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Illumina Proactive frequently asked questions

Remote monitoring, instrument diagnostics, and proactive service.

Introduction

Illumina Proactive remote monitoring service enables Illumina service personnel to respond proactively to instrument issues and make remote instrument diagnoses. Illumina Proactive was developed to support labs of all sizes and maximize return on customer investment for their instrument. By monitoring critical instrument parameters, we allow our service personnel to be accurate and efficient when identifying the cause of instrument or run failures, and ensure that minimal time is spent on troubleshooting. Illumina Proactive reduces the likelihood of losing valuable samples mid-run by proactively identifying potential failures and dispatching field service representatives to a customer site to fix issues before they arise.

Remote diagnosis and proactive notifications enable planned maintenance at customer sites, which provides customers with control over their most precious asset, time. With the peace of mind that instruments are functioning according to specifications, customers can have added confidence that they have the best product support experience. This document covers some of the frequently asked questions (FAQs) about Illumina Proactive service. Also listed are additional resources on data security, compliance, privacy, and other IT concerns. For more details on the value of Illumina Proactive, please visit the Illumina Proactive Brochure.[1]

1. What is Illumina Proactive?

Illumina Proactive is a proactive support service that involves remote instrument monitoring in real-time.

2. How does Illumina Proactive work?

Illumina instruments are designed with the capability to log performance of components during a run. By enabling Illumina Proactive, your instrument performance data are sent to Illumina. This allows Illumina support personnel to make accurate diagnoses and troubleshoot customer issues quickly. Furthermore, Illumina personnel can proactively identify issues with instrument components and dispatch a field service engineer (FSE) to fix the issue before an instrument failure can occur.

3. Why is Illumina Proactive useful to a customer?

Illumina Proactive helps customers to maximize system uptime and improve productivity.

- **Proactive maintenance**: By notifying you and our FSEs of any developing situation that is a potential cause of instrument failure, you have the option to take action before experiencing an unscheduled downtime or losing a sample during a run.
- **Faster time to resolution**: Should you run into an issue during a sequencing project, remote monitoring and diagnosis is a fast path to identifying the root cause of instrument failure or other quality issues. Our service engineers and technical support teams can identify the problem, correct it, and dispatch on-site support with replacement parts for quick repair if necessary.

4. Do I need a BaseSpace™ Sequence Hub account to enable Illumina Proactive?

No. Illumina Proactive requires a network connection to Illumina. But BaseSpace Sequence Hub is an independent product that requires a separate subscription. Since these are two independent services, customers do not need a BaseSpace login.

5. Which instruments does Illumina Proactive currently support?

The NovaSeq™ 6000, NextSeq™ 1000, NextSeq 2000, HiSeq™ X, HiSeq 3000, HiSeq 4000, NextSeq 500, NextSeq 550, NextSeqDx, MiSeq™, MiSeqDx, and iSeq™ 100 Systems are currently set up for remote monitoring. Illumina is actively working on expanding the remote monitoring and proactive support capabilities of these platforms.

6. How do I turn on Illumina Proactive support?

Illumina Proactive can be configured by the user in the instrument control software. The user guide for each instrument includes details on how to enable, or disable, sending of instrument performance data.

For more information on universal and instrument-specific network configurations, refer to the Illumina Proactive Technical Note.[2]

If you require additional assistance, our technical support personnel can provide remote guidance, or schedule on-site visits with our FSEs or field applications scientists (FASs), to help you connect your instrument to Illumina Proactive.

7. Will sending my instrument performance data to Illumina enable proactive detection of all types of failure risk?

No. Instrument performance monitoring has successfully enabled proactive maintenance on numerous cases to date. But as more data become available, the capabilities of this service will continue to expand and improve across the Illumina portfolio of sequencing products.

8. What exactly is instrument performance data?

Instrument performance data refers to any metric that can characterize the performance or operation of the instrument. There are three categories of instrument performance data:

- Run performance data (Q- scores, error rates, instrument operational logs)
- Instrument configuration data (instrument serial number, software version)
- Run configuration (run parameters, reagent lot numbers, flow cell lot numbers, primary analysis set-up and configuration)

For more details on instrument performance data, refer to the Illumina Proactive Technical Note.[2]

9. Can I see the data that Illumina receives?

You have partial access to instrument performance data within MyIllumina[3]—your free, personalized customer dashboard. You can receive real-time updates on run progress, get snapshots of instrument utilization, see instrument availability, and keep track of maintenance history.

