', 'Collaborations', and 'Noten'. Below this is a message: 'If this is your first time in the course, click [here](#) for more information.' A large image of a spiral staircase is overlaid with a semi-transparent box containing two buttons: 'Launch Course' (with an upward arrow icon) and 'Student Resources' (with a person icon). On the right side, there are three buttons: 'Kurs-Stream anzeigen', 'Diesen Kurs verwerfen', and 'Kurskalender anzeigen'. Below these are sections for 'Zu erledigen' (with 'Zurzeit liegt nichts vor') and 'Aktuelles Feedback' (with 'Zurzeit liegt nichts vor').





PT Environment Checker



pt environment checker



Alle

News

Bilder

Shopping

Maps

Mehr

Einstellungen

Tools

Ungefähr 1.970.000 Ergebnisse (0,39 Sekunden)

Cisco Packet Tracer Assessment Environment Checker

<https://assessment.netacad.net/check/check.html> ▾ Diese Seite übersetzen

Cisco Packet Tracer Assessment **Environment Checker**. Welcome to the Cisco Packet Tracer **Environment Checker**. Your computing **environment** must be meet ...





PT Environment Checker



https://assessment.netacad.net/check/check.html

133%

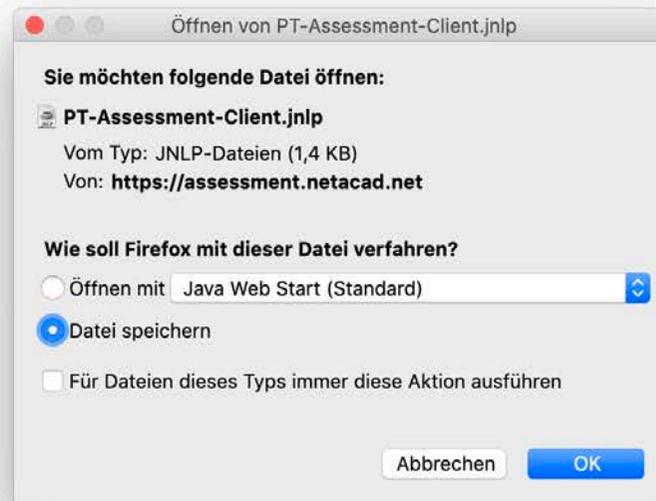
Cisco Packet Tracer Assessment Environment Checker

Welcome to the Cisco Packet Tracer Environment Checker.

Your computing environment must meet the minimum requirements in order to take assessments that contain Packet Tracer simulations.

This page will run through a series of tests to check your environment.

The results provided will indicate system readiness. If there are any errors, please consult [the Packet Tracer Assessment Installation FAQ](#).





PT Environment Checker



https://assessment.netacad.net/check/check.html

133%

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Gathering information ...

This process may take a few minutes.

When it's finished, this text will be replaced by a report on your system's readiness for Cisco Packet Tracer-based assessment items ...





PT Environment Checker



Cisco Packet Tracer Assessment Environment Checker

Welcome to the Cisco Packet Tracer Environment Checker.

Your computing environment must meet the minimum requirements in order to take assessments that contain Packet Tracer simulations.

This page will run through a series of tests to check your environment.

The results provided will indicate system readiness. If there are any errors, please consult [the Packet Tracer Assessment Installation FAQ](#).

Available Ports -- 100%

Browser Name -- Firefox

Large File Download Capability -- Yes

JRE Version -- 1.8.0_211

Operating System Name -- Mac OS X

Packet Tracer Deployment Directory -- /Applications/Cisco Packet Tracer/Cisco Packet Tracer.app/Contents

Packet Tracer IPC Ports Available -- Yes

Packet Tracer Version -- 7.2.1.0404

Your device meets the minimum requirement needed to run assessments that contain Cisco Packet Tracer activities.

Depending on the security settings on your browser, you may require an update to the latest version of Java. You can





PT im Curriculum

← → ↻ 🏠 https://1379955.netacad.com/courses/602285/external_tools/11509 ... 📄 ☆ 🔍 Suchen

CISCO ☰ CCNA_2_INSTRUCTOR_2018_002 > CCNA_2_Instructor_006

Aktivierungs-Tool / Aktivierungen erstellen

Start

Module **CCNA_2_Instructor_006**

Ankündigungen

Aufgaben **Chapter Assessments** Packet Tracer Skills Assessments Other Assessments

Diskussionen Wählen Sie die Leistungsbeurteilungen aus, die Sie aktivieren möchten.

