AVENIO Software

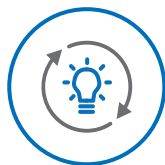*Purpose built solutions
for the Roche NGS workflow*

AVENIO Software

AVENIO Connect Software, an automated sample tracking tool for NGS workflows is offered with AVENIO Designer Software, a coding-free protocol building tool for custom-designed user-defined workflows. Combined, these tools maximize the AVENIO Edge System's performance – and your time!

Redefine Simplicity

Make the AVENIO Edge System easier to manage through remote access via AVENIO Connect Software

Maximize Productivity

Manage NGS workflows more efficiently by automating the data flow on the AVENIO Edge System

Empower Trust

Minimize human error by reducing need for manual data entry and sample tracking

AVENIO Connect Software

Take the work out of NGS Workflows

The process from sample accessioning through result reporting remains challenging. NGS labs need to handle these complex workflows and at the same time, track samples with confidence.

AVENIO Connect Software is a sample management application that brings visibility and control of samples on AVENIO Edge instruments, in both remote and on-site installations. Easy to use and configure, this solution fits seamlessly into NGS labs, supporting automated workflows.

The AVENIO Edge System drastically reduces lab technicians' hands-on time (83% reduction in steps[*]), allowing them to spend their time in more meaningful ways. AVENIO Connect Software complements the walk away time of AVENIO Edge with added flexibility and effortless sample management – accessible from anywhere with a browser and internet connection.
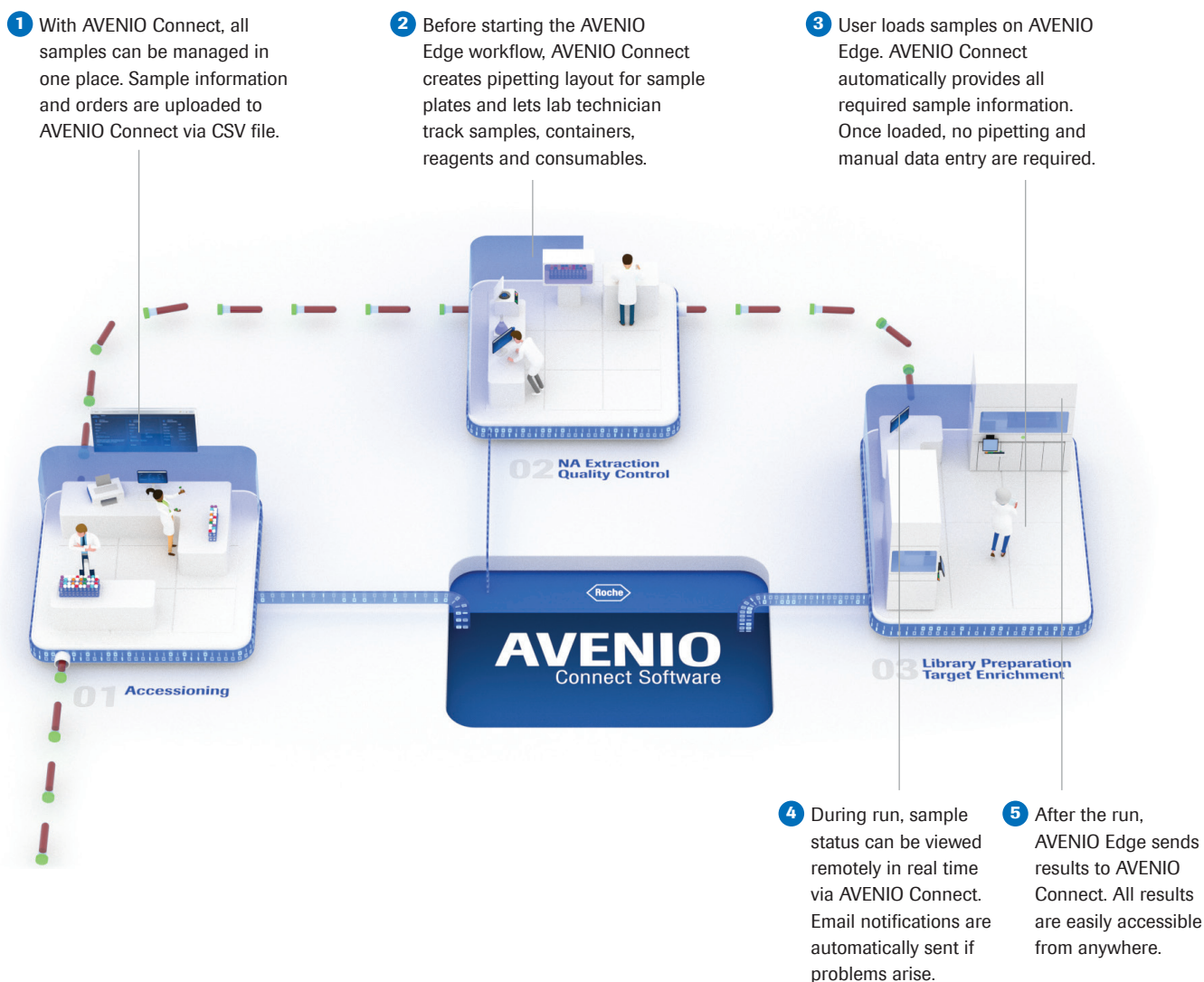
- Sample tracking ensures audit traceability of samples

