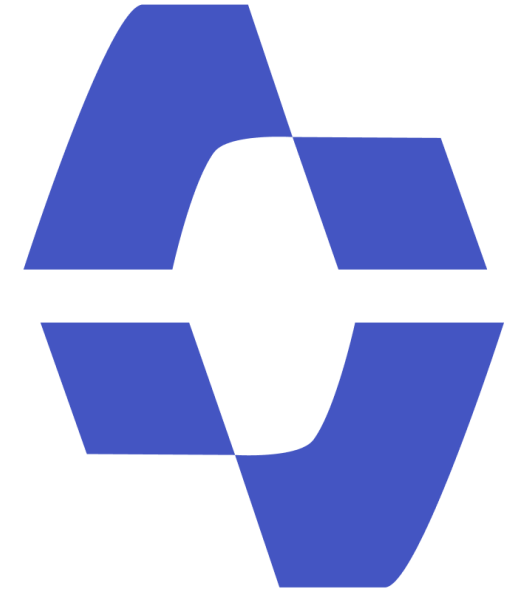




VISULOX 5

User Guide

15.06.2026



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1 Preface

The **VISULOX User Guide** provides an introduction to using the VISULOX PORTAL and VISULOX features. This manual provides information on how to use the portal to run applications and how the enhanced VISULOX features are handled. This document is intended for both new and existing users of VISULOX.

1.1 How this manual is organized

Preface
Connecting , Authentication , The Workspace , Password Management , VISULOX Control Panel , Receiving a message , Recorded applications , Recorded applications , Live player in session , Assistance , Dual Control , Application locked , File Transfer modules , Command Connect / Guard module
Troubleshooting
Glossary

1.2 Legend

 Useful information
 Recommended setting
 Warning / use with caution
 Tipps & tricks

1.3 Related documentation

1.4 VISULOX documentation

Application	Title	Format
Release Notes	<i>Release Notes</i> <i>Platform Support and Release Notes</i>	HTML
Installation	<i>Installation Guide</i> <i>Installation / Update Guide</i>	HTML
Administration	<i>Admin Guide - VLX Portal</i> <i>Admin Guide - VLX Core</i> <i>Administration Guide</i>	HTML
User	<i>User Guide</i> <i>User Guide</i>	HTML

 The VISULOX Online Documentation is available at: <https://portal.visulox.com/wiki>

1.5 Documentation feedback

Submit comments about this document by sending a mail to: support@visulox.com

2 Connecting

To connect to the service, the URL has to be provided by the supervisor. With this URL, connection to the VISULOX PORTAL via browser is possible. Supported browsers are **Firefox**, **Chrome**, **Edge** and **Safari**.

Supported Client Platform	Supported Browsers
Microsoft Windows 10 (64-bit only) Microsoft Windows 11	Microsoft Edge 145 Mozilla Firefox 147 Chrome 145
Oracle Linux 8 Oracle Linux 9	Mozilla Firefox 131 Chrome 130
Ubuntu Linux 20.04 Ubuntu Linux 22.04 Ubuntu Linux 24.04 (with client 22.04)	Mozilla Firefox 131 Chrome 130
macOS 10.13 or later	Safari 17.5 Mozilla Firefox 131 Chrome 130

The table shows the client platforms and browser versions that have been tested with this release. The latest versions of the browsers listed in this table are supported. Browsers not shown in this table may be supported at a later stage. In a VISULOX environment direct login is configured by default, so the login mask of VISULOX PORTAL is displayed.

2.1 Access with Vispra Client

VISULOX PORTAL provides a modern login mechanism. Therefore a client side component has to be downloaded and registered in the browser.

Login screen:



The screenshot shows the VISULOX Demo Portal login interface. On the left, a blue sidebar contains the DEMO Corp. logo, the text "Welcome to VISULOX Demo Portal", and "Your Network Entry Point is 87.181.96.19". Below this is a white message box with the text "Welcome to your personal VISULOX 4.0 Demo" and "You can leave messages here for external users at any time." with a "Messages 1" indicator. The main area is white and features a login card with two tabs: "Native Login" (selected) and "Web Login". The login card has the VISULOX logo and "Sign in" text. It includes a "Username" field, a "Password" field with a toggle icon, a CAPTCHA "Enter the result" with "5 plus 0 =" and an input box, a "Forgot Password?" link, an "Install the Client" link, a checkbox "I realize I have to stick to the guidelines.", and a "Login" button. A language selector "English" is in the top right corner.

Choose **"Install the client"** link before the first login.

 It is also possible to choose **"Web Login"** to use the HTML5 Client.

VISULOX Client

You can access VISULOX PORTAL using a separate, dedicated VISULOX Client application that integrates with your desktop.
To install an VISULOX Client, follow the instructions for your client device.

 **macOS**

[Download the VISULOX Client for Mac OS X](#)

Double-click visulox-client.dmg to open the installer disk image.
In the window that appears, double-click the VISULOX Client.pkg package to install the VISULOX.
Follow the instructions on your screen.

 **Microsoft Windows**

[Download the VISULOX Client for Microsoft Windows](#) to a temporary directory on your PC.
Double-click to install the VISULOX Client.
Follow the instructions on your screen.

 **Linux**

Download the installable package for
[Linux](#)

 The client files must be extracted from *vlx-vispra-clients-1.0.0.zip* and copied to the **/etc/nginx/html/vlx/client/** folder on the portal server by an administrator to be available for download via the login page for users.

2.1.1 Supported Operating Systems & Installation

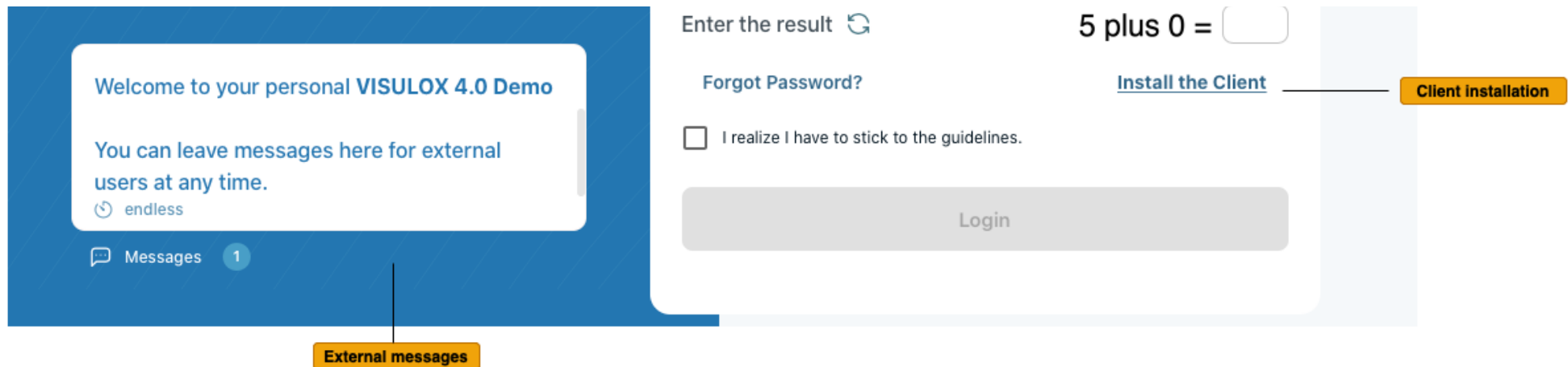
OS	Installation Steps
macOS	1. Open the <code>.dmg</code> file to mount it. 2. Copy <code>VisuloxClient.app</code> to your <code>/Applications</code> folder. 3. Open <code>VisuloxClient.app</code> and click the Install button.
Windows	1. Open the <code>.exe</code> file. 2. Click Install.
Linux (Partially)	1. Open the file to launch the GUI. 2. Click Install. 3. XPRA must be installed manually (refer to the XPRA official guide). 4. Configure the XPRA path in: <code>~/.config/visulox/config.yaml</code> . Compatibility Note: XPRA version 6.4.3 has been successfully tested on Ubuntu 24.04 LTS (Noble).



3 Authentication

Users with an account are able to log in, by entering their user ID and password into the login mask.

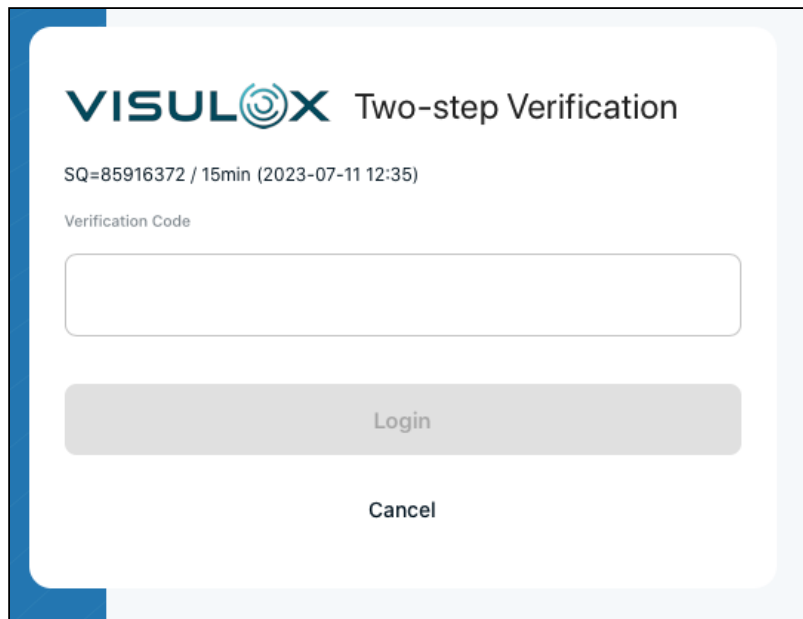
The screenshot displays the VISULOX Demo Portal login interface. On the left, a blue sidebar contains the DEMO Corp. logo (A DEMO COMPANY) and the text "Welcome to VISULOX Demo Portal" and "Your Network Entry Point is 87.181.96.19". A callout labeled "Remote IP" points to the IP address. On the right, a white login mask is overlaid. It features two tabs: "Native Login" (selected) and "Web Login". Below the tabs is the "VISULOX Sign in" header. The login form includes a "Username" field and a "Password" field with a toggle icon. A callout labeled "Std Login mask" points to the form area. In the top right corner, there is a language selector showing "English" with a callout labeled "Language".



The available external messages are displayed in the message box of the login page.

3.1 Authentication via Access PIN

Users, that are registered for authentication with an Access PIN will get a second login mask and the PIN is sent via eMail or SMS. It is also possible to call the Helpdesk to ask for the generated Access PIN. The PIN has a configured length, format and lifetime.

A screenshot of a 'Two-step Verification' dialog box for VISULOX. The dialog has a blue header bar with the VISULOX logo and the text 'Two-step Verification'. Below the header, it displays 'SQ=85916372 / 15min (2023-07-11 12:35)'. There is a label 'Verification Code' above a text input field. Below the input field is a grey 'Login' button, and further down is a 'Cancel' button.

VISULOX Two-step Verification

SQ=85916372 / 15min (2023-07-11 12:35)

Verification Code

Login

Cancel

Once the user has received the PIN, login is possible with the username, password and the Access PIN as long as the PIN is valid. If the lifetime has run out, a new PIN is generated and sent, when the user tries to login the next time.

3.2 Authentication via Microsoft Entra

If configured, authentication with a Microsoft account is also possible using **Login with Microsoft**:

Native login

Web login

 Sign in

Username

Miller

Password

•••••••• 

[Install the client](#)

Login

OR

 Login with Microsoft

3.3 Authentication via One Time Password

For the login with One Time Password (OTP) an initial key has to be created with a smartphone App before.

Initial key generation on the welcome page:

The QR code (and the OTP Key) is displayed in the Workspace.

One Time Password



Enter code to initialize One Time Password authentication.

OTP Name
923075019 amitego inhouse

OTP Key
SRXDODNEIKVGDK7H

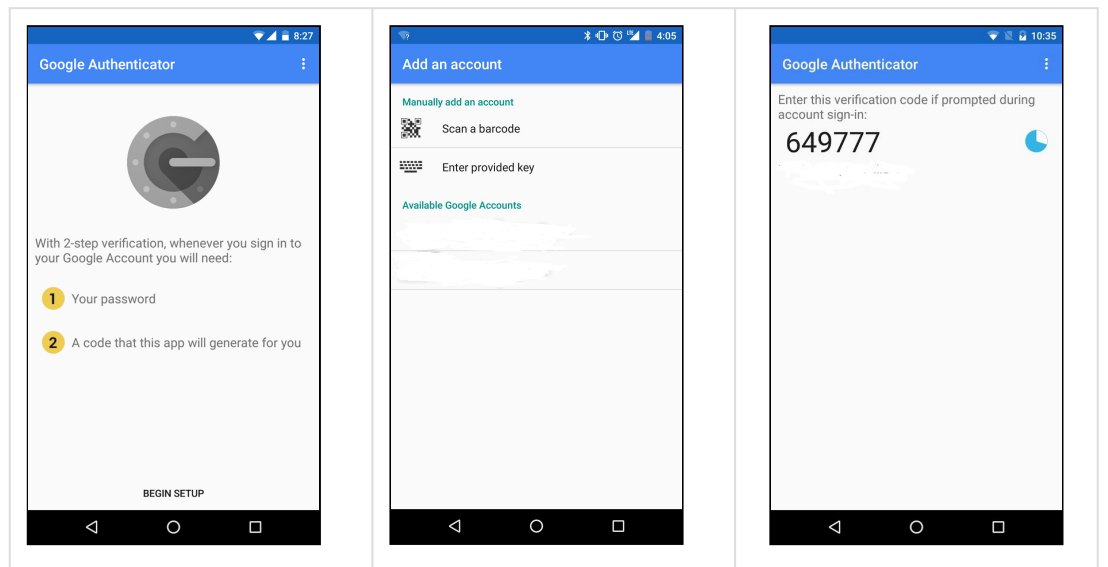
OTP

Password

Submit OTP Code

With a smartphone App (e.g. Google Authenticator) an initial OTP can be generated and submitted via the input field.

