

ScreenGenie™

IT Administration & Configuration Guide

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Introduction

This document is intended for IT administrators, system administrators, and managed service providers who are responsible for managing, deploying, and configuring ScreenGenie within an organization.

The guide describes the architecture, configuration options, automation logic, and best practices for deploying ScreenGenie in a controlled manner within professional work environments.

This manual focuses exclusively on administration and configuration. User interaction and functional explanations for end users are covered in the separate ScreenGenie User Guide.

1. Architecture Overview

ScreenGenie consists of multiple logically separated components that work together to ensure consistent display configurations.

Component	Role
ScreenGenie GUI	Provides limited control options for end users to adjust display settings.
ScreenGenie Engine	Performs detection, application, and storage of display settings. Runs as ScreenGenie.exe /engine.
ScreenGenie Agent	Optional component that triggers the Engine automatically on power or display events, without user interaction.

ScreenGenie operates in addition to the native Windows display settings and utilizes the existing Windows display stack. Windows® 11 remains responsible for the actual rendering and persistent storage of display configurations. Brightness and contrast are stored directly on the monitor(s) themselves.

2. Installation and Deployment

ScreenGenie can be deployed using an MSI installer for centralized distribution or as a local installation. Both methods place the application files in the \Program Files directory, while the configuration file `screenenie.ini` is stored by default under: `%AppData%\PNQ Software\ScreenGenie\screenenie.ini`

Other files, such as the license file, are stored in:
`%ProgramData%\PNQ Software\ScreenGenie\`

When deploying via the MSI with a license key, the `license.ini` file is automatically created in the `ProgramData` directory.

It is also possible to run the `ScreenGenie.msi` manually without specifying a license key. In that case, **no license.ini file** is created in `%ProgramData%\PNQ Software\ScreenGenie\`.

The license can then be added afterwards using the CLI tool: `AddLicense.Cli.exe -License "LICENSE-KEY"`

Alternatively, the `license.ini` file can be created manually in the same directory with the following structure:

```
[License]
Key=LICENSE-KEY
ExpireDays=14
```

For enterprise environments, centralized deployment via MDM, RMM, or software distribution tools is recommended, preferably including the license key as part of the deployment process to ensure immediate activation

Silent MSI Installation

```
msiexec /i ScreenGenie.msi LICENSEKEY="LICENSE-KEY" /qn
```

3. Configuration File Lifecycle

The configuration file `screengenie.ini` serves as the central policy document for ScreenGenie. This file is read during application startup and during relevant system events. Changes to this file can be deployed centrally. ScreenGenie may update certain values based on user actions, depending on the configured policy.

The `screengenie.ini` file is stored in the user's profile under:

```
%AppData%\PNQ Software\ScreenGenie\screengenie.ini
```

This design makes all configuration settings inherently user-specific. This is particularly relevant in Windows 11 environments, where display-related settings are primarily managed at the system level (HKLM) and therefore apply globally to all users on the device. As a result, in shared device scenarios, changes made by one user can directly impact the display configuration experienced by other users.

ScreenGenie introduces a user-context layer on top of this behavior, ensuring that monitor configurations such as layout, brightness, contrast, resolution, and positioning are applied and maintained per user. This prevents cross-user interference and guarantees a consistent and personalized workspace experience, even on shared laptops or flexible workstations.

4. screengenie.ini — Sections and Settings

The screengenie.ini file contains all central configuration settings for ScreenGenie. Administrators can edit this file manually or modify it automatically using SetSG.exe with the parameters -section, -item, and -value.

Changes in this file are applied dynamically and form the basis for corrections when the application (or the Engine) starts, as well as during system events such as connecting monitors or docking stations.

4.1 [Settings]

Key	Values	Description
Language	EN, NL, DE, FR, ES, IT, DK, SE, NO	UI language. Defaults to OS language after installation.
WindowsMode	Yes / No	Follow Windows 11 Light/Dark theme. When Yes, the Dark Mode toggle in the UI is disabled.
Mode	Light / Dark	UI display mode. Only applies when WindowsMode = No.
LogDays	1-365	Number of days log files are retained. Older logs are deleted automatically.

