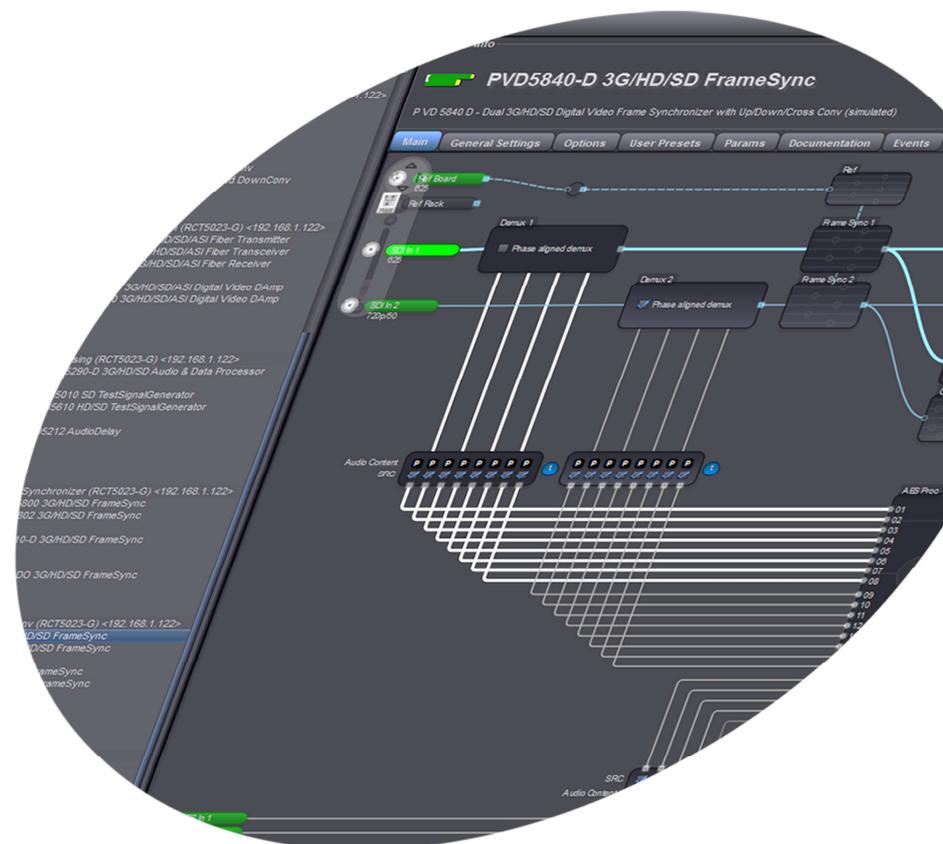


APPolo | Control™

User Management

User Guide

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Contents

Overview	2
LYNX Series5000 and APPolo.....	3
The Basics.....	3
Login	3
Permissions	4
Working Offline	4
APPolo Login Modes	5
Login to all Servers Mode.....	5
Login to Selected Servers Mode	6
Working in Offline mode	7
Automatic detection of LYNX network devices.....	7
User Accounts.....	7
User Admin Rights	9
User Accounts in multiple APPolo Servers	9
Tool Permissions	9
Concept	9
How to set it up.....	10
Tool Permissions in multiple APPolo Servers.....	10
Permissions to individual CustomControl Designs.....	11
General Administration Rights for a limited time.....	11
Summary.....	13

Overview

This User Guide explains the concepts of User Access control and Permission Management in the LYNX APPolo Control System. This paper should make it easy for you to plan, setup and maintain a LYNX APPolo Control System installation. This includes the possibility to control (and potentially even restrict) access to certain functions for individual users.

LYNX Series5000 and APPolo

A typical LYNX Technik Series5000 Signal Processing System consists of RackFrames with boards, RackControllers, and the APPolo Control System.

