IVD

CE UKCA

NanoZoomer Slide scanner system
Web slide scan server software
NZConnectMD Scan
U16414-21MDEU
Instruction Manual

Thank you for your purchase

⚠CAUTION	• Follow the safety precautions in Chapter 1 to avoid personal injury and damage to property when using this system. This manual describes how to operate the system correctly and provides instructions that should be followed to avoid accidents. Read this manual carefully before using the system. After reading this manual, store it in a location where you can refer to it at any time.
⚠CAUTION	• Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

Ver.2.2 / Rev.1
28 Jan 2025

HAMAMATSU PHOTONICS K.K.

B4830300-00

~ Blank page ~

1. SAFETY PRECAUTIONS

1-1 SYSTEM LABELING SYMBOLS

The symbols shown below are used in the labeling for this system.

CE	CE mark indicating conformity with Regulation (EU) 2017/746
UK CA	UK Conformity Assessed marking
IVD	In vitro diagnostic medical device
	Manufacturer
EC REP	Authorised representative for the European Union
UK REP	UK Responsible Person
CH REP	Swiss authorised representative

1-2 CLASSIFICATION OF WARNING SYMBOLS

We have classified the warning symbols that appear in this manual and on the system as follows for your convenience. Make sure that you fully understand them and follow the instructions they contain.

WARNING	Improper handling of the system without observing these warnings could lead to serious injury to the user and even death.
CAUTION	Improper handling of the system without observing these cautions could lead to personal injury to the user or damage to property.

	This symbol indicates a cautionary item that should be followed when handling the system. Read the contents carefully to ensure correct and safe use.
	This symbol indicates an action that is forbidden. Read and follow the instructions carefully.
	This symbol indicates a compulsory action or instruction. Read and follow the instructions carefully.
Note	This symbol indicates a note to help you get the best performance from the system. Read the contents of the note carefully to ensure correct and safe use. Failure to observe one of these notes might impair the performance of the system.

1-3 HARDWARE SAFETY PRECAUTIONS

- Carefully read Chapter 1, "SAFETY PRECAUTIONS" in the NanoZoomer Slide scanner system Instruction Manual, and be sure to follow the instructions there.

1-4 INSTALLATION OF OTHER SOFTWARE

CAUTION	• NanoZoomer has been validated only with combinations of already installed software. Do not install unintended software with the exception of Adobe Acrobat, Virus Scan software and NZ software.

2. INTRODUCTION

Thank you for purchasing U16414-21MDEU (NZConnectMD Scan). This manual describes the functions and features of the NZConnectMD Scan software. Please read this manual carefully before attempting to use this software.

Note

- This software may not work satisfactorily on some computers. This software may fail to operate due to the operating system or system requirements. Read the “SYSTEM REQUIREMENTS" carefully and use the software with adequate system requirements.

Note

- This software is guaranteed to operate in the latest Windows environment at the time of shipment from our company. This software and peripheral devices may not operate properly in an environment where Windows Update has been applied after the customer started using it. Please decide whether to implement Windows Update according to the security policy of your usage environment. If you have any trouble applying Windows Update, please contact your Hamamatsu Photonics subsidiary or distributor. Although we will do our best to investigate to ensure that this software operates correctly, there may be some limitations on the operation of this software due to technical constraints.

Note

- This software may not function properly if there is equipment (including software) that manipulates network traffic between the NZConnectMD server and the client. Such equipment includes Web-based VPN and proxy servers. If you are considering introducing such equipment in the future, please consult with us before installation.

- It may be necessary to reconfigure these devices and NZConnectMD settings for the software to function properly.

- We will investigate as much as possible so that this software will operate correctly even in environments where such devices are used, but it is not possible for us to guarantee the operation of this software for all devices.

Note

- To use the image publishing and viewing functions, you will need the NZConnectMD Serve (U16179-21MDEU) license.

Note

- To use NZViewMD, install it from the NZViewMD installation CD supplied with the NanoZoomer Slide scanner system.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

Note

- To use the integration between NZViewMD and NZConnectMD, use one of NZViewMD versions [1.1.0, 1.0.4].
  NZViewMD versions prior to 1.1, the default gamma value is set at 2.2.
- Starting from version 1.1, the default gamma and/or colour profile is applied based on the scanner type.
- For scans created with non-MD systems, there is an option to enable or disable the colour profile, if available.

Note

This software is compatible with the following NanoZoomer slide scanner systems (IVDR version):

- NanoZoomer S540MD slide scanner system
- NanoZoomer S360MD slide scanner system
- NanoZoomer S20MD slide scanner system

It is not compatible with any other NanoZoomer slide scanner systems. It is not compatible with the RUO and IVDD versions of the NanoZoomer slide scanner systems.

2-1 SYSTEM REQUIREMENTS

The system requirements for this software are as follows.

Server PC:

Type of computer	PC-AT compatibles
OS	Windows Server 2022, Windows Server 2019, Windows Server 2016
CPU	Xeon 4 core or more
Memory	16 GB or more
Available HDD space	50 GB or more
Drive	DVD-ROM Drive
Screen resolution	1024 × 768 or higher
Database management system	Microsoft SQL Server 2016 Express with Advanced Services / Standard (64bit) Microsoft SQL Server 2017 Express with Advanced Services / Standard (64bit) Microsoft SQL Server 2019 Express with Advanced Services / Standard (64bit) Microsoft SQL Server 2022 Express with Advanced Services / Standard (64bit)

Control PC:

OS	Windows 11 64bit IOT Enterprise LTSC, Windows 10 64bit IOT Enterprise LTSC

* Use the Nanozoomer system (MD version) control PC as the control PC.

Display monitor for Web viewer:

The recommended display monitor specifications for viewing images from this system are:

Number of pixels	1920 x 1200 pixels or more
Display size	24 inch or more
Color depth	8bit / pixel or more
Color gamma	sRGB
Color reproducibility	⊿E < 1
Adjustment function (Check performance using sensors, etc.)	Available

Note

- This software may not work satisfactorily on some computers and may fail to operate if the system requirements listed above are not met. Please read the system requirements carefully.

2-2 DEFINITIONS

1D	One-dimensional
2D	Two-dimensional
FFPE	Formalin-fixed paraffin-embedded
JPEG	Joint Photographic Experts Group
WSI	Whole slide image, whole slide imaging
IVDR	Regulation (EU) 2017/746 of the European Parliament and of the Council of 5 April 2017 on in vitro diagnostic medical devices
RUO	Research Use Only
IVDD	Directive 98/79/EC of the European Parliament and of the Council of 27 October 1998 on in vitro diagnostic medical devices

Slide scanner	A device that creates digital images of glass slides, producing optically enlarged digital images of entire glass specimens.
Whole slide image (WSI)	An optically magnified digital image of an entire pathology slide.
Glass slide	A pathology tissue slide. Consists of thin sections of tissue mounted on a glass slide, stained and sealed with a coverslip after preparation. Also called a glass specimen.
Cassette	A container used to hold glass slides for scanning. In this system, “Rack for 20 slides” are used. This rack is also called a “cassette”. These are also called “slide cassette”.
Macro image	A digital image taken for the purpose of showing an entire glass specimen.
Blank slide	A glass slide with nothing on it.
Chart slide	It is used for checking and adjusting for shading correction feature and color balance correction feature.
Z stack	A multilayer pathology whole slide image consisting of multiple images captured at different points along the Z-axis. Each image is stored as a layer.