The initial code can be created via QR code scanner or with the OTP key.



Once the user has entered the initial key, he is able to log into VISULOX PORTAL with the current key displayed in his authentication App and his password.

Login via verbal token will always be possible beside the OTP login.

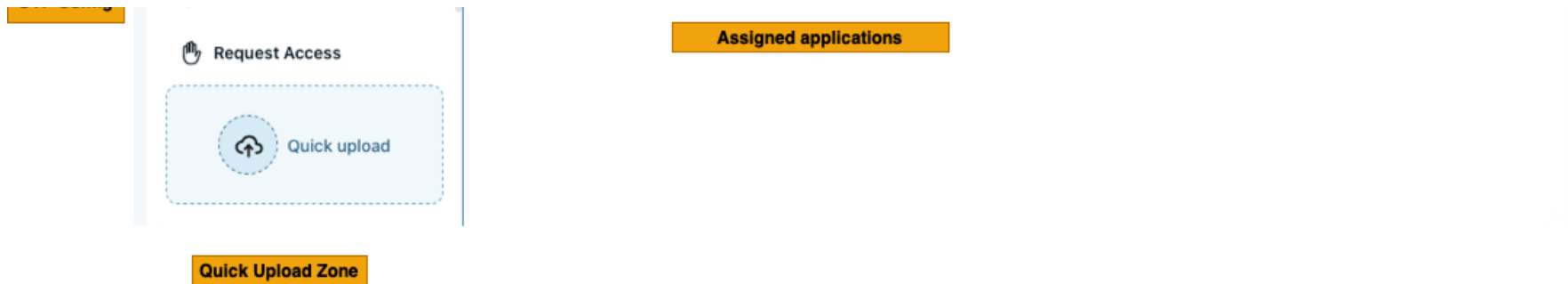
4 The Workspace

After successfully logged in, the Workspace is displayed showing all applications, which are assigned to the user.

The screenshot displays the VISULOX Workspace interface for user Jane Loretti. The top navigation bar includes buttons for Checkout Zone, Internal Messages, Edit user profile, and Logout. Below this, a status bar shows the user's login policy (Company), local time (09:38), and navigation links for Checkout (0), Messages (3), Profile, and Logout.

The main workspace area is divided into two sections. On the left is a sidebar with navigation options: Apps (all, recently, direct, BackOffice), Access Policies (1), Application Policies (2), Transit Policies (2), File Transit Zone, Checkout, and One Time Password. On the right is a grid of applications, each with a play button, an information icon, and a 'Groups' label. The applications include HCS App, CarShare, TimeManag..., SQLite, Chrome, awsAWS, Edgebrowser, Excel, AmazonS3, Mobaxterm, Github, Openstack, SAP, mRemoteNG, Remmina, vDESKTOP, and Mobaxterm.

Annotations highlight specific features: 'App Groups' points to the 'all' option in the Apps sidebar; 'Assigned Policies' points to the 'Access Policies' section; 'OTP Confia' points to the 'One Time Password' option; 'Search field' points to the search bar in the top right; and 'Filter Apps and Display options' points to the 'Search', 'Tile', and 'Sort' buttons.



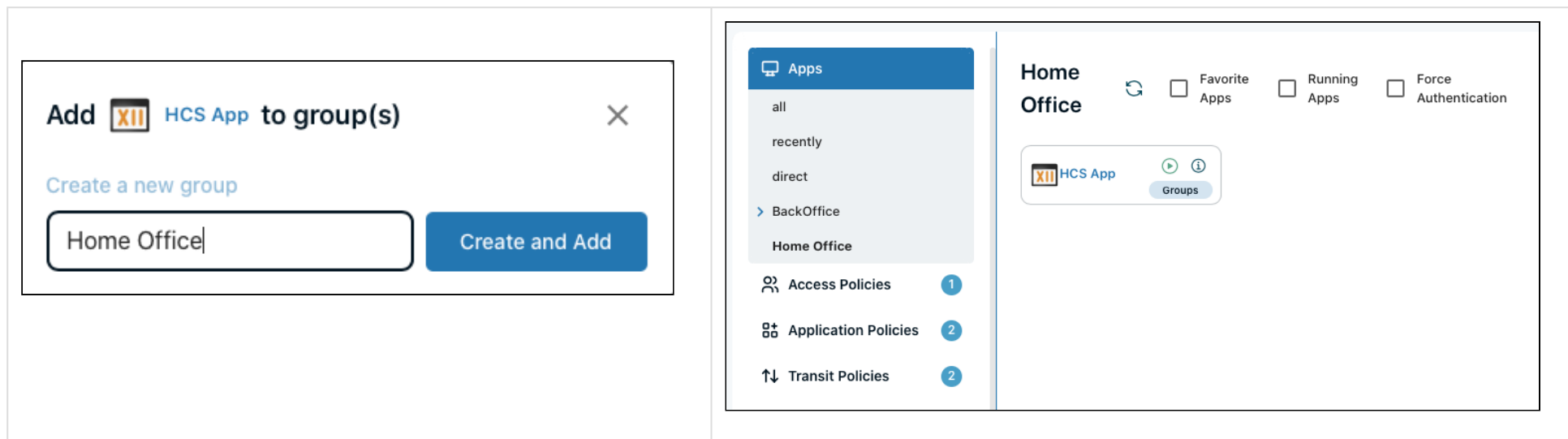
With the internal welcome message feature, it is possible to display a message for the logged in user in the Workspace ("**Messages**" - button).

The matching policies (access, application, transit) of the user is displayed on the left side.

The Transit Zone for up/downloading files and the Checkout Zone for Reports and film checkouts is also integrated in the Workspace.

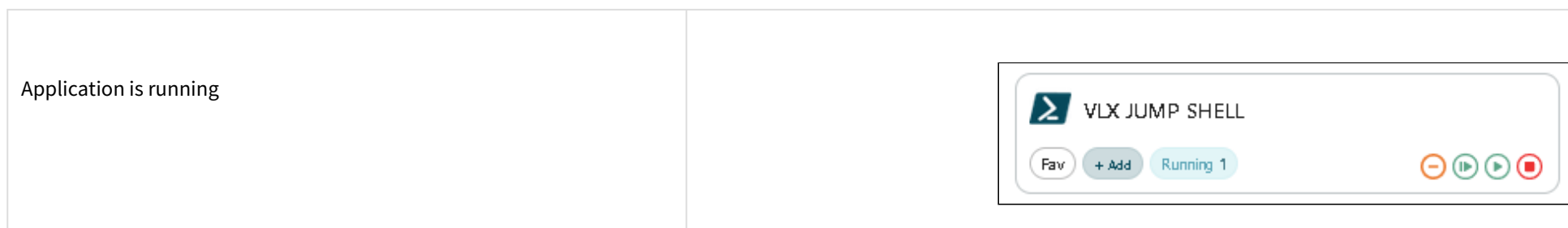
With the "**Quick Upload**" zone it is possible to drag & drop files to transfer them into the internal IT environment.

By clicking the "**Groups**" button within the application area it is possible to assign an application to a group or create a new application group:



Applications can be added or removed from existing groups. If the last application is removed from a group, the group itself will be removed as well. With the search field applications can be filtered and the applications can be controlled (**suspend / resume, cancel**, etc) all at once or each application on its own.

Status of the applications:



Hover over the application to see the running instances:

 **xterm (test-ol9)**

Fav

+ Add

Running 3



#1 Jul 05, 2024 11:35



#2 Jul 05, 2024 11:35



#3 Jul 05, 2024 11:35



Application(s) can be suspended, resumed, started or cancelled

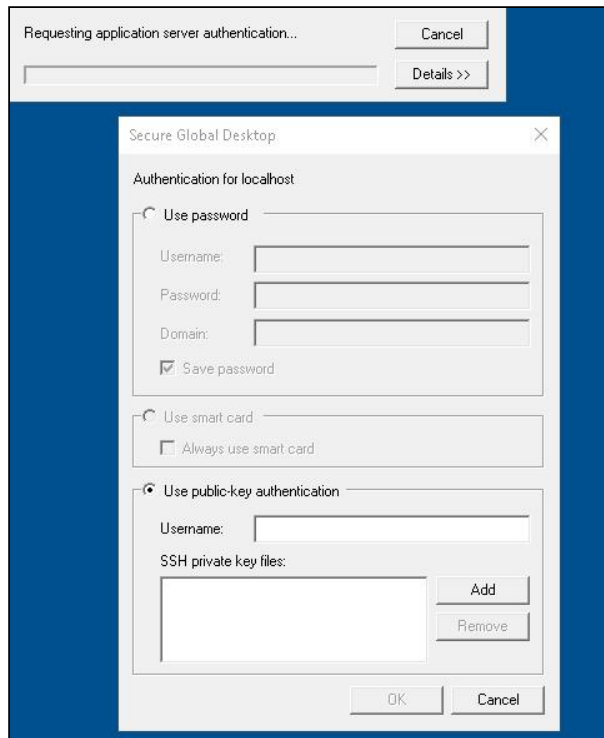


Depending on the status of the application some options are not available and greyed out



After starting an application the authentication dialog is displayed (depending on the configuration).

If the dialog is not shown because the login user credentials are passed through, the display can be forced by checking "**Force Authentication**" in the Workspace.



5 Password management

Active Directory (AD) and Oracle Unified Directory (OUD) users are able to change their password by themselves. This feature must be configured and enabled by VISULOX admins.

If so, the "**Forgot Password?**" in the login mask is displayed:

Native Login

Web Login

 Sign in

Username

Password

Enter the result 

6 minus 4 =

[Forgot password?](#)

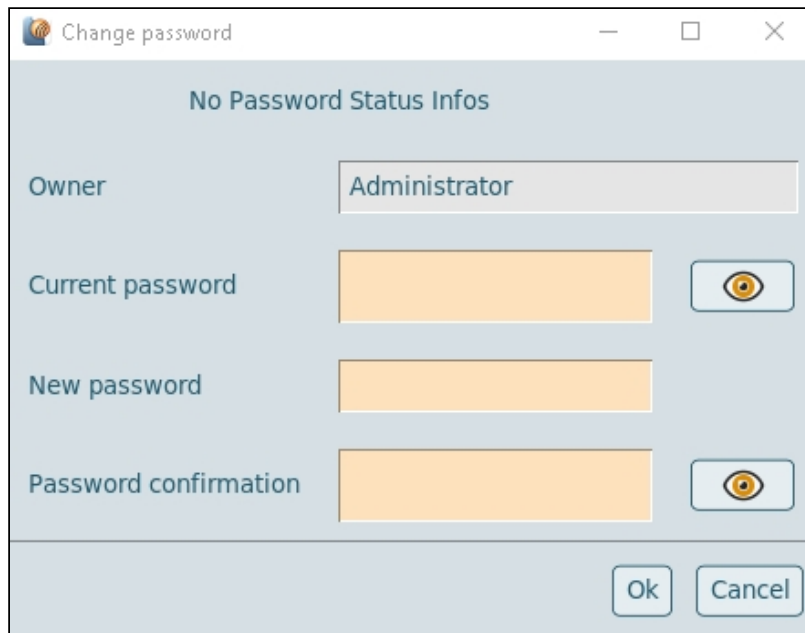
[Install the client](#)

☐

I realize I have to stick to the guidelines.

Login

In the VISULOX Cockpit, the supervisor is able to reset passwords to a rolled random password for users. Then the users will be informed via mail, that they have to set a new password with the Password SelfService application. Therefore the **"VLX Password SelfService"** application must be assigned and has to be started from the Workspace.

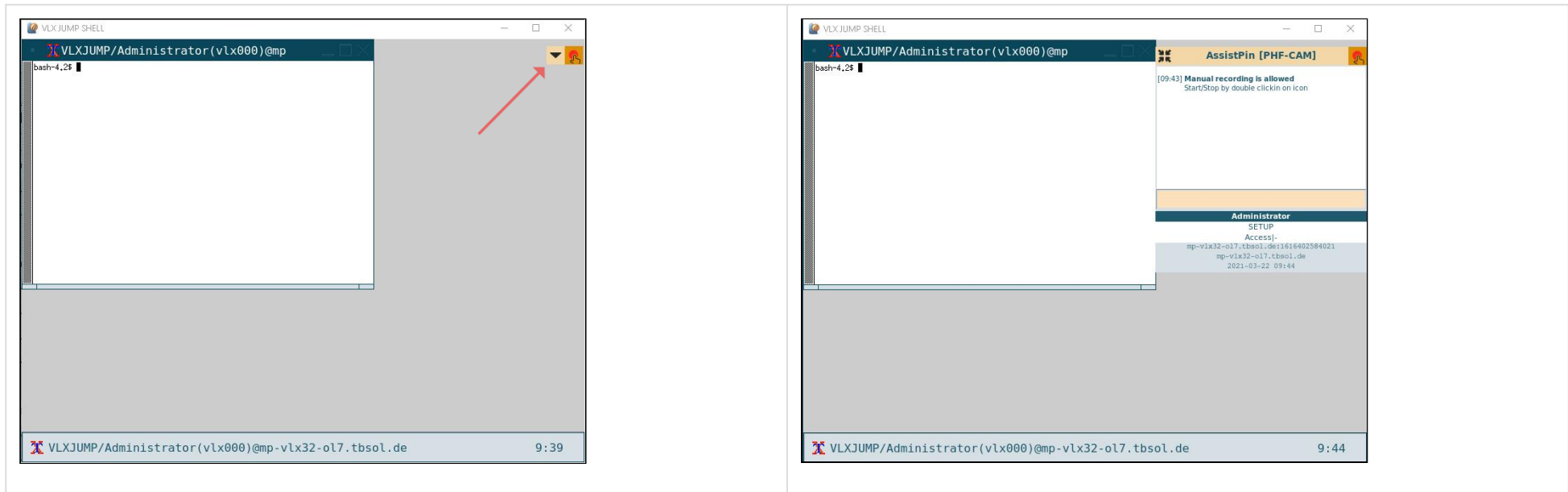


A screenshot of a 'Change password' dialog box. The window title is 'Change password'. Inside, there's a section titled 'No Password Status Infos'. Below this, there are four fields: 'Owner' (a text box containing 'Administrator'), 'Current password' (a password field with an eye icon to its right), 'New password' (a password field), and 'Password confirmation' (a password field with an eye icon to its right). At the bottom right, there are 'Ok' and 'Cancel' buttons.