4.2 [Reset]

When the user selects Reset in the interface, ScreenGenie resets brightness/contrast and restores the entire screengenie.ini to its original values as they were on first startup. This includes all sections: [Settings], [Synchronization], [Monitor 1], [Monitor 2], [Layout], [ForceLeft], and [ForceRight].

4.3 [Agent]

Key	Value	Description
Delay	seconds	Seconds to wait after a detection change before ScreenGenie reapplies the configured layout, brightness, and contrast. Default: 10.

If the Refresh occurs too early or too late in practice, adjust the Delay value. Too low → Windows may still be initializing. Too high → noticeable delay before settings become active.

4.4 [Synchronization]

Key	Values	Description
Monitors	Yes / No	When Yes, brightness and contrast sliders for left and right displays move simultaneously.
BrightnessContrast	Yes / No	When Yes, the brightness and contrast sliders per monitor move together. If both are Yes, all four sliders move to the same level.

4.5 [Monitor 1] and [Monitor 2]

Key	Values	Description
Brightness	0-100	Default brightness level for this monitor position.
Contrast	0-100	Default contrast level for this monitor position.
Primary	Yes / No	Set Yes on the monitor that should become the Windows primary display. Only one monitor should be set to Yes. If both are Yes, Monitor 1 takes precedence.

Monitor 1 acts as the master monitor: the monitor with built-in docking functionality, or the first external monitor detected by Windows. Monitor 2 acts as the companion. When the user selects Reverse Displays, Monitor 1 and Monitor 2 swap roles.

4.6 [Change]

Key	Values	Description
OnPower	Yes / No	Applies values from screengenie.ini whenever the power state changes (dock/undock).
OnDisplay	Yes / No	Responds to every display configuration change. Only active when ScreenGenie Agent is running.

4.7 [ForceLeft] and [ForceRight]

Key	Description
SerialFile	File containing one or more serial numbers (comma-separated or one per line).
Serial	Optional: one or more comma-separated serial numbers directly in the INI.
Name	Optional: monitor name or model.
Connection	Optional: connection type (e.g., HDMI, DP, USB-C, TBT).

When multiple identification methods are provided, ScreenGenie uses them as combined matching criteria.

4.8 [Brand Model]

This section allows brightness, contrast, resolution, and refresh rate to be automatically configured for specific monitor models. Values here take priority over [Monitor 1] and [Monitor 2].

Key	Values	Description
Brightness	0-100	Brightness for this specific monitor model.
Contrast	0-100	Contrast for this specific monitor model.
Resolution	e.g., 2560x1440	Optional: force a specific resolution.
RefreshRate	e.g., 120	Optional: force a specific refresh rate in Hz.

The exact monitor name can be found in the log files at: %ProgramData%\PNQ Software\ScreenGenie\Logs\

```
[DELL C2722DE]
Brightness = 43
Contrast = 76
Resolution = 2560x1440
RefreshRate = 60
```

4.9 [Layout]

Key	Values	Description
Preset	LMM, MLM, MML, FREE	Default position of laptop and external monitors. L=Laptop, M=Monitor. FREE allows the user to define their own layout via Windows Display settings.
VerticalAlign	Top, Center, Bottom	Vertical alignment of monitors within Windows.

4.10 [Show]

The [Show] section allows IT administrators to hide specific UI elements from end users. This is useful in managed environments where certain controls should not be accessible.

Key	Values	Description
DisplaySettings	Yes / No	When No, the Windows Display Settings button and label are hidden from the bottom bar.
Reset	Yes / No	When No, the Reset button is hidden from the bottom bar, preventing users from resetting brightness and contrast to defaults.

5. Automation and Triggers

ScreenGenie can automatically apply settings when specific events occur, such as connecting a docking station or changing the monitor configuration. The ScreenGenie Agent runs invisibly in the background. At startup — and on every change in power state or display configuration — the Agent launches:

```
ScreenGenie.exe /engine
```

This process verifies the current setup and adjusts it when necessary based on the configuration defined in `screengenie.ini`.

