



Saphyr[®] Site Preparation Guide

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Table of Contents

Legal Notice	3
Revision History	4
Chapter 1: Introduction	5
Chapter 2: Planning	6
Saphyr System Overview	6
Hardware Requirements and Specifications	7
Network Requirements.....	10
Bionano Access Proxy Server Compatibility.....	10
File Storage Recommendations.....	10
User-Supplied Materials	11
User-Supplied Equipment.....	11
User-Supplied Consumables	11
Additional User-Supplied Materials for DNA Isolation	12
Additional User-Supplied Materials for DNA Labeling.....	12
Chapter 3: Preparing for Arrival	13
Installation Guidelines.....	13
Dimensions	13
Laboratory Guidelines.....	14
Lab Bench Layout	14
Environmental Considerations	14
Chapter 4: Preparing for Installation and Training	15
Site Preparation Checklist	15
Crate Contents.....	15
Accessory Kit.....	15
Qualification Kit (Part #90011 or 90034).....	16
User Training Kits (Part # 90012 – 90017, 90049)	16
Chapter 5: Post-Installation Follow Up and Resources	17
Additional Resources	17
Glossary.....	17
Technical Assistance	18

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Revision History

Revision	Released	Notes
K	09/14/2020	Compute On Demand, Custom Server, SP Tissue and Tumor Kit information added
L	12/17/2020	Updated ICS Controller specification, linked Saphyr Technical Note document
M	10/20/2021	Added section for Data Backup, removed proxy restriction, user materials and kit descriptions updated.
N	3/8/2022	Updated backup section

Chapter 1: Introduction

This document provides guidelines and specifications to prepare your site for installation and operation of the Bionano Genomics Saphyr[®] System. Please review the information in this guide before preparing your site. Authorized Bionano personnel will assist you through the installation and sample preparation process.

The site preparation process has four stages:

Preparation Stage	Description
Planning	<ul style="list-style-type: none"> • Hardware and software requirements • Network, file storage, and electrical requirements • Coordination of requirements between the research team, IT Operations, security groups, and any other governance parties. • User-supplied materials and equipment
Preparing for Instrument Arrival	<ul style="list-style-type: none"> • Installation guidelines • Laboratory guidelines • Environmental considerations
Preparing for Installation and Training	<ul style="list-style-type: none"> • Site preparation checklists • Crate contents • Accessory and Qualification kits • Installation and training schedule
Post Installation Follow-Up	<ul style="list-style-type: none"> • Preparing for follow-up review

The following roles and responsibilities must be followed to ensure a successful installation:

Role	Responsibility
Bionano Genomics Field Service Engineer (FSE)	<ul style="list-style-type: none"> • Coordinate installation date with the customer • Perform full installation and qualification of Saphyr System (Instrument and Access Server).
Bionano Genomics Field Application Scientist (FAS)	<ul style="list-style-type: none"> • Act as customer point of contact. • Coordinate training date with the customer. • Arrange sending training consumables to the customer and ensuring that they have arrived. • Train the customer in sample preparation, running the instrument, and reviewing data output.
Customer	<ul style="list-style-type: none"> • Ensure that all requirements listed in this document are met. • Provide all user-supplied materials listed in this document.
IT at Customer Site	<ul style="list-style-type: none"> • Rack and connect Saphyr Compute and Bionano Compute Servers, if purchased • Provide static IP addresses as described in this document. • Provide a switch as described in this document.