Note

- Glass slides must adhere to the following size tolerances:
  - Length: 75 - 76 mm
  - Width: 25 - 26 mm
  - Thickness: 0.9 - 1.2 mm

2-3 TRADEMARKS

Windows Server 2022, Windows Server 2019 and Windows Server 2016 are registered trademarks of the Microsoft Corporation in the United States and other countries. Other brand names are the trademarks or registered trademarks of each company.

3. CHECK THE CONTENTS OF PACKAGE

When you open the package, check that the following items are included before use. If the contents are incorrect, insufficient, or damaged in any way, contact a Hamamatsu subsidiary or your local distributor before attempting to operate the system.

NZConnectMD Scan: U16414-21MDEU	
Install DVD (DVD-ROM)	1
Instruction manual (in the Install DVD)	1
Before Use (Booklet)	1
License sheet	1

Contents

4. OVERVIEW

This equipment has been tested and found to comply with the regulatory requirements of the Regulation (EU) 2017/746 of the European Parliament and of the council.

Note
- This declaration shall cease to be valid if modifications are made to the software without our approval.

4-1 INTENDED USE

NZConnectMD Scan software is designed to give you the flexibility to scan, host, and view NanoZoomer digital images remotely over the Internet as well as your internal network. The server software is designed to:

Intuitive and easy to use, it allows for quick slide hosting and user management.

4-2 INTENDED USERS

The NanoZoomer System is intended to be used by pathologists and laboratory technicians.

Note
- The NanoZoomer System is designed as an aid for pathologists to assist pathologists in providing pathological opinions on submitted tissues or specimens.

Note
- Each slide must have a barcode. Slides without a barcode must be barcode labeled before they can be scanned.

Note
- Barcodes may not be read correctly due to small size, low print quality, adhesion of dirt, and so on. Since the system itself cannot judge whether it is reading barcodes correctly, pay attention to barcode print quality and verify barcode information as necessary.

Note
- We have no liability for any damage or risks caused by using this device for purposes other than those for which it was intended, or not using it according to the specifications of the NanoZoomer System.

Note
- This device is not intended to be combined with medical devices according to EN 60601-1. If it is electrically connected to a medical device according to EN 60601-1, the requirements defined in EN 60601-1 ME systems shall apply.

Note
- We recommend that users keep a traditional microscope prepared for diagnosis in case there is a problem with the NanoZoomer System.

Note
- It is the responsibility of a qualified pathologist to employ appropriate procedures and safeguards to assure the validity of the interpretation of images obtained using NanoZoomer System.

Note
- The pathologist should exercise professional judgment in each clinical situation and examine the glass slides by conventional microscopy if there is any doubt about the ability to accurately render an interpretation using this system alone.

5. CYBER SECURITY

This chapter provides the requirements and recommendations necessary to protect the NanoZoomer system image distribution server computer (hereinafter referred to as the "image distribution server") and NZConnectMD Scan from security threats on the network and to use it with confidence.

This chapter is intended for IT and network administrators who maintain and manage the NanoZoomer system within their network environment. Please check before operating this system.

5-1 Securing Servers for Image Distribution

This section describes how to protect the server for image distribution.
Image 5-1 shows the system configuration diagram of the image distribution server.

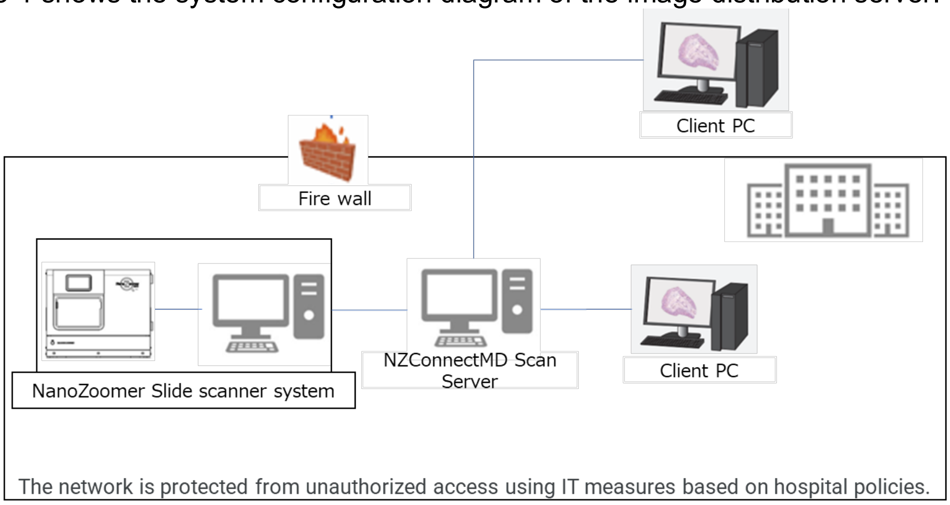


Image 5-2

Note

In the unlikely event of a cybersecurity-related incident, please contact us or our agent as soon as possible with the following information.
- Summary of the problem
- What happened?
- Output of log files (our software and Windows)
- Other Related Information

Note

For information on the protection of the NanoZoomer control computer, viewing computer, and storage server connected to the slide scanner and storage server, respectively, refer to the "Cybersecurity" section of the S540MD System Instruction Manual , the S360MD System Instruction Manual and the S20MD System Instruction Manual。

5-1-1 Password, Login and User Settings Security Measures

After logging in to the image distribution server for the first time, reset the initial password and set a new password. You will need to update your password regularly thereafter.

CAUTION	• Be sure to reset your initial password and change to a new password after you log in for the first time.

Note By changing to a new password that is different from the initial password, you can prevent unauthorized access from the outside.

5-1-1-1 Login name

The login name for the account is as follows.

Account Type	Login name
Windows Administrator Account	NDPuser Administrator

5-1-1-2 Password Change Procedure and Precautions

Here are the steps to change your password and what to keep in mind.

(1) How to change your password

To change your Windows administrator password, log in as an administrator and then select Control Panel > User Accounts.
On the next screen that appears, select your account and change your password.

Note Depending on the version of Windows, the operation may vary.

If you have registered a Windows administrator account with the service account in the configuration tool of NZConnectMD Scan, you will need to change the password as well. For the change procedure, refer to Service Account.

(2) Precautions

Please note the following when changing your password.

- **Password rules**

The following password rules are recommended for Windows Server installed in the image distribution server. Please set a password that takes these into consideration.

- At least 8 characters
- At least one non-alphanumeric character
- Digits at least one digit
- At least one lowercase letter

- **Password reuse**

The most recently used password cannot be reused.

- Change your password every 90 days

Windows accounts (Windows administrator accounts) must change their password every 90 days.

Note If you are approaching 90 days after you changed your password, you will see a message reminding you to change your password.

- Invalid logins and lockouts

If you attempt to log in 5 times, you will be locked and will not be able to log in for 30 minutes. If you want to resume in the meantime, your user account will need to be reset by your IT administrator.

- Screen display timeout

The image distribution server is set to time out and turn off the screen display after 15 minutes of inactivity. If the screen display times out, you will need to log in again.