The APPolo Control System is a fully integrated, intelligent and programmable remote control system for the LYNX Technik Series5000 Signal Processing solutions. All LYNX Technik Series5000 modules are APPolo-ready. They include fully integrated support for APPolo, and can either be used with the APPolo Control System or as standalone modules.

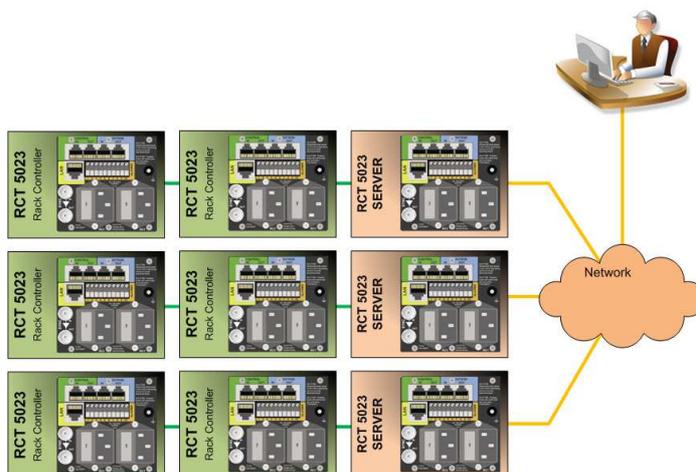


Figure 1: Multiple APPolo GUI clients are connected to one LYNX Series5000 System with multiple APPolo Servers

Each Series5000 RackFrame requires an RCT 5023 RackController to connect to the APPolo Control System. For large applications, an optional dedicated APPolo Control Server represents a central part of the APPolo Control System. The RackController and the APPolo Server are logically attached to each other via an IP network. All APPolo users, as well as any 3rd party Master Control system can connect to the APPolo Control Server. Browse appolo.lynx-technik.com for other general information on the LYNX APPolo Control System.

The Basics

Login

When a user wants to connect the LYNX APPolo GUI to a LYNX Server, he will have to supply a username together with a password. The GUI will then send that username and password over the network to the LYNX Server. The LYNX Server will verify that the specified user actually exists in its internal list of known users, and it also verifies the correct password. After successful login of a user into the LYNX Server, the APPolo GUI is "connected" to that Server. See section "APPolo Login Modes" on page 5 for more details on the login process.

NOTE: At any point in time, a given APPolo GUI can be connected to a given LYNX Server only once, using one particular username. If you want to connect the APPolo GUI to

the same LYNX Server as a different username, you will have to disconnect first, and then re-connect with a new username/password..

When delivered from the factory, a new LYNX Server has the following two user accounts already configured and ready to be used:

- username `ctrl` is provided for regular operational use
(default password `lynx$ctrl`)
- username `admin` is provided for setup and/or administrative access
(default password `lynx$admin`)

NOTE: It is recommended to use the "admin" account for administrative tasks only, and to work as user `ctrl` in normal operational situations. See section "General Administration Rights" on page 11 for details on acquiring temporary administration rights.

NOTE: It is recommended that every individual username (e.g. "ctrl" or "operator12") should be configured equally on all LYNX Servers in a LYNX system (same name, same password on all servers). The APPolo GUI's User Accounts editor will assist you with this goal. For more details, see section "User Accounts" on page 7.

Permissions

After successful login, the LYNX Server will send information back to the APPolo GUI about the particular permissions of that user. The GUI will then adapt its own appearance according to this information (and potential restrictions). As an example, the LYNX Server would tell the GUI, that user "operator12" is not allowed to access the Backup/Restore functionality. Accordingly, the GUI would now hide the appropriate tools "Backup" and "Restore", so that the current user cannot access these functions at all.

NOTE: It is recommended that the permissions (i.e. APPolo Tools) per user should be configured equally on all LYNX Servers in a LYNX system for each user (same permissions on all servers). The APPolo GUI's Tool permissions editor will assist you with this goal. For more details, see section "Tool Permissions" on page 9.

