LYNXTechnik AG®
Broadcast Television Equipment

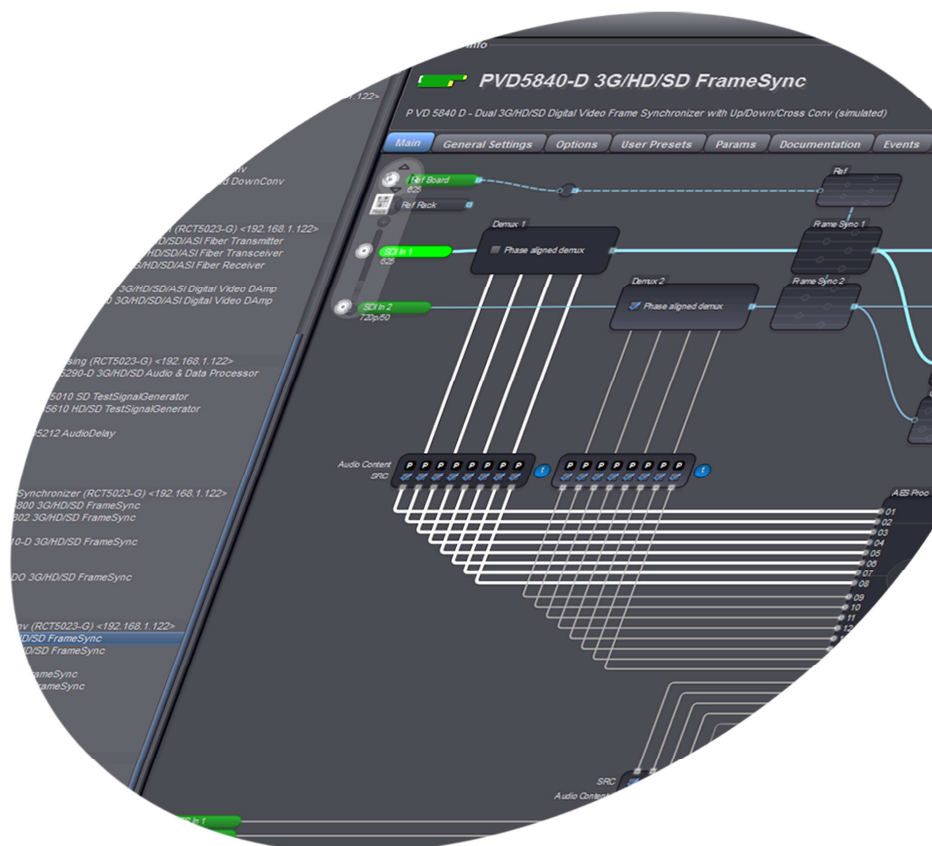# APPolo | Control™

CustomControl   User Guide

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Contents

Introduction to APPolo CustomControl

The LYNX APPolo Control System comes with a free graphical user interface (GUI) application to be installed and run on a MS-Windows PC. This APPolo Control GUI can connect to any APPolo Control Server in the network and serve as a graphical frontend for setup, monitoring and control of individual functions and devices. The APPolo Control GUI displays a pre-defined GUI page for each individual LYNX device that can be detected at runtime. These predefined GUI pages give access to all of the functions that a particular device provides (based on exact device type and loaded firmware version).

This full-functional GUI is just perfect for the maintenance engineers or expert operator personnel, i.e. for all situations where direct and unlimited access to all functions is desirable. But there are other applications and use-cases, where the opposite is required. As a simple example, a particular application might require a simple control panel, where only the audio gain levels of a few selected channels can be adjusted – but nothing else. Or a button should toggle the image aspect ratio of a particular video channel between 4:3 and 16:9 – but nothing else. These

few controls should be accessible directly (no need to open sub-pages or select tabs). And no other controls should be visible, because those other possibilities could potentially confuse the operator or (even worse) lead them to make inappropriate modifications to parts of the system that should not be touched.