- Complete workflow monitoring reduces risk of error while also reducing time-consuming, manual steps

- Increase workflow efficiency with real-time visibility, the freedom of user-defined workflows (UDW) and eased IT burden through seamless integration

AVENIO Connect Software

Effortless sample management

AVENIO Connect Software automates the data flow and digitization of the sample journey while collecting sample information from different workflow steps, making all data accessible from one place. The software tracks samples in real time, throughout the workflow, doing away with confusing paper trails, spreadsheets and manual charts. AVENIO Connect Software serves up:
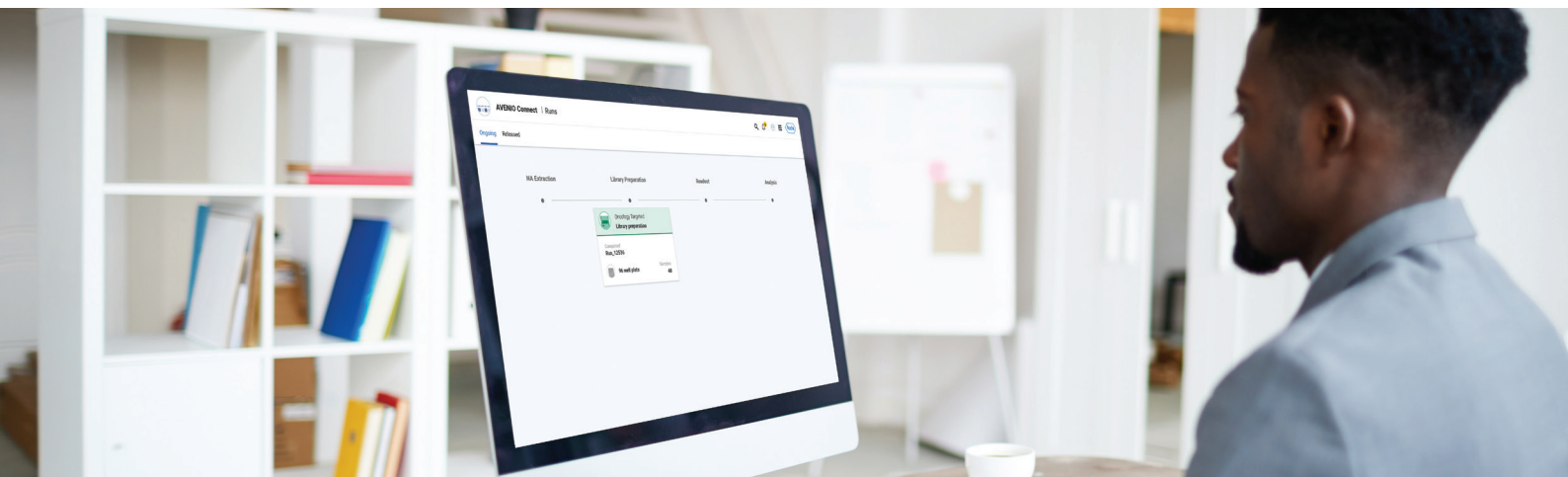
- Sample workflow history

- Timestamps

- QC Results

- Reagents used and more.

