

Besenix HMI Screen Manager V21

User manual for screen import, export, Full Package transfer, dependency handling and safe project workflows in TIA Portal V21.

SOFTWARE VERSION	TIA PORTAL	DOCUMENT
1.5.5	V21	User manual 17 Oct 2026

Contents

This manual documents Version 1.5.5. It does not replace Siemens product documentation, project standards or commissioning procedures.

01	Overview and supported workflows
02	Requirements, installation and licensing
03	Connection and main window
04	Classic WinCC XML workflow
05	Unified JSON screen snapshots
06	Unified Full Package V2
07	Full Package import and validation
08	Static Screen Package workflow
09	Safety and engineering verification
10	Troubleshooting
11	Quick reference
12	Version 1.5.5 release information

Overview and supported workflows

A focused Windows engineering application for transferring HMI screens and their supported dependencies through TIA Portal Openness.

- CHECK** Connects to the currently open TIA Portal V21 project through TIA Portal Openness.
- CHECK** Detects Classic WinCC and SIMATIC Unified HMI devices, including Unified screen groups.
- CHECK** Imports and exports Classic screens through native Siemens XML.
- CHECK** Creates basic Unified JSON screen snapshots for targeted engineering data.
- CHECK** Creates Unified Full Package V2 archives with selectable screen content and native project dependencies.
- CHECK** Validates and imports Besenix Static Screen Packages for Classic screens and project graphics.
- CHECK** Creates an XML backup before deleting Classic screens and records operations in the Activity Log.

Workflow by HMI family

FUNCTION	CLASSIC WINCC	SIMATIC UNIFIED
Screen listing	Supported	Supported, including groups
Standard export/import	Native XML	Structured JSON snapshot
Full Package V2	Not available	Screen plus supported dependencies
Static package	Screen XML plus project graphics	Not available
Safe delete	Automatic XML backup	Disabled

IMPORTANT

Save or archive the TIA Portal project before importing or deleting engineering data. The application does not download to a PLC or HMI panel.

Requirements, installation and licensing

Windows	Windows 10 or Windows 11, 64-bit
TIA Portal	V21 installed and operational
Openness	TIA Portal Openness V21 net48 Public API installed
Account	Same Windows account for TIA Portal and Besenix HMI Screen Manager
License	Signed machine-bound trial or commercial license file

Installation

01 Close TIA Portal

Save every project and completely exit all TIA Portal instances.

02 Run setup

Extract the official ZIP and run **Besenix_HMI_Screen_Manager_Setup_v1.5.5.exe**.

03 Start the application

Use the Start menu or optional desktop shortcut.

04 Activate

Copy the Machine ID, request the matching license and import the received .license.json file.

05 Authorize Openness

Use AUTHORIZE WINDOWS USER when required and restart Windows after group membership changes.

LICENSE

Installed licenses and protected trial state are preserved during update and uninstall. Reinstallation does not restart a trial.

Connection and main window

The V1.5.5 interface keeps connection, screen operations and the Activity Log visible in one window.

01 Open one TIA project

Open the intended project in TIA Portal V21 and wait until it is fully loaded.

02 Connect

Click CONNECT TO TIA PORTAL and approve the Siemens Openness confirmation.

03 Select HMI DEVICE

Choose the target marked Classic or Unified. The application reloads its screen list and available functions.

04 Use the correct tab

EXPORT / DELETE SCREENS lists project screens, IMPORT SCREENS handles selected files and STATIC SCREEN PACKAGE handles Classic package ZIPs.

05 Read the Activity Log

Review every warning, required manual action and completion message before continuing in TIA Portal.

CONNECT TO TIA PORTAL	Attach to the open TIA Portal V21 project.
DISCONNECT	Dispose the current Openness session without closing TIA Portal.
REFRESH	Reload HMI devices and screens after project changes.
AUTHORIZE WINDOWS USER	Add the current account to the Siemens Openness group after administrator approval.
LICENSE DETAILS	Review license state, import a replacement or deliberately remove the local license.

Classic WinCC XML workflow

Classic devices use the native Siemens XML import and export mechanisms.

Export Classic screens

- 01 Select the device**
Choose the required Classic HMI device.
- 02 Select screens**
Check one or more screens under EXPORT / DELETE SCREENS.
- 03 Export**
Click EXPORT SELECTED and choose a destination folder. One native XML file is created for each screen.

Import Classic screens

- 01 Add XML files**
Open IMPORT SCREENS and choose ADD XML FILES.
- 02 Confirm target**
Verify that the files match the destination HMI family and TIA Portal version.
- 03 Import**
Click IMPORT XML SCREENS. Native Siemens Override behavior replaces a same-name screen.
- 04 Verify**
Open the screen, compile the HMI and inspect the complete result.