6. Firmware Management

ScreenGenie supports firmware management for selected monitor models from Dell Technologies®. The application can read the current firmware version and offer firmware updates to the user or perform them automatically.

Dell monitors are supported by default because their firmware update tool does not require administrative privileges. Only monitor brands whose update utilities can run without elevated rights are eligible for the same automation.

6.1 Requirements

- The monitor is manufactured by Dell
- The monitor supports firmware updates via USB-C or Thunderbolt
- The monitor is connected through USB-C or Thunderbolt (TBT)
- ScreenGenie is properly installed
- Internet access is available and connections to *.dell.com are permitted

When connected via DisplayPort or HDMI, no firmware update will be offered.

6.2 Location of firmware.ini

```
%ProgramData%\PNQ Software\ScreenGenie\firmware.ini
```

6.3 Basic Configuration

```
[Settings]
FirmwareUpgrade = Yes
```

Without this setting, ScreenGenie will never offer a firmware update.

6.4 Monitor-Specific Sections

```
[DELL C2722DE]
Version = 113
Location =
https://dl.dell.com/FOLDER12217142M/1/Dell_C2722DE_FWUpdate_M3T113_Windows.zip
Silent = -s
```

Key	Required	Description
Version	Yes	Target firmware version (last three digits).
Location	Yes	Download URL of the Dell firmware ZIP or EXE file.
Silent	No	Silent install parameter for the firmware updater (e.g., -s).

6.5 How ScreenGenie Determines Whether an Upgrade Is Needed

1. The current firmware version of the monitor is read.
2. The last three digits are extracted (e.g., 113).
3. This value is compared with Version in firmware.ini.
4. If $CurrentVersion < Version$, an Upgrade button appears for the corresponding monitor.

6.6 User Experience

- An Upgrade Firmware button appears next to the monitor in the ScreenGenie UI.
- The user clicks the button and confirms the upgrade.
- ScreenGenie downloads the firmware, extracts the ZIP, and launches the Dell firmware updater.
- After completion, the monitor may restart. ScreenGenie re-checks the version and the button disappears if the monitor is up to date.

6.7 Management in Larger Environments

- Deploy firmware.ini centrally via GPO, Intune, SCCM, etc.
- Maintain firmware versions centrally and keep them up to date.
- ScreenGenie clients automatically follow the central configuration.

6.8 Security & Validation

ScreenGenie only accepts firmware download locations within the following domains: dell.com and *.dell.com. This prevents execution of firmware from external or untrusted sources.

6.9 Benefits for IT

Benefit	Detail
No additional Dell tools required	Everything runs within ScreenGenie.
No standalone scripts needed	Fully managed via firmware.ini.
Minimal user interaction	One click + confirm.
Consistent firmware versions	Across the entire environment.
Fewer incidents	Related to USB-C, docking, or display issues.

7. Display Telemetry

ScreenGenie includes an optional telemetry module that reports monitor configuration data to a central server. This allows IT administrators to monitor display settings across an entire organization from a single web-based dashboard.

Telemetry is entirely optional and is disabled by default. It is activated by deploying a `telemetry.ini` file to the client machine.

7.1 Architecture Overview

Component	Role
ScreenGenie Client	Reads the current monitor state and sends it to the telemetry server after each configuration change and on a configurable interval.
Telemetry Server	ASP.NET Core 8 web application that receives, stores, and serves telemetry data. Deployable on Windows Server with IIS or Linux with Nginx.
Telemetry Dashboard	Web-based interface for administrators to view, search, sort, and export monitor data.

7.2 Data Collected

Field	Description
Hostname	The Windows machine name of the reporting PC.
Model	The monitor model name as detected by Windows.
Serial Number	The unique hardware serial number of the monitor.
Connection	The connection type (e.g., USB-C, DisplayPort, HDMI).
Firmware	The current firmware version of the monitor.
Resolution	The active display resolution (e.g., 2560x1440).
Refresh Rate	The active refresh rate in Hz.
Brightness	The current brightness level (0–100).
Contrast	The current contrast level (0–100), if supported.
Last Seen	The timestamp of the most recent report (UTC).

