



LEAPWORK

Product Description

The LEAPWORK Automation Platform



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1. Overview

The LEAPWORK Automation Platform is a subscription license-based software for easily designing and executing automation flows, e.g. for functional UI testing of software.

Automation flows are designed as flowcharts in a visual editor (LEAPWORK Studio) by using a library of 'building blocks' that contain all the logic needed for automating processes, e.g. test runs. This eliminates the need for testers, DevOps, and other process owners to write or read any code when designing and implementing automation flows.

Executing the automation flows is done separately from the visual editor. This allows for centralized governance and monitoring of the automation flows.

The LEAPWORK Automation Platform is ideal for the following automation needs, with new capabilities continuously being added:

- Automated testing of web applications
- Automated testing of desktop applications, incl. SAP
- Automated testing of virtual desktops, incl. Citrix, remote desktops, etc.
- Automated monitoring of applications and systems

The intuitive approach of LEAPWORK to flowchart-based design of automation flows makes it a powerful tool for implementing automation without the need of coding skills. The LEAPWORK Automation Platform is designed for specialists at every business level and for every role in a test team.

The LEAPWORK Automation Platform truly supports continuous integration and delivery. It is the ideal solution for covering a wide range of testing scenarios, including:

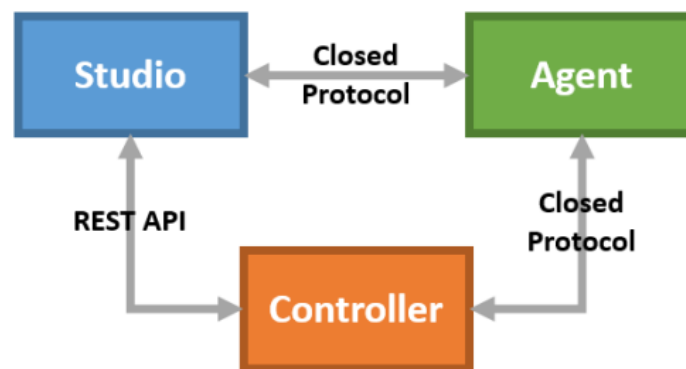
- Functional UI testing
- GUI testing
- Regression testing
- System testing
- Data-driven testing
- Cross-browser testing
- Smoke testing
- User acceptance testing
- Integration testing
- and much more



2. Components of the LEAPWORK Automation Platform

In brief, the installed LEAPWORK Automation Platform consists of three components:

1. **The Studio.** This is where you design your automation flows, schedule runs, view test results, and much more.
2. **The Controller.** This is the software component that stores and manages all assets created when designing and running automation flows. In addition, it handles the execution of all flows.
3. **The Agent.** This is a small software component running as a service on the system environment (Windows or Mac OSX) on which the automation flows are executed.



The architecture of the LEAPWORK Automation Platform.

The LEAPWORK Automation Platform can be installed both locally and in a distributed environment.

Through native plugins, LEAPWORK integrates with build and release services, including Jenkins, TFS, TeamCity, and Bamboo.

With the help of information in our extensive Learning Center, you can also integrate LEAPWORK with development management products such as Jira, HP Quality Center, TFS, and more. Further documentation describing configuration and operation of LEAPWORK with these products is available at leapwork.com/services/learning-center.

3. Designing automation flows

Designing automation flows takes place in LEAPWORK Studio.

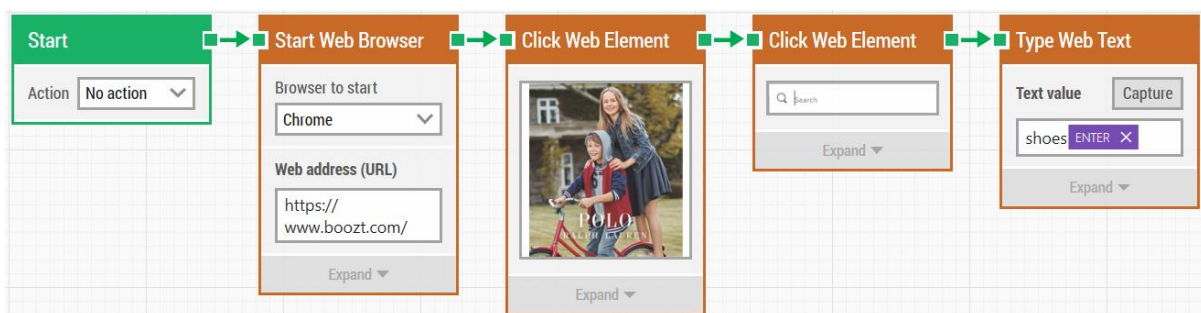
Automation flows supports automation in applications running in **web browsers**, on the **Windows desktop** as well as in **virtual environments** such as Citrix and Windows' Remote Desktop.

