LatencyCheck

Step-by-step operating description

General flow of installation, startup, checks, trace, analysis, results, update and uninstall

The purpose of this document is to describe step by step how LatencyCheck works from installation to everyday use and uninstall. The description is general and does not depend on a specific build version.

Basic evaluation principle: the application does not "punish" system activity. It checks whether that activity affects functional responsiveness, latency, queue/backlog, DPC/ISR findings and practical symptoms.

1. Operating overview

Phase	What happens
1	The user installs the application with a setup that prepares permissions, files, shortcuts and helper components.
2	The application starts as the main GUI and checks whether the required conditions for latency diagnostics exist.
3	The user selects the check or trace that should be executed.
4	The application collects data, shows progress and creates ETL files and/or reports.
5	The data is analyzed and converted into readable results.
6	The evaluation classifies findings as OK, activity, warning or alert according to their effect on responsiveness.
7	Current results are shown in Results/Summary and recent results are kept in History.
8	The user can check for updates, change language or uninstall the application.

2. Installation and preparation

Step	Description
2.1	The user runs the application setup.
2.2	The setup checks administrator/UAC rights where required.
2.3	Language and basic installation options are selected.
2.4	Requirements such as runtime, trace tools and system rights are checked.
2.5	If old installation remnants exist, cleanup is performed before installation.
2.6	Executables, icons, helper scripts and required resources are copied to the installation folder.

2.7	Start Menu/Desktop shortcuts, App Paths, uninstall entries and, where required, an elevated scheduled task are created.
2.8	After completion, the application can open immediately or from a shortcut.

3. Application startup

Step	Description
3.1	The user opens LatencyCheck from the Start Menu, a Desktop shortcut or a pinned taskbar icon.
3.2	The program checks whether it is running with the correct rights for diagnostics.
3.3	If elevated execution is needed, it is relaunched through the defined mechanism so the GUI opens correctly.
3.4	The main window is loaded and the tabs, buttons, paths and language settings are initialized.
3.5	The application shows the current state: requirements, available tools, latest reports and ready actions.

4. Requirements and system-state check

Before a real trace starts, the application checks whether the system can produce reliable data. This check prevents wrong conclusions from an incomplete environment.

Check	Purpose
Rights	Confirm that the required rights exist for trace collection and access to system data.
WPT / Xperf	Determine whether the tools required for trace and DPC/ISR analysis are available.
Runtime	Confirm that the required .NET/Desktop runtime exists or can be installed manually if missing.
Folders	Ensure that proper folders exist for Traces, Results, History and helper files.
Previous results	Load or clear the current displays so an old result is not confused with a new one.

5. Trace / measurement execution

Step	Description
5.1	The user selects the trace action from the GUI.
5.2	The application prepares the storage folder and defines the ETL/report name with a timestamp.

5.3	Data collection starts and progress is shown so the user can see that the process is running.
5.4	During measurement, early evaluation is avoided when there is only activity.
5.5	Measurement stops when the time/action is completed or when the user stops it.
5.6	The ETL and related reports are written to the defined folders.
5.7	The application moves from collection to analysis.

6. Data analysis

Analysis converts raw trace data into readable conclusions. The important point is not simply which driver was active, but whether the activity is linked to real delay or faulty responsiveness.

Stage	What is checked
DPC / ISR	Times, drivers/modules, concentrations, peaks and possible delay points.
ETL trace	Correlation of activity with time behavior and points of interest.
Drivers / modules	Identification of modules that show systematic or unusual load.
Focus modules	Isolation of the most important findings so the user is not lost in unrelated information.
Conclusion	Conversion of technical measurements into a practical OK, caution or problem indication.

7. Evaluation logic

The application uses functional evaluation. This means the indication is not based only on the fact that something is moving in the system, but on whether that movement creates a response problem.

Latency Check distinguishes each warning by cause. The measurement thresholds are not changed; only the wording is more precise so a transient peak is not confused with active pressure.

Status	Meaning	Where it appears
OK	Clean measurement / operational latency not confirmed.	Control, Comparison, Recommendations and reports.
OK - ACTIVE ACTIVITY	Activity exists, but there is no documented effect on functional responsiveness.	Control and Recommendations.
WARNING - PEAK	The current value has returned to OK, but the highest/ peak value crossed the limit during the measurement.	Control status, old/new comparison status and recommendation reason.
WARNING - CORRELATION	The warning comes from a combination of indicators, such as CPU queue, DPC/IRQ, disk delay or network backlog.	Recommendations and summary conclusions.

ACTIVE WARNING	The current value is still above the limit. Pressure is present now.	Control, Comparison, Recommendations and reports.
ACTIVE ALERT	Strong or confirmed responsiveness pressure in this time window.	Control, Comparison, Recommendations and reports.

Effect on Comparison and Recommendations

- The Recommendations tab uses the same classification in overall state, meaning, proposal, correlation with Control and reason.
- The Comparison tab uses it for the old and new measurement status. Numeric difference fields remain numeric.
- The change affects interpretation text only. It does not change thresholds, colors, counters, trace logic, Worker logic or installation flow.

8. Results display

Area	Role
Summary	Shows the main conclusions of the current measurement in a consolidated form.
Results	Keeps the current result of the latest active analysis.
History	Keeps recent measurements so comparison with previous results is possible.
Reports	Opens or displays the produced report files.
Recommendations	Presents practical instructions when a finding requires action.
Drivers / IRQ / ISR	Shows specialized findings for drivers, interrupts and modules.

9. Language change and UI refresh

Step	Description
9.1	The user changes language from the UI.
9.2	The application applies translations to the main windows and tabs.
9.3	Windows or auxiliary displays that contain old text are closed/cleared so mixed languages do not remain.
9.4	The user reopens individual results/tools in the new language.

10. Application update

Step	Description
10.1	The user selects a check for a new version.
10.2	The application checks the update source and compares the local version with the available one.
10.3	If a newer version exists, it informs the user and shows the download/installation option.

10.4	Download/update is performed through a controlled flow and the user sees progress where required.
10.5	After the update, the new version must appear correctly in the UI, About, update check and installer metadata.

11. Uninstall

Step	Description
11.1	The user starts uninstall from the Start Menu, Windows Apps/Programs or the related uninstall entry.
11.2	The uninstaller requests rights where required.
11.3	It closes the application if it is running.
11.4	It removes the scheduled task, shortcuts, App Paths and registry uninstall entries.
11.5	It cleans the installation folder in a safe way.
11.6	Where provided, it can preserve or transfer results/history instead of losing them immediately.

12. Complete step-by-step flow from user to result

#	Flow
1	Install LatencyCheck.
2	Open the application from a shortcut or the Start Menu.
3	Check requirements and rights.
4	Select language and confirm the UI.
5	Select the check/trace type.
6	Start measurement with progress indication.
7	Collect ETL/DPC/ISR data.
8	Analyze drivers/modules/times.
9	Create reports and summary.
10	Display the result with functional evaluation.
11	Open individual reports or recommendations.
12	Save the current result and update history.

13	Optionally check for an application update.
14	Optionally uninstall when it is no longer needed.

13. Central idea

LatencyCheck works as a response-diagnosis guide: it organizes data collection, hides the complexity of trace tools, presents the important findings and avoids labeling simple normal system activity as a problem.

The goal is not merely to find which driver moved the most, but to show whether there is real delay that affects computer use.

Additionally, the full DPC/ISR driver list shows the drivers/modules from the loaded DPC/ISR trace with ISR/DPC counts, ISR/DPC CPU time, total CPU time and company/product, so the user can see which drivers contributed most to the measurement without changing the evaluation logic.