No personal user data is collected. Only hardware and configuration data is transmitted.

7.3 Client Configuration

```
%ProgramData%\PNQ Software\ScreenGenie\telemetry.ini
```

```
[Telemetry]
Url           = https://telemetry.pnqsoftware.com
TenantId      = your-tenant-id
ApiKey        = your-api-key
AcceptAnyCertificate = No
IntervalMinutes = 15
```

This file is managed by IT and is never modified by ScreenGenie itself.

7.4 Reporting Behavior

- Immediately at application startup.
- After each brightness or contrast change (with a 2-second delay).
- On the configured interval (default: every 15 minutes).
- After each Engine run triggered by a power or display event.

Telemetry failures never affect the normal operation of ScreenGenie. Failed reports are silently skipped and logged.

7.5 Multi-Tenant Support

The telemetry server supports multiple organizations on a single installation. Each tenant has its own isolated data set. Tenant isolation is enforced via TenantId and ApiKey on every report, and dashboard login is linked to a specific tenant.

7.6 Telemetry Dashboard

- Sortable overview of all monitors with all collected fields.
- Search by hostname, model, serial number, or connection type.
- Color-coded brightness indicators (green = efficient, orange = moderate, red = high).
- CSV export and automatic refresh every 60 seconds.

7.7 Deployment

Mode	Details
Cloud / Hosted	Deploy to Windows Server with IIS and a public domain. Free SSL via Let's Encrypt (Win-ACME). Suitable for MSPs and multi-location organizations.
On-premise	Deploy within the organization's own network. All data stays internal — no internet required.

Both configurations require the ASP.NET Core 8 Hosting Bundle and PostgreSQL 17 or higher.

7.8 Security

- All communication over HTTPS.
- Each tenant identified by unique TenantId + ApiKey. Invalid keys rejected with HTTP 401.
- Dashboard protected by username and password.
- Credentials stored as environment variables on the server, not in application files.

8. Command-Line Configuration

SetSG.exe is a standalone console tool that allows IT administrators to add, modify, or manage configuration values in `screenenie.ini` without opening the ScreenGenie GUI. It is designed for automated deployment via Intune, SCCM, GPO, or RMM.

Basic syntax:

```
SetSG.exe -Section "SectionName" -Item "ItemName" -Value "Value"
```

By default, a value is replaced. If the key does not yet exist, it will be created automatically.

8.1 Special Logic for ForceLeft / ForceRight (Serial)

Serial numbers are treated as comma-separated lists — values are appended and automatically deduplicated.

Adding:

```
SetSG.exe -Section "ForceLeft" -Item "Serial" -Value "ABC#1234"
```

Removing:

```
SetSG.exe -Section "ForceLeft" -Item "Serial" -Remove -Value "ABC#1234"
```

Clearing:

```
SetSG.exe -Section "ForceRight" -Item "Serial" -Clear
```

8.2 Configuration Examples per Section

[Settings]

```
SetSG.exe -section "Settings" -item "Language" -value "EN"  
SetSG.exe -section "Settings" -item "WindowsMode" -value "Yes"  
SetSG.exe -section "Settings" -item "Mode" -value "Dark"  
SetSG.exe -section "Settings" -item "LogDays" -value "14"
```

[Agent]

```
SetSG.exe -section "Agent" -item "Delay" -value "10"
```

[Show]

```
SetSG.exe -section "Show" -item "Reset" -value "No"
```

[Synchronization]

```
SetSG.exe -section "Synchronization" -item "Monitors" -value "Yes"  
SetSG.exe -section "Synchronization" -item "BrightnessContrast" -value "No"
```

[Monitor 1] / [Monitor 2]

```
SetSG.exe -section "Monitor 1" -item "Brightness" -value "60"  
SetSG.exe -section "Monitor 1" -item "Contrast" -value "75"  
SetSG.exe -section "Monitor 1" -item "Primary" -value "Yes"  
SetSG.exe -section "Monitor 2" -item "Brightness" -value "60"  
SetSG.exe -section "Monitor 2" -item "Contrast" -value "75"  
SetSG.exe -section "Monitor 1" -item "Primary" -value "No"
```