6 VISULOX Control Panel

The VISULOX control panel is always available in a launched application.

The panel is displayed, when the mouse pointer is placed over the trigger for the VISULOX control panel.

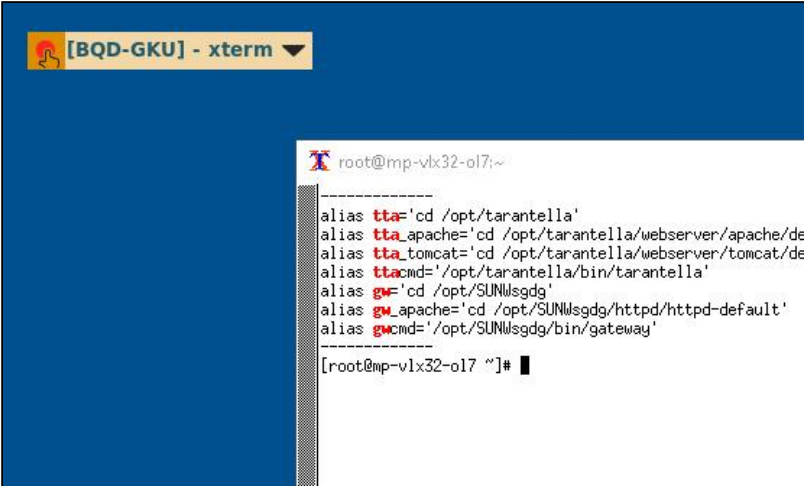


The panel can be used for interactions between the application user and the VISULOX environment.

Depending on the mode of the application the look of the panel can be different.

The control panel can be moved with click on the title bar and holding down the left mouse button.

With a doubleclick on the title bar, the panel is moved back to upper right corner again.



If the application is started in client side window mode, the control panel is displayed outside of the application window.

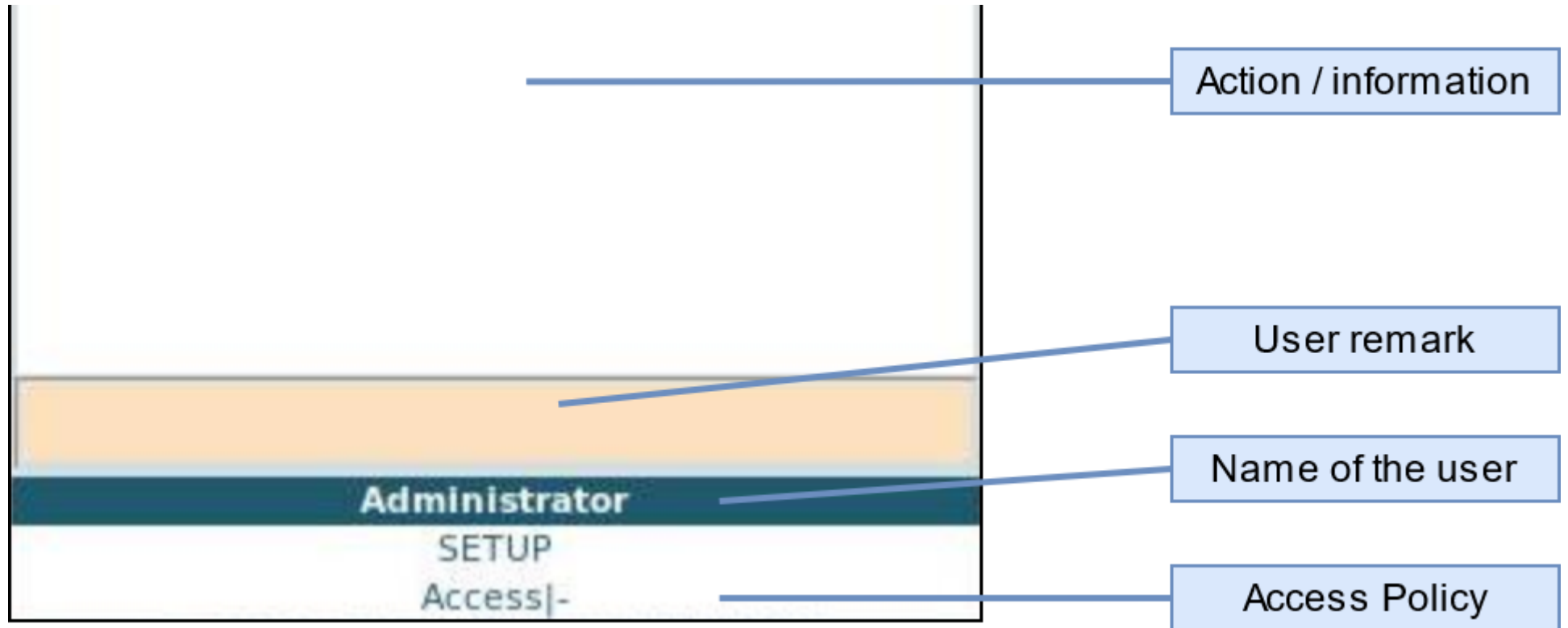
The control panel can also be moved by holding down the left mouse button.

The default panel always shows the Assist PIN on top, that can be used by a supervisor to start an Assistance and a text box, where the user can enter a remark.



Assist PIN

Manual recording



The user is able to record his application session by double clicking on the manual recording icon. With another double click the recording of the application session is stopped again.

7 Receiving a message

Supervisors, who have access to a VISULOX Cockpit are able to send messages to users, who are working with an application.

This message is displayed in the control panel and the application is locked. The user has to confirm message to continue working.



8 Recorded applications

If an application is configured for recording, the user has to acknowledge the recording.

The control panel is displayed and the application is locked.



When the "**Confirm**"-button is pressed, the application is no longer locked and will be recorded.

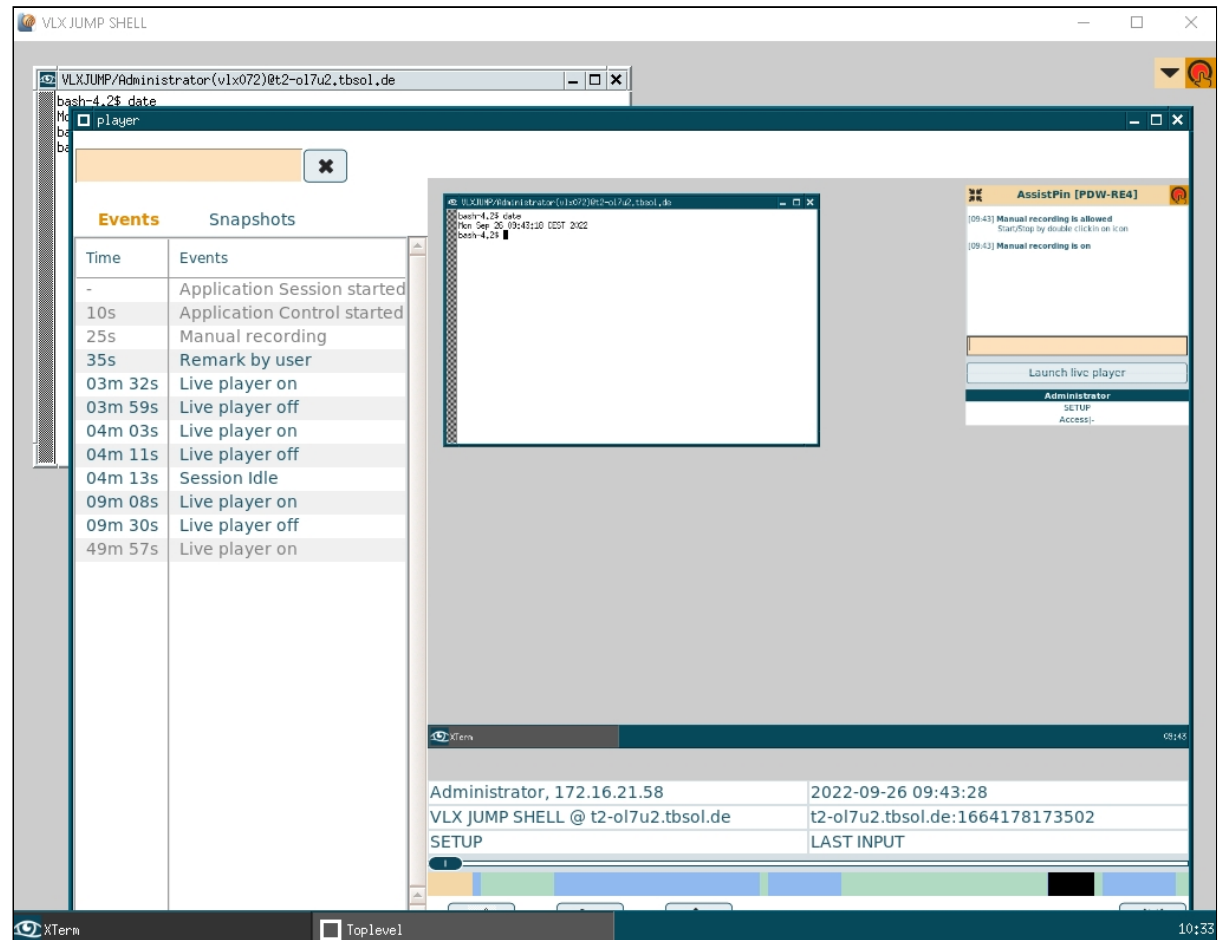
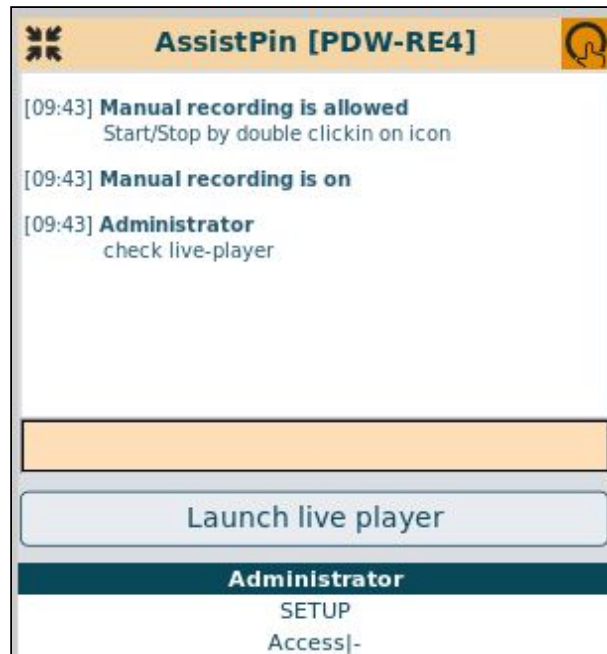
When the "**Reject**"-button is pressed or the message-box is closed, the application will be closed.

If the user doesn't press any button, it is possible to **auto-accept** or **auto-reject** the recording of the application after a period of time, depending on configuration.

The user can always enter a text in the field for remarks, before the window is confirmed or rejected.

9 Live player in session

If the live player is enabled in configuration, the "**Launch live player**" button is displayed in the session controller and the session can be watched from the beginning:

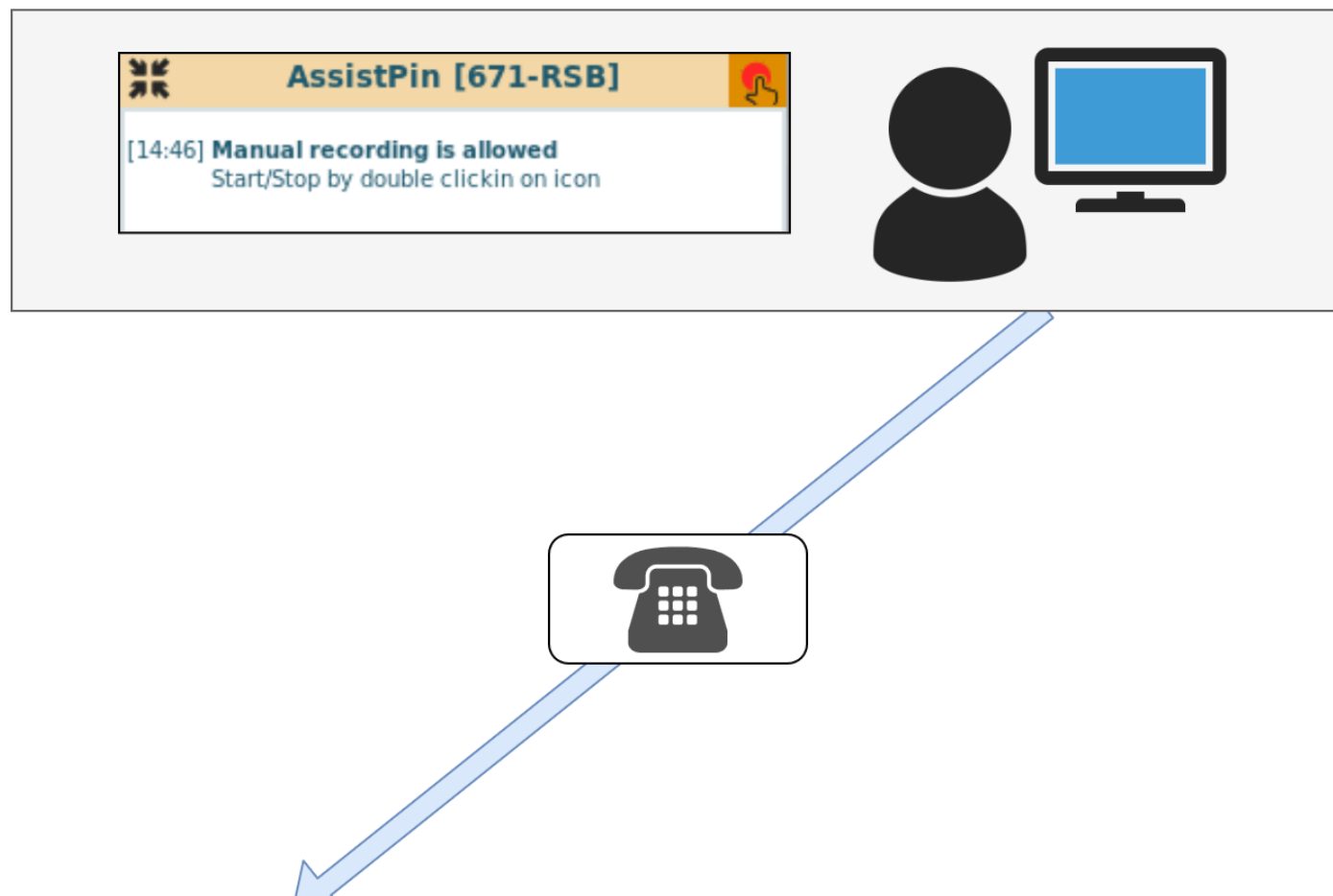


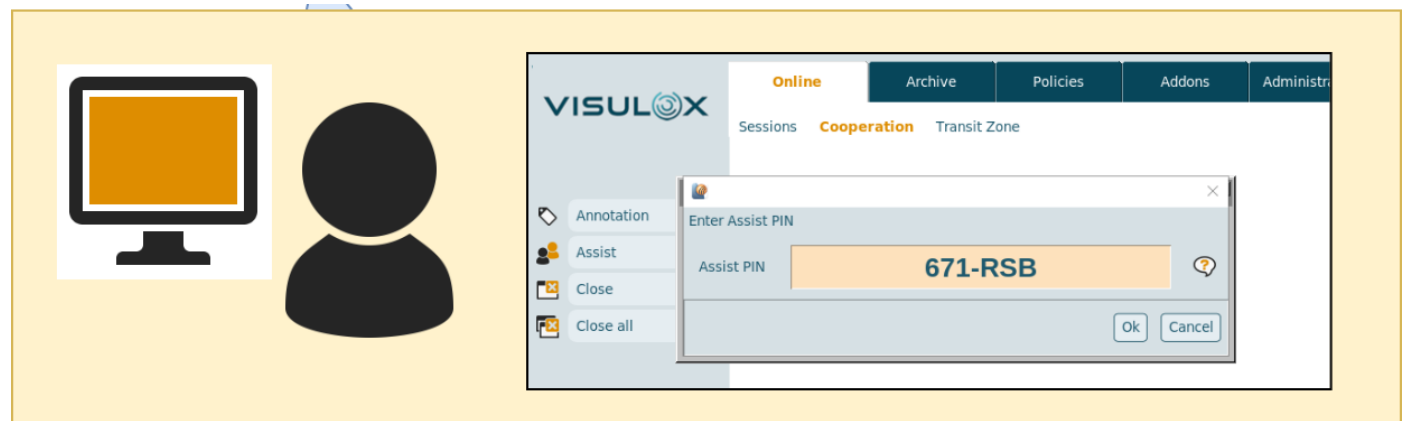
- The session is still recorded, when using the live player.
- Keyboard entries are not displayed in the live player

10 Assistance

Assist process:

If the user wants to request an Assistance, he can contact his supervisor or another user and with his unique session ID, the cooperation partner is able to request the Assistance.



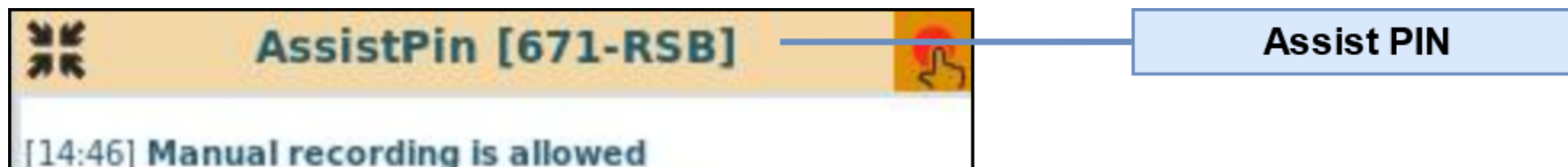


The user receives the Assistance request via control panel.

Assist on hold is selected by default and the user is now able to select the assist mode for the Assistance.

The screenshot shows a control panel window titled "AssistPin [671-RSB]". It features a close button (X icon) in the top left and a red hand icon in the top right. The main area displays two log entries: "[14:46] Manual recording is allowed" with the subtext "Start/Stop by double clickin on icon", and "[15:02] Administrator" with the subtext "Assist offered". Below these is a horizontal separator bar. Underneath the bar, the text "Assist by Administrator" is followed by four radio button options: "Assist Observe", "Assist Interact", "Assist on hold" (which is selected), and "Close". At the bottom, a dark blue bar contains the name "Miller" and the text "POL-ACC]-".

Assistance request:



Start/Stop by double clickin on icon

[15:02] **Administrator**
Assist offered

Action / information

User remark

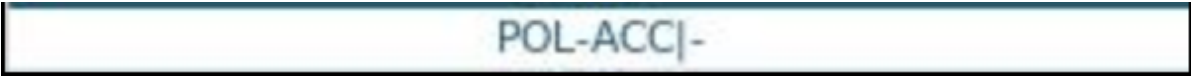
Assist by Administrator

☐ Assist Observe ☐ Assist Interact

☒ Assist on hold ☐ Close

Assist menu

Miller



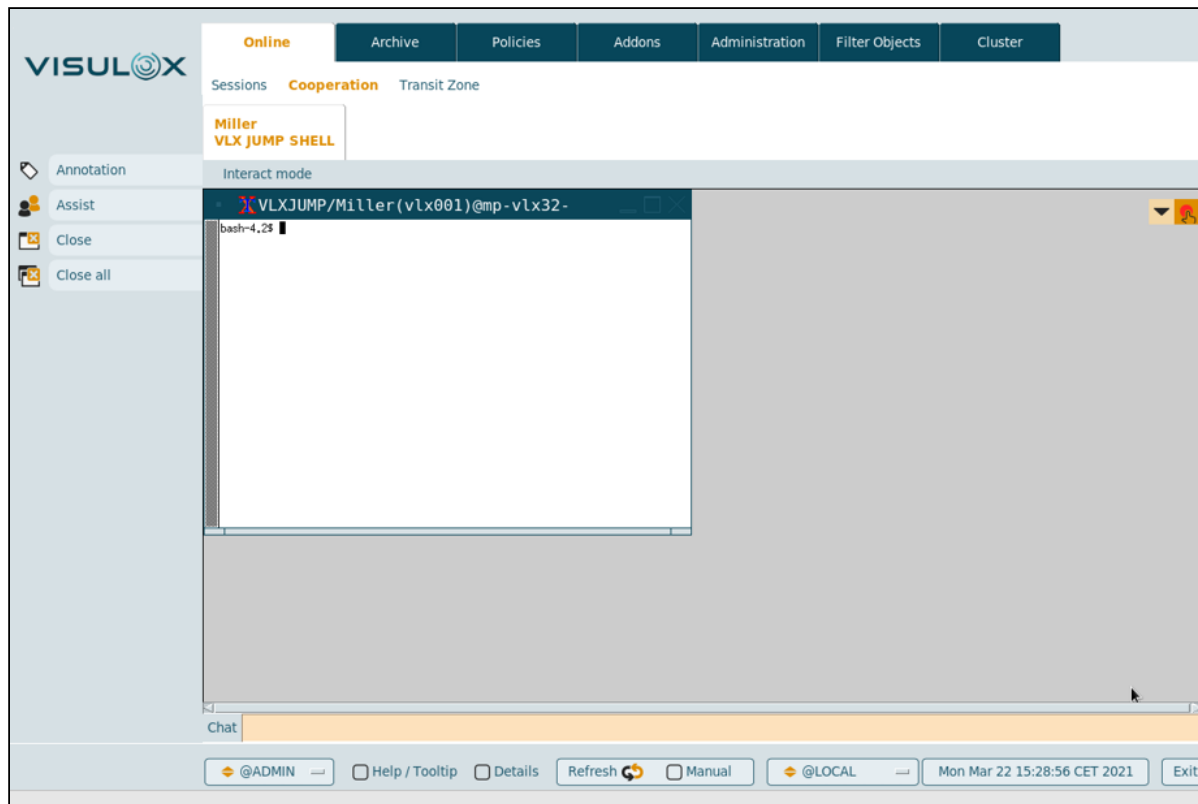
POL-ACCJ-

Default mode on start of a Assistance request is "**Assist on hold**".

The user is able to choose the mode for the Assistance:

- **Assist Observe:**
In observe mode, the supervisor is able to see the screen of the user, but he can not interact with the application, just displaying his mouse pointer and name is possible.
- **Assist Interact:**
In interact mode, the supervisor has full access to the application of the user.
- **Assist on hold:**
In standby mode, the cooperation is active, but the supervisor is not able to see the screen of the application user.
- **Close:**
Assistance will be closed. The user can continue working without Assistance.

Assistance application:



The supervisor has a chat field beneath the Assistance screen to communicate with the user via control panel.

11 Dual Control

With the Dual Control feature a Cooperation can be established based on a real four-eye-principle.

Dual control ensures that highly sensitive applications can only be accessed when an authorized user is connected, supervising the participant.

In a Dual Control cooperation, there is always a supervisor and a participant, who is working with the application.

When the user starts the base application it is locked, until the supervisor starts his Dual Control application.

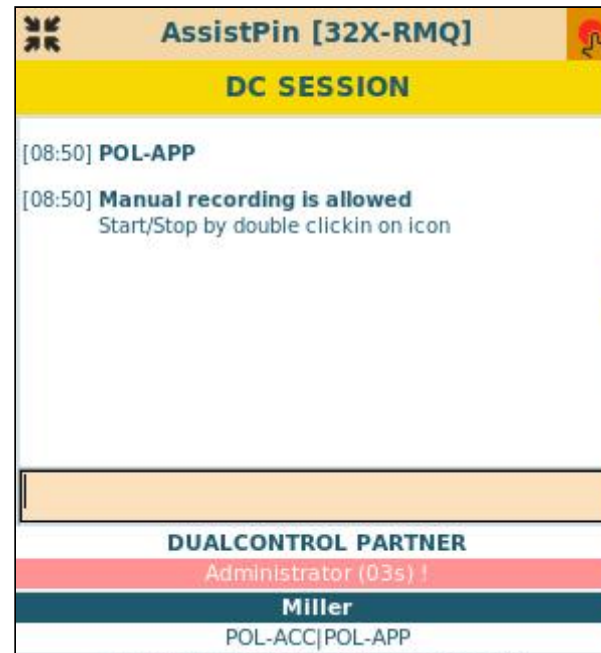
The user can now work with the application and Supervisor Master is watching in observe mode:

Miller is able to see the current
Dual control state.

The supervisor is present and
the application is activ.



If Master does not press the trigger,
the access to the application is running out.

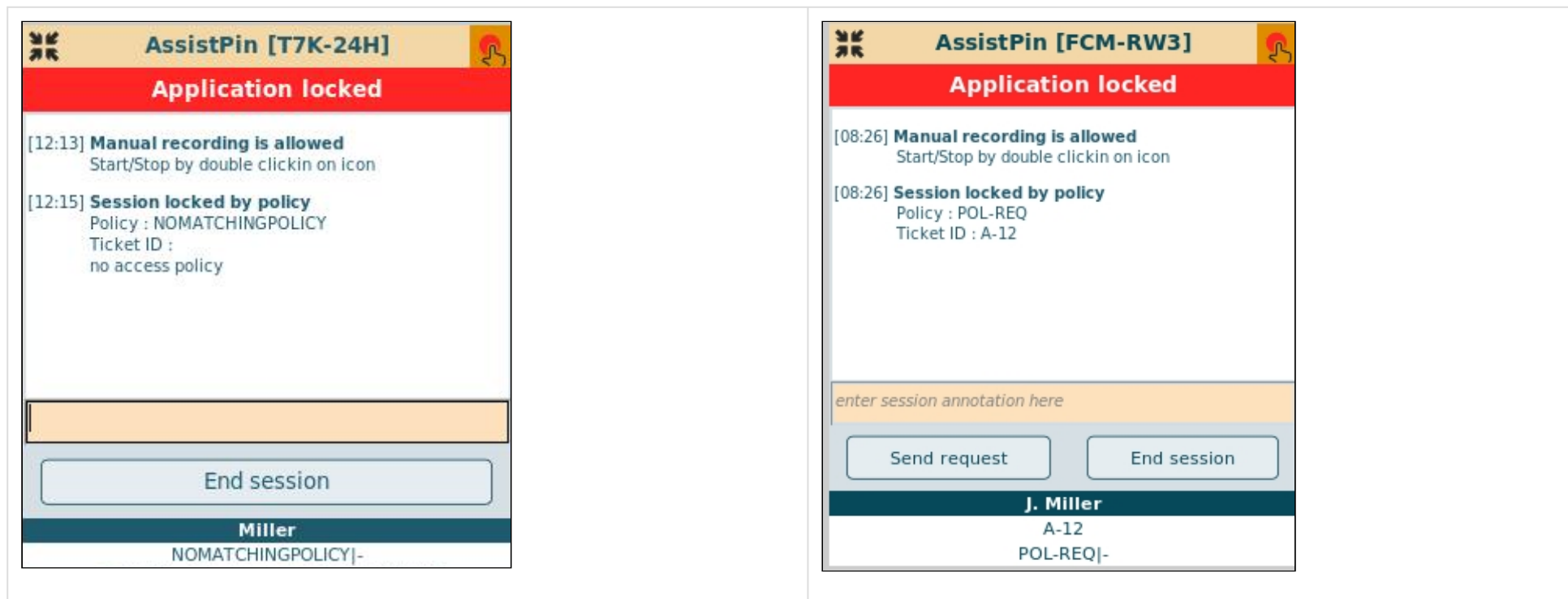


Once the trigger time has run out, the application is locked again.