Chapter 2: Planning

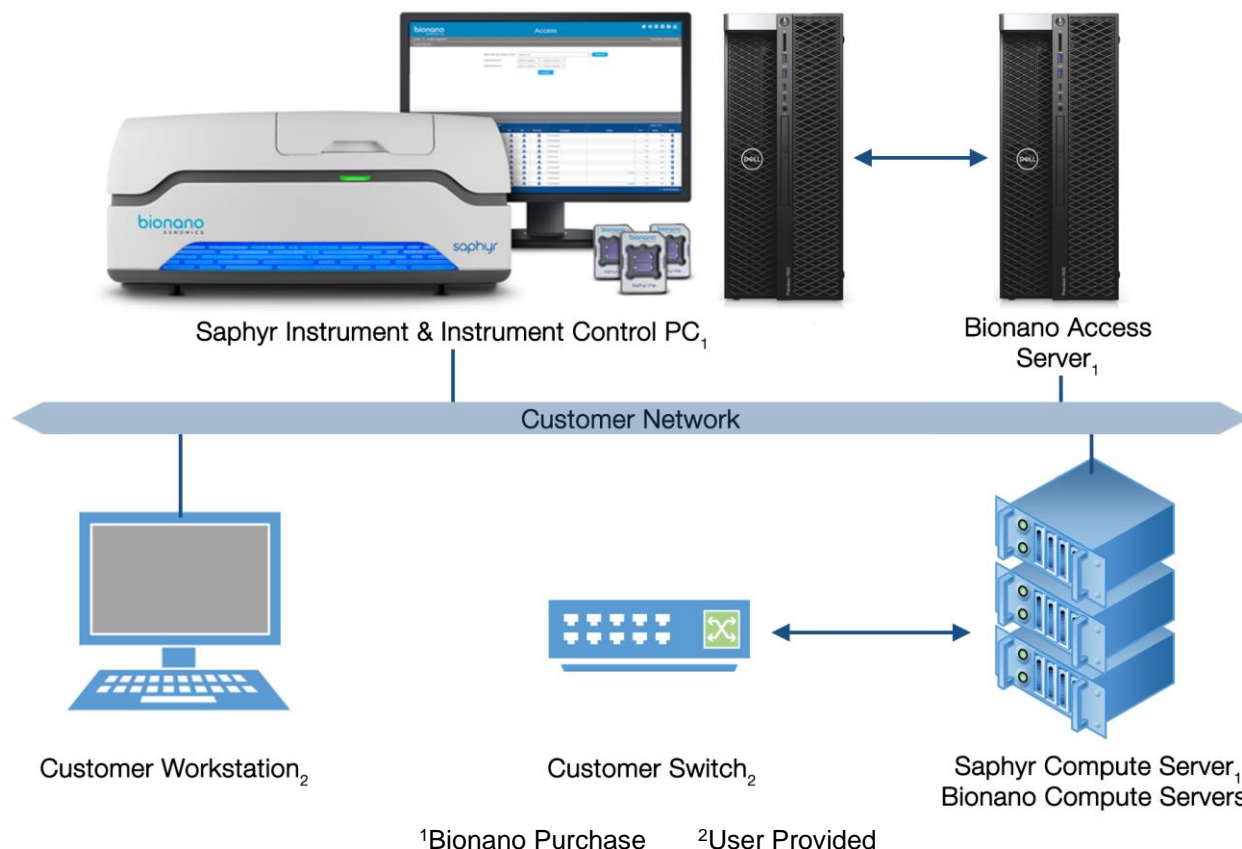
The planning stage provides guidelines for configuration, network security, and file storage. These guidelines explain the required infrastructure for a successful implementation of the Saphyr system within your organization.

Successful planning requires a comprehensive coordination between all relevant parties at the site, such as the research team, IT Operations, security groups, and any other governance parties. It is essential to involve compliance teams in the process as early as possible to ensure efficient installation.