[ForceLeft] / [ForceRight]

```
SetSG.exe -section "ForceLeft" -item "Name" -value "DELL C2722DE"  
SetSG.exe -section "ForceLeft" -item "Connection" -value "USB-C,TBT"
```

[Brand Model]

```
SetSG.exe -section "DELL U2724DE" -item "Brightness" -value "39"  
SetSG.exe -section "DELL U2724DE" -item "Contrast" -value "78"  
SetSG.exe -section "DELL U2724DE" -item "RefreshRate" -value "120"
```

[Layout]

```
SetSG.exe -section "Layout" -item "Preset" -value "LMM"  
SetSG.exe -section "Layout" -item "VerticalAlign" -value "Center"
```

[Change]

```
SetSG.exe -section "Change" -item "OnPower" -value "Yes"  
SetSG.exe -section "Change" -item "OnDisplay" -value "No"
```

9. SetVCP — Direct Monitor Control via DDC/CI

SetVCP.exe is a standalone command-line tool included with ScreenGenie. It sends VCP (Virtual Control Panel) commands directly to connected monitors via the DDC/CI protocol, without going through the ScreenGenie configuration engine. SetVCP.exe is located in the ScreenGenie installation folder: Program Files\PNQ Software\ScreenGenie\.

9.1 Basic Syntax

Basic syntax:

```
SetVCP -all -code <hex> -value <int>
SetVCP -display <displaypath> -code <hex> -value <int>
```

9.2 Parameters

Parameter	Description
-all	Send the command to all connected monitors.
-display	Target a specific display by path (e.g. \\.\DISPLAY1).
-code	VCP feature code in hexadecimal (e.g. 0x05).
-value	Integer value to write to the VCP feature.

9.3 Output Format

Example output:

```
SetVCP -all -code 0x05 -value 1
OK  \\.\DISPLAY1 DELL C2722DE 9DYVB23
    VCP 0x05: 0/1 -> 0/1
OK  \\.\DISPLAY2 DELL U2722D 2Z3ZC23
    VCP 0x05: 0/1 -> (write ok, reread failed)
Completed. Success=2, Failed=0
```

reread failed on write-only VCP codes such as 0x04 and 0x05 is expected behaviour. The command is executed successfully — the monitor simply does not return a value after a write-only operation.

9.4 Common VCP Codes

Code	Function
0x04	Restore all factory defaults (brightness, contrast, geometry, colour).
0x05	Restore factory brightness and contrast defaults.
0x10	Brightness (0–100).
0x12	Contrast (0–100).
0xD6	Power mode: 1 = On, 4 = Standby, 5 = Off.

9.5 Task Scheduler and RMM Integration

SetVCP.exe can be called directly from Windows Task Scheduler, logon scripts, Intune remediation scripts, or any RMM tool. The ScreenGenie GUI or Engine does not need to be running. This makes SetVCP.exe suitable for scheduled mass operations such as a nightly factory brightness/contrast reset across an entire monitor fleet.

Example — reset brightness and contrast on all monitors at login:

```
"C:\Program Files\PNQ Software\ScreenGenie\SetVCP.exe" -all -code 0x05 -value 1
```

10. Licensing

ScreenGenie is licensed through a central server using a subscription model with an expiration date. Without a valid license, the software will not operate.

10.1 License Storage

Silent MSI Installation

```
msiexec /i ScreenGenie.msi LICENSEKEY="LICENSE-KEY" /qn
```

Command Line via AddLicense.Cli.exe

```
AddLicense.Cli.exe -License "LICENSE-KEY"
```

Centrally via MDM/RMM

Place license.ini in:

```
%ProgramData%\PNQ Software\ScreenGenie\
```

Distribute via Intune, Workspace ONE, or any other MDM/RMM solution.

Local Manual Entry

```
%ProgramData%\PNQ Software\ScreenGenie\license.ini
```

10.2 Valid License Required

- Licenses are time-bound and must be renewed before expiration.
- license.lic specifies: to whom the license is assigned, the expiration date, and the number of licenses issued.