12 Application locked

If the application is locked because the access period ran out, a message is displayed and the screen is locked.



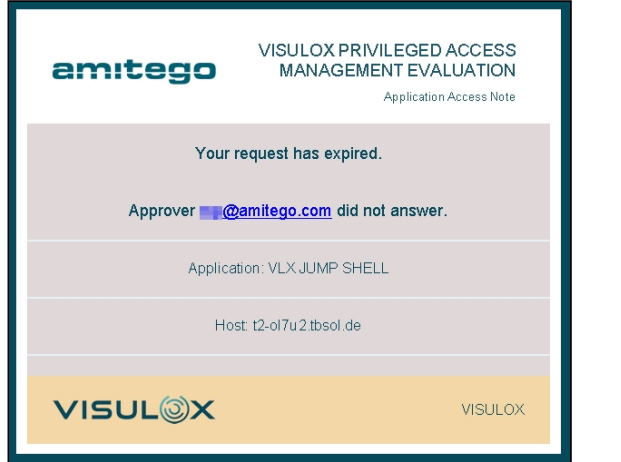
The user is able to contact an administrator, who can expand the users access period or he can end the session.

It is also possible to send a request via the "**Send request**"-button (⚠ only available, if a notification or request script is assigned!)

or use "**End session**" on the lock message window. After access is granted again, the lock message disappears

and the user can continue working with the application without loosing his data.

Depending on the configuration of an underlying request script it is possible that the user receives emails with the status of his request.

Approved	Rejected	Expired
 The email template for 'Approved' status features the amitego logo and 'VISULOX PRIVILEGED ACCESS MANAGEMENT EVALUATION' header. The body text reads: 'Dear J. Miller, Your request was approved by [redacted]@amitego.com.' Below this, it specifies 'Application: VLX JUMP SHELL' and 'Host: t2-ol7u2.tbsol.de'. The footer includes the VISULOX logo and name.	 The email template for 'Rejected' status features the amitego logo and 'VISULOX PRIVILEGED ACCESS MANAGEMENT EVALUATION' header. The body text reads: 'Dear J. Miller, Your request was rejected by [redacted]@amitego.com.' Below this, it specifies 'Application: VLX JUMP SHELL' and 'Host: t2-ol7u2.tbsol.de'. The footer includes the VISULOX logo and name.	 The email template for 'Expired' status features the amitego logo and 'VISULOX PRIVILEGED ACCESS MANAGEMENT EVALUATION' header. The body text reads: 'Your request has expired. Approver [redacted]@amitego.com did not answer.' Below this, it specifies 'Application: VLX JUMP SHELL' and 'Host: t2-ol7u2.tbsol.de'. The footer includes the VISULOX logo and name.
Access is approved, Session is no longer locked. If Full Session has been chosen by the approver, the access to the application is possible until the session is closed.	Access is rejected by the approver. The session is closed.	When the approver does not react, the request will expire, a mail is sent to the requester and the approver. The session is closed.

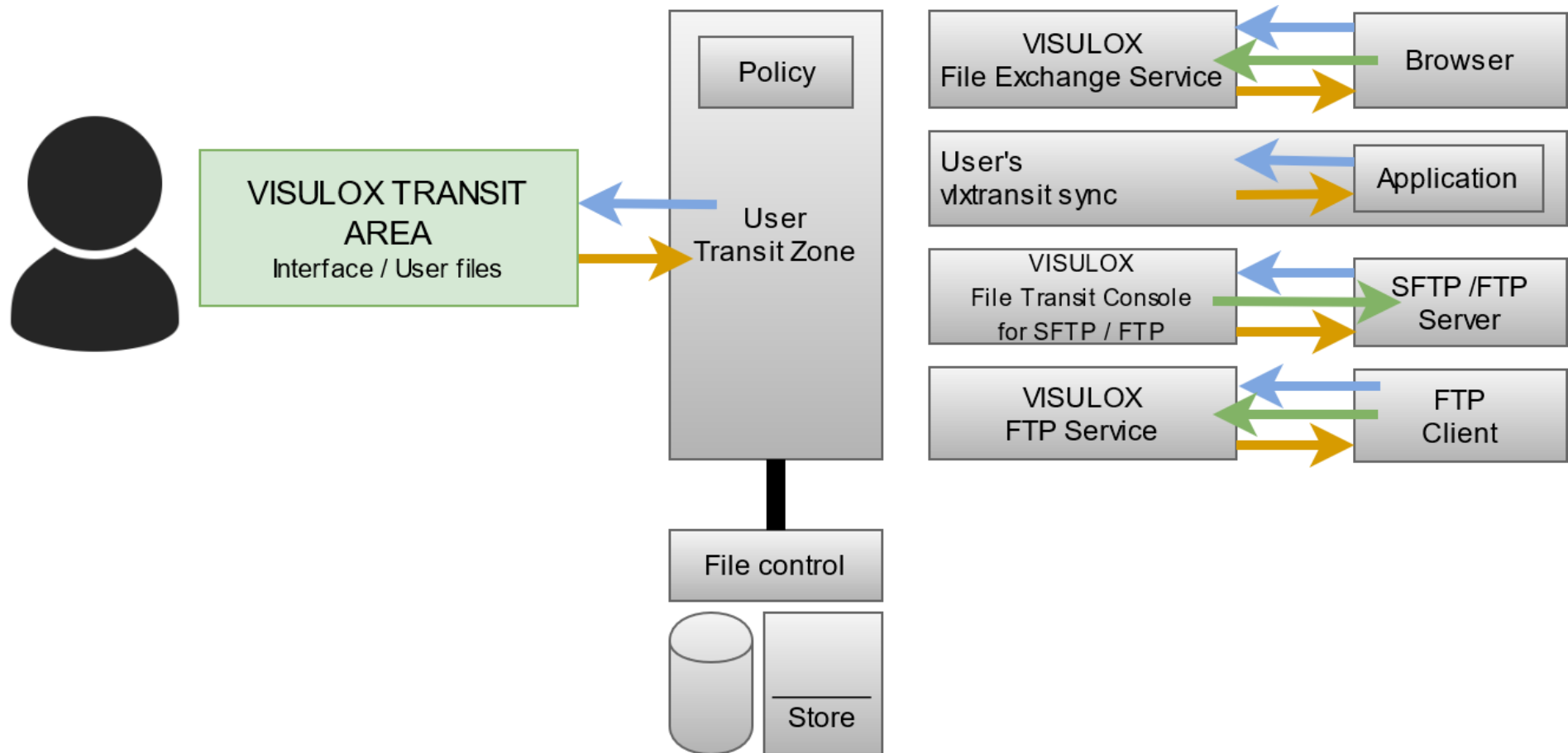
13 File Transfer modules

The modules provide access to the Transit Zone. There are several File Transfer modules, each providing a connection to the Transit Zone:

Transit Web in Workspace	File Transfer interface is presented in the user`s Workspace. The user can upload or download files from his client into the Transit Zone.
File Exchange	The user can connect to every VISULOX node, using the internal WEB browser and a known URL. The WEB Access PIN is needed to see the Transit Zone. Now the user is able to upload and download files from the Transit Zone. (⚠ The File Exchange service has to be enabled by the administrator).
Sync	Depending on the configuration, the user has a local directory, where he has direct access to the Transit Zone.
Passon script / CLI (automated transfer)	Users are able to upload into the Transit Zone. Depending on the user, file name or file type these files can be passed on automatically to another location via script. It is also possible to copy a file into the Transit Zone of another user via VISULOX transit command line interface.
File Transit Client SFTP/FTP	Interface to interact between the Transit Zone and an SFTP/FTP endpoint. This allows to connect to a server using SFTP, FTP passive or FTP active protocol. Depending on the policy, the user gets a list of hosts he can connect to or he is able to configure his own host list for File Transfer.
FTP Service	Interface to interact between an application server side FTP client with the Transit Zone. (⚠ The FTP Service has to be enabled , before the service can be used).

13.1 Usage

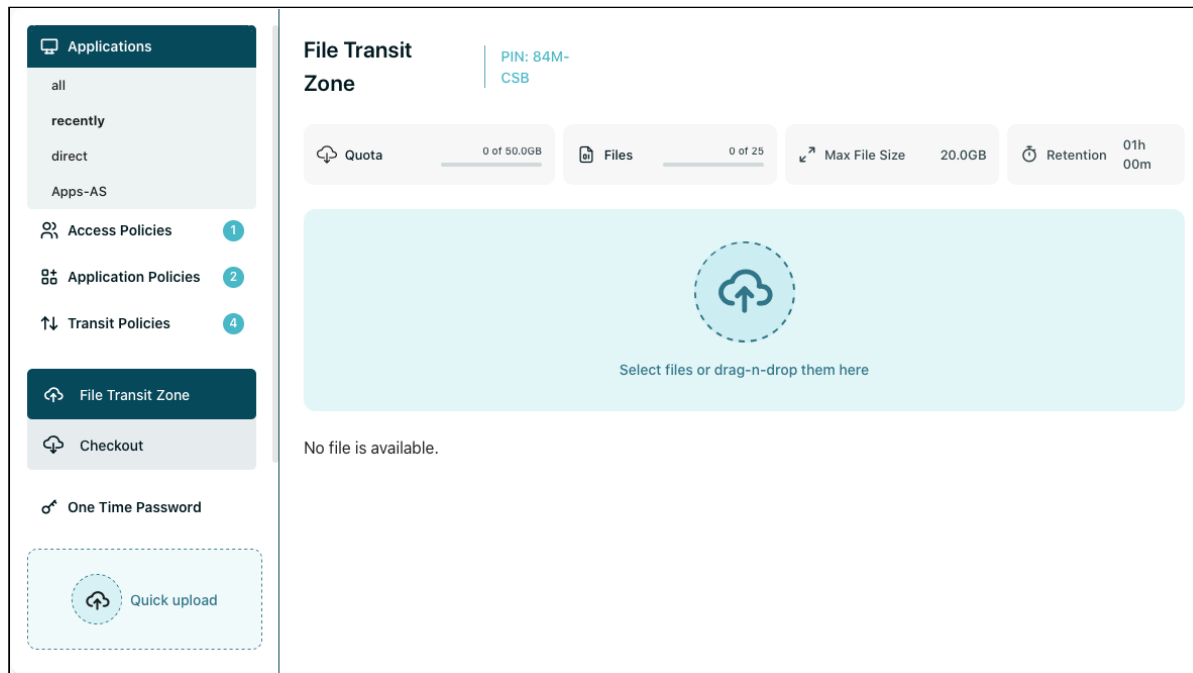
The heart of the VISULOX File Transfer is the user's Transit Zone. Every file a user transports in or outbounded is passing the Transit Zone.



13.1.1 VISULOX Transit Area in Workspace

The VISULOX Transit Area is displayed in the Workspace (**File Transit Zone**).

The **maximum quota**, **number of files** in the zone, **max file size** and the **retention time** are shown in the status line.



Within the File Transfer page, the user is able to upload or download files from the local PC into the Transit Zone.

With click on the drag & drop field files can be chosen from the local drives or using drag & drop of files into the area.
Using the "**Start All**" button, the files will be uploaded to the Transit Zone.

File Transit Zone

PIN: 84M-CSB

 Quota

0 of 50.0GB

 Files

0 of 25

 Max File Size

20.0GB

 Retention

01h 00m

 document.pdf (79.19 kB)

 Cancel

Start All

 Add more files

Detailed status information is available after uploading:

SOURCE	NAME	AVAILABLE	SIZE	FORMAT	STATUS	
user	doc.pdf	59m 44s	423.66kB	PDF document, version 1.3 sha256:c2fa7942021318adcf0c6fff9c59b571ca1f75e7a2405bf69856f783103d4bc0 md5:a37cd39f7581c1616aff3a42cfd7fda4	accepted:TRANSIT	 Download  Delete

If a virus scanner is setup, the files are scanned and will be rejected, if a virus is found.

A file can be deleted manually by the user to gain more free disk space, when the quota is reached.

The files will also be deleted automatically, if the lifetime (retention time) in the Transit Zone is reached.

13.1.2 File Exchange

The File Exchange module is used to upload and download files from the Transit Zone to application servers inside the datacenter.

Starting a browser on the application server and entering the URL provided for example via the internal message and the PIN displayed in the Transit Zone.

File Transit Zone

PIN: 84M-CSB

 Delete All

 Quota

0 of 50.0GB

 Files

1 of 25

 Max File Size

20.0GB

 Retention

01h 00m

13.1.3 FT Client

The FT Client is an interface to interact between the user's Transit Zone and an FTP / SFTP endpoint inside the system environment.

With valid credentials the user is able to login to a system with a running FTP / SFTP server. The files in the user's Transit Zone are visible and ready for further transferring.