Saphyr System Overview

The Saphyr Instrument captures images of labeled DNA molecules from the Saphyr Chip. The Instrument Controller (which controls the function of the Saphyr Instrument) converts the images into molecule data files (.bnx) and computes real-time throughput, molecule N50, and label density values. The .bnx files are transferred to the Bionano Access Server, where mapping metrics are calculated and displayed in the Instrument Control Software (ICS) and Bionano Access dashboards. Once the chip run is complete, the completed molecule data files are automatically imported into the Bionano Access web application (hosted at the Bionano Access Server). The molecule data files can then be used to perform various bioinformatics operations such as generating a *de novo* assembly, rare variant analysis, or targeted FSHD analysis. The Customer Switch isolates traffic for the Compute Servers which are designed to work together as a cluster to process bioinformatics jobs submitted from the Bionano Access web application. Bionano also offers cloud-based computing (Bionano Compute On Demand) which can be used in place of local compute servers or to augment local compute resources during computational peak periods. The Bionano Access web application monitors the progress of each computation job, captures the output, notifies the user of completion, and allows them to inspect the results in their browser on the Customer Workstation. Bionano Compute On Demand, a pay-per-use computing service, is accessible through the Bionano Access Server, for computation needs.

Figure 1: Saphyr System Connectivity Diagram



Hardware Requirements and Specifications

It is recommended that all Saphyr components (Instrument, Saphyr Instrument Controller, Bionano Access and Compute Servers) be connected to a user-supplied uninterruptible power supply (UPS). This recommendation is for line conditioning and ensuring sufficient power supply.

Saphyr Instrument

Type	Requirements/Specifications
Provided By	Bionano
Space	<ul style="list-style-type: none"> • Height: 38 cm (15 in) • Width: 86 cm (34 in) • Depth: 71 cm (28 in)
Power	<ul style="list-style-type: none"> • 100-240 VAC at 50-60 Hertz • Power Consumption ≤ 300 Watts • 2m long, IEC 60320-C13 power cord

Saphyr Instrument Controller (included with instrument)

The Instrument Controller is designed to be located adjacent to the Saphyr Instrument. The two systems are directly tethered for controlling the instrument and direct data transfer of image files.

Type	Requirements/Specifications
Provided By	Bionano
Accessories	<ul style="list-style-type: none"> • Monitor • Keyboard • Mouse
Operating System	<ul style="list-style-type: none"> • Windows 10 IoT Enterprise LTSC 2019 1809 x64
Software	<ul style="list-style-type: none"> • Saphyr Instrument Controller Software (ICS) • TeamViewer (remote assistance, optional) • Microsoft Edge (not user accessible, service only)
Memory	<ul style="list-style-type: none"> • 32 GB RAM
Data Storage	<ul style="list-style-type: none"> • 8 TB (D drive) (x2) in RAID 1 • 256 GB (C drive)
Space	<ul style="list-style-type: none"> • Height: 46 cm (18 in) • Width: 18 cm (7 in) • Depth: 47 cm (18.5 in)
Power	<ul style="list-style-type: none"> • 100-240 VAC at 50-60 Hertz • Power Consumption ≤ 300 Watts • 2m long, IEC 60320-C13 power cord
Network	<ul style="list-style-type: none"> • 2 – 1 gigabit ethernet ports Port 1 (required): connected to the Bionano Access Server Port 2 (recommended): connected to customer network to provide connectivity to the Saphyr Assure service via the internet

Bionano Access Server (included with instrument)

The webserver is designed to be located adjacent to the Saphyr Instrument Controller. The two systems are directly tethered for direct data transfer.

Type	Requirements/Specifications
Provided By	Bionano
Software	<ul style="list-style-type: none"> • CentOS 7.x • Bionano Access • Bionano Tools • PostgreSQL • Nodejs • Perl • Python • R • Docker
Memory	128 GB RAM
Data Storage	4X16 TB with RAID Controller
Space	<ul style="list-style-type: none"> • Height: 46 cm (18 in) • Width: 18 cm (7 in) • Depth: 47 cm (18.5 in)
Power	<ul style="list-style-type: none"> • 100-240 VAC at 50-60 Hertz • Power Consumption ≤ 300 Watts • The server is shipped with a United States power cord. Users outside of the United States are required to supply a 2m long, country specific IEC 60320-C13 power cord (in some cases, the FSE may be able to provide the suitable power cord).
Network	<ul style="list-style-type: none"> • One port is connected to the Saphyr Instrument controller at 10 GB • LAN connection can be done at 1 GB

OVERVIEW OF COMPUTE OPTIONS

Bionano offers multiple solutions for processing Bioinformatics jobs including Compute Servers and Bionano Compute On Demand. You may choose either option or a combination for your computing needs.