5-1-2 Administrative safeguards

IT administrators should do the following as an administrative safeguard:

- **Permissions for users**

  When a user accesses the NanoZoomer system, it should be configured to allow access only to the part of the system that is necessary for the user's work.

- **Information Security**

  Use standard IT technology to protect all computers used in this system from unauthorized access. Here is an example:

firewall	Windows Firewall is set to "Enabled" by default on the image distribution server.
Anti-Virus Software	Windows Defender is set to "Enabled" by default on the image distribution server.

- **Whitelist (Malware Execution Prevention)**

  A whitelist is a management tool that prevents malware from running.
  Set it to the server for image distribution.

5-1-3 Updating Policy

We provide our customers with hotfixes, patches, and software upgrades for our software.

Windows Update is set to "Enabled" by default on the image distribution server.

When we provide information to you, we will evaluate industry security reports, Microsoft operating system vulnerability and issue reports, determine what action you need to take, and notify you if we determine that a critical update is required.

5-2 Protection of NZConnectMD Scan

This section describes the protection of the NZConnectMD Scan.

Note In the unlikely event of a cybersecurity-related incident, please contact us or our agent as soon as possible with the following information.
- Summary of the problem
- What happened?
- Other Related Information

5-2-1 Password, sign-in, and user settings safeguards

After signing in to NZConnectMD Scan for the first time, reset your initial password and set a new one. You will need to update your password regularly thereafter.

⚠ CAUTION	• Be sure to reset your initial password and change to a new password after you log in for the first time.

Note By changing to a new password that is different from the initial password, you can prevent unauthorized access from the outside.

5-2-1-1 Sign-in name

The sign-in name for the account is as follows:

Account Type	Login name
NZConnectMD Scan Administrator Account	Administrator

Note For information on signing in to the NZConnectMD Scan, refer to sign-ins.

5-2-1-2 Password Change Procedure and Precautions

Here are the steps to change your password and what to keep in mind.

(1) How to change your password

- account	- Password Change Procedure
Administrator Accounts	Refer to “Editing user”.
General account (must have permission to change password)	Refer to “Profile”.

(2) Precautions

Please note the following when changing your password.

- Password rules

The following password rules are recommended for Windows Server installed in the image distribution server. Please set a password that takes these into consideration.

- At least 8 characters
- At least one non-alphanumeric character
- Digits at least one digit
- At least one lowercase letter

- Password reuse

The most recently used password cannot be reused.

- Change your password every 90 days

It is recommended that user accounts in NZConnectMD Scan change their passwords every 90 days.

- Invalid sign-ins and account locks

After 13 invalid login attempts, you will be locked and unable to sign in. If you want to resume in the meantime, your user account will need to be reset by your IT administrator.

- Screen display timeout

The image distribution server is set to time out automatically after 20 minutes of inactivity. If you're signed out, you'll need to sign in again.

5-3 Network requirements

The network requirements for the image distribution server are as follows.

5-3-1 Image Distribution Server

It is recommended that the network connection of the image distribution server to the NanoZoomer system is dedicated to the NanoZoomer system with low latency. If you don't use a dedicated connection, it can affect the performance of viewing syndicated images and affect other applications on the network.

⚠ CAUTION	• For information on the network requirements of the viewing computer, refer to the "Cybersecurity" section of the S540MD System Instruction Manual, the S360MD System Instruction Manual, the S20MD System Instruction Manual.

⚠ CAUTION	• The NanoZoomer system has been validated with Windows Defender.

6. GETTING STARTED

Install and configure NZConnectMD, then access the interface from a browser.

6-1 SET UP AND CONFIGURE

Initialise NZConnectMD's database and configure high level settings.

The Configuration Tool is used to control NZConnectMD services and change advanced settings. In the top-right corner of the window a context menu is provided. As well as giving options relevant to the current page, there will always be the option to see an About window with version and license information. Support expiry can also be seen in the bottom-left corner of the window.

Next to the context menu in the top-right will be a help icon which will bring NZConnectMD's help up in a new window with information related to the current page.

When the configuration tool is first launched, it will make a folder to store settings in ProgramData and create an Uploads folder. If a folder for an NDP.serve 3 installation is found, it will be renamed. If any of these modifications are unsuccessful (for example if the NDP.serve folder is in use and cannot be renamed), a warning will be displayed and the tool will not launch. The change can be retried, or the user can manually make the necessary changes.

Note

- The configuration tool is the application only for the administrator of NZConnectMD, which can be used to stop executing NZConnectMD or create a database. You must be careful when using this tool since it may affect the operation or initialize the setting of the software.

6-1-1 SERVER STATUS

When the tool is started, this page is typically displayed unless the database is out of date. All the installed services of NZConnectMD will be shown with their current state (running or not), for example:

- An image server only installation will only have the image server service
- A scan controller installation on a scanner PC will only have the scan controller service

If a service is running, the version of the service will be shown.

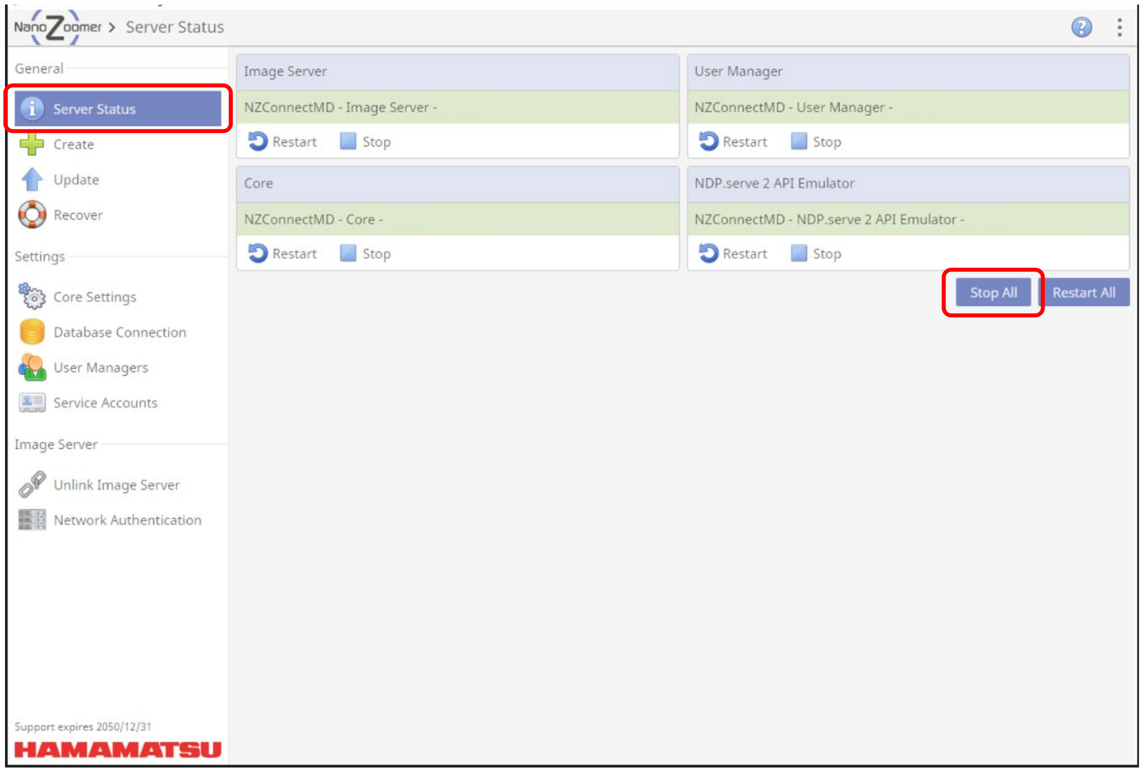


Image 6-1

Services that have subservices (e.g. the Hybrid User/Group Manager) will display the status of their subservice with more information available in a tooltip.
Each service can be individually stopped or restarted. At the bottom of the page there is also the option to stop or restart all the services at once.