This demand for freely definable Control Panels (i.e. which are not pre-defined by LYNX) is satisfied by LYNX APPolo CustomControl. CustomControl provides a powerful, interactive and intuitive way for setup and deployment of one or more CustomControl Designs. Any number of custom-made Designs (dedicated GUI pages) can be prepared for all those different applications and operating situations in a system where only a subset of the full power of the LYNX APPolo GUI shall be exposed. Individual such Designs can then be loaded and displayed from various workstations and mobile tablet computers. This document describes in detail, how you can make the best use of the various capabilities of CustomControl.

Publishing new Designs to the LYNX Network

The CustomControl Design is the heart of the APPolo CustomControl system. Any user with administrator privileges can use the built-in graphical editor to generate and edit a CustomControl Design. One such Design can contain controls (parameters) for many processing devices which may be spread out over several LYNX Servers. See next section for more details.

Initially, the APPolo GUI stores a Design on the local hard-drive (i.e. not in the LYNX Server). But once a CustomControl Design is ready to be used by other operators, it has to be published. Publishing a Design means to store a copy of the Design file on a LYNX Server in the network. This act of publishing does not remove the local file from the APPolo GUI workstation though, so that a modified version of the same Design can be re-published at a later time (this will then replace the original Design on the Server). As part of the publishing step, a Design can be made available for individual users only (by login name). Such CustomControl Designs will then be available to selected users only, while they remain hidden for other users.

NOTE: If you have multiple LYNX Servers, you can use any of them to publish your CustomControl Designs. It is, however, recommended to publish all CustomControl Designs on one Server (resp. one pair of redundant Servers), i.e. do not publish multiple Designs on different Servers. Each Design can control Parameters from Devices on any Server, independently from the Server on which it has been published.

Once published, a CustomControl Design can be used by any LYNX APPolo Client in the network. After the regular login to the LYNX Server, the client can simply load

the specific CustomControl Design from the list of published Designs. Currently, the following LYNX Clients are supplied (all of them are a free download)

- LYNX APPolo Control GUI   for PC (Microsoft Windows XP, 7)
  download from http://appolo.lynx-technik.com

- LYNX CustomControl iOS app   for iPad (iOS 7)
  download from Apple's App Store

Access to LYNX GUI Tools

As explained above, the APPolo CustomControl functionality has been introduced as a possibility to supply customized and simplified GUI pages for dedicated use (i.e. "Designs") in places where the full functionality of the regular LYNX GUI offers too many possibilities or may be considered too complex.

As part of this concept of customizing the LYNX APPolo GUI for a particular user, it is also possible to limit the number of GUI Tools that are offered by one APPolo GUI. Based on this concept, it is possible to configure a particular workstation in the network so that the LYNX APPolo GUI shows only one pre-configured CustomControl Design in full-screen, hiding away all the other functional possibilities of the APPolo Control System. See page 12 for more details.

Required Infrastructure / Option Code

CustomControl is part of the APPolo Control System as of Release 8.0.0. A Demo-Mode is available directly from the GUI, so you can make yourself familiar with this new feature, even when you do not have access to any physical LYNX RackFrame.

For real practical use however, CustomControl has to be enabled as an option in the LYNX SERVER (option code: OC_SERVER_CUSTOMCONTROL resp. OC_RCT5031_ CUSTOMCONTROL, depending on your server product). Enabling this option in a Server has two consequences:

1) Any parameter in any device under this server can be controlled from a CustomControl Design.

2) The Server can host (publish) any number of CustomControl Designs. Each such published Design can contain parameters from many different Servers (if those have the same option enabled).

So, the storage location of a published Design is independent of the content (parameters) of such a published Design. But both things (publishing and

controlling of parameters) are protected by the same OC_*_CUSTOMCONTROL Option.