COMPUTE SERVER

Saphyr Compute Server (optional purchase)

The number of compute servers required for your installation will be determined based on your compute requirements and environmental conditions. The compute servers work together as a cluster to perform various bioinformatic operations including de novo assembly, variant annotation, and scaffolding to name a few. Each compute cluster must have at least one Saphyr Compute which serves as the head node with storage and the SGE master installed. Additional Bionano Computes are added to scale the cluster to fit your specific demands. A single Bionano Access Server can be configured to interact with multiple compute clusters if required.

Type	Requirements/Specifications
Provided By	Bionano (additional purchase)
Software	<ul style="list-style-type: none"> CentOS 7.x Python Perl R Son of Grid Engine (SGE) Docker
Space	<ul style="list-style-type: none"> 2U rackmount server (to be provided by customer) Rails and cords supplied with server
Power	<ul style="list-style-type: none"> Dual 2000 W power supplies (Recommended: APC Smart-UPS 3000VA LCD RM 2U UPS - rack mounted) 2 6' NEMA 5-15P to IEC320-C13 power cables. Users outside of the United States are required to supply two 2m long, country specific IEC 60320-C13 power cord (in some cases, the FSE may be able to provide the suitable power cord).
Network	5 X 1 GB Ethernet connection

Bionano Compute Servers (optional purchase)

Our recommended configuration includes, at least, one Bionano Compute Server. You must have at least one Saphyr Compute Server before adding any Bionano Compute systems.

Type	Requirements/Specifications
Provided By	Bionano (additional purchase)
Software	<ul style="list-style-type: none"> CentOS 7.x Python Perl R Son of Grid Engine (SGE)
Space	<ul style="list-style-type: none"> 2U rackmount server (to be provided by customer) Rails and cords supplied with server
Power	<ul style="list-style-type: none"> Dual 2000 W power supplies (Recommended: APC Smart-UPS 3000VA LCD RM 2U UPS - rack mounted) 2 6' NEMA 5-15P to IEC320-C13 power cables. Users outside of the United States are required to supply two 2m long, country specific IEC 60320-C13 power cord (in some cases, the FSE may be able to provide the suitable power cord).
Network	5 X 1 GB Ethernet connection

Switch (customer provided)

Type	Requirements/Specifications
Provided By	Customer
Hardware	<ul style="list-style-type: none">• 24-port GB, Layer 2+ Switch• Rack-mountable• NETGEAR switch is recommended

Custom Compute Server (customer provided)

The bioinformatics pipelines may also work on custom clusters; however, custom configurations will be needed. Please consult Bionano for more details.

BIONANO COMPUTE ON DEMAND (additional purchase)

A pay-per-use solution (tokens) is accessible through Bionano Access. It can be used to perform *de novo* assembly, variant annotation, hybrid scaffolding, and other bioinformatics pipeline functions independent of the Compute Servers.

Refer to the [Bionano Access Software User Guide](#) (P/N 30142) for additional information about configuring Compute On Demand, the [Bionano Genomics Data Security Guidelines](#) (P/N 30292) for data security consideration and Terms and Conditions and the [Bionano Compute On Demand Release Notes](#) (P/N 30293).

Network Requirements

The components in the Saphyr system require network connectivity to communicate with each other. Poor network reliability or throughput can affect the performance of your Saphyr system.

Bionano Access is installed on the Bionano Access Server and is accessible via standard web browsers from workstations connected to the same network. Users can perform various activities, such as generating experiments, monitoring instrument and run status, performing and sharing analyses (when properly configured with Bionano computation servers), by logging into Bionano Access via a web browser. Our recommended web browser is Chrome.