10. Will anyone be able to access my sample data?

No. Illumina Proactive only monitors the operational data component for instrument performance. This includes software logs, instrument configurations, and instrument component information.

11. Is my sequence data also sent to Illumina if I enable Illumina Proactive?

No. Sequencing run data are not accessible through this service and cannot be sent. Various features distinguish the connectivity between instrument performance monitoring and sequence data analysis (Table 1).

12. What does Illumina do with the instrument performance data collected through remote monitoring?

The data will be used to resolve instrument problems, schedule proactive service visits and improve Illumina products and the services it provides to customers.

Table 1: Connectivity options

Attribute	Illumina Proactive mode	Run monitoring mode	BaseSpace Sequence Hub Analysis mode
Connection type	One-time instrument configuration	Per-run user connection	Per-run user connection
Requires internet connection	X	X	X
Includes instrument configuration and operational logs	X	X	X
Requires BaseSpace Sequence Hub login		X	X
Includes sequence data (BCL) files			X

13. What if I change my mind and don't want to share any instrument data anymore?

Customers can disable Illumina Proactive on their instruments at any time. If you are having problems with this task, contact technical support (techsupport@illumina.com) for help with disabling this service.

14. I am concerned about data security. What are some of the security checks on the instrument?

Our instruments do not require inbound ports, which reduces access to the operating system. Newer instruments, such as the NovaSeq 6000 System, include the enhanced machine experience toolkit (EMET) feature, by Windows, which adds a layer of security between the user-selected antivirus software and the firewall. The NovaSeq 6000 and iSeq 100 Systems also have a software restriction policy (SRP) that prevents applications not on the allow list from being executed on Illumina computers.

For more information on data security, refer to the Illumina Proactive Technical Note.[2]

15. How secure is the data flow via the internet?

All communication between the instrument and our cloud systems are through application program interfaces (APIs) that require API key signatures. All sensitive traffic across the internet is encrypted using an industry standard, transport layer security (TLS).

16. How secure is data that is stored in the cloud?

Data "at rest" is encrypted using Advanced Encryption System (AES)–256. Our cloud infrastructure, built on Amazon Web Services (AWS), has been externally audited by independent third-party companies for ISO 27001. These external audits indicate that our information security management system (ISMS) ensures that sensitive collected data, or contained data, are protected.

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17. Is your cloud system HIPAA compliant?

Our systems risk management program conforms to the Health Insurance Portability and Accountability Act (HIPAA) security role and the Health Information Technology for Economic and Clinical Health (HITECH) breach notification rule.

18. Should I be concerned about patient or sample information when using Illumina Proactive?

No. While our systems are attested to be compliant with both HIPAA and HITECH, Illumina Proactive cannot access patient information, sample identifiers, or genomic data.

19. I include sample information or patient names in my sample sheets. Does Illumina Proactive have access to this information?

No. Illumina Proactive does not have access to any free text columns in Sample Sheets. In general, Illumina strongly recommends that sample and patient information be omitted from the name of the experiment or any free text columns in the sample sheets.

20. We recently requested that certain data associated with our instrument be deleted. Can you provide confirmation that this data was deleted?

Yes. Please contact technical support. We can provide additional confirmation that all data deletion requests were honored.

21. My IT team has a lot of questions about Illumina Proactive. Do you have additional resources that I can share with them?

Yes. Please direct your IT team to the Illumina Proactive Technical Note.

If additional questions arise, Illumina product specialist teams include IT professionals who would be happy to answer specific questions or concerns, and help your IT team to configure Illumina Proactive.

Please contact technical support (techsupport@illumina.com) to schedule a consultation.

References

1. Illumina (2019) Illumina Proactive Brochure. Accessed March 13, 2019.
2. Illumina (2018) Illumina Proactive Technical Note. Accessed February 5, 2019.
3. Illumina. MyIllumina Customer Dashboard. www.illumina.com/company/doing-business-with-illumina/my-illumina-customerdashboard.html. Accessed February 18, 2019.

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