VLX FT Client

vlxftclient:Administrator(vlx000)@mp-vlx32-ol7.tbsol.de

Connect

Exit

FT Group	Name	Host URI	FT user	FT protocol	Directory
FT-Dev	DevHost	root@mp-vlx32-ol7	root	sftp:22	/
FT-Dev	TestHost1	root@t2-ol7u2	root	sftp:22	/
FT-Dev	TestHost2	t2-ol7u2		sftp:22	/tmp
FT-Test	TestHost1	root@t2-ol7u2	root	sftp:22	/
FT-Test	TestHost2	t2-ol7u2		sftp:22	/tmp

DevHost [root@mp-vlx32-ol7] :/

TransitZone

Source

Name

user

Report.txt

user

FirefoxPortableLegacy52_52.9.0_English.paf.exe

Connect

Host

mp-vlx32-ol7

User

root

Protocol

sftp

22

Directory

/

Password

Connect

vlxftclient:Administrator(vlx000)@mp-vl

DevHost [root@mp-vlx32-ol7] :/

12:04

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Sync

Using a VISULOX implementation of **rdesktop** client, the user's directory in the Transit Zone will be passed to the application server.
All files from Transit Zone belonging to the user are visible and accessible for further processing.

14 Command Connect / Guard module

Command Connect and **Command Guard** provide a flexible way to access endpoints using a shell interface. Command Connect and Command Guard handle flexible groups and allow the user to send commands to multiple endpoints simultaneously.

Additionally, Command Guard has command level controls for the application. It allows and denies the usage of certain commands entered by the user. Also client and server side scripts can be issued either to multiple endpoints or to a single one.

CommandGuard:Administrator(vlx000@mp-vlx32-ol7.tbso1.de)

Connect
Manage private hosts
Close group
Exit

Group	# Hosts	File Transfer	Name	Host URI	Comment	Shell prot
CMDGuardGRP	3	☒ Enabled	DevHost	root@mp-vlx32-ol7		ssh:22
			TestHost1	root@t2-ol7u2		ssh:22
			TestHost2	t2-ol7u2		ssh:22

Connected | Hide | Scripts

CMDGuardGRP:ssh://root@mp-vlx32-ol7

ssh://root@mp-vlx32-ol7:22

```
[root@mp-vlx32-ol7 ~]# ls -la
total 96
drwxr-xr-x. 8 root root 4096 Mar 22 09:36 .
drwxr-xr-x. 18 root root 4096 Apr 26 2019 ..
-rw-r--r--. 1 root root 889 Feb 9 2017 anaconda-ks.cfg
-rw-r--r--. 1 root root 27970 Mar 22 09:36 .bash_history
-rw-r--r--. 1 root root 18 Apr 30 2014 .bash_logout
-rw-r--r--. 1 root root 176 Apr 30 2014 .bash_profile
-rw-r--r--. 1 root root 1351 Sep 26 2017 .bashrc
drwxr-xr-x. 2 root root 6 Sep 9 2019 bin
-rw-r--r--. 1 root root 100 Apr 30 2014 .cshrc
-rw-r--r--. 1 root root 15080 Oct 2 2017 epel-release-latest-7.noarch.rpm
-rw-r--r--. 1 root root 30 Aug 16 2019 key.txt
drwxr-xr-x. 2 root root 4096 Mar 8 2019 oracle_jre-usage
drwxr-xr-x. 3 root root 18 Oct 10 2018 .yki
-rw-r--r--. 1 root root 1024 Mar 11 15:09 .rmd
drwxr-xr-x. 2 root root 24 May 29 2018 .ssh
-rw-r--r--. 1 root root 129 Apr 30 2014 .tcshrc
drwxr-xr-x. 2 root root 6 Nov 9 2018 .vmware
drwxr-xr-x. 8 root root 4096 Jan 15 2018 x
-rw-r--r--. 1 root root 534 Mar 22 09:36 .Xauthority
[root@mp-vlx32-ol7 ~]#
```

Connected | Hide | Scripts

CMDGuardGRP:ssh://root@t2-ol7u2:22

ssh://root@t2-ol7u2:22

```
[root@t2-ol7u2 ~]# ls -la
total 44
drwxr-xr-x. 2 root root 4096 Mar 10 10:12 .
drwxr-xr-x. 18 root root 4096 Mar 4 08:53 ..
-rw-r--r--. 1 root root 967 Sep 23 2016 anaconda-ks.cfg
-rw-r--r--. 1 root root 3249 Mar 12 08:14 .bash_history
-rw-r--r--. 1 root root 18 Apr 30 2014 .bash_logout
-rw-r--r--. 1 root root 176 Apr 30 2014 .bash_profile
-rw-r--r--. 1 root root 176 Apr 30 2014 .bashrc
-rw-r--r--. 1 root root 100 Apr 30 2014 .cshrc
-rw-r--r--. 1 root root 1024 Mar 4 11:39 .rmd
-rw-r--r--. 1 root root 129 Apr 30 2014 .tcshrc
-rw-r--r--. 1 root root 239 Mar 10 10:12 .Xauthority
[root@t2-ol7u2 ~]#
```

Connected | Hide | Scripts

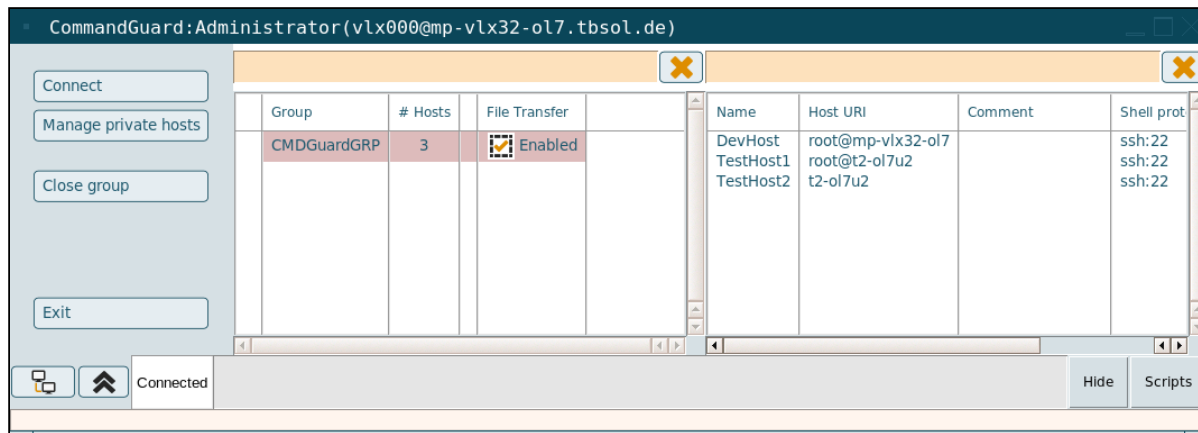
CMDGuardGRP:ssh://root@t2-ol7u2:22

ssh://root@t2-ol7u2:22

```
[root@t2-ol7u2 ~]# ls -la
total 44
drwxr-xr-x. 2 root root 4096 Mar 10 10:12 .
drwxr-xr-x. 18 root root 4096 Mar 4 08:53 ..
-rw-r--r--. 1 root root 967 Sep 23 2016 anaconda-ks.cfg
-rw-r--r--. 1 root root 3249 Mar 12 08:14 .bash_history
-rw-r--r--. 1 root root 18 Apr 30 2014 .bash_logout
-rw-r--r--. 1 root root 176 Apr 30 2014 .bash_profile
-rw-r--r--. 1 root root 176 Apr 30 2014 .bashrc
-rw-r--r--. 1 root root 100 Apr 30 2014 .cshrc
-rw-r--r--. 1 root root 1024 Mar 4 11:39 .rmd
-rw-r--r--. 1 root root 129 Apr 30 2014 .tcshrc
-rw-r--r--. 1 root root 239 Mar 10 10:12 .Xauthority
[root@t2-ol7u2 ~]#
```

Connected | Hide | Scripts

CommandGuard:Administrator(vlx00) CMDGuardGRP:ssh://root@mp-vlx32- CMDGuardGRP:ssh://root@t2-ol7u2 CMDGuardGRP:ssh://root@t2-ol7u2 7:31



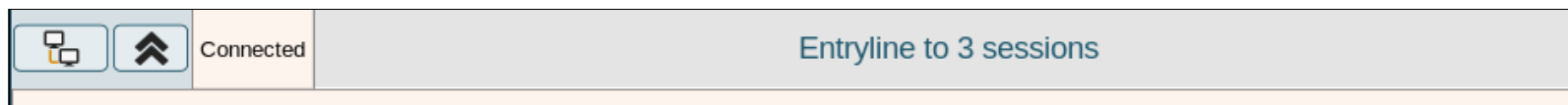
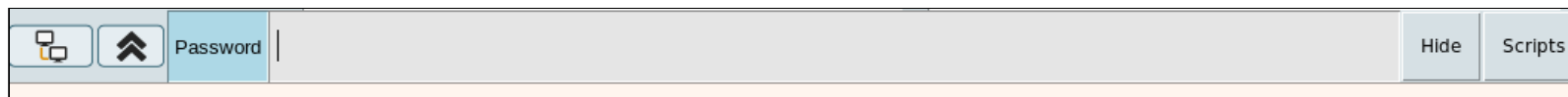
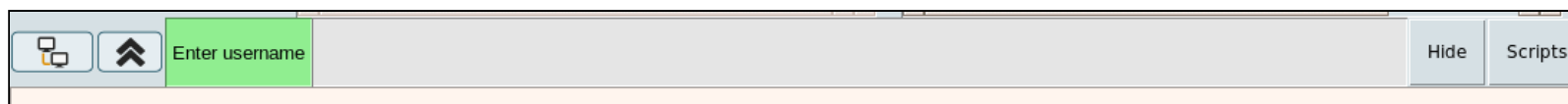
Available buttons:

- **Connect:** Opens a shell to all hosts in the selected group
- **Manage private hosts:** Own hosts can be managed for a selected group
- **Close group:** All sessions of the selected group will be closed
- **Exit:** Command Connect / Guard application and all open sessions are closed
- **Arrange:** Connected session windows will be rearranged
- **Collapse:** Collapse the console
- **Hide:** Hide the input in the entryline
- **Scripts:** Shows all available scripts for this group, a selected script can be applied on all open shells

To send a command to all connected shells, the input field of the Command Connect / Guard application can be used.



The status of the terminals is also shown. (enter username, password, connected, etc).

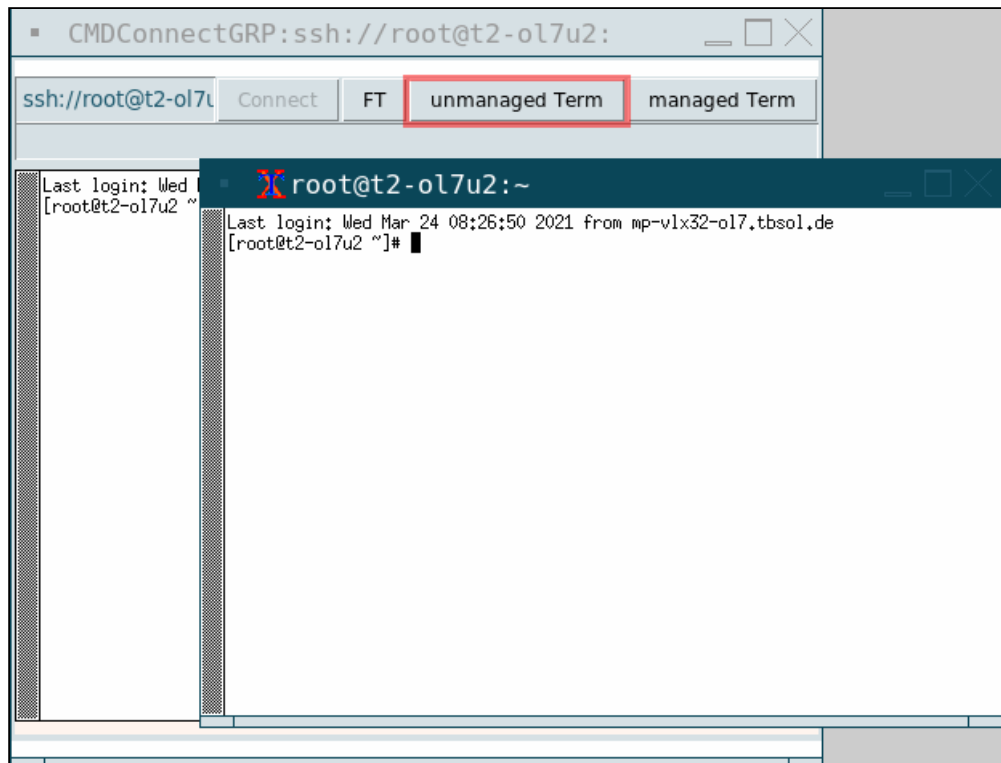


Each connection window also has its own input field and scripts button (CMD Guard), so that commands and scripts can be started only in this shell.

14.1 Unmanaged sessions (CMD Connect only)

In Command Connect one managed session per host is assigned to a Command Connect group. Additionally one more unmanaged session can be opened to a host via the "**Term**" button..

Such unmanaged sessions are closed together with the managed sessions. They are not taken into account with arrange, they are independent and unmanaged.