Each category represents a different approach:

- Automation of web applications leverages the power of the Selenium framework.
- Applications running on the Windows desktop are automated using LEAPWORK's grey-colored Desktop UI building blocks, which utilizes the built-in UI automation frameworks in Windows.
- And finally, the automation of virtual environments such as Citrix, Remote Desktop, terminals and more, relies solely on image and text recognition.

When selecting the category for an automation flow, it is not confined to the respective category's capabilities. Business processes and test scenarios often go across systems, which is why LEAPWORK supports cross-application automation.

The flows are built on a design canvas by selecting building blocks from a preset library. Each of these building blocks represents a step in the process or task flow, for example 'Start Application', 'Click element', and 'Type Text'. The blocks cover every possible interaction needed for designing the given process, and they can be configured and combined in multiple ways to cover any automation scenario.



Examples of the LEAPWORK building blocks.

When testing a release or a project, it is very common that several actions need to be performed again and again. The example above shows a simple case, where an e-commerce website is accessed, and a simple search term is entered. A test like this usually exists in a wide range of variations with only slight differences, and they all need to be run. Another example of a test case could be a login procedure to a CRM system.

Once built in LEAPWORK, test flows can run repeatedly and be reused indefinitely.



The LEAPWORK building blocks cover the following areas:

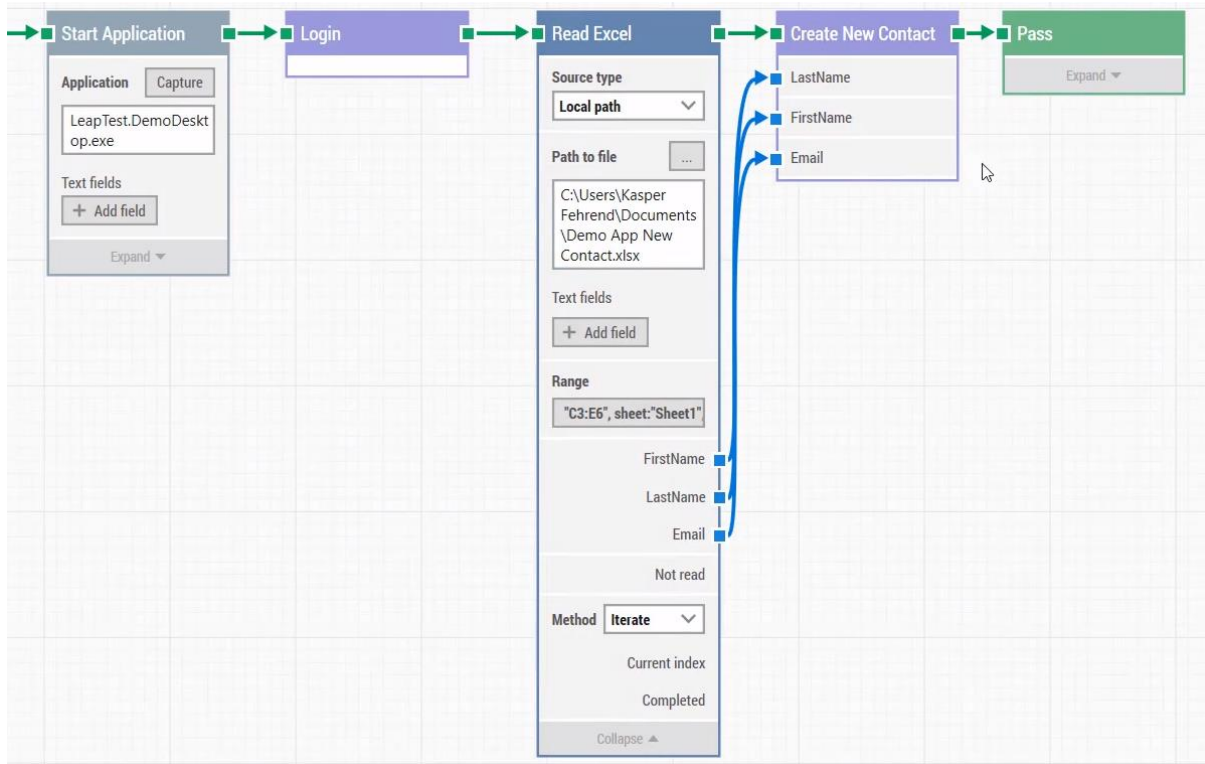
Building block group	Description
Desktop UI	These building blocks let you automate any desktop application. Whether it is for clicking, dragging, or entering data, there is a block for it.
Web	The web blocks handle all automation of websites and web applications. They use Selenium as the engine but no knowledge of Selenium or any coding language are needed to use the web blocks.
Data-Driven	These blocks let you do data-driven automation, by easily using data from spreadsheets, web services, databases, and more.
Logic	The Logic building blocks are used to control the logic flow of automation flows as well as changing values.
Start and Stop	These building blocks are used to indicate the start, end, and fail criteria of an automation flow.
Variables	The Variables building blocks are used to get and set variable values for later use.
Generators	Generator blocks are used to generate dynamic data such as random or sequenced numbers, pieces of text, e-mail addresses, dates, times, and more.
Set Value	These are used to define an area, number, position, date/time, or text value. The set value is then typically used in other blocks such as 'Find text' or 'Click position'.
Debugging	These building blocks are used to add debugging information to flows, for example by adding comments, logging screenshots, etc. This can help in the construction and maintenance of particularly complex flows.
Image and Text Recognition	Image and Text Recognition building blocks are designed for automation of virtual desktops, and they are the perfect match for testing Citrix applications.
Mouse and Keyboard	These blocks let LEAPWORK take control of the mouse and keyboard of the machine on which the automation flow is run.