1 With AVENIO Connect, all samples can be managed in one place. Sample information and orders are uploaded to AVENIO Connect via CSV file.

2 Before starting the AVENIO Edge workflow, AVENIO Connect creates pipetting layout for sample plates and lets lab technician track samples, containers, reagents and consumables.

3 User loads samples on AVENIO Edge. AVENIO Connect automatically provides all required sample information. Once loaded, no pipetting and manual data entry are required.

02 NA Extraction Quality Control

Roche

AVENIO
Connect Software

01 Accessioning

03 Library Preparation Target Enrichment

4 During run, sample status can be viewed remotely in real time via AVENIO Connect. Email notifications are automatically sent if problems arise.

5 After the run, AVENIO Edge sends results to AVENIO Connect. All results are easily accessible from anywhere.
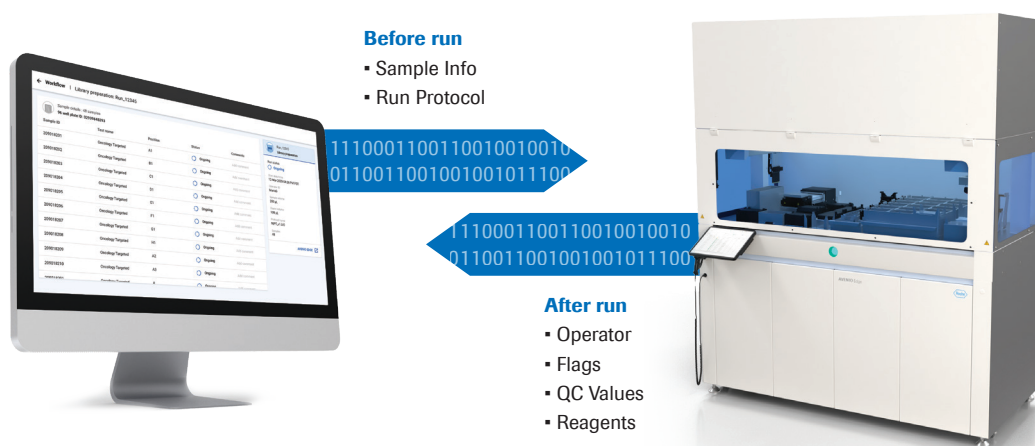
One interface, accessible from anywhere

Operating in the cloud, AVENIO Connect Software has a light and secure digital footprint, making it easy to access from anywhere via a compatible web browser. The intuitive interface enables full visibility of the sample journey on AVENIO Edge System(s) all in one place. Role-based user access ensures that AVENIO Connect is tailored to the needs and responsibilities of each lab staff member.

Integration with AVENIO Edge System

AVENIO Connect Software defines how samples are to be processed on AVENIO Edge System(s) and ensures that correct instrument runs are executed. Information is automatically exchanged between AVENIO Connect Software and AVENIO Edge Systems, eliminating the need to manually enter sample information at the instrument.

- In the event things don't go as planned, notifications are proactively sent
- As the instrument completes the run, results are instantly made available