Note

- Version information is displayed for each service in the server information.

6-1-2 CREATE

A fresh setup will create a new database for the NZConnectMD services. This is typically used when installing a new server as it will destroy any existing database.

When all the below fields are configured as desired “Create Database” button can be used to set up the database so the software can be used. If an error occurs, it will be displayed to the user.

Migrating From NDP.serve 2

It is possible to upgrade a server from NDP.serve 2 to NZConnectMD. To do this, tick the checkbox “Import data from NDP.serve 2” and use “Browse...” button to select the database backup.

This backup will be used to create a temporary database to allow migration. When this temporary database has finished being created, all the repositories from NDP.serve 2 will appear, allowing the paths for each repository to be checked and correctly set if they have changed. The repository field is highlighted below:

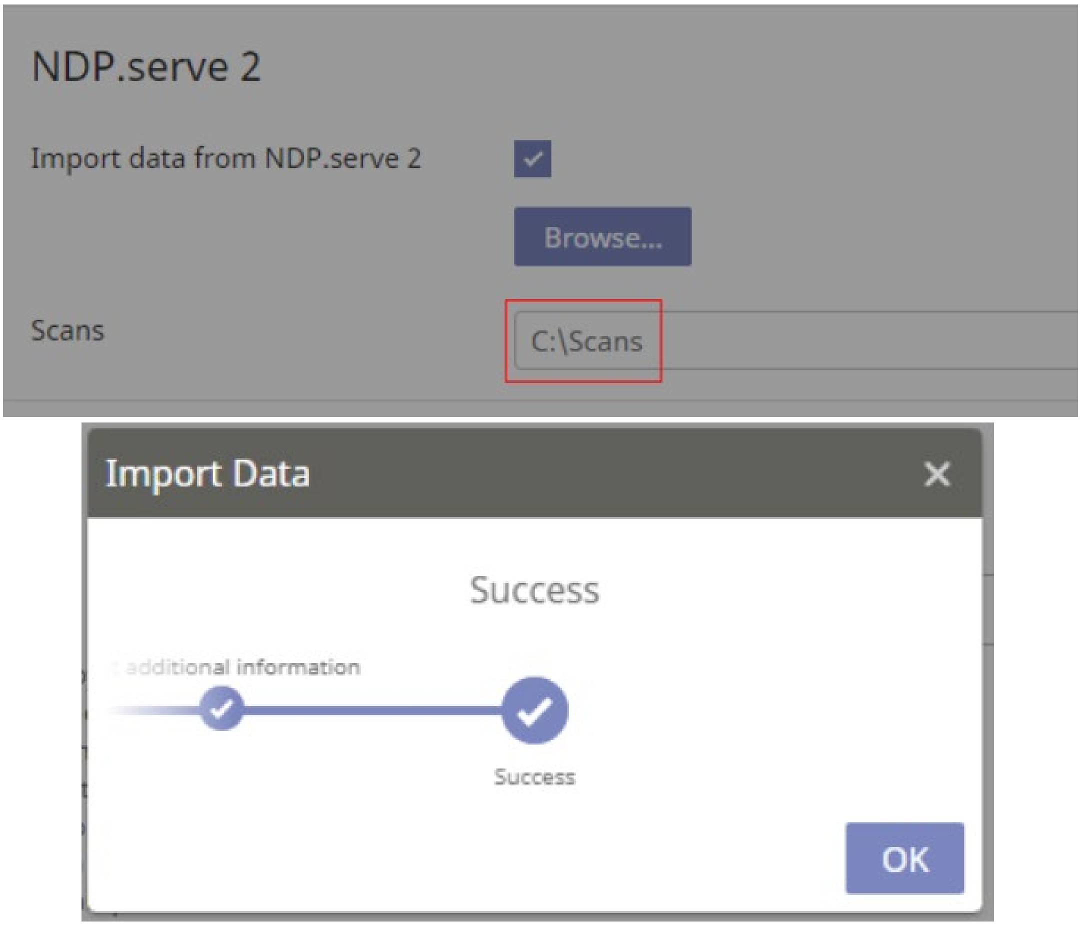


Image 6-2

If the NDP.serve 2 database that is being upgraded is from a live environment that is still in use, at a later time a newer backup can be made and when importing it on this screen an option to resume migration is provided to extract only new items from the backup.

Creation of NZConnectMD Database

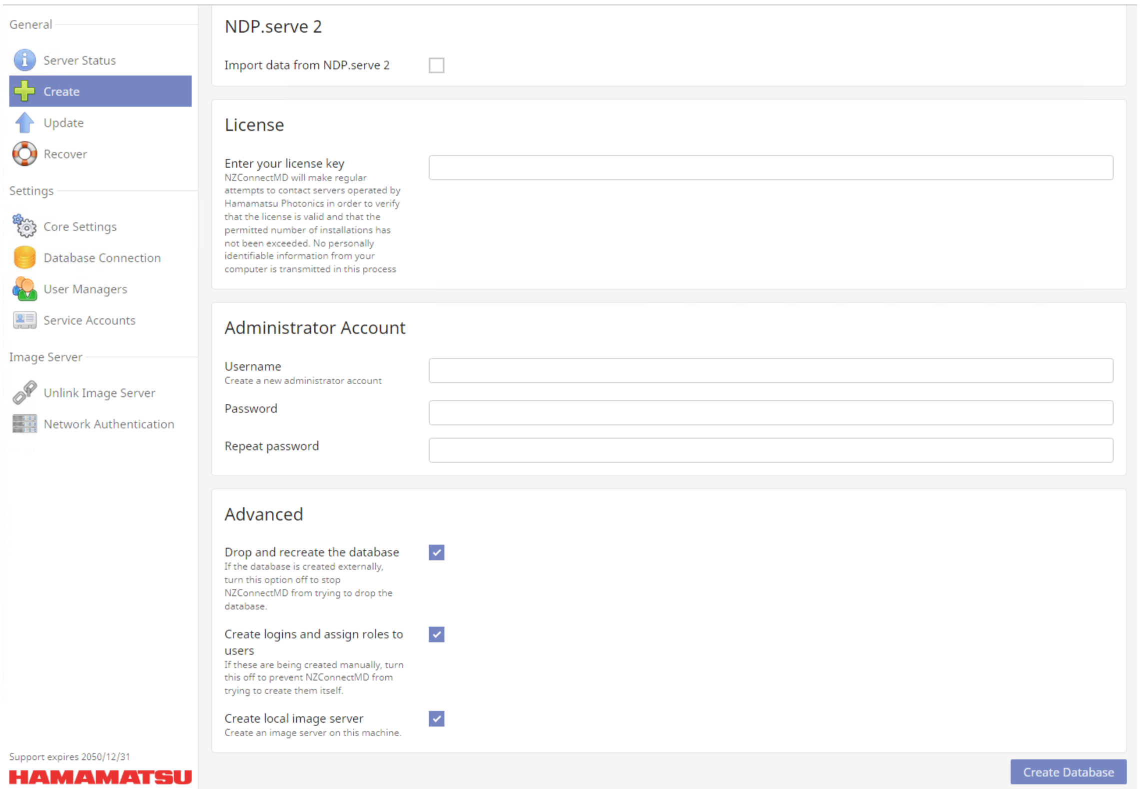


Image 6-3

License

It is recommended but entirely optional to enter the license key for NZConnectMD here to ensure the license the user has is compatible with the installed version. If the license is not entered it will be possible to enter using the web interface after setup is complete.