When a CustomControl Design is published onto a Server, the use of this one Design can be restricted to individual users. This is an even more fine-grained control over the capabilities of an individual user. Please refer to the "CustomControl User Guide" for more details (free PDF download from appolo.lynx-technik.com).

Working Offline

Instead of logging into one or more Servers (as explained in the next section), the user can also decide to NOT log into any LYNX Server at all. He would then be working in "Offline" mode. This Offline mode can be useful when working with a

simulated system, e.g. to prepare a CustomDesign before publishing it onto a server. See section “Working in Offline mode” on page 7 for more details.

APPolo Login Modes

Click on the “Login” button in the top right-hand corner of the APPolo GUI’s main window to open the Login dialog (Figure 2). Here you have to specify a username together with a password. The difference between the two different login modes is explained in the sections below.

Click “OK” to actually start the login process. Alternatively, you can click “Offline” if you do not want to connect to any network unit at all. More details on working offline are explained on page 7.

After successful logging in (as shown below), you can always log back out again, by clicking the “Logout” button in the top right-hand corner of the APPolo GUI main window.



Figure 2: Login dialog provides two modes

Login to All Servers Mode

This is the easiest mode of operation and it is recommended for most regular LYNX systems. After clicking OK, the APPolo GUI will automatically attempt to login to all available LYNX Servers on the network, using the same username and password that are specified here. When a LYNX Server is connected to the network later, it will then be detected and connected automatically as soon as it becomes available. See page 7 for a short description of the mechanism that is used to automatically detect LYNX devices in the network.

The optional “Auto Login as Startup” checkbox is relevant for the next re-start of the APPolo GUI application. If this checkbox is enabled, the GUI will begin the automatic login procedure (as described above) directly after it has been started up on the workstation. This is the default, so that all connections from the GUI to all Servers shall be re-established as soon as possible. If this checkbox is NOT enabled instead, then the APPolo GUI will present this login dialog (Figure 2) each time it is started up.

NOTE: The special Features "User Accounts" and "Tool Permissions" are only available when using the "Login to All Servers" mode. I.e. these features are NOT available when using the alternative "Login to Specified Servers" mode.

Login to Selected Servers Mode

The "Login to Selected Servers" mode can be chosen as an alternative to the default "Login to All Servers" mode (which is described in the previous section). In this "Login to Selected Servers" mode, the APPolo GUI will NOT automatically detect and connect available LYNX Servers in the network. Instead, the user has to manually specify those LYNX Servers that shall be connected. I.e. the APPolo GUI will attempt to connect to the configured servers only. At the same time, the APPolo GUI will ignore any other LYNX Server that may potentially be available also.

This login mode represents the behavior of LYNX APPolo GUIs prior to RELEASE 8.0.0. It can be useful in special cases, e.g. when many LYNX Servers, representing multiple independent LYNX Systems, are connected to the same identical LAN. While the default "Login to all Servers" mode would connect to all of these LYNX Servers and thus the APPolo GUI would present the multiple independent LYNX Systems in one view, this "Login to selected Servers" mode could be used to login to a selected (and fixed) sub-set of the available LYNX Servers only, ignoring all others.

As described above, in this mode, each connection from the APPolo GUI to any of the LYNX Servers has to be specified manually. This is done in the "Connection Manager" Tool on tab "Network Connections Editor". Please refer to the APPolo Quick Start Guide for more details (free PDF download from appolo.lynx-technik.com).

When using this "Login to selected Servers" mode, it can happen that none of the pre-configured LYNX Servers is available, or that no LYNX Server has been (manually) configured for login. In these cases, the GUI will generate a warning message (Figure 3). If you see this message, please go to the "Connection Manager" Tool and select the "Network Connections Editor" page to connect the APPolo GUI to an existing server.