Additionally, a category called 'Custom' is available. It contains the sub flows built by the Platform's users themselves, making them as easily accessible as LEAPWORK's pre-packaged building blocks. More about these reusable sub flows below.



Automation in LEAPWORK is executed step by step following the flow specified by the green connectors between the building blocks.

The flow of values within a flow and between building blocks is represented by blue connectors. Flows are simply created by adding building blocks and connecting them using the green and blue connectors.



Depicting the order and direction of the flow: The green arrows represent the flow's execution; the blue arrows represent the flow of data.

Advanced capabilities and reusable sub flows

The building blocks come with a range of detailed functionalities that can be adjusted to fit individual automation scenarios. The most commonly used functions are available by default. The more advanced and less frequently used settings are available by simply expanding the blocks.

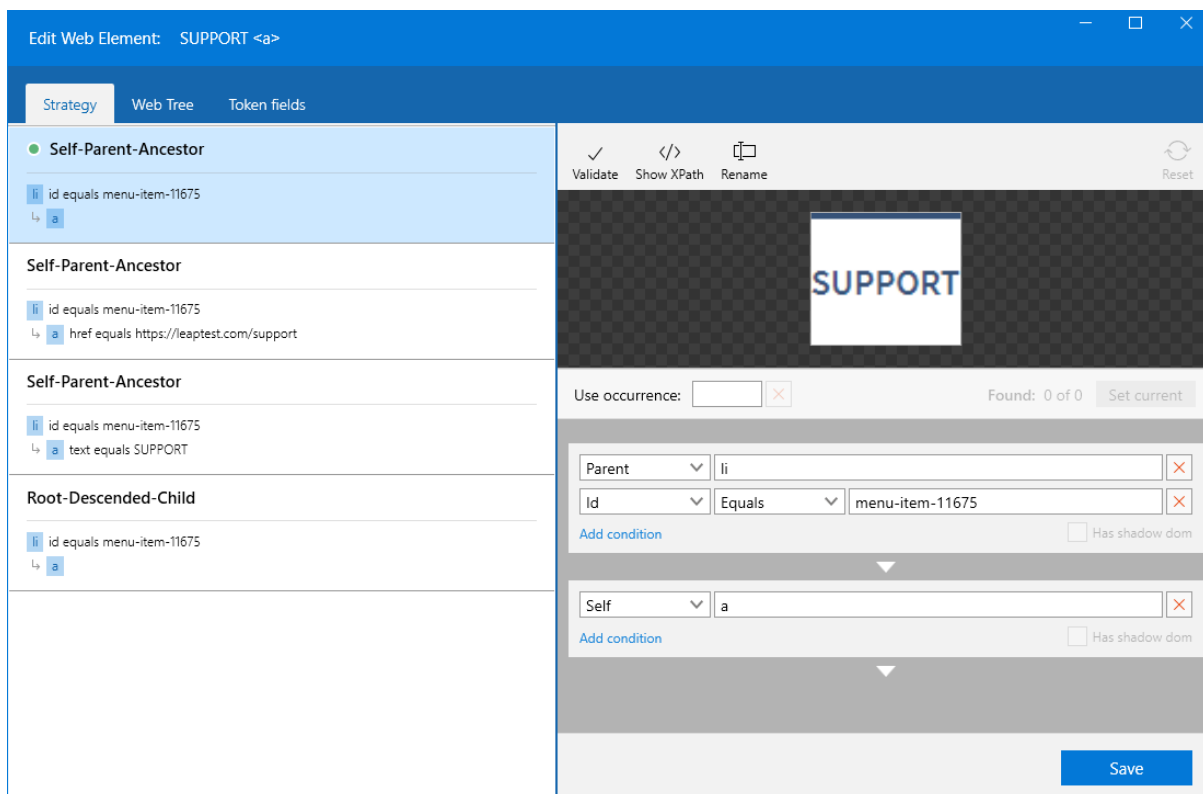
A detailed setting-by-setting documentation for all building blocks is available online and can be accessed directly from LEAPWORK Studio.

Strategy Editor

With both Web and Desktop automation, you can decide how a selected element is found. If the default approach, or strategy, chosen by LEAPWORK is not sufficient, you can adjust the strategy used to locate and use each element. This is done using the Strategy Editor.

When automating web applications, the Editor allows you to interact with the underlying HTML. In desktop automation flows, the Editor interacts with the Windows automation framework. In both cases, by using the Editor, you can identify and customize the unique strategy for retrieving any element specified in the automation flow. There are many relevant use cases, such as:

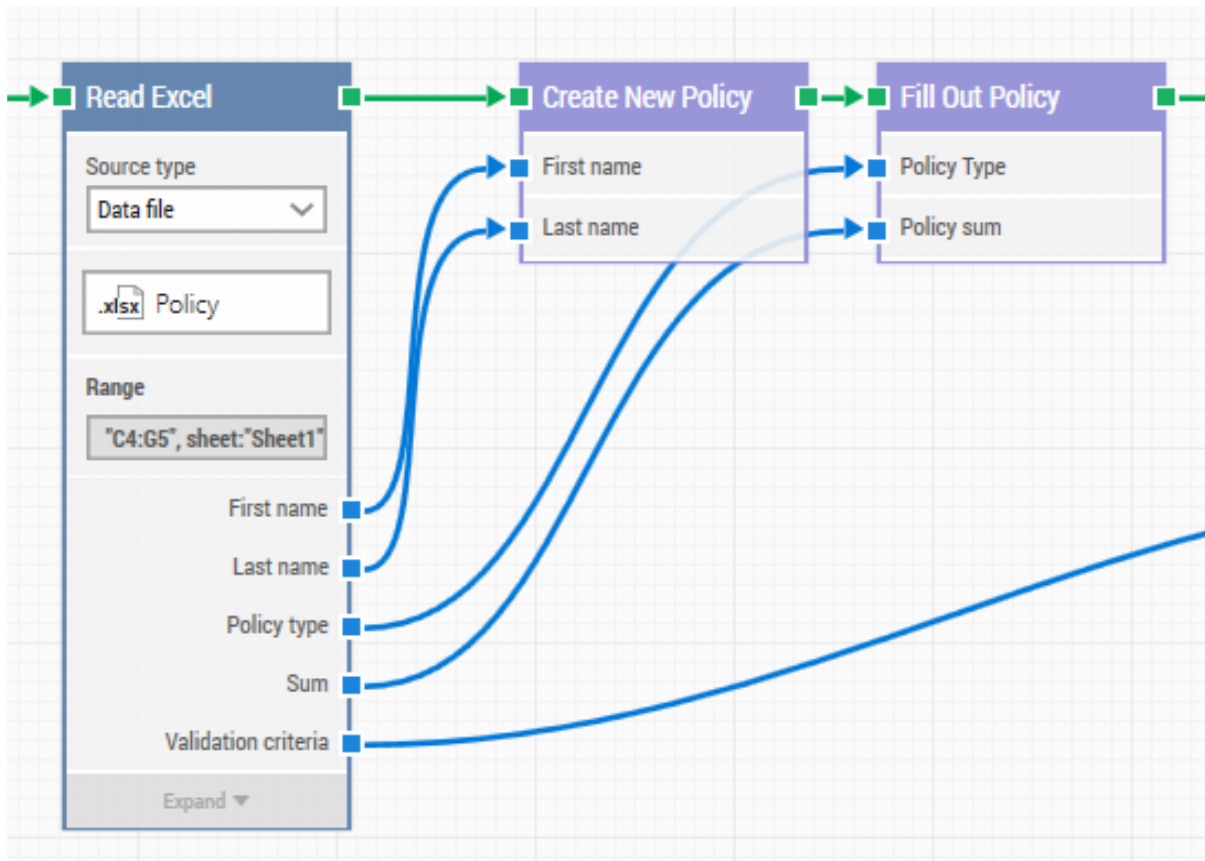
- Locating and accessing all articles in a newsfeed in one operation
- Locating and accessing all data in a grid or table
- Inserting dynamic fields on code level to support data driven automation
- And several others



The above is an example of the Web Editor showing the strategy for identifying an element (In this case, the “Support”-link on a website) in a web automation flow.

Custom Building Blocks

Any part of a flow can be combined into a **sub flow**, that can be re-used across automation flows, shared with your team, and be parameterized as needed. This way, you never have to build the same sequence more than once and the level of maintenance is kept to an absolute minimum.



Examples of reusable subflows (the purple blocks). These are completely reusable, can be parameterized, and, as shown above, can also be driven by data.



4. Managing and running automation flows

In addition to creating the automation flows, LEAPWORK Studio is also used for administrative tasks related to running the automation flows:

- Organizing and managing the overview of the created flows
- Scheduling flow execution
- Reporting (Dashboards, Status reports)
- Managing agents and environments

Once automation flows are designed, you can execute them immediately by simply clicking a play button or set up schedules for how and when they should run. Often, flows need to run repeatedly and across systems and environments. This is all possible from the Scheduling