Administrator Account

This section is used to create a user with the Super User right. There are up to three options for the account here depending on certain server configurations:

- New account (always available)
- LDAP account (available when LDAP has been configured on the User Managers page)
- NDP.serve 2 account (available when importing a database from NDP.serve 2)

If a new account isn’t used and the password provided is incorrect, the setup may fail part way through.

New Account

Specify a username and password for the new user.

LDAP Account

Choose a user from a list of LDAP accounts and input their existing password.

NDP.serve 2 Account

Choose a user from a list of accounts from the NDP.serve 2 database and input their existing password.

Advanced

In a typical installation the default values for all settings in the advanced section can be left alone.

Drop and recreate the database

If the database is to be hosted on a shared SQL Server instance then it is possible that the account available to manage the database may not have sufficient privileges to create the database initially. In this case the option to delete and recreate the database must be disabled.

The SQL Server administrator should create the database manually along with a user account that has db_owner permissions to the new empty database. Note that as the account for the new database may have permission to delete it, it is critical to ensure this option is not enabled as the SQL Server administrator would have to recreate the database should the setup process delete it.

Note

- NZConnectMD requires the Full Text option to be installed on the SQL environment.

Note NZConnectMD requires the Full Text option to be installed on the SQL environment.

Create logins and assign role to users

If this option is enabled then a database role named db_ndpserveservice will be created and the user(s) which the NZConnectMD services (excluding the image server) run as will be assigned this role (typically Local System). If the database is using SQL Server authentication rather than Windows authentication then then username specified in the connection string will be assigned the role instead. This role has minimal permissions to log on to the database and execute stored procedures only. If this option is disabled then the service user account(s) must be manually given permission to log onto the database and run stored procedures (for security it is not recommend to assign any additional database permissions to this user).

Create local image server

If the image server service will be on a different machine, this option can be disabled so the default local image server isn't automatically added to NZConnectMD.

Confirmation

If there is an existing database a confirmation will be present requiring the user to type "Yes" into the text field. This is to ensure they can realise all existing data in the database will be lost.

Note The confirmation process is not required when generating database for the first time.

Note

- It may take a long time to complete the operation depending on the size of NDP.serve 2 database.

6-1-3 UPDATE

Before updating it is recommended to make a backup of the database. An option screen is provided to input the license if there is no current valid license; as before this is not required but is extremely useful to ensure the update is within the user's software support period.
When "Update" button is pressed a progress window will appear and any errors will be displayed there.

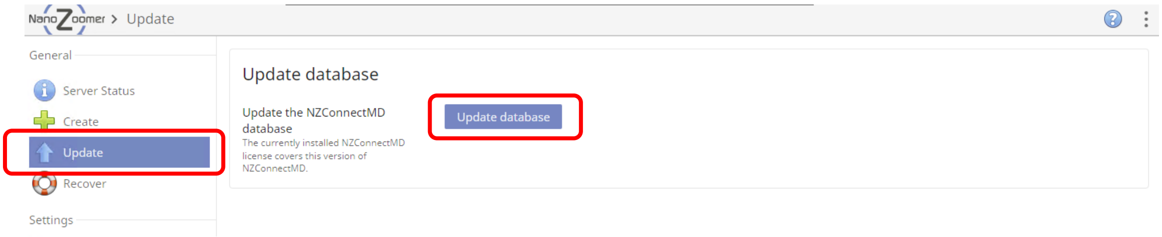


Image 6-4

6-1-4 RECOVER

A basic backup and restore implementation is provided here, but is subject to SQL Server permissions. It is up to the user to ensure a sufficient backup policy and system is in place for the NZConnectMD database.

It is possible to export some of the tool's settings in combination with license information to a text file, which can be helpful in support situations. Note that this includes the database connection string which may include a password if not using Windows Authentication.

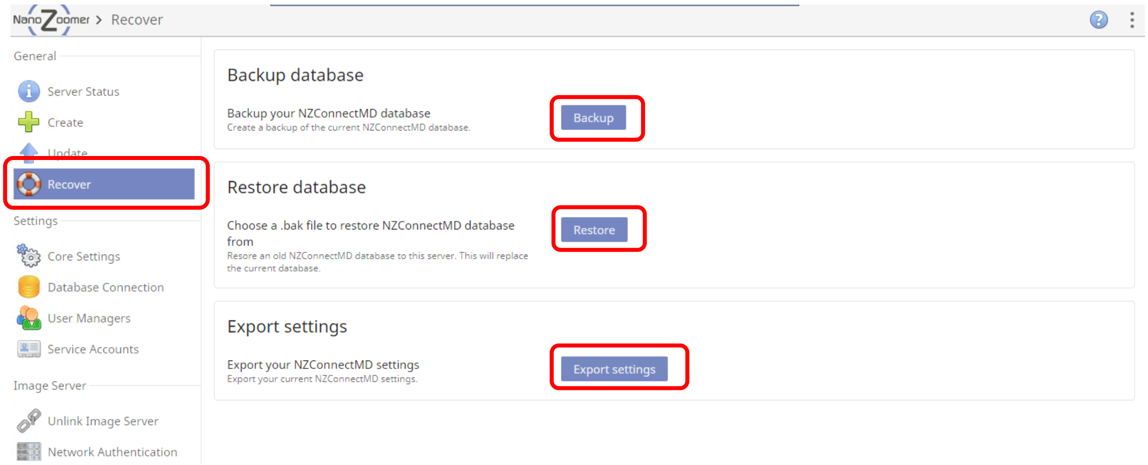


Image 6-5

Note

- Once the database is restored, the current database has been deleted.

HAMAMATSU
PHOTON IS OUR BUSINESS

6-1-5 CORE SETTINGS

This page has settings for the main server that require a higher security level to enable.