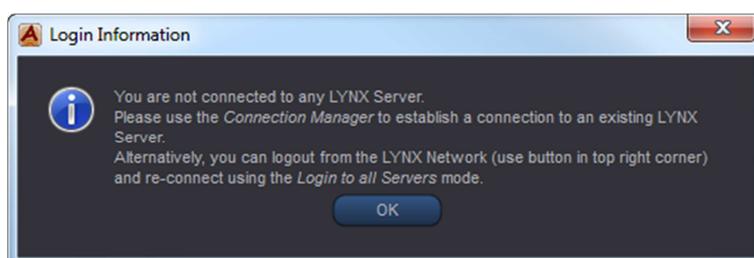


Figure 3: Selected Servers not available

NOTE: We recommend to use the new default mode "Login to all Servers" (explained on page 5) whenever possible. The "Login to selected Servers" mode requires more administrative configuration work. It is therefore recommended for special cases

only. I.e. for every change in the infrastructure of the LYNX Control System (e.g. change of IP address in a LYNX Server, addition of a new LYNX Server etc.), this mode requires a manual interaction in the APPolo GUI.

NOTE: The special Features "User Accounts" and "Tool Permissions" are only available when using the "Login to all Servers" mode. I.e. these features are NOT available when using the "Login to selected Servers" mode.

Working in Offline mode

Instead of logging into one or more servers in one of the connection modes (explained above), the Login dialog can also be used to work in "Offline" mode. In Offline mode, the APPolo GUI will not connect to any LYNX Server at all. This mode can be used when no network connection is available, or when an existing LYNX System shall not be influenced at all.

A simulated LYNX system can be enabled in the "Main" Tool (menu "View" -> "Device Simulation") and will present the user-interface of all LYNX processing devices in a simulated multi-RackFrame system. These simulated devices can even be used to configure a CustomDesign Panel or some AutoControl Rules. Go to appolo.lynx-technik.com for more details on CustomControl and AutoControl.

NOTE: Local connections from the APPolo GUI to LYNX RackFrames over a USB cable are still possible in "Offline" mode.

Automatic detection of LYNX network devices

The login mode "Login to all Servers" uses Ethernet Broadcasting to detect available LYNX Devices on the network. Depending on your network infrastructure, this method may or may not be capable of detecting all of your LYNX Servers. If you want to add a specific LYNX Server by IP address and this server cannot be detected automatically, you can open the "Connection Manager" Tool and go to the tab "Network Connections Editor". Type the known IP address into the field "Find a specific IP address" and hit the RETURN key. This will try to identify a LYNX device at the specified IP address.

User Accounts

As explained earlier, each LYNX Server is configured for a number of user accounts. Each user account has a username and a password. This combination of username and password has to be provided for any client to login to the LYNX Server. The APPolo GUI is one such client. But any external software service that wants to connect to the Server through the LYNX RemoteIF API also has to use one of the configured users (see appolo.lynx-technik.com for more details on remote control).

Every Server is delivered from the LYNX factory pre-configured with two user accounts ("ctrl" and "admin", see page 4). Additional users can be added and deleted as required and their passwords can be modified (exception: the user "admin" cannot be removed).

The APPolo GUI contains a user-friendly tool that provides convenient access to maintenance of user accounts in a LYNX Server. The following text and screenshots explain the usage of this graphical user account management tool. See section "User Accounts in multiple APPolo Servers" on page 9 for explanation of additional aspects that are relevant when maintaining user accounts across multiple LYNX Servers.