module of Studio. Scheduling is completely customizable in terms of frequency, time of day, etc. All the run schedules and their configurations are stored and managed by the Controller component of the LEAPWORK Automation Platform.

Flows can run on both local and remote machines, on virtual machines in closed networks, and in the cloud. Additionally they can run on any machine that has the LEAPWORK Agent component installed. For web automation specifically, you can also run flows in a Selenium Grid as well as cloud services such as Sauce Labs and BrowserStack.

The machine (On-premises or cloud-based) that hosts the Agent running the test flow is called an Environment. You define and customize the environments for flow execution with Studio's Environments module. It is also possible to schedule when to run each flow and in which environment. A schedule is a selection of one or more flows that are paired with one or more environments.

The Scheduling module provides an overview of all your scheduled flow runs, run status, time and date of both last and next run, and more.



Scheduling					
New Edit Delete Run Now Stop					
Title	Schedule	Enabled	Status	Last Run	
Cross Browser on Selenium Grid	Ad-hoc	No	Idle	10-05-2017 16:28	
Trigger Full Regression From Jenkins	Ad-hoc	No	Idle	12-04-2017 13:44	
Test Full Regression	Ad-hoc	No	Idle	-	
Development Full Regression	Ad-hoc	No	Idle	07-06-2017 12:41	
Production Smoke Test	Ad-hoc	Yes	Idle	29-09-2017 11:30	

The Scheduling module in LEAPWORK Studio.

