

# User Authorization

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# User Authorization

Authorization is a necessary condition for users to access the internet.

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## General Information

There are several authorization methods that you can find in this subsection.

All types of authorizations on SafeUTM are IP-based (based on the host IP address) and any authorization session is bound to the IP of the host from which it was installed. Simultaneous authorization of up to five devices is possible under one user account (by dynamic authorization methods, web, Kerberos/NTLM, security logs of Active Directory domain controllers, and VPN).

The user is automatically logged out when inactive (no internet connections) for 15 minutes (except connections via VPN).

Keep in mind, that the operating system itself can also generate traffic (for example Windows telemetry) without user intervention. Because of this, the timeout for the user will be constantly reset and will not be able to function correctly.

You can change the time of automatic logout using the settings **Disconnection timeout** by going to **Users -> Authorization**:

## Authorization

Stopped

General

IP and MAC authorization

VPN connection

Fixed VPN IP addresses

Subnet authorization

☒ Web authentication

☒ Authentication through web interface

☐ SSO authentication via Active Directory

[Download deauthorization script](#)

Domain

Domain name of your Safe UTM server to which web authentication requests will be redirected

☐ Active Directory security log authorization

### User reauthorization

Disconnection timeout

15 minutes

Close

10 minutes

15 minutes

30 minutes

1 hour

2 hours

8 hours

1 day

For the new timeout to be applied, you need to reboot SafeUTM.

You can also authenticate users connecting via VPN using **IPSec IKEv2**, **SSTP**, **L2TP IPSec**, **PPTP**, and **PowerShell scripts**.

# Web Authorization

Supported browsers:

- Google Chrome, version  $\geq 76$
- Firefox, version  $\geq 71$
- Safari, version  $\geq 13$

In this type of authorization, any request from an unauthenticated user sent via a web browser will be redirected to a special authorization page of SafeUTM. After successful authorization, you will be redirected to the specified request.

For this type of authorization, the user must have the IP address of the SafeUTM local network interface specified on the network card as a gateway (chained into a gateway chain) or for direct connections to a proxy. Also, before connecting to the Internet, the **DNS resolution of addresses** must work, otherwise, the browser request to the *example.com* address will not be redirected to the gateway and the username and password request will not appear in the browser.

You can check name resolution in Windows using the command: `nslookup google.com`. The output of this command must contain IP addresses.

To configure authorization via the web interface, go to **Users -> Authorization** and select **Web authentication** and **Authentication through web Interface**, as shown in the screenshot below:

## Authorization ▾

Stopped

General

IP and MAC authorization

VPN connection

☒ Web authentication

☒ Authentication through web interface

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Domain

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### User reauthorization

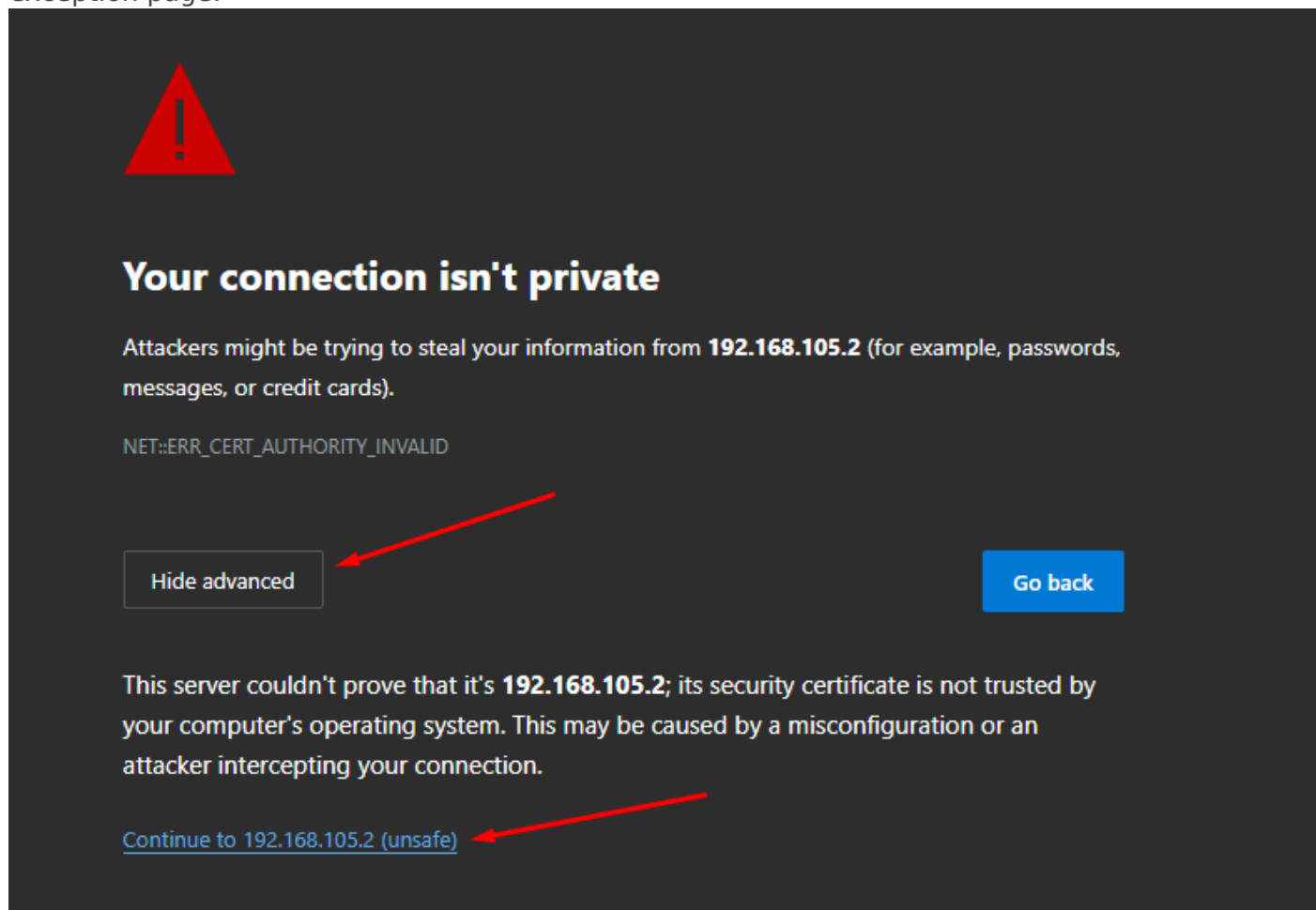
Disconnection timeout

30 minutes ▾

Applies after rebooting Safe UTM

Save

After filling in the **Domain name** field and saving the settings, a Let's Encrypt certificate will be issued and the user will be redirected to the authorization window, bypassing the security exception page:



If a certificate for such a domain has already been loaded in the **Certificates** section, then it will be used and a new certificate will not be issued.

A screenshot of the SAFE UTM login interface. At the top, there is a black header bar with the SAFE UTM logo (a cluster of blue dots) and the text 'SAFE UTM' in white. Below the header, the login form is centered on a white background. It consists of two white input fields with thin black borders. The first field is labeled 'Login' in grey text. The second field is labeled 'Password' in grey text. Below these fields is a solid blue button with the text 'Log in' in white.

ow should appear where  
on SafeUTM. The

When the user is

authenticated via the web, access to the internet will be provided until the authorization is forcibly canceled or terminated due to the user's inactivity.

When logging into an HTTPS website, the user must confirm the trust of the SafeUTM certificate. Alternatively, the certificate can be added to trusted root certification centers on the device (for example, through domain policies).

It is recommended to specify the IP address of the local SafeUTM as a DNS server on the LAN computers and devices.

You can learn more about the authorization of **Active Directory (SSO-authentication)** users by clicking on this [link](#).