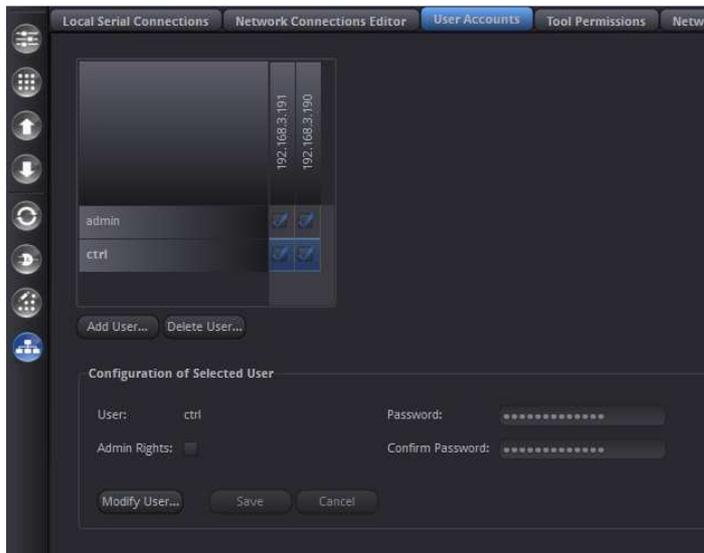


Figure 4: User Accounts management page

The "User Accounts" management page is part of the "Connection Manager" Tool (see Figure 4). It lists all user accounts that are configured for all available LYNX Servers.

NOTE The "User Accounts" capabilities can be used only when working in "Login to all Servers mode". See page 5 for details.

The following functions are available for making modifications to user accounts:

- "Add User ..." : create a new user on the server
- "Delete User ..." : remove an existing user from the server
- "Modify User ..." : change configuration of an existing user on the server

Clicking any of these buttons for the first time will open a popup window and ask for the admin-password for this LYNX Server (you need admin-permission to modify any of these settings). After the correct admin password has been entered, modifications are allowed for a limited time. This status is shown in the "Editing" Box on the right side in Figure 4. Refer to section "General Administration Rights for a limited time" on page 11 for more information on acquiring temporary administration rights.

User Admin Rights

If you want to grant “administrative” permissions to one of your users, but you do not want to give them the admin-password, then you can enable the “Admin Rights” checkbox for this user. As a consequence of activating this “Admin Rights” capability, the user has access to almost all of the functions that are otherwise protected by the “admin”-password.

User Accounts in multiple APPolo Servers

The “User Accounts” management page controls user-accounts and their passwords for multiple LYNX servers at once. This page has been designed so that usernames and their passwords are, by default, configured identically on all LYNX Servers. If the password for a given user is NOT set identically on all servers, then there will be a warning message on the “User Accounts” page.

NOTE: It is strongly recommended to keep the usernames and their passwords identical on all LYNX Servers in a given system. Therefore, please make sure that all your servers are connected before you make changes to the User Configuration, so that the changes are stored on all servers.

Tool Permissions

Concept

After the APPolo GUI has logged into a server as a specific user, the server will send information back to the GUI about the Tool Permissions that have been stored on the server for this particular user. This information tells the APPolo GUI which of the GUI’s Tools shall be made available for the current user (Tools are available from the APPolo GUI’s “Tools” menu, see Figure 5).

By default, all Tools are available to all users. But an administrator can use the “Tool

Permissions” feature to restrict access to individual Tools for an individual user. As an example, an “operator” user could be given access to the “CustomControl” Tool only (all other Tools would NOT be available). As a consequence, APPolo GUI would present the “CustomControl” Tool page only, with no possibility to get to any other Tool (like Backup, Restore, AutoControl, Main Control, ...). This feature, in combination with the “User Accounts” feature (explained above), makes the LYNX

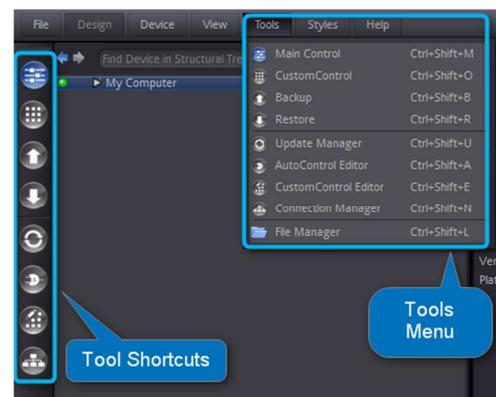


Figure 5: Tools Menu

APPolo GUI a very powerful and flexible application that can be adapted for many different use cases.