14.2 Temporary hosts group

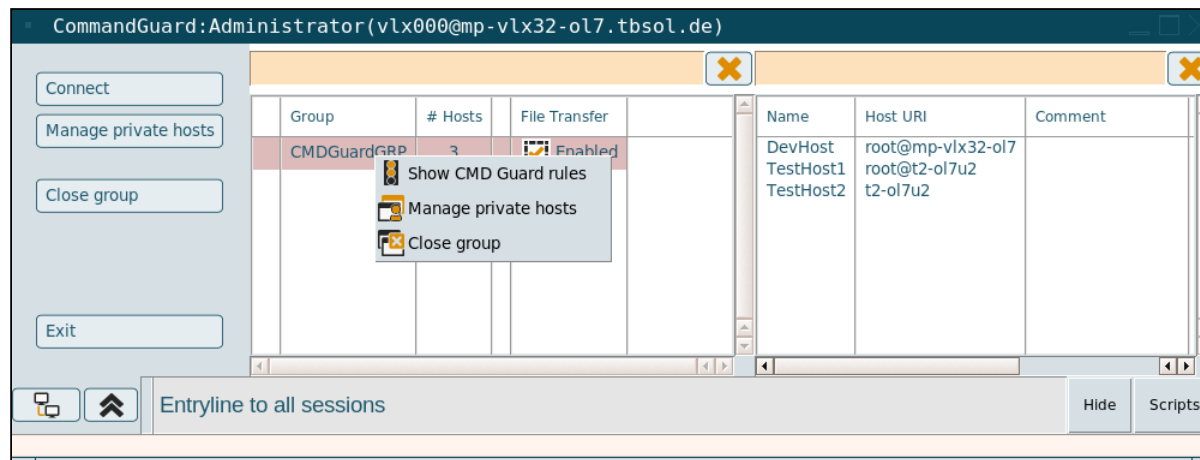
With a right click on an assigned host, the host can be added to a temporary group (@TMP).

Hosts can be added from any available groups to combine them in the new @TMP group.

14.3 Own hosts

Command Connect / Guard has the ability to manage own hosts.

To keep this under control, the admin defines a ruleset, what kind of hosts can be added. The ruleset is part of the Command Connect / Guard group.



With a right click on a group in Command Connect / Guard, the Guard rules (Guard only) can be displayed, own private hosts can be added (depending on the rules) or the group can be closed.

The private hosts are based on rules, the user is a string and the host is a string or an IP address.

Command Connect / Guard tries to resolve the name, then the rule is checked. If there are private hosts that are no longer valid, because the rule has changed, the invalid hosts can be purged with the "Purge hosts" button.

o=Tarantella System Objects/cn=Administrator



Host URI	Protocol	Host comment
t1-ol7u2	ssh:22	

Privat host  ssh 22

Host comment

14.4 Command blocked (CMD Guard only)

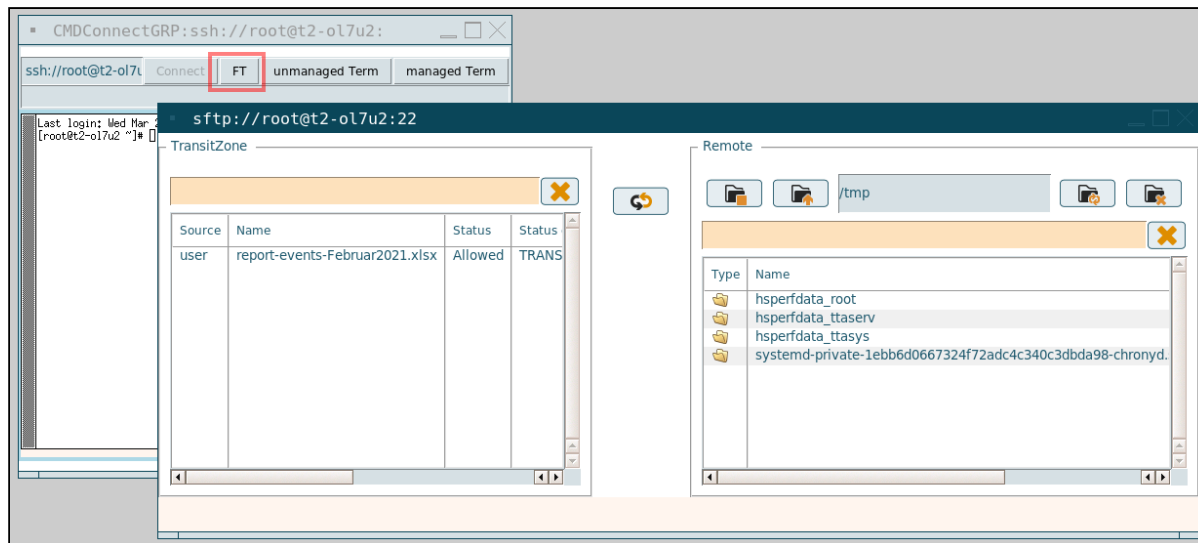
In Command Guard a ruleset defines the allowed commands. If a command is not allowed, a **Stop** sign is displayed and the command will not be executed.



14.5 File Transfer

If File Transfer is enabled to the host of the connection, an FT button is available to start the FT Client to the host.

Depending on the configuration it can be necessary to enter a username, a base directory and a password for the File Transfer connection.



With the FT Client component, the user is able to transfer files between the Transit Zone and the application server according to the underlying File Transit rules. (See also: [File Transfer modules](#))

15 Appendix_UG

15.1 Appendix

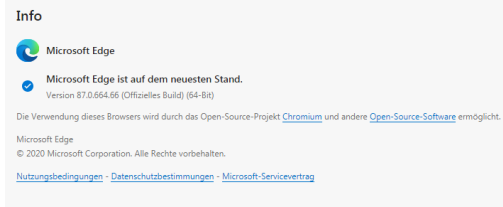
Troubleshooting and Glossary

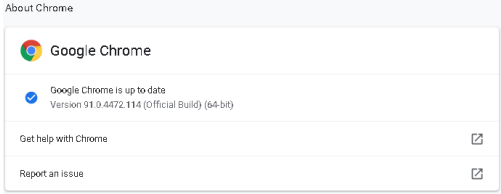
15.1.1 Troubleshooting

The following information can help to identify possible errors on the client side and it is useful to have them at hand, when contacting an administrator / support.

Version of the used browser

Displaying the version of the used browser (for example: Edge, Firefox and Chrome):

Microsoft Edge		Help and Feedback / Info about Microsoft Edge
Mozilla Firefox		Help / About Firefox

Google Chrome		Help / About Google Chrome
The supported browsers and browser versions by VISULOX are listed in the current documentation.		

Other settings:

The settings of the used browser should be checked and possibly critical settings or addons should be disabled (e.g. popup blocker, noscript, etc).

Microsoft Edge

Edge's settings should be changed to prevent idle tabs from sleeping, which can disconnect the workspace:

Disable sleeping tabs in Microsoft Edge:

1. Open Microsoft Edge.
2. Click the **three dots (⋮)** in the top-right corner and select **Settings**.
3. In the left sidebar, click **System and performance**.
4. Scroll down to the **Optimize Performance** section.
5. Toggle **off** the switch for:
 - **"Save resources with sleeping tabs"**

Optional: If you want more control, you can also add sites to the "Never put these sites to sleep" list.

After these changes, please set the following parameter on the VISULOX side:

```
visulox config -name api.sessioncookie.lifetime=240
```

General: Special characters in passwords

In mixed environments (Windows / Linux and also cloud services) there are so called **interoperability issues**.

Therefore the following rules should be considered:

The allowed characters in a password can vary depending on the recommendations of the particular website, platform or system. However, the following character types are generally recommended:

1. Characters: Upper case characters (A-Z) and lower case characters (a-z).
2. Numbers: (0-9).
3. Special characters:

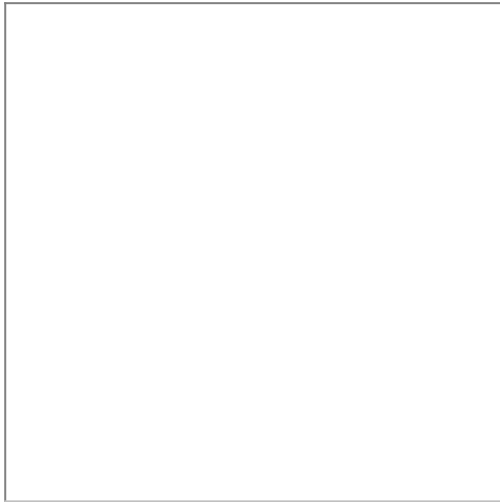
These may vary by system, but typically include:

- ! @ # \$ % ^ & * () _ - + = [] { } | \ : ' , . ? / ` ~ " ; < > .

VISULOX has been tested with these characters.

Application start via Workspace

When an application is started via Workspace a small **Connection Progress** window is opened. Mostly this window disappears immediately and the application is launched. If there is a problem with the connection to the application, then this window stays open and shows the errors occurred.



With **Paste & Copy** the output can be copied to a text file and send to a supervisor / support.

Error during start of an application in Workspace

It may happen, that the Client Component disappears or has no connection to the VISULOX PORTAL, the following error is displayed in the Workspace:

Workspace 

Error Detail

Launch failed.

Application:
.../_ens/o=applications/ou=Fernwartung/ou=Applikationen
Standard/cn=Desktop Standard
Fault Code: Server.NoTCCRresponse
Fault String: No response from the Secure Global Desktop
Client
Fault Detail:

>> Clear

In this case refreshing the Workspace (F5) or logging out and logging in again will solve the problem.

VISULOX shell script tracing

VISULOX Shell scripts are running in the background. Errors can be found in the log.

For testing, the following lines in the header of the shell scripts activate tracing:

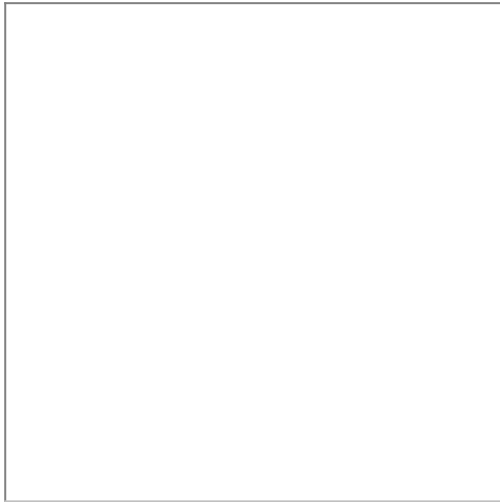
```
#!/bin/bash
# verify helpful lines
exec 99> <path to a log file>
BASH_XTRACEFD=99
set -x
```

Using Flash Player and checked out films

Flash is no longer supported.

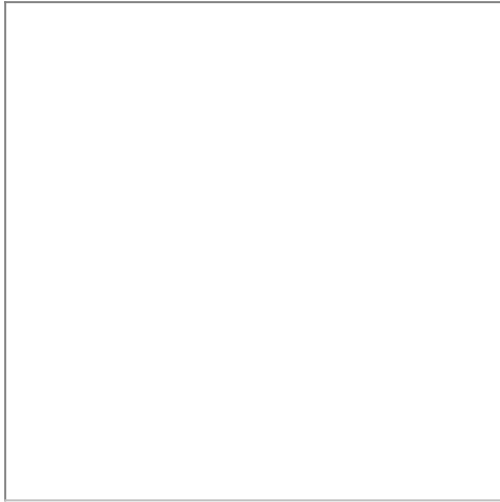
Citrix Receiver

Depending on the version of Citrix Receiver, the following error message can be shown:



The "**Cancel**"-button has to be used to close the window. The application starts as usual.

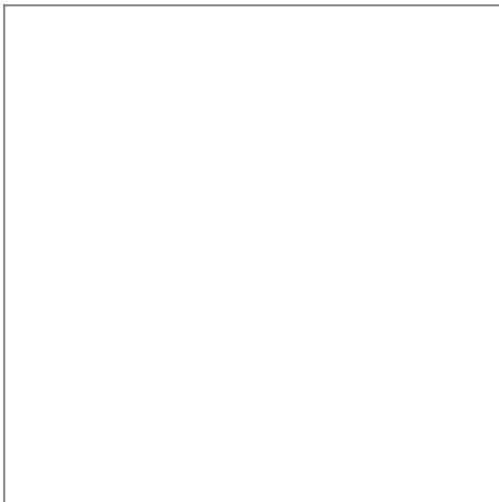
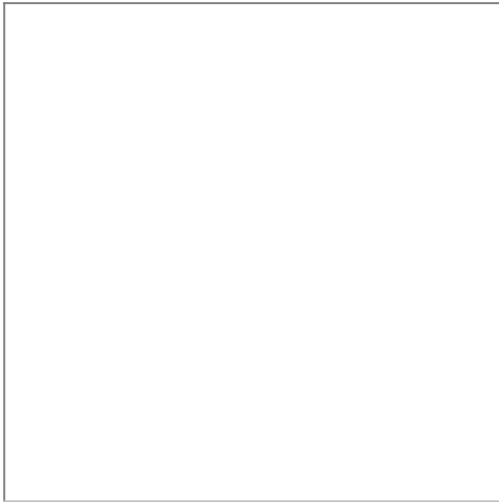
Also always take care, that the Citrix Receiver plugin is not blocked by the browser. Check plugin status via address bar icon in the browser:



Copy & paste for Mac OS

Use the following configuration steps for X11 to activate the copy/paste function in command Connect / X11 windows for Mac OS + XQuartz:

- Open the X11 preferences and activate “Emulate three button mouse”
- Enable all actions for Pasteboard / Clipboard



Paste = ALT + click

Copy = Select the text to copy it to the clipboard

Copy & paste in HTML5 sessions / application toolbar

When you are displaying an application, a toolbar on the left side of the application tab is shown. The toolbar has icons that can be used for some operations, such as copy and paste.

Icon	Description
	Copies the selected text to the clipboard.
	Pastes the selected text from the clipboard.
	Displays menu options for sending keyboard shortcuts to the application window.

Copying and pasting between applications

Copy and paste text to and from the client, and between applications. When the HTML5 Workspace is used, it is not allowed to access the local device's clipboard directly.

This means for copy and paste on the HTML5 Workspace there are extra stages necessary, compared to the standard Workspace.

The following changes apply for copy and paste:

- Data must be placed on to the HTML5 Workspace clipboard first, before it can be pasted to a remote application or to the client device.
The copy icon in the side toolbar can be used to retrieve the data that should be copied from an application and place it on the Workspace clipboard.

- The paste icon can be used to copy text to the client device's clipboard.