# Authorization by IP and MAC address

## General Information

The **IP and MAC authorization** rules also create a similar binding in the SafeUTM **DHCP server**. However, if the same IP and MAC addresses will be used in the enabled rules of the DHCP server, then the DHCP server rules will be executed first.

To configure IP and MAC authorization, you must:

1. In section **Authorization -> IP and MAC authorization** click **Add**.
2. Create an **IP and MAC authorization binding rule**:

General **IP and MAC authorization** Subnet a

### Adding an authorization rule

User

Specify IP only, MAC only, or both.

IP

**Get MAC by IP**

MAC

☐ Permanently authorized

**Save**

**Cancel**



Set the flag **Permanently authorized** to provide unlimited internet connection even if the user is not active.

The rules created in this section are reflected in the **user card**.

Find out more about user authorization only by IP address or MAC address in the articles

**Authorization by IP address** and **Authorization by MAC address**

# Authorization by IP address

## Configuring Authorization by IP

Authorization by IP implies that an authorized user will gain access to Internet resources without entering a username and password, but simply by initiating a connection to these resources.

You can also authorize network devices (such as CCTV cameras, network printers, etc.) that are located in broadcast domains other than SafeUTM, and that require Internet access.

If the device is a router and SNAT is enabled on it, then when its external IP is authorized in UTM, all users behind this router will gain Internet access.

Users who are behind the router in the local UTM network cannot be authorized using the IP address - MAC address bind, since the router does not handle L2-level traffic.

If authorization by IP address is configured, this IP will not be issued by **DHCP**.

To authorize a user by IP address:

1. **Create** a user that will be authorized by IP in SafeUTM or **import** a user from Active Directory.
2. Go to **Users -> Authorization -> IP and MAC authorization**.
3. Create a binding rule **IP address <--> User**, as shown in the screenshot.

## Authorization

General

**IP and MAC authorization**

Subnet au

### Adding an authorization rule

User  
Jane Smith ▼

Specify IP only, MAC only, or both.

IP  
192.168.150.50

Get MAC by IP

MAC

☐ Permanently authorized

Comment

Save

Cancel

The user's IP address is to be used when creating a session. The computer/device's IP address must match the one specified in the rule.

If the user is network equipment (video cameras, servers, etc.), it is recommended to select **Permanently Authorized**, in which case the user session will be created after the UTM is turned on, and the network equipment does not need to make a web request. For such equipment, it is recommended to configure a static IP address or DHCP with an IP address binding.

This is required, for example, for resources **published via DNAT**.

After the user makes a web request, a session with the IP authorization type will automatically be created on UTM in **Monitoring -> Authorized Users**.

## Authorized users



1 authorized session:

Filters



Status	Login	Name ↑	IP-address	MAC address	Connection type	Connection date and time	Online time	Operations
✓	schrute	Dwight Schrute	10.200.1.182	08:00:27:31:89:81	IP + MAC (permanent)	Aug 30, 2022, 11:56 AM	1 day	✕

For sessions with an IP authorization type, the **MAC address** field is not filled in, because, with this type of authorization, there is already an IP address required to create an authorization session.

You can use device search to automatically create users when they try to access the Internet. To do this, see the [Netscan](#) article.

Only one device can be authorized under one user by IP address (simultaneously with this type of authorization, two more devices can be authorized under one user by any other authorization method).

## Adding Group of Devices with Authorization by IP

You can add users from a range of IP addresses (for example, a network distributed by access points to wireless devices over Wi-Fi). To do this, you need to follow these steps:

1. Create a new group in the user tree.
2. Select a group from the user tree to which you want to add devices.
3. In the **General** tab, click **Create Users**.