Before run
- Sample Info
- Run Protocol

After run
- Operator
- Flags
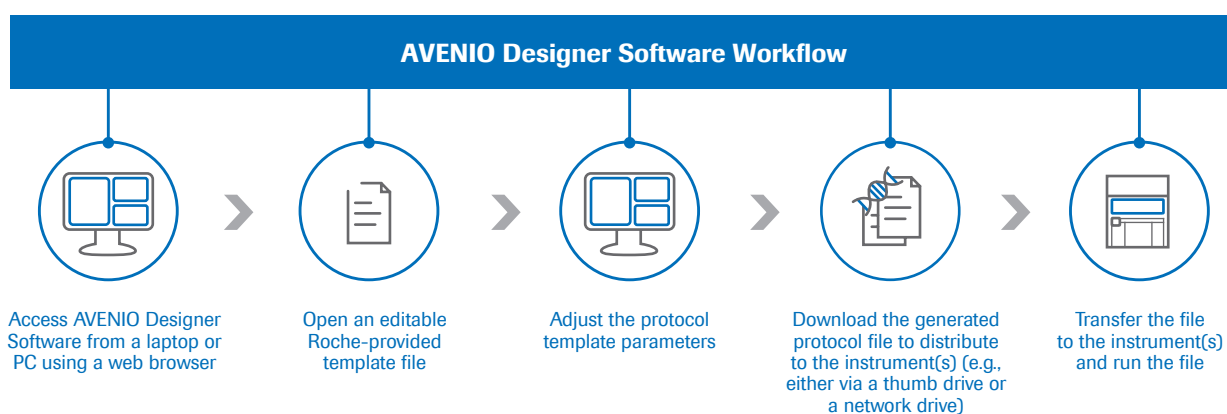- QC Values
- Reagents

5

AVENIO Designer Software

Makes code-free protocol configuration possible

The AVENIO Designer Software is a cloud-based solution that enables laboratory personnel to rapidly customize, convert and modify protocol templates for laboratory-defined workflows on the AVENIO Edge System. The AVENIO Designer Software templates allow the user to rapidly and easily deploy automated Library Preparation, Quantification, and Target Enrichment and pooling protocols onto the AVENIO Edge System.
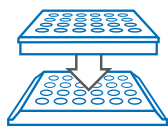
The AVENIO Designer Software empowers lab personnel to transfer the same workflow across multiple instruments, change a workflow without need for programming, stop and start at various steps (in the workflow) and configure workflows from any internet browser in or outside the lab.

- Easy-to-use interface with tunable parameters

- Unparalleled flexibility allows changing workflows at any time

- Validated workflows are pre-populated with recommended parameters and the ability to adjust if needed

- Easily deploy protocols, assess the performance and fine tune until satisfied with the results

AVENIO Designer Software Workflow

Access AVENIO Designer Software from a laptop or PC using a web browser

Open an editable Roche-provided template file

Adjust the protocol template parameters

Download the generated protocol file to distribute to the instrument(s) (e.g., either via a thumb drive or a network drive)

Transfer the file to the instrument(s) and run the file

AVENIO Designer Software

Ready–to–use customizable templates

Labs can choose from a set of predefined run protocols that fit their throughput, lab setup and operations. They can define starting and stopping points for their protocols and include or exclude specific steps. The following templates are available:
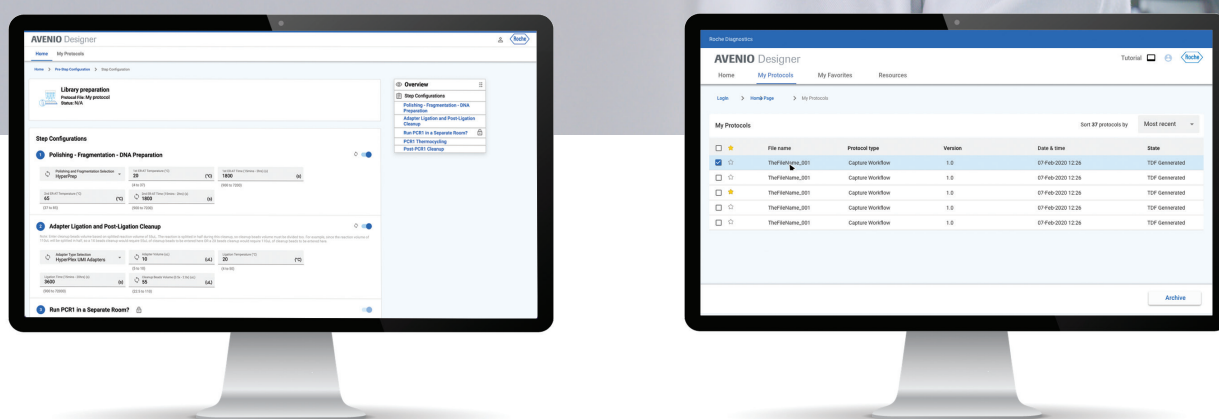
- Input Control (8 – 96 samples)