Core Settings

- Allow downloading slides – enable the role that allows users to download slides

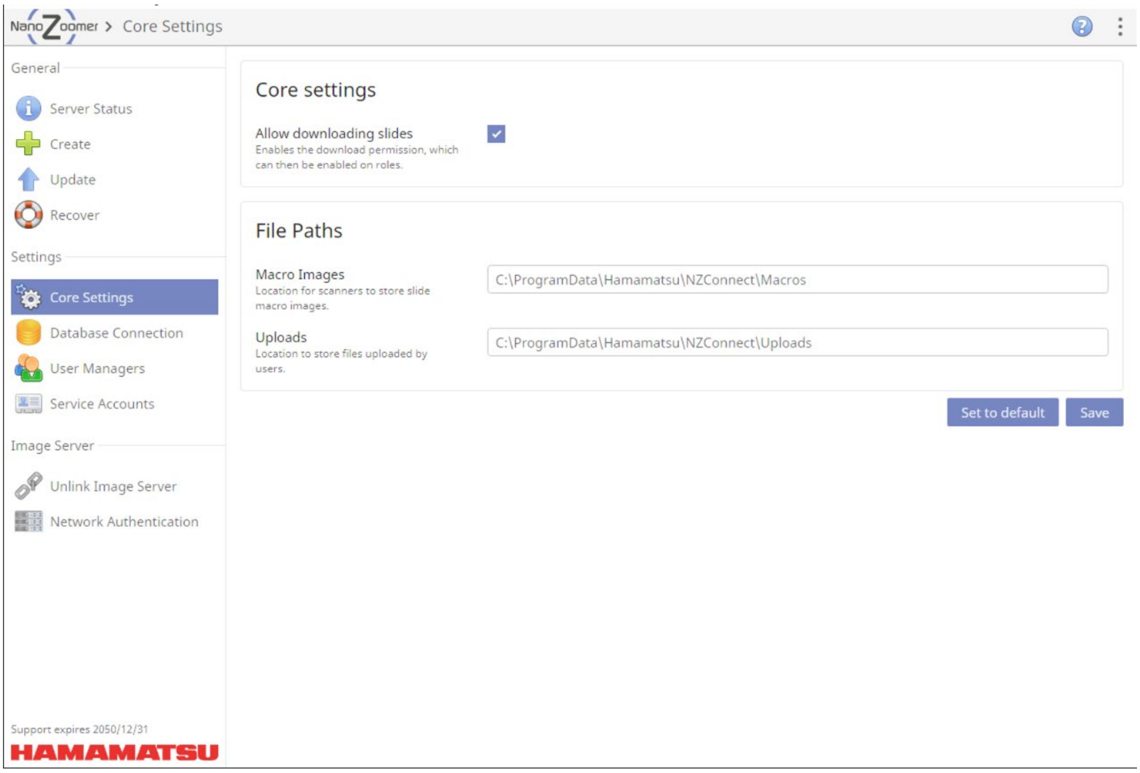


Image 6-6

Note	• "Download" for slide is an option only available for those who have permission to execute downloading.
Note	• Those slide files might have personal information on reference and labels, which can be viewed by those who do not have permissions for viewing. Therefore, keep that in mind when you create settings.
Note	• The slide formats permitted for downloading are "ndpi" and "ndpis".

File Paths

- Macro images – location slide macro images from scanners will be stored
- Uploads – location files uploaded by users will be stored

6-1-6 DATABASE CONNECTION

This section contains all the details needed to successfully connect with an SQL Server database.

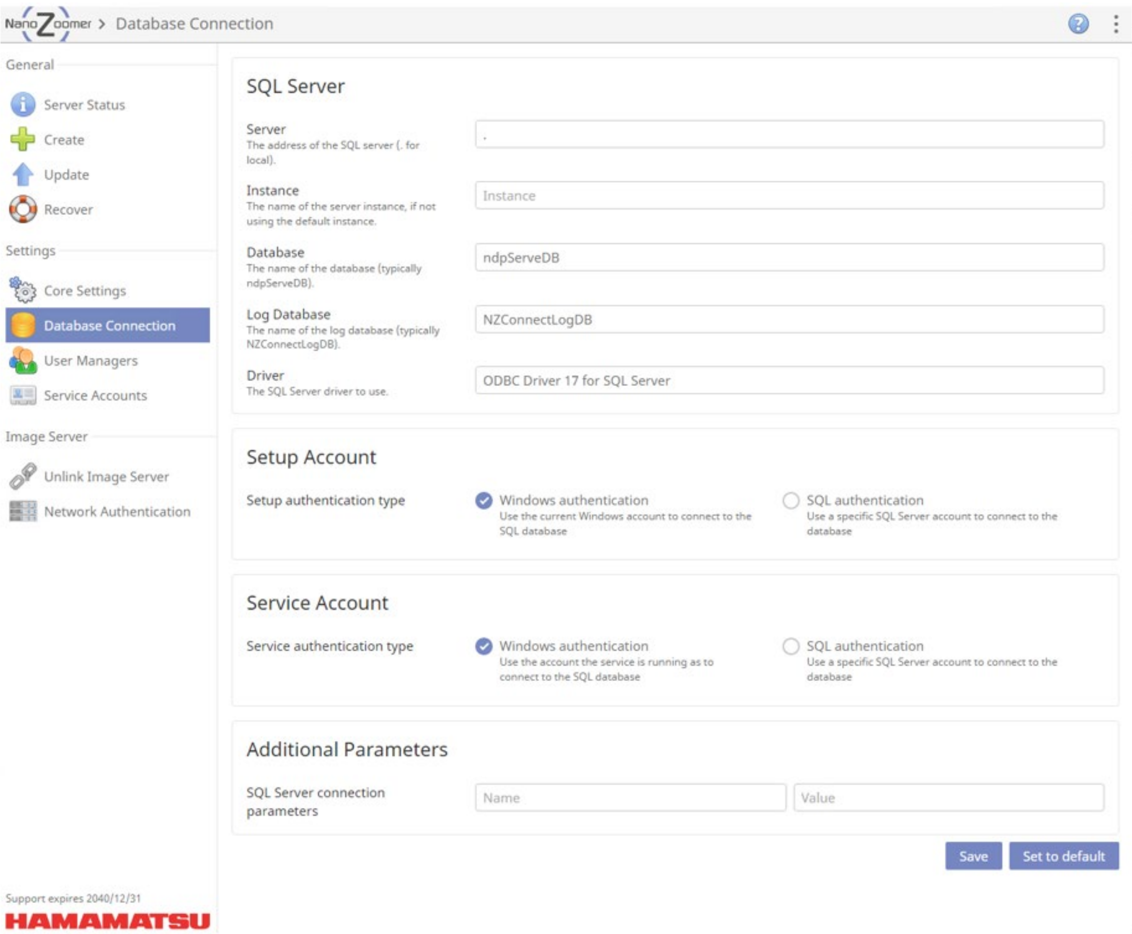


Image 6-7

SQL Server Details

This section is used to point NZConnectMD to the SQL database. Fields are provided for:

- Server – the path to the server (by default .)
- Instance – the SQL Server instance (by default the default instance is used, leaving this empty)
- Database – the name of the database (by default “ndpServeDB”)
- Log Database – the name of the separate database for logs (by default “NZConnectLogDB”)
- Driver – the SQL server driver to use (by default “ODBC Driver 17 for SQL Server”)

Changes to these values will be reflected in the connection string used by the software to connect to SQL Server.

Setup Account/Service Account

The SQL account used by the Configuration Tool (Setup Account) and services (Service Account) can be specified here. This can be via Windows Authentication (typically when using domain accounts) or using an SQL user. In a typical installation Windows Authentication is sufficient.

The Setup Account must have db_owner permission to create the database.

The Service Account only needs permission to run stored procedures.
Changes to these values will be reflected in the connection string used by the software to connect to SQL Server.

Additional Parameters

Any additional parameters that should be added to the SQL Server connection string can be provided here.
Once satisfied “Save” button can be used to save the changes. Otherwise, defaults can be restored with “Set to default” button.