The Bionano Access Server has a tethered connection to the Saphyr Instrument Controller. Please refer to 30251, Saphyr Networking and Setup Guide and 30292 Bionano Genomics Data Security Guidelines for more details.

Backup Requirements

The Saphyr solution does not come with backup capabilities. Typically, customers already have enterprise level backup solutions so it would be redundant. Customers should determine their backup needs and arrange to backup the Bionano Access Server on a regular basis. The Bionano Access Server is the only system that has long term storage for data generated from Saphyr system. The Bionano Access Server has approximately 40TB of storage total and could see daily file growth up to 60GB per day depending on chip runs and analysis performed.

File Storage Recommendations

The Bionano Access Server will store result files such as molecule data files (BNX) and *de novo* assemblies. This data will continue to grow over time. The Bionano Access Server has been configured to have sufficient file storage for several years. We highly recommend that all content in the Access Installation folder is backed up on a regular basis. Depending on system utilization you may need to transition to an enterprise storage solution if you exceed the capacity of the Bionano Access Server. Alternatively, users can export and archive unused projects periodically. See [Bionano Access User Guide](#) (P/N 30142) for details.

User-Supplied Materials

The following user-supplied materials are required for all types of sample preparation training. Additional, protocol-specific materials are referred to on subsequent pages. Confirm with your FAS when you have all the corresponding consumables and equipment available before scheduling your training.

User-Supplied Equipment

Equipment	Supplier	Catalog #
HulaMixer Sample Mixer	Thermo Fisher	15920D
Qubit Fluorometer	ThermoFisher	Q33216 or similar
Microcentrifuge, refrigerated	General lab supplier	
Pipettes (2, 10, 20, 200, and 1000 µl) Note: light touch pipettes are not compatible	General lab supplier	
Ice bucket and ice	General lab supplier	
Mini Benchtop Microcentrifuge (2,200 x g spin)	Labnet	C1301B
Vortexer	General lab supplier	
Thermal Cycler with Heated Lid (10 °C above block temp)	General lab supplier	
4 °C refrigerator and -20 °C freezer	General lab supplier	
-20 °C Enzyme Block	General lab Supplier	
4 °C Aluminum Cooling Tube Block	Sigma Aldrich	Z740270 or similar
Forceps, pointed and curved	Electronic Microscopy Sciences or equivalent	78141-01
Positive-displacement pipette MR-10 (recommended)	Rainin	17008575 or similar
Bath Sonicator (optional)	General Lab Supplier	

User-Supplied Consumables

Consumable	Supplier	Catalog #
Proteinase K enzyme, Puregene	Qiagen	158918
PCR tubes, thin-walled, flat cap, DNase-free, 0.2 ml	ThermoFisher	AM12225 or similar
Qubit Broad Range (BR) dsDNA Assay Kit	ThermoFisher	Q32853
Qubit High Sensitivity (HS) dsDNA Kit (recommended)	ThermoFisher	Q32851
Qubit Assay Tubes	ThermoFisher or Axygen	Q32856 or 10011-830
UltraPure nuclease-free water	ThermoFisher	10977015
Microcentrifuge tubes, 0.5 ml, amber, nuclease-free	USA Scientific	1605-0007
Microcentrifuge tubes, 1.5 ml	VWR	87003-294
Pipette tips, aerosol-resistant 2, 10, 20, 200, and 1000 µl	General lab supplier	
Pipette tips, wide bore, filtered, 200 ul	VWR or USA Scientific equivalent	89495-387
Pipette tips, unfiltered, 200 ul	USA Scientific or equivalent	1111-1810
Pipette tips, 10 µl, C-10 for pos. displacement (recommended)	Rainin	17008604

Additional User-Supplied Materials for DNA Isolation

The following protocols list materials required for extracting DNA from varying sources. FAS will highlight the required materials depending on sample type and protocol choice. Ensure that you have the appropriate materials available on training day. In the User Training Kit (see details in Chapter 4), Bionano provides 1 DNA Isolation Kit, per customers' request.