Safely delete Classic screens

- 01 Select screens**
Check only the Classic screens that must be removed.
- 02 Delete**
Choose DELETE SELECTED and review the confirmation list.
- 03 Keep the backup**
The application exports an XML backup to the Desktop before any deletion begins.

OVERWRITE Classic XML import can replace a screen with the same name. Keep a project archive in addition to the automatic delete backup.

Unified JSON screen snapshots

Standard JSON export/import is intended for targeted screen engineering snapshots. Use Full Package when the destination also requires project resources and functional dependencies.

Standard snapshot

ACTION	RESULT
EXPORT JSON	Creates one .unified-screen.json snapshot per selected Unified screen.
ADD JSON FILES	Adds compatible Unified screen snapshot files to the import queue.
IMPORT JSON SCREENS	Builds a temporary destination screen before replacing a same-name screen.
Activity Log	Reports unsupported properties or objects encountered during reconstruction.

CHOICE

Use the standard JSON workflow for a screen-only engineering snapshot. Use Unified Full Package V2 when tags, graphics, graphic lists, text lists, connections, scripts, events or animations must travel with the screen.

Import protection

A Unified screen is first reconstructed under a temporary name. In strict Full Package mode, the existing same-name screen is not replaced if a required value is unsupported or fails. Standard JSON import may report skipped values in the Activity Log; always compile and compare the destination screen.

Unified Full Package V2

Full Package V2 is the recommended workflow for transferring a functional Unified screen with supported project dependencies.

Selectable export modules

MODULE	CAPTURED CONTENT
Objects	Screen items, geometry, appearance and writable object properties
Tags	Screen tag references, HMI tag tables and required HMI connection definitions
Events	Supported screen and object event handlers and scripts
Animations	Supported dynamizations, value converters and mapping-table entries
Texts	Multilingual screen text, Unified text lists and TextLibrary resources
Graphics	Project graphics, graphic references and Unified graphic lists
Scripts	Supported JavaScript modules and script content

Export procedure

01 Select Unified screens

Choose a Unified HMI and check one or more screens.

02 Open Full Package Export

Click FULL PACKAGE EXPORT and select the required modules. Choose all modules for a complete transfer.

03 Choose the destination

Save the file with the .besenix-unified.zip extension.

04 Review validation

The application stops package creation if a selected property is unreadable, truncated or a required native dependency cannot be exported.

PACKAGE

Do not manually edit or recompress the package. Its manifest, paths and dependency files are validated during import.

Full Package import and validation

Dependencies are imported before the screen in a fixed order, and strict screen reconstruction protects the existing destination screen.

01 Select the target

Connect to the destination project and choose the Unified HMI device.

02 Choose IMPORT FULL PACKAGE

Select the .besenix-unified.zip file and review its format version, screens and available modules.

03 Select modules

Import all modules for functional equivalence, or deliberately choose a subset when only selected content is required.

04 Confirm the project copy

Save or archive the destination project before dependency import starts.

05 Review native resources

Project graphics, graphic lists, text lists, TextLibrary, connections, tag tables and script modules are handled before screen reconstruction.

06 Review strict result

The existing same-name screen is replaced only when strict reconstruction completes without unsupported or failed required values.

07 Map connections

If requested, assign the imported HMI connection to the correct destination PLC in Devices & networks.

08 Compile and inspect

Compile the HMI and verify every object, graphic, text, tag, event, animation and navigation action.

CONNECTION

A source project's PLC partner may not exist in the destination project. V1.5.5 creates or reuses the named HMI connection, but project-specific PLC partner mapping can require a manual action.

Static Screen Package workflow

Static Screen Packages transfer prepared Classic screen XML together with the external project graphics listed by the package manifest.

Archive	ZIP file with manifest.json in the archive root
Target family	Classic WinCC
Screens	One or more relative native Classic XML paths
Graphics	Listed Project Graphics XML resources imported before screens
Validation	Format version, HMI family, safe paths, listed files and extracted size

01 Select a Classic HMI

Static packages are disabled for Unified devices.

02 Select the package

Open STATIC SCREEN PACKAGE and click SELECT PACKAGE.

03 Review details

Confirm package name, description, screen count, graphic count and compatibility.

04 Validate

Use VALIDATE to repeat structural validation when required.

05 Import

Click IMPORT STATIC PACKAGE. Graphics are imported first, followed by screen XML.