6-1-7 USER MANAGERS

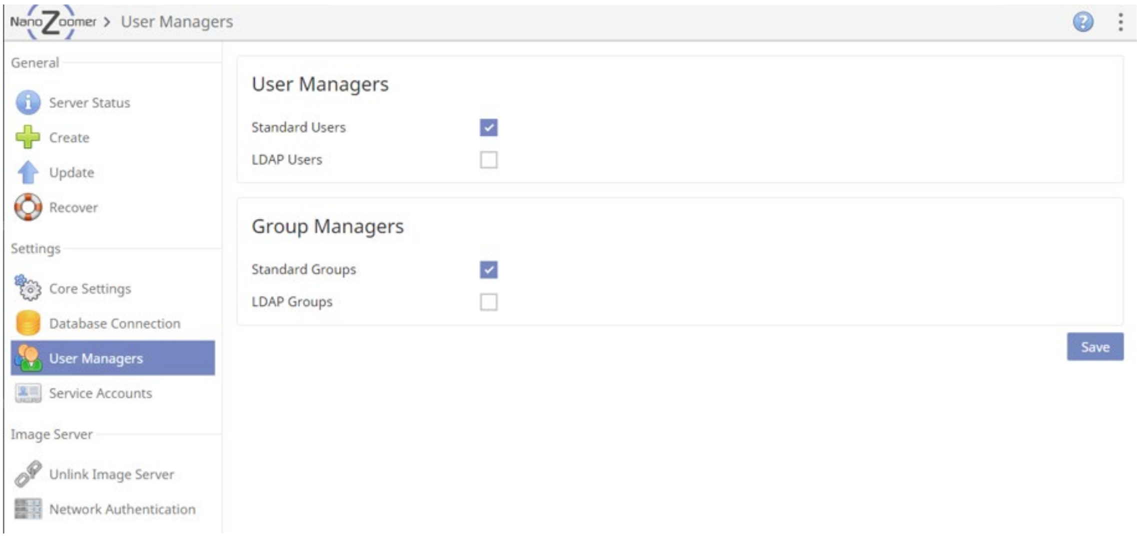


Image 6-8

This section allows choosing which user and group managers to use:

- Standard Users
- LDAP Users
- Standard Groups
- LDAP Groups (requires LDAP Users)

If an LDAP option is chosen, a form will appear allowing settings to be configured. Changes are not saved until “Save” button is pressed.

Validating LDAP

An LDAP server can be configured in many different ways. The new NDP.serve LDAP features were designed to be as generic as possible. This should improve compatibility with a wider variety of configurations.

Different LDAP object attributes may not be available in different LDAP server configurations. For example, one customer is using an LDAP server where certain LDAP extensions are not available. In this case, they could not use the default username attribute, samAccountName. However, they could use the cn attribute because it contained the same information.

In your test environment, some object attributes may not be present. When validating, you need to know which object attributes are present and which are not present. If you attempt to use an object attribute that is not present, NDP.serve LDAP functionality will not work correctly.

In order to validate the NDP.serve LDAP settings, you need to test that:

1. **The default values for each field work as expected.** In other words, if the default values are compatible with the LDAP test environment, LDAP users/groups should appear in NDP.serve if most fields are left empty.
   If the defaults are not compatible (e.g. the samAccountName account name attribute is not present in the test environment), LDAP users/groups should not appear in NPD.serve if most fields are left empty.

2. **Correct values succeed.** LDAP users/groups should appear in NDP.serve if the LDAP features are configured correctly.

3. **Incorrect values fail.** LDAP users/groups should not appear in NDP.serve if the LDAP features configured incorrectly.

The settings for LDAP users are explained below.