Sample Type	Protocol
Human Cell Culture	Bionano Prep SP Fresh Cells DNA Isolation Protocol v2 (P/N 30396)* Bionano Prep SP Frozen Cell Pellet DNA Isolation Protocol v2 (P/N 30398)*
Human Blood	Bionano Prep SP Fresh Human Blood DNA Isolation Protocol v2 (P/N 30258)* Bionano Prep SP Frozen Human Blood DNA Isolation Protocol v2 (P/N 30246)*
Bone Marrow Aspirates	Bionano Prep SP BMA DNA Isolation Protocol v2 (P/N 30399)*
Animal Tissue	Bionano Prep SP Tissue and Tumor DNA Isolation Protocol (P/N 30339)
Plant Tissue	Bionano Prep Plant Tissue DNA Isolation Base Protocol (P/N 30068)* Bionano Prep Plant Tissue DNA Isolation High Polysaccharide Protocol (P/N 30128)* Bionano Prep Plant Tissue DNA Isolation High Polyphenol Protocol (P/N 30133)* Bionano Prep Plant Tissue DNA Isolation Liquid Nitrogen Grinding Protocol (P/N 30177)*

Additional User-Supplied Materials for DNA Labeling

The following protocols list materials required for labeling genomic DNA. FAS will highlight the required materials depending on labeling type. Ensure that you have the appropriate materials available on training day. In the User Training Kit (see details in Chapter 4), Bionano provides 1 DNA Labeling Kit, per customers' request.

Labeling Method	Protocol
Direct Label and Stain (DLS)	Bionano Prep Direct Label and Stain (DLS) (P/N 30206)*

Chapter 3: Preparing for Arrival

Installation Guidelines

An authorized service provider delivers the system. Make sure that the crate is stored securely near the installation lab bench. The instrument has two tip-tilt indicators mounted to the outside of the crate as well as one impact-shock indicator. Please inspect the exterior of the crate for damage and inform your FSE if either one of the two tip-tilt sensors, or the shock-impact sensors have been triggered.



Figure 2: (from left to right) shock-impact sensors (un-triggered and triggered) and tip-tilt sensors (un-triggered and triggered)

CAUTION: Only a Bionano Field Service Engineer (or personnel approved by Bionano) can uncrate and install the instrument.

- At least three weeks before installation, confirm with your Field Application Scientist (FAS) that you have the required consumables and equipment.
- Ensure that the lab space and bench are ready for installation.
- Ensure that you have a pallet jack to support the crate and instrument.
- Ensure there are at least three people to assist the FSE with lifting Saphyr instrument.
- Install the Saphyr Compute Server and Bionano Compute Server(s) in the data center. Ensure that IP addresses and all network requirements have been met as described in the Network Requirements section above.

Dimensions

Measurement	Instrument	Crates
Height	38 cm (15 in)	152 cm (60 in) Total [~81 cm (32 in) for Top accessory crate + ~74 cm (29 in) for Instrument crate]
Width	86 cm (34 in)	109 cm (43 in) for Top accessory crate and Instrument crate
Depth	71 cm (28 in)	81 cm (32 in) [~74 cm (29 in) for Top accessory crate, ~81 cm (32 in) for Instrument crate]
Weight	103 kg (227 lb)	254 kg (560 lbs) [Top accessory crate including controller, monitor, server, and accessory kit + Instrument crate including instrument]


Laboratory Guidelines

- Prepare a clean, level surface such as a sturdy lab bench for the instrument.
- Keep the instrument away from direct sunlight or heat source.
- Do not place the instrument on a lab bench that has liquids or chemicals.
- Do not place any other equipment on the bench that could produce vibrations, including centrifuges, compressors, and shakers.
- Do not place the instrument on or near objects that can produce vibrations, such as heavy doors.
- Do not place objects on top of the instrument.