NOTE The "Tool Permissions" capabilities can be used only when working in "Login to all Servers mode". See page 5 for details.

How to set it up

The "Tool Permissions" page is part of the "Connection Manager" Tool (see Figure 6). Administration Rights are required for modification of any settings on this page. See section "General Administration Rights for a limited time" on page 11 for more information.

By default, all Tools are made available to a given user. This page can be used to revoke access to one or more Tools for an individual user.

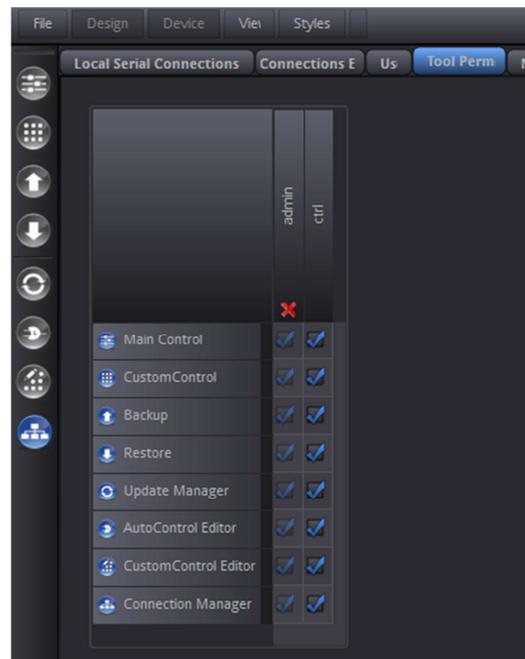


Figure 6: Tool Permissions management page

Tool Permissions in multiple APPolo Servers

The "Tool Permissions" management page controls Tool Permission configurations for multiple LYNX servers at once. All settings are stored on all current servers simultaneously. If the Tool Permissions configuration for a given user is NOT set identically on all current servers, then there will be a warning on the "Tool Permissions" page (Figure 7).

NOTE: It is strongly recommended to keep the configuration of Tool Permissions identical on all LYNX Servers in a given system. Therefore, please make sure that all your servers are connected before you make changes to the Tool Permissions configuration, so that the changes are stored on all servers.

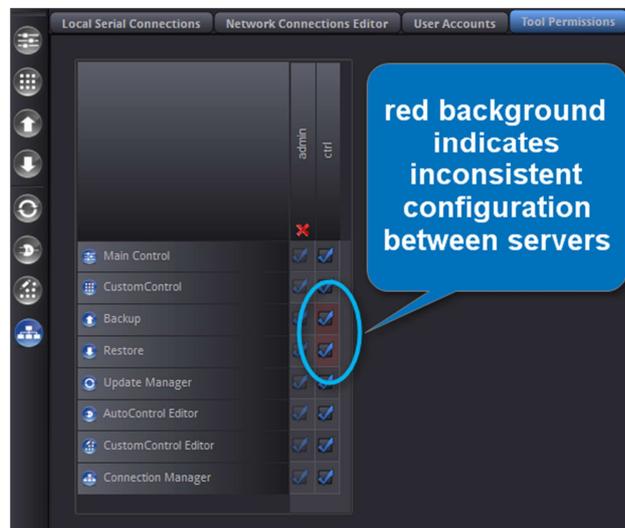


Figure 7: Tool Permission not consistent on all servers

If the Tool Permissions should NOT be configured identically on all current servers, then the APPolo GUI will still show that Tool. The associated functionality will, however, NOT be effective on the server(s) that do not allow this tool for the

current user. As an example: User "operator" is logged into two servers A and B. Server A allows access to the Tool "Backup" for user "operator", while Server B does NOT allow access the Tool "Backup" for user "operator". As a consequence, the APPolo GUI will list the Tool "Backup" in the "Tools" menu and the user can open the "Backup" page. But on that page, it will not be possible for the current user "operator" to make any Backup on Server B. Server A is available for Backup operations in the regular way.