The CustomControl Editor

The first step to CustomControl is to define the new Design. This is done using the integrated CustomControl Editor Tool. This tool can be accessed from the "Tools" Menu of the APPolo GUI. The CustomControl Editor is laid out into the following screen areas:
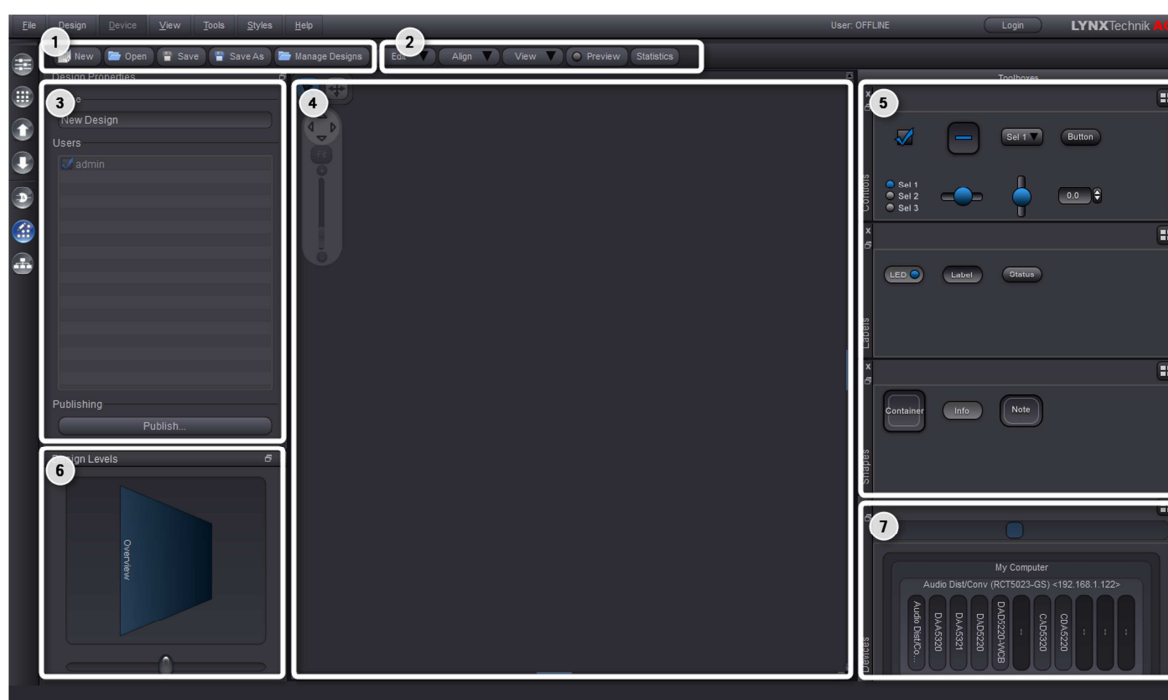

figure 1: Layout of CustomControl editor window

1. Basic File management for individual Design Files (described on page 6)
2. Collection of various Editor functions (page 6)
3. Properties of the current Design (page 11)
4. Main Area of the graphical editor. Create the Design here (page 8)
5. Toolboxes with graphical elements, separated into groups (page 7)
6. Design Level Tool: indicates the current level of depth for Designs with multiple hierarchical levels (page 7)
7. ParameterPicker Tool: Access to the complete network of current Devices, for selection of individual parameters (page 8)

Design File Management

See area (1) in figure 1: A CustomControl Design is stored and managed like a regular file on the hard-drive of your workstation. The usual functions provided here let you create a new Design, save your latest changes etc. The "Manage Designs …" button shows the list of all available Designs, and allows for import/export/deletion of any such Design file.

You can use the Export & Import functions from the "Manage Designs …" dialog to save a given Design to a local file (e.g. on a USB stick) for a manual backup. The exported file contains all required information of a given Design, stored as a regular XML file.

NOTE: All Designs that are published on a given Server are automatically being included in the regular Backup/Restore process, when this Server is selected in a BackupSet.