A window opens with the settings of the users created. Fill in the following fields:

1. **Name Prefix.** Users will be created with names of the type "User IP address".
2. **Login prefix.** Users will be created with logins of the type "user\_ip-address".
3. **IP addresses of the first and last users.**

### General

### Active Directory

### Quota

Title

Accounting

Found in a group

All

### Operations

## Create users to group "Accounting"

Name's prefix

Guest

Users with a name like "User 192.168.0.1" will be created

Login's prefix

Guest

Users will be created with a login of the form  
"user\_192.168.0.1"

First user's IP-address

192.168.150.110

Last user's IP-address

192.168.150.115

Save

Cancel

Search

- ✓ All
- ✓ Accounting
  - > Head
  - > Sales
  - Guest 192.168.150.110
  - Guest 192.168.150.111
  - Guest 192.168.150.112
  - Guest 192.168.150.113
  - Guest 192.168.150.114
  - Guest 192.168.150.115
- > Developers

If some IP addresses from the range are already used by other SafeUTM users, they will be skipped during creation, and as a result, fewer users will be created than addresses in the range.

























Users will be created with the settings of the created group and an IP address from the range. In addition to the user tree, in the section **Users -> Authorization -> IP and MAC authorization** for each user, a binding rule **IP address <--> User** will be created automatically, as shown in the

screenshot:

GeneralIP and MAC authorizationSubnet authorization

+ Add

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IP address	MAC address ↑	User	Always logged	Comment	Operations
192.168.150.110	–	 Guest 192.168.150.110	<input type="checkbox"/>	Created automatically by range	  
192.168.150.111	–	 Guest 192.168.150.111	<input type="checkbox"/>	Created automatically by range	  
192.168.150.112	–	 Guest 192.168.150.112	<input type="checkbox"/>	Created automatically by range	  
192.168.150.113	–	 Guest 192.168.150.113	<input type="checkbox"/>	Created automatically by range	  
192.168.150.114	–	 Guest 192.168.150.114	<input type="checkbox"/>	Created automatically by range	  
192.168.150.115	–	 Guest 192.168.150.115	<input type="checkbox"/>	Created automatically by range	  

If you use IP authorization with static binding in DHCP, it is preferable to transfer such rules to **authorization by MAC address**.

# Authorization by MAC address

This type of authorization is suitable for those devices whose location changes from time to time between local networks within the organization (for example, employees' work laptops) or network devices that are issued an IP address via DHCP, on which IP+MAC binding is not configured.


In order for a device to be authorized on UTM by MAC address, they must both be in the same broadcast domain, and UTM serves as the gateway for the devices.

Users who are behind the router in the local UTM network cannot authorize by MAC address, since the router breaks broadcast domains and does not process L2-level traffic. Such users can authorize only by IP address.

## Configuring MAC Authorization

To authorize a user by MAC address, you need to do the following:

1. You need to find out the MAC address of the device. To do this, in the Windows command prompt, type the command: `ipconfig /all | findstr Address`

 Administrator: Command Prompt

```
C:\Windows\system32>ipconfig /all | findstr Address
Physical Address. . . . . : 52-54-00-3E-0B-CE
Link-local IPv6 Address . . . . . : fe80::d8e9:b7f5:e3e1:a329%12(Preferred)
IPv4 Address. . . . . : 192.168.150.240(Preferred)

C:\Windows\system32>
```

2. Make sure that the computer and UTM are in the same broadcast domain.

To do this, on UTM in Server Management -> Terminal section, enter the command: `ip neigh`

```
[admin@localhost ~]# ip neigh
169.254.1.6 dev lb_local_in lladdr 2a:c5:87:bd:f7:f4 REACHABLE
192.168.150.1 dev Leth5 lladdr 52:54:00:26:9b:cf REACHABLE
192.168.150.110 dev Leth5 FAILED
192.168.150.240 dev Leth5 lladdr 52:54:00:3e:0b:ce REACHABLE
169.254.1.1 dev lb_local_out lladdr 5e:59:17:77:be:84 STALE
192.168.122.1 dev Eeth4 lladdr 52:54:00:06:1a:f0 REACHABLE
[admin@localhost ~]#
```

This command outputs the UTM's ARP table, and the presence of an entry with the device MAC address and REACHABLE status indicates L2 availability between UTM and the device.