The following procedures describe how to copy and paste text for applications:

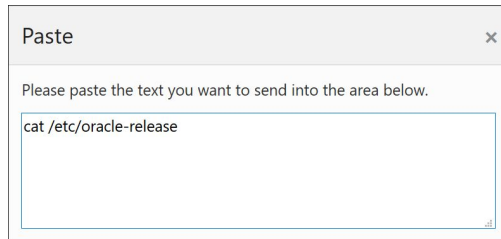
Copying from an application to a client device

1. Select and copy the text in the application.
Use the normal method for the application you are copying from. For example, use a menu option in the application.
2. Retrieve the text from the application.
Click the Copy icon in the application toolbar.
Click Confirm to allow the application to copy text to the client device clipboard.
3. Paste the copied text into an application on the client device.

Use the normal method for the application you are pasting to. For example, use a menu option in the application.

Pasting to an application from a client device

1. Select and copy the text from the application on the client device. Use the normal method for the application you are copying from.
For example, use a menu option in the application.
2. Retrieve the text from the client device clipboard. Click the Paste icon in the application toolbar. The Paste dialog is shown:
3. Paste the copied text into the text box on the paste dialog.
Do either of the following:
 - Right-click and select paste.
 - Use the Ctrl-V keyboard shortcut.This will automatically close the paste dialog.
4. Paste the copied text into the application.
Use the normal method for the application you are pasting to. For example, use a menu option in the application.



Copying between applications

1. Select and copy the text in the first application. Use the normal method for the application you are copying from.
For example, use a menu option in the application.
2. Retrieve the text from the application.
Click the Copy icon in the application toolbar.
3. Switch to the second application.
The copied text is sent automatically to the second application.
4. Paste the copied text into the second application.
Use the normal method for the application you are pasting to. For example, use a menu option in the application.

Sending local keyboard shortcuts to the remote application

The Windows key and keyboard shortcuts for managing windows can be sent to the remote session.

1. Click the keyboard icon in the application toolbar.
Options are shown for inserting one of the following remote keyboard shortcuts:
 - Ctrl-Alt-Del
 - Windows key
2. Click the required remote keyboard shortcut.
The key presses are sent to the remote application window.

15.1.2 Glossary

Expression	Description
3PA	Third Party Authentication / 3rd Party Authentication
Access Branding	With Access Branding it is possible to display different login page designs for different users according to their access point.
Access Management	Enhanced VISULOX Concept for administrating the access of users
AD	A ctive D irectory
AIP	A daptive I nternet P rotocol: Client communication protocol from the VISULOX PORTAL Service
Ambiguous login	The situation where an authentication mechanism has found more than one match for a user and cannot distinguish between them without further information from the user
Annotation	A short text, that can be entered before a recorded session is confirmed, during a recorded session or in VISULOX Cockpit / Archive for closed sessions
API	A pplication P rogramming I nterface
Application server	A server which provides applications, that can be accessed via the VISULOX PORTAL

Application session	See: emulator session
Args	The arguments an application is started with
Assist / Assistance	See: Assisting Cooperation
Assisting cooperation	Within the VISULOX Cockpit, the user can select an application and press assist to join the application. The owner of the application selects the cooperation mode
Chapter	A chapter equals 20 minutes film of a recorded session
CLI	C ommand L ine I nterface
CMD	The command / path an application is started with
Cooperation	When two or more users are watching or working with the same application in realtime on their own desktop
Cooperation master	The user, who has started the application (owner) will be the master of this application in a Cooperation
Cooperation member	A user, who is not owner of an application and who is not able to switch the cooperation modes

Cooperation modes	On hold: Member is assigned to a Cooperation, but does not participate Observe: Member is able to watch the Cooperation application, but can not interact Interact: Member can interact with the application
CP	Short form for Cooperation
Datastore	Internal VISULOX PORTAL Service database, where all defined objects (users, hosts, applications) are stored. A VISULOX PORTAL Array replicates the datastore between all members simultaneously
DMZ	Demilitarized zone (Perimeter zone)
DSI	D irectory S ervice I ntegration
Dual Control	Cooperation enforcing a real four-eye-principle
ELU	E xtended L icense U sage - When ELU has expired, its not possible to start more recorders or display more users than allowed under MD / Status, max users / recorders
Emulator session	The running session, when an application is started with the Workspace on an application server
Expect script	VISULOX PORTAL connection script started during the launch of an application
External DNS name	The name by which an VISULOX PORTAL Server is known to a client device. A VISULOX PORTAL Server can have multiple external DNS names.

File Exchange	File Transfer web access for transferring files between a client and the Transit Zone for users without access to the VISULOX PORTAL
File Transfer Client	VISULOX Component for transferring files securely from Transit Zone to application servers and back
Film	Summary of the recorded chapters
Forced authentication	When VISULOX PORTAL prompts for a user name or password, by displaying an authentication dialog box For example, if a user holds down the Shift key when clicking on an application's link on the Workspace
FQDN	Fully Qualified Domain Name - The full name of a system, containing its hostname and its domain name. For example: portal.visulox.com , where portal is the hostname of a server, and http://visulox.com is the domain name
Group Access	Group Access is used to define an Access Policy for a specific list of users. This is needed when users are working together in a project and the project is represented by a group object in the repository
Host object	Host objects can be assigned to File Transit, Command Guard and Command Connect groups.
Host Connect	See: VISULOX Command Connect / VISULOX Command Guard
IAR	Intelligent A rray R outing
ICA	Independent C omputing A rchitecture: Client communication protocol from Citrix
Integrity-Check	Tool to check the VISULOX components and services

Internal / external message	The VISULOX Service supplies an external message for the login page and an internal message for the user's Workspace
Kiosk mode	VISULOX PORTAL display mode, where an application is displayed in full-screen
LDAP	L ightweight D irectory A ccess P rotocol
LDAPS	L ightweight D irectory A ccess P rotocol over SSL . Used for secure connections to an LDAP directory.
LID	Short form for L icense ID - Contains the date, the license started
Management Console	See: VISULOX Cockpit
MFA	M ulti F actor A uthentication
Native Client	A VISULOX PORTAL component that can be installed on client devices. The client maintains communication with the VISULOX PORTAL Server and is required to run applications
NEP	Short form for N etwork E ntry P oint
Network Entry Point	See: RIP
NFS	N etwork F ile S ystem

Notifications	Implemented notification system for access, Workspace / File Transfer and emulator sessions in the VISULOX Services
Object	A self-contained entity, defined by a number of attributes and values. VISULOX PORTAL Objects have different types, such as an X application. The available attributes for each type are defined by a schema
One Time Passcode	The One Time Passcode is used for authentication and will become invalid after usage. A provided OTP is based on a secret key and the time via a smartphone APP
Organization object	A VISULOX PORTAL Object used to represent the top level of an organizational hierarchy. Organization objects can contain OU= or user profile objects. Organization objects have an O= naming attribute.
Organizational hierarchy	The collection of objects in the VISULOX PORTAL Datastore, descending from one or more organization or domain component objects. Represents the collection of people, application servers, and applications within an organization.
Organizational unit object	A VISULOX PORTAL Object used to distinguish different departments, sites, or teams in an organizational hierarchy. Organizational unit (OU) objects can be contained in an organization or domain component object. Organizational unit objects have an OU= naming attribute
OTP	Short form for One Time Passcode
Peer DNS name	The name by which an VISULOX PORTAL Server is known to other VISULOX PORTAL Servers in the same array
Primary server	The VISULOX PORTAL Server that acts as the authoritative source for global information, and maintains the definitive copy of the VISULOX PORTAL Datastore
RDP	Remote Desktop Protocol : Client communication protocol from Microsoft
Remote IP	Remote IP address, the information, from where a client request is coming

Report	The VISULOX Service is collecting data about workspace sessions, emulator sessions, recordings and cooperations. The information can be clearly arranged in reports. In VISULOX Cockpit a variety of possible reports can be created on several pages
Resume	To redisplay an application session that has been suspended. See also: suspend
RIP	Short form for R emote I P address
RVA	R emote V endor A ccess
S & M	Short form for S upport and M aintenance
Secondary server	An array member that is not the primary server. The primary server replicates information to secondary servers.
Session	The VISULOX PORTAL generates a session for any X11 or RDP application, which has an unique session ID
SIEM	S ecurity I nformation and E vent M anagement
SOX	Short form for S arbanes- O xley A ct
SSL certificate	A digital passport that establishes credentials on the web. In VISULOX PORTAL Service, allows client devices to trust the identity of a VISULOX PORTAL Server
Suspend	To pause an application session. A suspended application is not closed, it can be resumed. See also: resume
TAP	Short form for T emporary A ccess P IN, part of the Multi Factor Authentication (MFA)

TCL	Programming Language. Most of the VISULOX products are based on TCL
Temporary Access PIN	VISULOX method for the Multi Factor Authentication (MFA)
TFN	Tarantella Full Naming, X.500 format to address a VISULOX PORTAL object
Transit Zone	Zone, where files are transferred from/to application servers/clients
VAP	Short form for V irtual A ccess P oint
Virtual Access Point	VISULOX method to get an independent URL of the VISULOX Access Nodes for reliability and Workspace balancing
VISULOX Access Node	Node running the VISULOX PORTAL Service and the VISULOX Service
VISULOX Base	Single VISULOX Node
VISULOX Cluster	Two or more VISULOX Nodes, that are joined together because of scalability, redundancy and load balancing
VISULOX Cockpit	Central VISULOX application to control sessions, access, recording, cooperations and to generate reports
VISULOX Command Connect	VISULOX component, which provides the possibility to connect to multiple hosts and to open an X-Client on these hosts. The connection method can be SSH, RDP or telnet. Former: Host Connect

VISULOX Command Guard	VISULOX component, which provides the possibility to connect to multiple hosts and to open an X-Client on these hosts Command Guard has command level controls for the application. It allows and denies the usage of certain commands by the user Additionally server side scripts can be issued either to multiple endpoints or to a single one
VISULOX Common Access Platform	The whole environment, that is built with the VISULOX GATEWAY, VISULOX Portal Service, VISULOX Service and databases
VISULOX Data	VISULOX Database and VISULOX Filestore
VISULOX Filestore	File system which stores the films. 5 MByte per user and per hour. Recommended for VISULOX is a local disk with 150-250 GB, for VISULOX Archive Node depending on the lifetime of films, up to x TB on a NAS/SAN storage
VISULOX GATEWAY	The VISULOX GATEWAY is a proxy server designed to be deployed in front of a VISULOX PORTAL Array in a demilitarized zone (DMZ). This enables the VISULOX PORTAL Array to be located on the internal network of an organization. Additionally, all connections can be authenticated in the DMZ before any connections are made to the VISULOX PORTAL servers in the array. The VISULOX GATEWAY manages load balancing of HTTP connections for the VISULOX PORTAL Servers in the array.
VISULOX Host Connect	See: VISULOX Command Connect
VISULOX Hotfix	Tool to check the software status in the cluster, backup and apply hotfixes
VISULOX keystroke recording with analyzing engine	In this recording mode all user keyboard interactions are registered and can be checked for unwanted entries (analyzing engine)

VISULOX Node	Node running the VISULOX Service to control sessions, films and recorders
VISULOX PAM	VISULOX Privileged Access Management
VISULOX PORTAL Array	Two or more VISULOX Access Nodes, that are joined together because of scalability, redundancy and load balancing
VISULOX PORTAL Benchmark	Tool to create a defined number of demo-users, who log into the VISULOX PORTAL and start recorded applications automatically. All settings can be configured easily within a GUI
VISULOX PORTAL Console	Web-based management console for the VISULOX PORTAL Service (Former: Administration Console)
VISULOX PORTAL Web Server	A pre-built web server installed and configured along with the VISULOX PORTAL Service, contains Apache, mod_ssl for HTTPS support, and Tomcat for Java Servlet and JSP support
VISULOX PORTAL Web Services	An API collection that allows developers to build their own applications to work with the VISULOX PORTAL Service. The APIs can be used to authenticate users, launch applications, and interact with the VISULOX PORTAL Datastore
VISULOX Revision Server	VISULOX Node which replicates the production database into Revision Server database and transfers the films from the production filestore into the Revision Server filestore (also known as Archive Server)
VISULOX Service Group	See: VISULOX Cluster

VISULOX Short Support Report	A Short Support Report to send via eMail created with visulox support -info . The Short Support Report should be sent to the VISULOX Support Team every time a new Support Request is opened
VISULOX Support Report	Package generated by the visulox support command, containing all information, necessary for support
VISULOX Transit Area	File Transfer component embedded in the Workspace to transfer files between client and Transit Zone
VISULOX Transit Mapping	To setup the VISULOX Transit Zone on Unix application servers, that are not a VISULOX Node, an RPM file is available for installation.
VISULOX Videolog Player	Player to view the recorded films inside the VISULOX Cockpit or checked out films in a browser
VISULOX Webservice User	Each VISULOX Service needs this user in the datastore to read the webservices on the VISULOX Access Nodes. The VISULOX webservice user has to be setup once in the datastore
VISULOX_Setup.xls	Excel-sheet, which has to be filled out in the planning phase by the responsible project leader, together with the amitego consultant
vlxMode	VISULOX variable set in the VISULOX PORTAL Console
VLX Password SelfService	Active Directory (AD) and Oracle Unified Directory (OUD) users are able to change their password by themselves with this application assigned.
Webtop	In the current version, the Webtop is called the Workspace . A Workspace is the term used to describe a user's applications, documents, and desktops. See: Workspace

WM	Short form for Window Manager
Workspace	The Workspace is displayed after logging into the VISULOX PORTAL. It is a special web page, that lists the applications that are assigned to the user
Workspace balancing	VISULOX load balancing mechanism including a virtual access point
Workspace session	The running session, after a user has logged into the VISULOX PORTAL via browser or Native Client
X11 forwarding	The process of forwarding, or tunneling, the windows of a remotely started X application to a client desktop
X Window System	A distributed window system for UNIX platform operating systems, based on the X11 protocol. Also called X11, or X Windows
X.509 certificate	See: SSL certificate