5. Reporting on automation flows

Whenever flows are run, either ad hoc or through automated schedules, reports are generated and made available in the Reporting module of LEAPWORK Studio. Reports provide data on how many flows successfully passed and how many failed. Information about runtime and environments is also included. The reports are fully customizable by using filtering and grouping options, and they can be converted to PDF documents, exported into spreadsheets, sent by email, etc.

For each run, every single step and activity in a flow are automatically recorded. A flow is documented in three ways:

- **Video recording.** A complete, automatically generated recording that shows the flow as it runs. A video is generated each time a flow is run, and it is easy to find a specific recording in LEAPWORK Studio when browsing flows that have run.
- **Debugging view.** When going through the video recording, the active step in the flow is highlighted, and you can go back and forth in the video log to see the corresponding building block at each step.
- **Text log.** Each activity is logged with timestamps.

This makes it very easy to go through automation flows step by step for troubleshooting and identifying where flows fail. To ensure you maintain control LEAPWORK's usage of storage when managing the potentially large amounts of data generated for reporting, Studio allows you to manage the Platform's retention settings, which you can use in combination with your overall backup strategy.

Triggers and actions can be configured for each scheduled run. For example, if a project has more than two failed flows, an email can be sent automatically to the project owner or other stakeholders. The contents of the email alert can be automatically populated with tokens, e.g. values and performance data from the automation flows. Besides email alerts, it is also possible to integrate to web services and trigger e.g. PowerShell scripts to integrate to third party applications. Finally, it is



possible to integrate LEAPWORK with market-leading test management and bug tracking systems, including HPQC, TFS, Jira, and more. For a full overview, please go to leapwork.com/services/learning-center.

Besides the Reporting module, the LEAPWORK Automation Platform also includes a Dashboards module. Here you have access to visualizations of all the data from your reports, and you can set up customizable charts and widgets to achieve full insight into flow performance trends both for individual flows, across projects, and over time. With a single click, a chart can be turned into an exportable report. Dashboards can also be displayed in full-screen mode, e.g. for team monitors.

6. Support and service

LEAPWORK comes with a great amount of service to help users achieve success, and our Support section is available directly when working in the LEAPWORK Studio as each building block links interactively to the block-specific information online.

Learning Center. Free online courses on both basic and advanced automation are available in our extensive Learning Center, and new courses are added continuously.

Chat with experts. Our senior specialists are available on-demand for live support of your automation needs.

Knowledge base and documentation. Find online help articles and product documentation that address the most common requests and issues.



7. Features summary

Platforms supported	Web, Desktop, Virtual Desktop.
Operating systems supported	Windows 7, 8, 8.1, 10 and server versions, as well as OSX (Agent only).
Browsers supported	Chrome, Firefox, Internet Explorer, Safari, Edge.
Cloud testing	Sauce Labs, Browser stack, AWS, MS Azure.
Test types supported	<ul style="list-style-type: none">• Functional UI testing• GUI testing• Regression testing• System testing• Data-driven testing• Cross-browser testing• Smoke testing• User acceptance testing• Integration testing
Presentation of reports	Built-in reporting. Test results and flow performance available in custom reports, including both text and video logs as well as screenshots. Fully customizable dashboards.
Reusability	Supports user-driven creation of reusable sub flows.
Object identification technology	Object inspection for web and desktop applications (Microsoft, Java, SAP, etc.). For virtual desktops, image and text recognition technology is available.
Free trial period	14 days.
Team collaboration	Yes.
Database testing	Yes (Microsoft SQL, Mongo, Oracle, IBM Db2, MySQL – in fact, every database with an ODBC driver).
PowerShell and CMD script execution	Yes.
Inbuilt scheduling	Yes.
CI/CD pipeline integration	Yes.
Integration with build and release services	REST API native plugins: Jenkins, TFS, TeamCity, and Bamboo.
Integration with bug management systems	Jira, HP Quality Center, TFS, and more (through PowerShell scripts and boilerplate code available in the LEAPWORK Learning Center).
Notifications	Yes, email-based notifications.
Coding support	No coding needed.
Documentation and resources	Online videos, knowledge base, and documentation.
Technical support	Yes. Readily available for live demonstrations and Q&A sessions. Live chat and email.