QF-Test is a test automation tool for programs with a graphical user interface that are based on technologies as described below. QF-Test serves to detect software errors and the tool is intended to be used in a testing environment. Its capabilities make QF-Test suitable for other purposes as well, for example mass data entry via a graphical user interface. The use of QF-Test in a productive environment is at the Licensee's own responsibility. Details are defined in clause 2.5 of the License Agreement for the Purchase or Leasing of QF-Test.

1.   Terms and definitions

1.1   UI Engines

The term "UI Engine" denotes the support for a specific UI technology within QF-Test. QF-Test
currently supports following UI technologies:

- Java Swing
- Java FX
- Eclipse/SWT
- Web applications running in a browser
- Windows desktop applications
- Android apps

2.   System requirements and supported versions

Listed below are the officially supported versions of operating systems and of software required for running QF-Test. Support for additional systems and versions may be available on demand, but is not owed by QFS.

Support for versions of operating systems or required software that have reached end-of-life as
defined by their respective vendors may be dropped in the course of a Medium or Major Upgrade of QF-Test.

2.1   Operating Systems
- Windows 10 or higher (Windows 10, 11, Server 2012 R2, Server 2016, Server 2019, Server 2022)
- Linux and other Unix systems, including AIX, HP-UX, and Solaris
- macOS

2.2   Java
- QF-Test itself requires a Java Runtime Environment (JRE) or Java Development Kit (JDK)
  version 17. Since QF-Test 4.2 a respective JRE is included in the distribution.
- The System under test (SUT) may run with Java 8 or higher.

2.3   Limitations for the Eclipse/SWT UI Engine
- Windows or Linux Gtk x86, 64 bit
- SWT version 4.2 or higher (older versions available on request)

2.4   Limitations for the Web UI Engine
a)   QF-Driver connection mode
- Windows: Chrome in the Chromium version distributed with QF-Test
b)   WebDriver connection mode
- Windows: Chrome (also headless), Firefox (also headless), Microsoft Edge (also headless), Opera, Electron (version 1.7 or higher)
- Linux: Chrome (also headless), Firefox (also headless), Microsoft Edge (also headless), Opera, Electron (version 2.0.18 or higher)
- macOS: Safari, Chrome (also headless), Firefox (also headless), Microsoft Edge (also headless), Opera, Electron (version 2.0.18 or higher)
c)   CDP-Driver connection mode
- Windows: Chrome (also headless), Microsoft Edge (also headless), Opera
- Linux: Chrome (also headless), Microsoft Edge (also headless), Opera
- macOS: Chrome (also headless), Microsoft Edge (also headless), Opera
- Electron (version 6.0 or higher)

2.5   Win UI Engine

- Desktop applications running on one the Windows versions as defined above and support Microsoft UI Automation or Microsoft Active Accessibility (MSAA), e.g. classical Win32 applications, .NET applications based on Windows Presentation Foundation (WPF) or Windows Forms, Universal Windows Platform (UWP) applications using XAML controls.

2.6   Android Engine

- Android apps running on an emulator from Android studio or a real Android device using an Android Version 7 (API 24) or later

3. Licensing

QF-Test licenses include information about the licensed GUI engines. Automated tests can only be executed for applications based on technologies for which Licensee has acquired licenses with the respective GUI engines. There are different kinds of licenses available for QF-Test:

3.1   Development License and Runtime License

Development License: A development license allows use of the full functionality of QF-Test for the licensed GUI engines, in particular the development and saving of test suites, as well as runtime
features like test execution and debugging.

Runtime License: A runtime license allows execution and debugging of tests as well as temporary
modification of test-suites but saving of test-suites is not possible.

3.2   Floating Licenses

All QF-Test licenses are floating, i.e. not node locked to individual systems or bound to individual users. The following limitations apply:

Standard floating license for one local network

A QF-Test license file includes information about the maximum number of concurrent instances
allowed as well as the number and type of licensed UI engines. A standard QF-Test floating license can be installed on an unlimited number of physical or virtual machines at one site, but only within one local network.

Verification of license's use is technically implemented as follows: When QF-Test is started it sends a multicast packet limited to the local network. QF-Test instances that are already running reply to this packet with information about their current license use. The starting QF-Test instance collects those replies, sums the current total usage and compares it to the licensed number of instances and UI engines. If the available number of licenses is exceeded, the program displays a notification and
terminates.

If this verification is not possible because of the configuration of Licensee's network, Licensee must use other means to ensure that only as many licenses for QF-Test as acquired by Licensee are used concurrently.

License server for floating licenses beyond one local network

As an alternative to floating licenses for a local network, worldwide floating licenses can be purchased or leased. To that end, QFS offers, free of cost, software for running a license server for QF-Test. This license server software requires Windows, Linux or macOS withJava 8 or 17, (since QF-Test 4.2 a respective JRE is included in the QF-Test distribution). The requirements for the clients of the QF-Test license server, i.e. normal QF-Test instances, remain the same. Technical operation of the license server and provision of the infrastructure necessary to ensure that QF-Test instances can reach the license server are the sole responsibility of Licensee.

Licensee shall update the license server installation in a timely manner when explicitly notified by QFS in order to ensure correct functionality of the license server and continuous monitoring of the licenses used.

The QF-Test license server implements a world-wide floating license mechanism. Lower priced alternatives of licenses are limited to geographical regions as described below. These regions are defined by time zone as follows:

- The Americas: GMT-10 - GMT-3
- EMEA: GMT-2 - GMT+4,5
- APAC: GMT+5 - GMT-11

A QF-Test instance is defined as belonging to a given region if and only if the physical CPU that
executes the code is located in that region. Thus, for a virtual machine, the determining factor is the location of the host executing the virtual machine. For a user who is remotely logged in to a machine executing QF-Test, the determining factor is the location of that machine. The whereabouts of the user are irrelevant.

Example: A company in Germany with a subsidiary in the USA is running a QF-Test license server for the region EMEA. Use of QF-Test on a local machine in Germany is allowed, use on a local machine in the USA is not. A user from the USA, logging into a machine in Germany may run QF-Test on the German machine whereas a user from Germany may not run QF-Test on a machine in the USA.

If the physical location of a machine cannot be determined, such a machine may only run QF-Test in cooperation with a world-wide server license without regional limitations.

Concurrent use of QF-Test is allowed up to the number of licenses acquired by Licensee. QFS will
provide a corresponding volume license for the license server and a matching client license for deployment with QF-Test. The volume license is limited to a single license server and must never be used by more than one license server at any given time. The client license may be deployed to an unlimited number of QF-Test installations at any location within the regions described above for which Licensee has acquired the licenses.