Editor Functions

See area (2) in figure 1: A few assisting functions make the editing of a Design easier. You can select, cut, copy and paste elements, you can undo and redo your recent changes, and you can also display a grid-line overlay to help with the correct alignment of elements.

The "Preview" button can be used to toggle to a "Preview Mode". In "Preview Mode", you cannot make any changes to your Design anymore. Instead, you can get a first impression on the real look&feel to your users, without having to publish and (re-)load it into a Client application.

The "View" menu collects a few functions to modify the current screen appearance (without modifying the actual Design). The Submenu "View – Show" provides an optional "Grid" (for easier alignment of elements in the Design). The optional "Status" view can be used to enable a colored status display for (a) each individual control and (b) for the complete Design as a summary. As soon as the summary status is 100% green, your Design is ready to use. Otherwise (i.e. while some yellow or red color is displayed), you know that one or more controls are not yet correctly associated with an actual device. You will want to fix these problems before publishing the Design for use by any Clients.

Design Properties

See area (3) in figure 1: This section controls various properties of the current Design (i.e. the Design that is currently loaded into the Editor). Use these functions to change the Design's name and also the users, to which the Design shall be published. In addition, here is the "Publish …" button that can be used to actually

publish the Design onto a named Server in your LYNX network. For more details, see page 9.

Main Editor Area

See area (4) in figure 1: This central area is where you build your Custom Design. The various possibilities and workflows are described in the example on page 8.

The display of the Editor Area can be zoomed IN/OUT by use of the mouse-wheel. Alternatively, you can use the FlexGUI Navigator tool (see figure 2, enabled from the ""View – Show" menu).

The display of the Editor Area can be panned (moved) left/right and up/down by use of the small sliders on the bottom and right edge of the Editor window. Alternatively, you can toggle your mouse into PAN-MODE by pressing the SPACE bar on your keyboard and then simply click-and-drag the display area around. Watch how the little icon above the FlexGUI Navigator changes to PAN mode (see figure 2).

figure 2: flexGUI Navigator

NOTE: While the PAN mode is active, the mouse-cursor changes to a little hand icon.

Toolboxes

See area (5) in figure 1: Various different content elements are provided as the building blocks that you will use to populate your Design. The elements are structured in various toolboxes.

- **Controls** are those elements that can modify as well as represent the current value of a particular setting (read-write). Different types of controls are provided for different types of settings (like a Slider for scalar values or a Drop-Down-Box for selections).

- **Labels** are elements that can only represent the current value of a particular setting, but not modify it (read-only).

- **Shapes** are general drawing primitives for grouping and annotating purposes. These have no connection with any current value of any device out there.

Design Level Tool

See area (6) in figure 1: You can use one or more Container elements in your Design (from the "Shapes" Toolbox), and then place individual controls either into such Containers, or next to them. This results in a hierarchical structure, where

some controls are located on a "higher" resp. "inner" level with respect to others. You can also place a Container into another Container, which creates even more levels of hierarchy in your Design.

This "Design Level" tool (displayed in the bottom left section of the screen by default) will automatically display the appropriate amount of levels, depending on how many layers you have defined in the Design. It will display your current level of operation, so you always know where you are. In addition, you can click onto one of the panes in this tool to make the Editor jump to that level.

NOTE: While there is no technical limit to the number of Layers in your Design, it is recommended to use this technique with care. Using too many Layers can lead to a Design that is hard to navigate for the Operator.

ParameterPicker

See area (7) in figure 1: The ParameterPicker Tool is a representation of all devices (real or simulated) with all their properties and parameters that are currently connected to this APPolo GUI. Real devices are, however, presented only if the appropriate Server has the OC_*_CUSTOMCONTROL option activated.

In your new Design, you can display and control any number of parameters from all these devices. This can be done in a variety of ways, as shown below. In general, the ParameterPicker Tool can be operated in two different modes. The button in the top right hand corner of the Tool lets you toggle between these two modes.