11. Best Practices for Deployment

In all cases, Windows 11 remains responsible for persistent storage of display configurations. ScreenGenie acts primarily as a correction mechanism.

11.1 User-Initiated Execution

Characteristics	Advantages	Disadvantages
No automatic triggers No background processes User decides when to apply	Minimal system load Full user control No system intervention	Settings not reapplied automatically User must start manually

Suitable for: individual systems, small organizations, environments where users manage their own monitors.

11.2 IT-Light Model — Engine at Login

Characteristics	Advantages	Disadvantages
Engine runs once at login No continuous background processes IT defines the baseline	Consistent startup configuration Minimal system overhead User flexibility remains	Docking changes only corrected at next login

Suitable for: enterprise environments with fixed workstations, enforcing a baseline configuration.

11.3 Fully Automated — ScreenGenie Agent

Characteristics	Advantages	Disadvantages
Continuous background monitoring Automatic correction No manual actions required	Optimal UX in flexible workplaces Automatic docking correction Consistent settings	Additional background process May correct when Windows config is already correct

```
[Change]
OnPower    = Yes
OnDisplay  = Yes
```

Suitable for: flexible workplaces, hot-desking, and laptop-and-dock environments with frequent changes.

11.4 Recommended Deployment Model

PNQ Software recommends the IT-Light model in most environments. Windows persistently stores monitor positions, scaling, and resolutions. Once set up correctly, this configuration remains stable.

11.5 Overview of Deployment Models

Model	Automation Level	Best Use Case
User-initiated ScreenGenie	None	Individual systems
IT-Light (Engine at login)	Limited	Most enterprise environments
Agent fully automated	High	Flexible workplaces / docking setups

12. Troubleshooting

12.1 DisplayReset Utility

The DisplayReset utility removes the complete Windows display cache by deleting specific registry keys, forcing Windows to rebuild the display stack as if monitors were being connected for the first time.

DisplayReset must always be executed with administrative privileges.

Recommended procedure:

5. Run DisplayReset with administrative privileges.
6. Physically disconnect the monitor(s) or docking station.
7. Reconnect the monitor(s) or docking station.
8. Windows detects displays as newly attached. ScreenGenie reapplies all values from the configuration.

12.1.1 Command-Line Syntax

```
DisplayReset.exe [-Reboot] [-NoBackup]
```

Parameter	Description
-Reboot	Performs an automatic system restart after clearing the display cache.
-NoBackup	Skips creation of a registry backup. Without this parameter, a backup is saved in the Windows TEMP directory.

12.2 Physically Resetting Monitors

9. Completely remove power from the monitor(s).
10. Wait 5–10 seconds.
11. Reconnect the power to force internal monitor controllers to reinitialize.

12.3 Restart to Rebuild the Graphics Stack

For docking stations: also reset or restart the docking device, as these contain their own DisplayPort/USB-C routing chips that may become unresponsive.

12.4 Common Causes

Cause	Details & Resolution
DisplayPort HPD stuck	Faulty cable, loose connector, or malfunctioning docking chipset can cause Windows to cache incorrect EDID/VCP states.
MST hubs altering routing	Unstable dock firmware can cause VCP access to disappear, wrong monitor order, or EDID profiles not passed through. A dock reset or firmware update often resolves these.
Monitor firmware issues	Some firmwares only accept VCP after a full power cycle or lose the DDC/CI buffer preventing brightness/contrast control.
Windows EDID cache inconsistency	Cache may become inconsistent after Windows updates, sleep/hibernation, dock switching, or hot-plug events. Use DisplayReset.exe to clear.
GPU driver DP link renegotiation	DDC/CI channel may temporarily drop during driver updates or G-Sync/FreeSync changes. Physical reconnect resolves.

13. PNQ Software Support

For additional assistance, please contact PNQ Software.

Contact	Details
Support Portal	https://pnqsoftware.com/support/
Address	De Nieuwe Erven 3, 5431 NV Cuijk, The Netherlands
Telephone	+31 (0)85 060 4610
Email	info@pnqsoftware.com

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