<input type="checkbox"/>	Bewertung	Available Activations	Abgelaufene Aktivierungen
<input type="checkbox"/>	Introduction to Networks (Version 6.00) - ITN Practice Skills Assessment - PT		
<input type="checkbox"/>	Routing and Switching Essentials (Version 6.00) - RSE Chapter 2 Practice Skills Assessment - PT		✓
<input type="checkbox"/>	Routing and Switching Essentials (Version 6.00) - RSE Chapter 7 Practice Skills Assessment - PT		✓
<input type="checkbox"/>	Routing and Switching Essentials (Version 6.00) - RSE Practice Skills Assessment Part I - PT		
<input type="checkbox"/>	Routing and Switching Essentials (Version 6.00) - RSE Practice Skills Assessment Part II - PT		

Standardaktivierungen erstellen **Erweiterte Aktivierungen erstellen**

Personen

Seiten

Dateien

Kursplan

Lernziele

Quizze

Collaborations

Assessment Center

Einstellungen

Instructor Home

Mein NetAcad

Konto

Admin

Dashboard

Kurse

Kalender

Posteingang

Hilfe





PT im Curriculum

☰ CCNA_2_INSTRUCTOR_2018_002 > CCNA_2_Instructor_006

[Aktivierungs-Tool](#) / [Leistungsbeurteilungs-Viewer](#)

Start

Module

Ankündigungen

Aufgaben

Diskussionen

Noten

Personen

Seiten

Dateien

Kursplan

Lernziele

Quizze

Collaborations

Assessment Cen-
ter

Routing and Switching Essentials (Version 6.00) - RSE Practice Skills Assessment Part I - PT

Erforderlich: Nein

Max. Anz. von Anmeldungen: 90 Tage

[Info: Details](#)

Formularname	Sprache	Anzahl der Elemente	Infos
English FormD RSE Practice Skills Assessment Part I - PT	English	1	Details

⚠ Die Nutzung der Beurteilungsdaten im Leistungsbeurteilungs-Viewer unterliegt der Nutzungsvereinbarung der Academy Connection-Website zwischen Ihnen und Cisco. Der Leistungsbeurteilungs-Viewer soll Instruktoren/innen bei Ihrer Lehrtätigkeit unterstützen, ohne dabei die Sicherheit der Leistungsbeurteilungsdaten für andere Cisco Networking Academies oder Studenten zu beeinträchtigen. Die Weitergabe dieses Materials außerhalb einer überwachten Umgebung ist nicht erlaubt. Im Falle eines Missbrauchs wird der Zugang zu Leistungsbeurteilungsinhalten beschränkt. Bitte vergessen Sie nicht, sich nach der Verwendung des Leistungsbeurteilungs-Viewers abzumelden und das Browserfenster zu schließen.





PT im Curriculum

The screenshot shows a web browser window with the following content:

- Address Bar:** https://assessment.netacad.net/virtuoso/delivery/pub-doc/2.0/exam_viewer/lti.1.0/exam_viewer.html?OFFERING_ID=en-knet-ravenna
- Breadcrumbs:** Aktivierungs-Tool / Leistungsbeurteilungs-Viewer
- Title:** Routing and Switching Essentials (Version 6.0) - RSE Practice Skills Assessment Part I - PT
- Section Header:** **Vorschau für Aktivität anzeigen**
- Text:** Click the button below to open the PT activity.
- Note:** Note: In order to view the score report, you should activate the assessment and then take it using your student account.
- Buttons:** [PT starten](#) and [PT ausblenden](#)





PT im Curriculum

The screenshot displays the Cisco Packet Tracer interface. On the left, a network diagram shows a hierarchical structure with a central 'Main' router connected to four 'Main' switches (Main-1-SW, Main-2-SW, Main-3-SW, Main-4-SW). These switches are further connected to various hosts and servers, including ACAD-1, TEACH-1, STUDENT-1, NETADMIN-1, ACAD-2, TEACH-2, STUDENT-2, NETADMIN-2, LAN2-1, and a NetAdmin Server. A 'Remote' router is also connected to the Main router and an Internet cloud. A 'VLAN Table' is visible on the left, listing VLANs 5 (ACAD), 10 (TEACH), 15 (STUDENT), and 50 (NETADMIN).