- In <u>ICON Mode</u>, all devices and their (groups of) parameters are represented by graphical icons. Clicking onto one such icon will enter the next level, stepping down into the hierarchy until you reach an actual parameter. Use the arrow symbol in the top left corner to navigate back up this hierarchy.

- In <u>TREE Mode</u>, the devices and their (groups of) parameters are presented as a structured tree.

In both modes, when you reach the parameter details, you can choose between various different graphical ways (control elements) that can represent the specific device-parameter.

Step-By-Step: Building a Design

This section provides step-by-step instructions for generating a simple CustomControl Design, based on simulated devices in the APPolo GUI. No LYNX hardware (RackFrame or Controller) is required for this simulated example. We recommend that you take a few minutes to go through these instructions as an

easy quick-start introduction to the major capabilities of CustomControl. The next section ("Publishing and Using a Design", page 9) will then cover the last bit and put your Design into real practical use.

figure 3: enable Simulation

Step 1: start the Simulation

In APPolo GUI, enable the Simulation of Devices (from the "View" menu). This will produce a list of simulated processing Devices in the Main-tree under "My Computer" (figure 3)
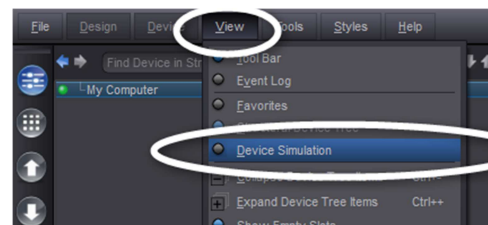
Step 2: open Editor

figure 4: start CustomControl Editor

Open the CustomControl Editor from Menu "Tools" and click NEW to start a new Design (figure 4).
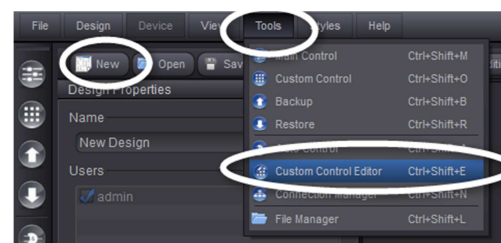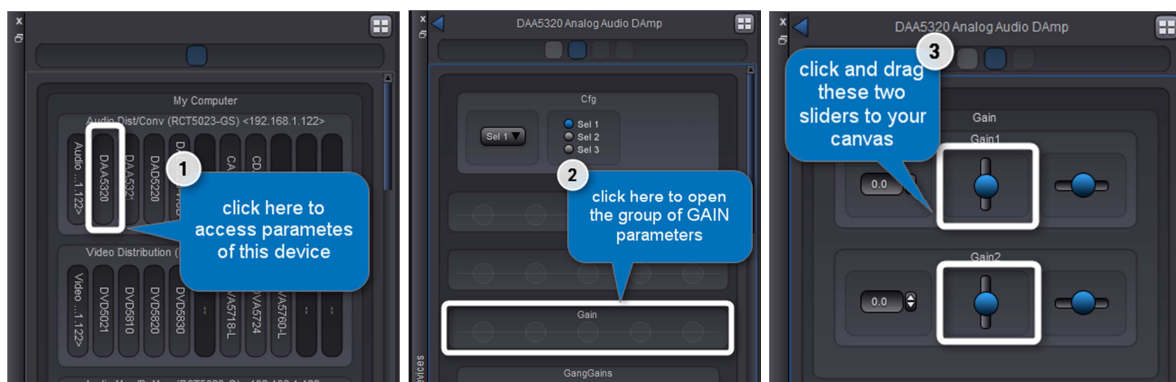
Step 3: add various elements to the canvas

figure 6: navigate to the parameters of a device and add them to your canvas

In the ParameterPicker Tool (bottom right corner), navigate to the GAIN parameters of a the simulated DAA5320 (first simulated device) and add them to your canvas (figure 6).