- Library Preparation (8 – 48 samples)

- Target Enrichment (8 – 48 samples)

- Pre-capture pooling and target enrichment (48 samples)

- Pooling (8 – 48 samples)

- Library Preparation and Target Enrichment (24 samples)

- Library Preparation and Target Enrichment (8 – 16 samples)

QC	Library Preparation	Target Enrichment	Pooling
Input Control (8-96 samples)	Library Preparation (8-48 samples)	Target Enrichment (8-48 samples)	Post Capture Pooling (8-48 samples)

Library Preparation and Target Enrichment
(24 samples)

Library Preparation and Target Enrichment
(8-16 samples)

Fine tune and optimize protocols

The AVENIO Designer Software can be accessed from any web browser inside or outside of the laboratory. Labs can either rely upon the default, pre-validated settings of the selected protocols or change important parameters in the protocol to optimize the performance for their specific application. They can download the protocol to deploy on their AVENIO Edge Systems, evaluate the performance and change parameters for optimization. When satisfied with the results, the protocol can be validated and version controlled.

AVENIO Connect Software

Architecture, Compliance and Safety

AVENIO Connect Software can help reduce operational burdens by providing security functions and compliance requirements. Cloud-hosted, scalable data management, easy upgradeability and seamless interoperability with other apps is enabled. A Roche-provided Connect Gateway, firewall & remote support further ensure IT Security and ease of service.

Robust security

Leverage native AWS security components and innovative technologies to achieve a solid security approach.

Data privacy

Privacy-by-design principles have been incorporated into product development. Data encryption and Secure Key Management is used.

Compliance requirements

Benefit from a certified system that is continuously monitored to keep it stable and secure.

Efficiency

Implement with little to no overhead using easy-to-deploy, scalable features.

Reliability and uptime

Deliver robust resiliency and disaster recovery capabilities.

AVENIO Connect Software is hosted on an architecture that supports compliance with regulatory standards by providing:

- Encrypted data at-rest and in-transit

- Physical Firewalls

- Role-based access control

- Workflow rules enforcement

For more detailed information on the compliance, data privacy and security of the AVENIO Connect Software, please contact your local Roche Representative or consult our AVENIO Connect Software Data Privacy and Security brochure on the AVENIO Connect Software web page.

Trust AVENIO Connect Software technology for data protection

Healthcare institutions need a trusted and experienced partner to offer solutions that canbetter support staff while also enabling compliance with privacy and security rules.

Roche, a global healthcare leader since 1896, is committed to the privacy and security of sensitive sample data. Medical institutions need an experienced partner with IT solutions that support staff and innovate while providing features to meet customer data protection needs.

To handle this sensitive data, Roche's global experience and history informed the design of the cloud-based AVENIO Connect platform. Recognizing that each region, country or locality has its own data security and privacy requirements, resilient data protection measures are included in Roche products to enable users to help keep sensitive sample data confidential and secure under various regulatory requirements that may apply to them.

Robust compliance ensures changing security needs are continuously met

CERTIFICATIONS	
ISO 27001	✔
ISO 27017	✔
ISO 27018	✔
ISO 13485	✔

Roche recognizes the importance of incorporating privacy and security principles into our product development process and has designed AVENIO Connect Software with features that enable users to operate under various laws and regulations, such as HIPAA (US) and GDPR (EU), in key jurisdictions where the product is available.

The AVENIO Edge System is a Class 1 US IVD and a Class A CE IVDR and is intended for downstream diagnostic applications. Reagents and kits mentioned are for Research Use Only. They are not intended for diagnostic procedures. The AVENIO Edge System can be used for Research Use Only (RUO) workflows.

User-defined protocols created using AVENIO Designer Software are for Research Use Only (RUO) workflows, not for use in diagnostic procedures.

The AVENIO Connect Software is for Research Use Only (RUO) workflows.

Roche Sequencing Solutions, Inc.
4300 Hacienda Drive
Pleasanton, CA 94588

sequencing.roche.com