Overlaid on the right is a window titled 'CCNA Routing and Switching Routing & Switching Essentials Practice Skills Assessment Part I'. The window contains the following text:

PT Activity: 00:00:41

CCNA Routing and Switching Routing & Switching Essentials Practice Skills Assessment Part I

A few things to keep in mind while completing this activity:

1. Do not use the browser Back button or close or reload any exam windows during the exam.
2. Do not close Packet Tracer when you are done. It will close automatically.
3. Click the Submit Assessment button in the browser window to submit your work.

Introduction

In this practice skills assessment, you will configure the Science Academy network. You will perform basic router configuration tasks, address router interfaces and hosts, and configure VLANs, trunking, and routing between VLANs. You will also configure and customize RIPv2 and control access to router vty lines with a standard named ACL. For a full list of tasks, see below.

You are **not** required to configure the following:

- Main-4-SW
- Remote SW

Time Elapsed: 00:00:41 Completion: 0%

Buttons: Top, Check Results, Reset Activity





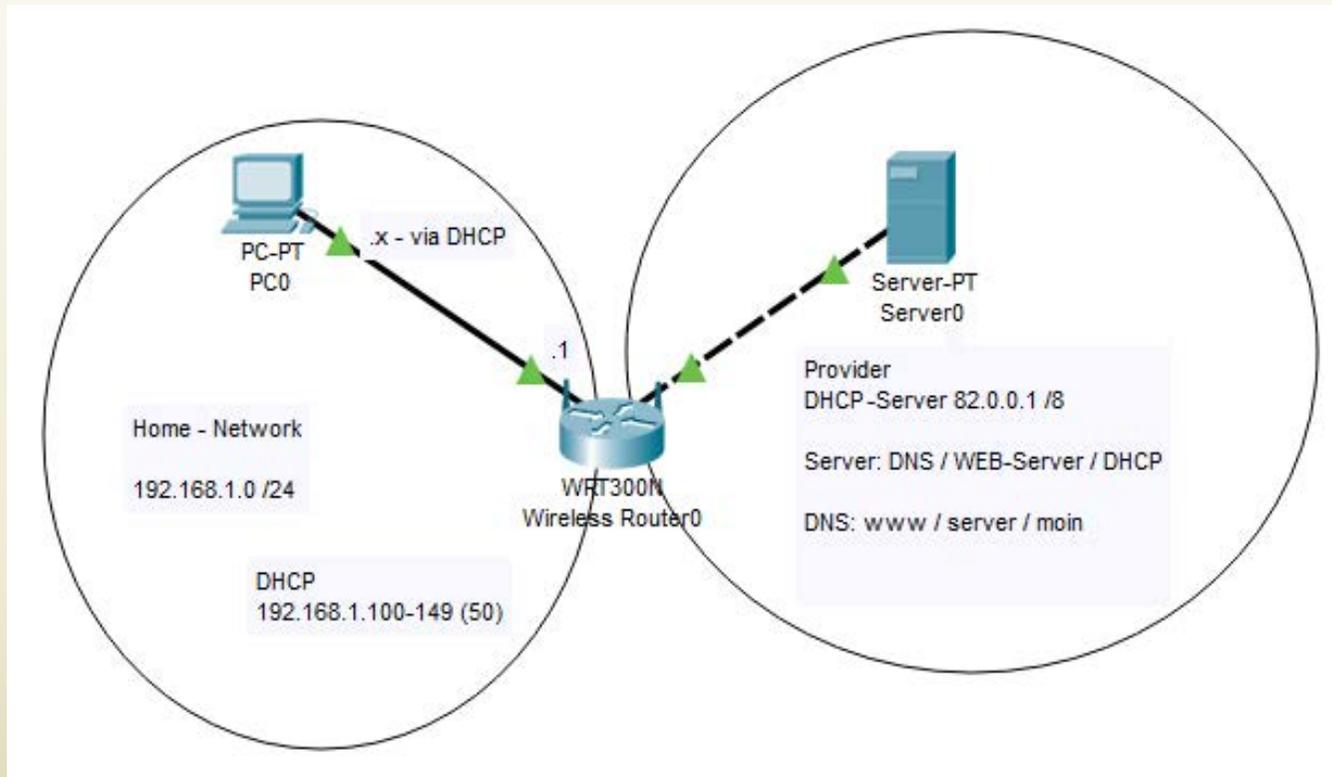
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Live – Demo...





Fragen





www.it-bildungsnetz.de