From the "Shapes" Toolbox on the right side, add an INFO and a CONTAINER element to the canvas. The text in these elements can be edited (just click onto the text). At the end of
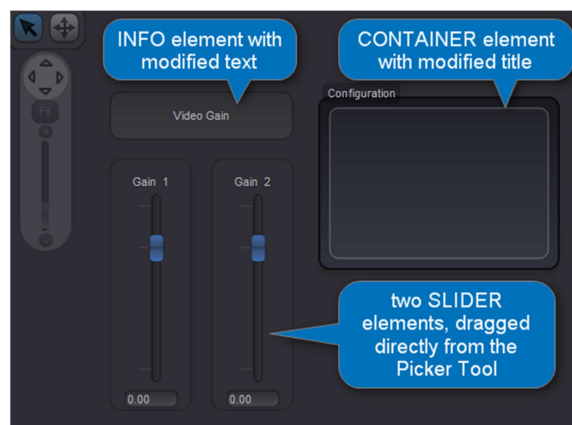

figure 5: elements have been added to Canvas

this Step, your Design should look similar to figure 5

Step 4: add unconnected controls to Canvas

From the "Controls" Toolbox on the right side, drag a CHECKBOX control into the canvas and let it drop into the container. In addition, drag a SELECTION control directly onto the canvas (see figure 7).

figure 7: add un-connected controls

Note that these two new controls are currently NOT connected to an actual parameter in any device. This means that the Design is currently not 100% usable.

Enable the STATUS tool to visualize the Status of the current Design, both in a general Status Indicator as well as with colored Status Elements per individual control (figure 8).
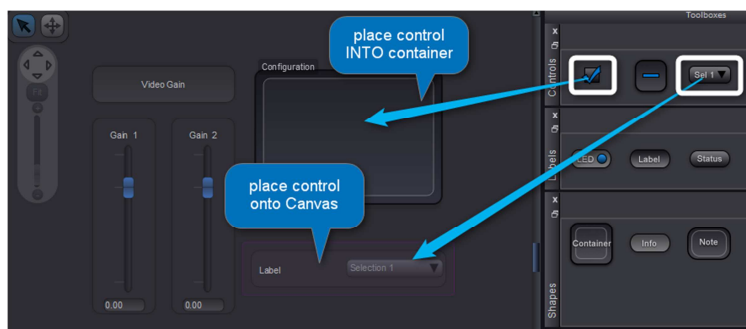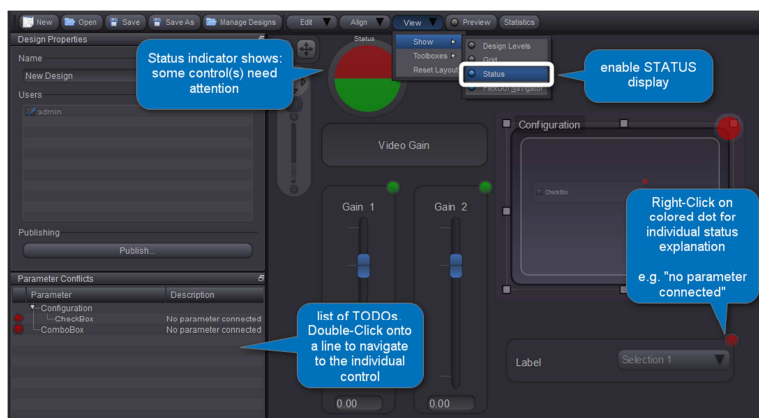

figure 8: show status per control

Step 5: connect existing control to new parameter

Click onto one of the red Status-Elements next to a control (or right-click onto the control itself and select "Parameter …") to open the ParameterPicker Tool that is associated with this control. From here, select any parameter from any device and associate it with this control. Repeat this procedure for all controls that are marked red, until the general Stautus Indicator is 100% green.