Lab Bench Layout

Position the instrument to allow proper ventilation and access to the power switch and power outlet.

Access	Minimum Clearance
Lab Bench Space	Allow at least 150 cm (59 in) wide by 77 cm (30 in) depth.
Top	Allow at least 93 cm (37 in) above the instrument.
Back	Allow at least 5 cm (2 in) behind the instrument.
Sides	Allow at least 15 cm (6 in) on each side of the instrument.
Connections	4 standard electrical outlets (100–240 VAC) and two 1 GB Ethernet port

-  **CAUTION:** Moving the instrument can compromise data integrity.
- Insufficient overhead clearance can damage the stage access door and affect run performance.
- The Saphyr Instrument Controller must be placed within 1 m (3 ft) of the instrument.

Environmental Considerations

This instrument is designed for indoor use only.

Element	Specification
Temperature	Maintain a lab temperature of 19°C (66°F) to 25°C (77°F).
Humidity	Maintain a noncondensing relative humidity between 20–80%.
Elevation	Place the instrument at an altitude below 2,000 m (6,500 ft) above sea level.
Ventilation	At least 5 cm (2 in) of clearance behind the instrument to allow proper ventilation and access to power outlet. Overhead clearance required for installation and service is 93 cm (37 inch).
Air Quality	Operate the instrument in a Pollution Degree II environment or better as defined by the International Electrotechnical Commission (IEC).

Chapter 4: Preparing for Installation and Training

Site Preparation Checklist

- Ensure that your facility is ready for the delivery of the crate.
- Ensure that you have the appropriate equipment to support the crate and instrument (e.g., pallet jack).
- Ensure that all required personnel are present on the scheduled installation day (at least three people to assist the FSE with lifting Saphyr instrument).
- Ensure that you have received and properly stored the contents in the Qualification Kit and Accessory Kit.
- Verify that your site has proper computing, network, file storage, and electrical requirements.

Crate Contents

Item	Content	Storage Temperature
Instrument	1 each	15–25 °C (59–77 °F)
Monitor	1 each	15–25 °C (59–77 °F)
Keyboard	1 each	15–25 °C (59–77 °F)
Mouse	1 each	15–25 °C (59–77 °F)
Instrument Controller	1 each	15–25 °C (59–77 °F)
Bionano Access Server	1 each	15–25 °C (59–77 °F)
Accessory Kit	1 each	15–25 °C (59–77 °F)

The FSE will unpack the crate during the installation visit.

Compute Servers will ship in additional crate (Storage Temperature: 15–25 °C (59–77 °F)).

Accessory Kit

The Accessory Kit is included in the crate.

Item	Content	Storage Temperature
US-Specific Power Cord	4 each	15–25 °C (59–77 °F)
Saphyr Chip Clip	2 clips	15–25 °C (59–77 °F)
Display Port Cable	2 each	15–25 °C (59–77 °F)
Network Cable (Cat7)	4 each	15–25 °C (59–77 °F)
USB 2.0 A to B Connector	1 each	15–25 °C (59–77 °F)
Air Filter	3 each	15–25 °C (59–77 °F)
Sparkle, Optical Cleaner	1 each	15–25 °C (59–77 °F)
Lens Cleaning Paper	2 each	15–25 °C (59–77 °F)
Mousepad	1 each	15–25 °C (59–77 °F)

Qualification Kit (Part #90034)

The Saphyr System Qualification Kit will be shipped around the same time as the Saphyr system unless its shipment is otherwise specified and coordinated by your FSE.

Item	Part #	Content	Storage
Saphyr Chip® G2.3	20366	3 each	4 °C
DLS Biological Control A, 100 µl	20400	2 each	4 °C
SP Large Genome Labeling Control. 5000 ng*	20399	1 each	4 °C

*This control will be used for training.