3. Create a binding rule **User <--> MAC address** in **Users -> Authorization -> IP and MAC authorization**:

It is not possible to set up permanent authorization for MAC authorization. This is technically impossible because an IP address is required to create an authorized session. Therefore, it is recommended to use MAC authorization in combination with a **DHCP server**.

The result can be viewed in **Monitoring -> Authorized users**, where a session with the MAC authorization type will be displayed.

## Authorization



General **IP and MAC authorization** Subnet authorization

+ Add

Rows per page: 10 1-2 of 2 < > 🔍 ☰

IP address	MAC address ↑	User	Always logged	Comment	Operations
—	00:00:00:00:00:00	Jim Halpert	<input type="checkbox"/>		

## MAC authorization behavior when moving a device between local networks

In organizations, there is often a situation when it is necessary to move between local networks with a laptop and at the same time always stay online. In such cases, authorization by MAC address works perfectly well.

You must have your own DHCP server configured or on SafeUTM. In the distributed credentials, the gateway should be the local SafeUTM interface.



Let's take as an example a situation where a user `Dwight Schrute` needed to move with a laptop between local networks:

- There are local interfaces configured on UTM as follows:

Network Interfaces

+ Add

Network cards

Local networks

Title	IP-address/mask	MAC address	Network card	Connection statuses	Operations
Local interface	10.200.1.103/16	08:00:27:a9:57:48	Intel Corporation 82540EM Gigabit Ethernet Controller	ETH	

- This user has a MAC address authorization rule configured:

Authorization

General IP and MAC authorization Subnet authorization

+ Add

Rows per page: 10 1-1 of 1

IP address	MAC address ↑	User	Always logged	Comment	Operations
10.200.1.182	08:00:27:31:89:81	Dwight Schrute	<input checked="" type="checkbox"/>		

- He also has one active session in the **Authorized Users** section:

Authorized users

1 authorized session:

Filters

Status	Login	Name ↑	IP-address	MAC address	Connection type	Connection date and time	Online time	Open
	schrute	Dwight Schrute	10.200.1.182	08:00:27:31:89:81	IP + MAC (permanent)	Aug 30, 2022, 11:56 AM	1 day	

- Then the user moves from one local network to another. He is given other network credentials from the DHCP server, in which UTM is specified by the gateway, and if any activity on the part of the user is detected, the second session with authorization by MAC address will appear.

If the user does not have access and can't see the second session with authorization by MAC address, then most likely this could have happened due to the fact that the user's network credentials were not updated.  
Reset the old network credentials from the DHCP server and get new ones using the command:

```
ipconfig /release && ipconfig /renew.
```

# Configuring MAC Address Authorization for Network Printer and Other Network Devices

Network printers and other network devices that need access to the internet must be authorized on UTM. Such devices can be called static and authorization by MAC address is perfect for them.

In order to authorize a network printer, you need to create a user for this printer manually or through [Netscan](#).

## User & Group

Q Search

✓ All

✶ Accounting

✶ Developers

✓ Printers

✶ Xerox

+ 👤

+ 👤 🗑

+ 👤 🗑

+ 👤 🗑

General

Quota

IP and MAC authorization

Sessions

Username

Xerox

Login

xerox

Found in a group

Printers

Operations

Change password

Delete

Additional settings

☐ Deny access

☐ Allow remote access via VPN

Save

For a network printer, in **Users -> Authorization -> IP and MAC authorization** you need to create a rule **User <--> MAC address**.

Authorization

GeneralIP and MAC authorizationSubnet authorization

+ Add

Rows per page: 101-1 of 1

xerox

IP address	MAC address ↑	User	Always logged	Comment	Operations
—	33:44:55:66:77:88	Xerox	<input type="checkbox"/>		

When detecting activity from a network printer or other device, its user will immediately appear in **Monitoring -> Authorized users**.

In modern phones, there is an option for **MAC Randomization**. This option will interfere with phone authorization by MAC address. It is recommended to disable this option or use other types of authorization (for example, **web authorization**)