06 Compile

Open each imported screen, verify its graphics and compile the Classic HMI.

LIMIT

Static Screen Packages are for Classic HMI devices. Unified projects use the Unified Full Package workflow.

Safety and engineering verification

Before every import

- CHECK** Create a TIA Portal archive or work on a project copy.
- CHECK** Confirm TIA Portal V21, the intended project and the exact target HMI device.
- CHECK** Close screen editors that can lock a target screen or resource.
- CHECK** Use packages exported from a compatible engineering environment.
- CHECK** Never treat the exported package as the only backup of a working project.

After every import

- CHECK** Read the complete Activity Log and resolve every requested manual action.
- CHECK** Compile the complete HMI and fix compilation errors before download.
- CHECK** Compare object positions, texts, fonts, colors, layers and graphic references.
- CHECK** Verify tag connections, data types, event scripts, animations and mapping tables.
- CHECK** Test navigation and operator interactions in simulation or a controlled environment.
- CHECK** Save the verified destination project under revision control or archive it.

RESPONSIBILITY	The engineer remains responsible for validating imported engineering data before production use or download to a device.
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Troubleshooting

SYMPTOM	ACTION
No TIA project found	Open TIA Portal V21 and the intended project. Run both programs under the same Windows account.
No HMI device listed	Wait for the project to load, click REFRESH and confirm that the project contains a supported Classic or Unified HMI.
Openness authorization fails	Install TIA Portal Openness V21 net48, authorize the Windows account and restart Windows after group changes.
Wrong file type	Use XML for Classic, .unified-screen.json for standard Unified transfer and .besenix-unified.zip for Full Package.
Existing Unified screen not replaced	Strict reconstruction failed. The original screen is preserved. Review every warning in the Activity Log.
Connection action required	Assign the listed HMI connection to the destination PLC partner in Devices & networks.
Graphic or list missing	Use Full Package with Graphics and Texts selected; confirm the dependency import messages before screen reconstruction.
Tag dynamization warning	Use V1.5.5 and a package exported by V1.5.0 or later. Send the full log if a supported value still cannot be reconstructed.
Delete is disabled	Unified safe delete is intentionally disabled. Classic deletion includes automatic XML backup.
License rejected	Send the exact Machine ID, software version and full error message to Besenix.

Quick reference

CONTROL	PURPOSE
CONNECT TO TIA PORTAL	Attach to the open V21 project.
REFRESH	Reload devices and screens.
SELECT ALL / CLEAR SELECTION	Manage screen selection.
EXPORT SELECTED / EXPORT JSON	Standard Classic XML or Unified JSON export.
FULL PACKAGE EXPORT	Unified screen plus selected supported dependencies.
DELETE SELECTED	Classic backup and deletion; disabled for Unified.
ADD XML / JSON FILES	Add standard screen files to the import queue.
IMPORT XML / JSON SCREENS	Run the standard family-specific screen import.
IMPORT FULL PACKAGE	Validate and import Unified Full Package V2.
SELECT / VALIDATE STATIC PACKAGE	Load and validate a Classic Static Screen Package.
IMPORT STATIC PACKAGE	Import package graphics and Classic screen XML.
LICENSE DETAILS	Inspect, replace or remove the local license.

SUPPORT

Include Version 1.5.5, TIA Portal version, HMI family, the operation performed and the complete relevant Activity Log. Website: besenix.com | Email: hello@besenix.com

Version 1.5.5 release information

Version 1.5.5 completes the current Unified Full Package reconstruction corrections while retaining Classic, standard JSON and Static Package workflows.

- CHECK** Restores supported Unified event handlers and dynamizations through Siemens V21 collection creation methods.
- CHECK** Handles Tag and ResourceList dynamizations with their exact Siemens generic types.
- CHECK** Restores single-bit mapping-table entries as the Siemens API-created row set instead of duplicating rows.
- CHECK** Applies formula mode before formula content and skips inactive formulas safely.
- CHECK** Ignores derived read-only TagDynamization values before their getters can fail on a newly created link.
- CHECK** Keeps Full Package V2 native dependency import for graphics, lists, text resources, tags, connections and scripts.
- CHECK** Continues import when a destination-specific HMI connection requires manual PLC partner mapping, while reporting the exact action.
- CHECK** Preserves strict screen replacement: an existing screen is not replaced after an incomplete reconstruction.
- CHECK** Remains compatible with existing Full Package V2 exports from V1.5.0 and later; a package does not need to be re-exported solely for V1.5.5.

VALIDATION

Compile the destination HMI and perform a complete engineering review after every import. Report any warning with the full Activity Log.