This same procedure can also be used to re-connect an existing control to a different parameter at some later point in time.

NOTE: In the previous steps of this example, we have used parameters from simulated devices only. The ParameterPicker Tool gives access to simulated Devices (which is good for demos and experiments). But it will also give access to real processing Devices, if these Devices are hosted by a LYNX Server with the OC_*_CUSTOMCONTROL option enabled.

Step 6: Preview Mode

You can test your Design at any time, by setting the Editor into PREVIEW mode. Just click onto the button "Edit Mode" above the Canvas. In Preview mode, the Design is fully functional and can be used as if it had been published (see next section).

NOTE: In Preview-Mode, any modification to a parameter will actually be communicated to the device. Please keep this in mind, especially if you are connecting your controls to real devices (as opposed to simulated devices).

Publishing and Using a Design

After you have edited a CustomControl Design, and after you have tested it in Preview mode (see Step 6 above), you actually want to publish this Design file to a LYNX Server in the network. This can be done from the CustomControl Editor Tool, by pressing the Publish button (see figure 9).

figure 9: publish current design from Editor

Once the Design has been published to a Server, any APPolo Client (and also the LYNX mobile App, running on a tablet PC) can login to that server and load the Design from there to use it.

In the LYNX APPolo GUI, all published designs are available in the "CustomControl" tool (see figure 10).
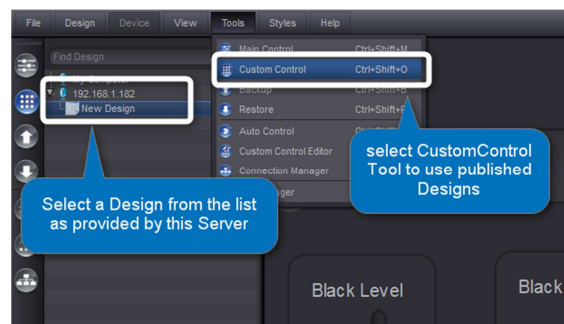

figure 10: Use a published Design in the CustomControl Viewer

NOTE: Please make sure to differentiate between the APPolo CustomControl VIEWER Tool (for using predefined Designs by anybody) and the APPolo CustomControl EDITOR tool (for generation and editing of such Designs by the Administrator). These are two independent tools, and both are part of the LYNX APPolo GUI. See next section.

Configuring LYNX GUI Tools

The functionality of the LYNX APPolo GUI is offered in a set of different Tools. Each Tool covers an independent functional aspect of the LYNX APPolo Control System and can be used stand-alone.

The Administrator can enable/disable any of these APPolo Tools for a given user (by login name). This adds a whole new set of possibilities to the APPolo GUI. As an example, the administrator could set up a version of the LYNX APPolo GUI on a particular workstation, which shows one dedicated CustomControl Design only, with no possibility to access any other functionality.

Here is a list of the available APPolo Tools, which can be enabled or disabled per individual user:

Main Control	The classical tree of devices, one control page per CardModule, showing a predefined graphical representation of the individual functionality. A list of FAVORITES can also be used, showing a user-defined selection of Cards only.
CustomControl (Viewer)	Access to all CustomControl Designs that have been published to the current user.
Backup	Collect and store the current configuration settings of one or more Device(s) in a single Backup file.
Restore	Restore a system configuration by applying the current configuration settings from a Backup file (as previously collected, see above) into the respective CardModules (or into a subset thereof).
AutoControl	Review and editing of AutoControl Rules. See the documentation on appolo.lynx-technik.com for details.
CustomControl Editor	Interactive tool to generate, edit and publish CustomControl Designs, as being used by the CUSTOM CONTROL tool (see above)
Connection Manager	Infrastructure manager, offering the following sub-sections: - Configure network components (assign IP settings etc.) - establish network connections between LYNX RackControllers - manage user accounts in the LYNX network - manage tool permissions per user in the LYNX network

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