Permissions to individual CustomControl Designs

The "Tool Permissions" capabilities, as described above, make it possible to control the accessibility of individual APPolo GUI Tools (such as "Main Control", "CustomControl" "Backup", "Restore", "Update Manager", "AutoControl", "CustomControl Editor", "Connection Manager") for individual users.

With respect to CustomControl, this means that an individual user can either have access to the CustomControl Tool as a whole, or they can be excluded completely from access to CustomControl. Inside the CustomControl Tool, many different CustomControl Designs can be available because they have been "published" to a server. Consequently, if the user has access to the CustomControl Tool (as described above), then, by default, all of those individual CustomControl Designs are available for use.

As an additional level of access control, the CustomControl Feature allows for publication of individual CustomControl Designs on a user-by-user basis. This means that if two different CustomControl Designs have been published to a server, one of these Designs can be made accessible for user A, while user B can only access the other Design. Please refer to the "CustomControl User Guide" for more details (free PDF download from appolo.lynx-technik.com).

General Administration Rights for a limited time

As stated earlier, it is recommended to work with a LYNX System (consisting of one or more servers) as a regular user, i.e. not as user "admin". As with any computer system, this is just general good practice because it prevents from accidental modifications to fundamental configuration aspects. When a certain action requires administration privileges (and if the current user is not configured the "User Admin Rights", see page 9), then it is possible to acquire administration rights for a limited time. This means that instead of having to log out of the server and then re-login as user "admin", the current user remains logged in. But in a special window, the current password of user "admin" can be entered. After entering the correct "admin" password, all administrative tasks are allowed for the next 10 minutes.

After 10 minutes of inactivity (no GUI actions), the special “Temporary Administration Rights” are revoked and regular operation as regular user continues. The “Temporary Administration Rights” can manually be terminated at any time, i.e. before 10 minutes have passed by.

Enabling the “Temporary Administration Rights” is possible from multiple independent places in the APPolo GUI. Figure 8 shows the location of the button in the context of the “User Accounts” page in the “Connection Manager” Tool.

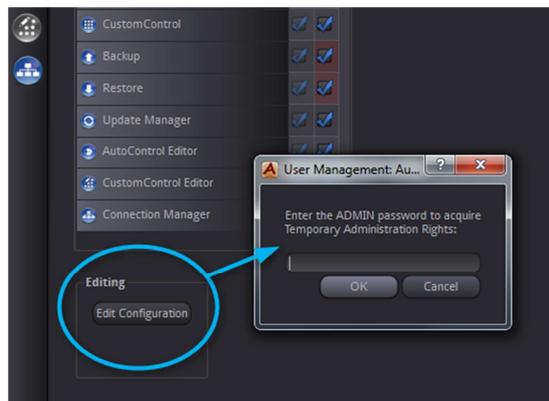


Figure 8: Enable Temporary Admin Rights

Summary

This section provides just a short summary of the concepts that have been explained in this User Guide. See the previous sections for details:

- The APPolo GUI logs into a LYNX Server by providing a username and password. Two different login modes are available. The "Login to all Servers" mode is recommended for most situations.
- An Offline mode is also provided, where the APPolo GUI does not connect to any network device. Working offline with the simulated system can be useful for making yourself familiar with a particular type of processing device without accessing a real unit. Future applications include the ability to prepare CustomControl Designs, AutoControl Rules and similar.
- The APPolo GUI provides a convenient tool to configure User Accounts on all Servers simultaneously. It is strongly recommended to keep the passwords of all users consistent across multiple LYNX Servers.
- The password for the administrator account (username "admin") should be kept confidential among the person(s) that are responsible for setup and maintenance. It is possible to enable administrative capabilities for individual "normal" users, without sharing the actual "admin" password with those users.
- Tool Permissions can be configured for individual users. This capability can be used to automatically adapt the APPolo GUI frontend to show only those tools that shall be accessible by the individual user. More fine-grained control over access to individual CustomControl Designs can be configured in the context of CustomControl.

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