User Training Kits (Part # 90102, 90111, 90127, or 90017)

The Saphyr System User Training Kit will be coordinated by your FAS to arrive approximately one to three weeks before training begins. It will contain a combination of: 1) a DNA Labeling Kit, 2) a DNA Isolation Kit. Saphyr Chips & Control will be provided with the Qualification Kit, and 3) 25 tokens (to demo Compute-On-Demand usage)

Coordinate with your FAS to send the proper Labeling Kit and Isolation Kit combination as listed by referencing one of the part numbers below for delivery:

Part # 90102 - DLS Labeling + SP Blood and Cell DNA Isolation v2 + Bionano Prep SP Magnetic Retriever

Part # 90111 - DLS Labeling + SP Bone Marrow Aspirate DNA Isolation v2 + Bionano Prep SP Magnetic Retriever

Part # 90127 - DLS Labeling + SP Tumor and Tissue DNA Isolation + Bionano Prep SP Magnetic Retriever

Part # 90017 - DLS Labeling + Plant Tissue DNA Isolation

1) Labeling Kit Training : DLS Kit

The table indicates the contents to be expected in the labeling kit:

Labeling Training Kit	Part #	Content	# of Boxes	Storage
Bionano Prep DLS Labeling Kit	80005	1 each (10 rxn)	3	-20°C, 4°C, 15-30°C

2) DNA Isolation Training Kit: SP Blood & Cell, SP BMA, SP Tissue and Tumor or Plant Tissue

Choose one of the DNA isolation kits below to be used during training.

DNA Isolation Training Kits	Part #	Content	# of Boxes	Storage
SP Blood & Cell Culture DNA Isolation Kit v2	80042	1 each (10 rxn)	2	4°C, 15-30°C
SP Tissue and Tumor DNA Isolation Kit	80038	1 each (10 rxn)	1	15-30°C
SP Bone Marrow Aspirate (BMA) DNA Isolation Kit v2	90103	1 each (10 rxn)	3	4°C, 15-30°C
Plant Tissue DNA Isolation Kit	80003	1 each (5 rxn)	2	4°C, 15-30°C

3) 25 tokens for Bionano Compute On Demand Customers

Chapter 5: Post-Installation Follow Up and Resources

After you have completed the training, you will have a follow-up review meeting with your FAS. The review meeting is usually in the format of a conference call.

For the review, prepare to provide the following:

- Data produced from your first run without the FAS on site.
- List of customization requests for the instrument and software.
- List of questions, concerns, and issues, such as your level of comfort, comprehension, and confidence on using the Saphyr system.

Additional Resources

The following documentation is available for download from the [Bionano Support](#) page.

Resource	Description
Saphyr System Safety Guide (P/N 30253)	Provides information about the instrument safety considerations.
Saphyr System User Guide (P/N 30247)	Provides an overview of instrument components and software, proper maintenance, and troubleshooting.
Bionano Access Software Guide (P/N 30142)	Provides an overview of data analysis.
Bionano Genomics Data Security Guidelines (P/N 30292)	Provides security guidelines for Compute On Demand usage.
Saphyr Networking and Setup Guide (P/N 30251)	Provides detailed IT guide for installing the Saphyr System.

Glossary

Term	Definition
CIFS	Common Internet File System
FAS	Field Application Scientist
FSE	Field Service Engineer
GB	Gigabyte
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
OS	Operating system
SGE jobs	Son of Grid Engine jobs
SSD	Solid-state drive
SFTP	Secure File Transfer Protocol
SMTP	Simple Mail Transfer Protocol
SSH	Secure Shell
TB	Terabyte
IEC	International Electrotechnical Commission

Technical Assistance

For technical assistance, contact Bionano Genomics Technical Support.

You can retrieve documentation on Bionano products, SDS's, certificates of analysis, and other related documents from the Support website or by request through e-mail and telephone.

Type	Contact
Email	support@bionanogenomics.com
Phone	Hours of Operation: Monday through Friday, 9:00 a.m. to 5:00 p.m., PST US: +1 (858) 888-7663
Website	www.bionanogenomics.com/support