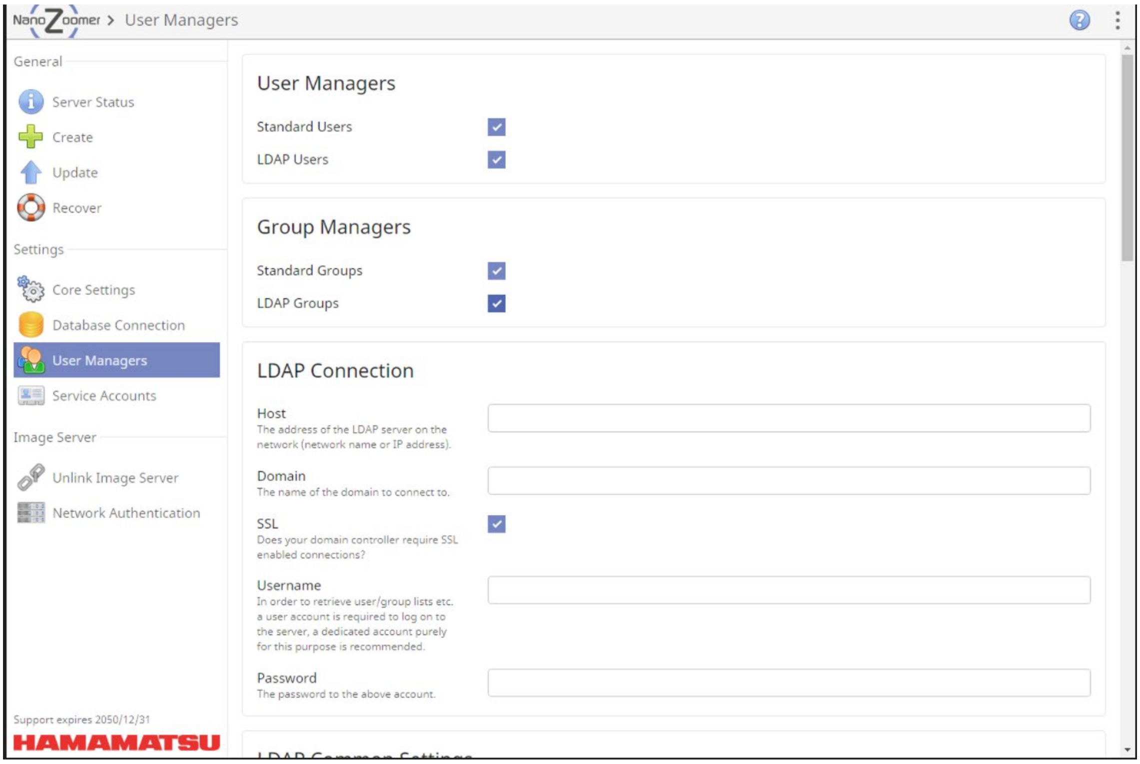


Image 6-9

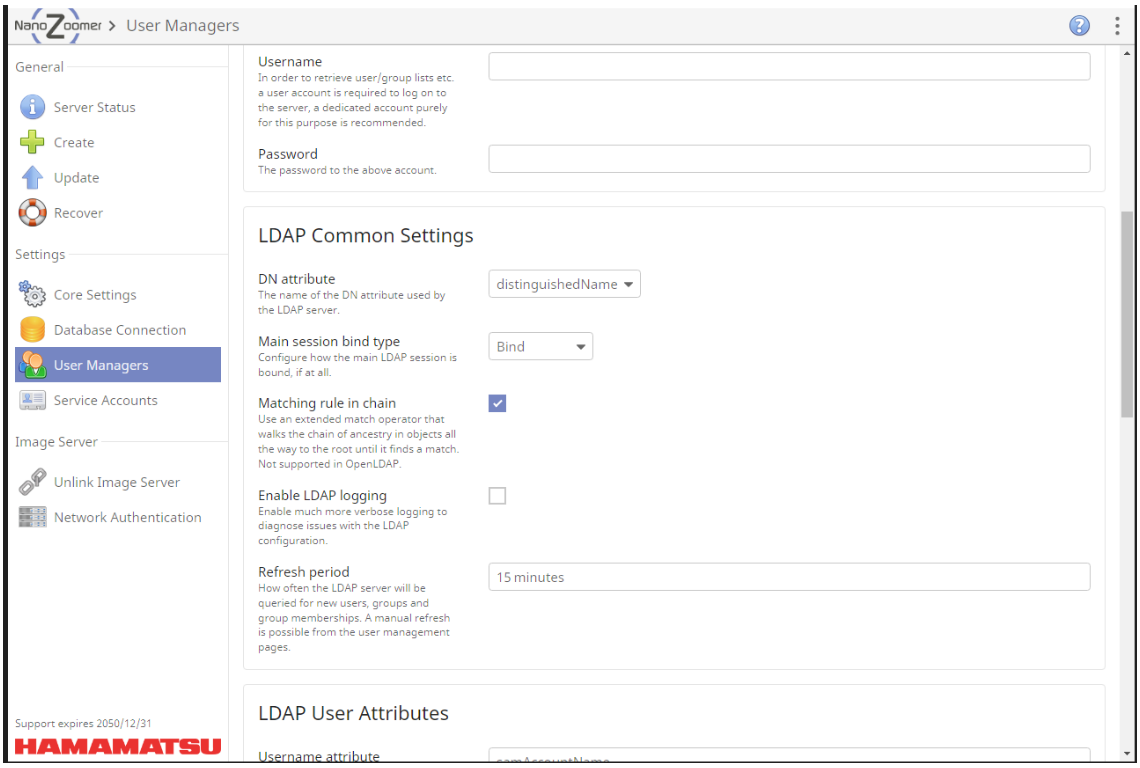


Image 6-10

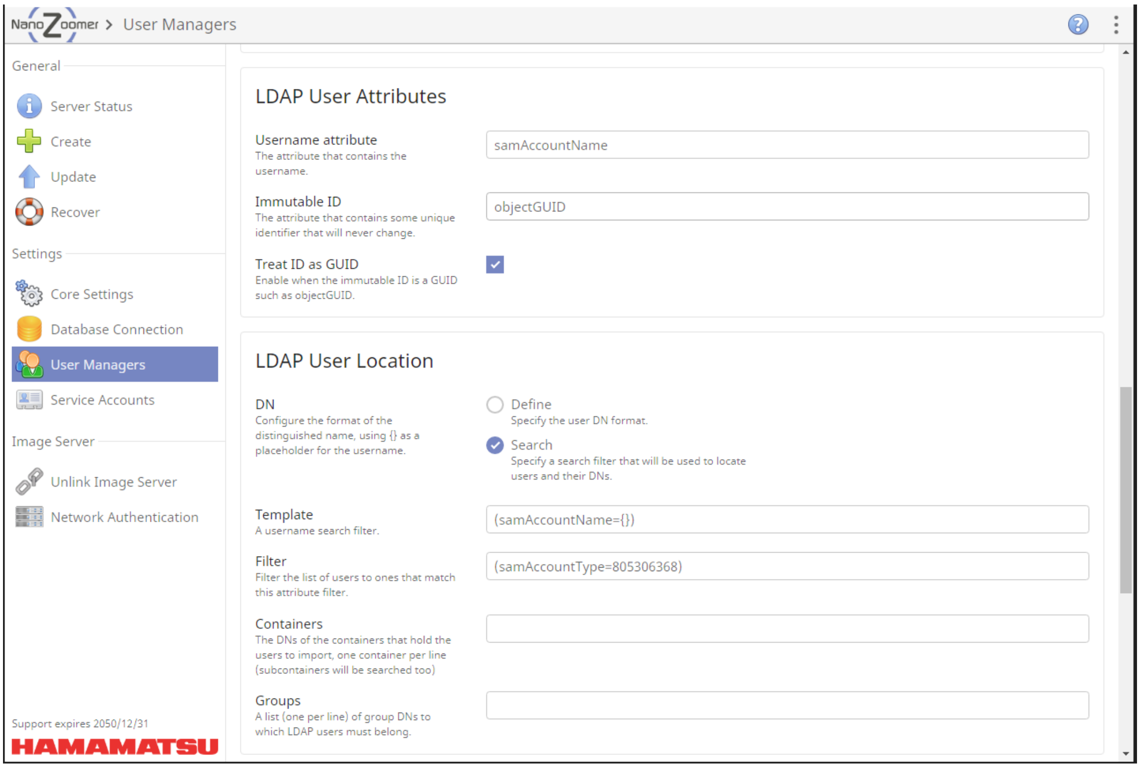


Image 6-11

User Attributes

The settings in the User Attributes section are used to differentiate users, and to retrieve information from them that can be used to store them in the NDP.serve database.

Username

This setting should contain a user object attribute that represents the username. Any attribute that contains the username should work. For example:

- samAccountName (default)
- name
- userPrincipalName
- CN

Immutable ID

This setting should contain a user object attribute that uniquely identifies a user. It should also be immutable (it never changes), because this value will be used to store user information in the NDP.serve database. For example:

- objectGUID (default)
- **objectSid**
- **uid**

Treat ID as GUID

If the immutable ID is a GUID (such as objectGUID), this should be enabled. If the immutable ID is a string (such as uid), this should be disabled.

User Location

DN

NDP.serve needs to know the Distinguished Name (DN) of LDAP users. There are two options:

1. Define lets the user specify the user DN format in the Template field. Only the username is replaced by a placeholder.
2. Search (default) lets the user specify the search filter that will be used to locate users and their DNs. The username is replaced by a placeholder.

Template

The Template field will contain different values depending on the value of the DN field. The default value is (samAccountName={}).

If the DN field is set to Define, the Template field should contain a user DN, where the username has been replaced by the placeholder characters {}.

User Container	**Specific User**	**Template Field**
CN=Users, CN=Partition	CN=jsmith, CN=Users, CN=Partition	CN={},CN=Users, CN=Partition

The placeholder {} will be replaced by the username when a user attempts to login.
If DN is set to Search, Template should contain a username search filter, where the username has been replaced by the placeholder characters {}. For example, if the Username field is set to use the userPrincipalName attribute, the Template field would contain “(userPrincipalName={})”.

Filter

The default filter for users is (samAccountType=805306368).

Container

If the Template field is set to Define, Container should contain an LDAP server user container. For example, if the Template field contains “CN={}, CN=Users, CN=Partition”, then the Container field should contain “CN=Users, CN=Partition”.

If the Template field is set Search, Container should contain the LDAP server container that will be searched for users. Note that subcontainers will also be searched. For example, if the user gjones had the Distinguished Name “CN=gjones, CN=Employees, CN=Users, CN=Partition”, then setting Container to “CN=Users, CN=Partition” would result in the user gjones being found in the search.

Group

Group should contain the Distinguished Name of a group to which LDAP users must belong. Multiple groups can be specified. In this case, only users belonging to all specified LDAP groups will be considered valid. There is no default value.

LDAP Group Manager Settings

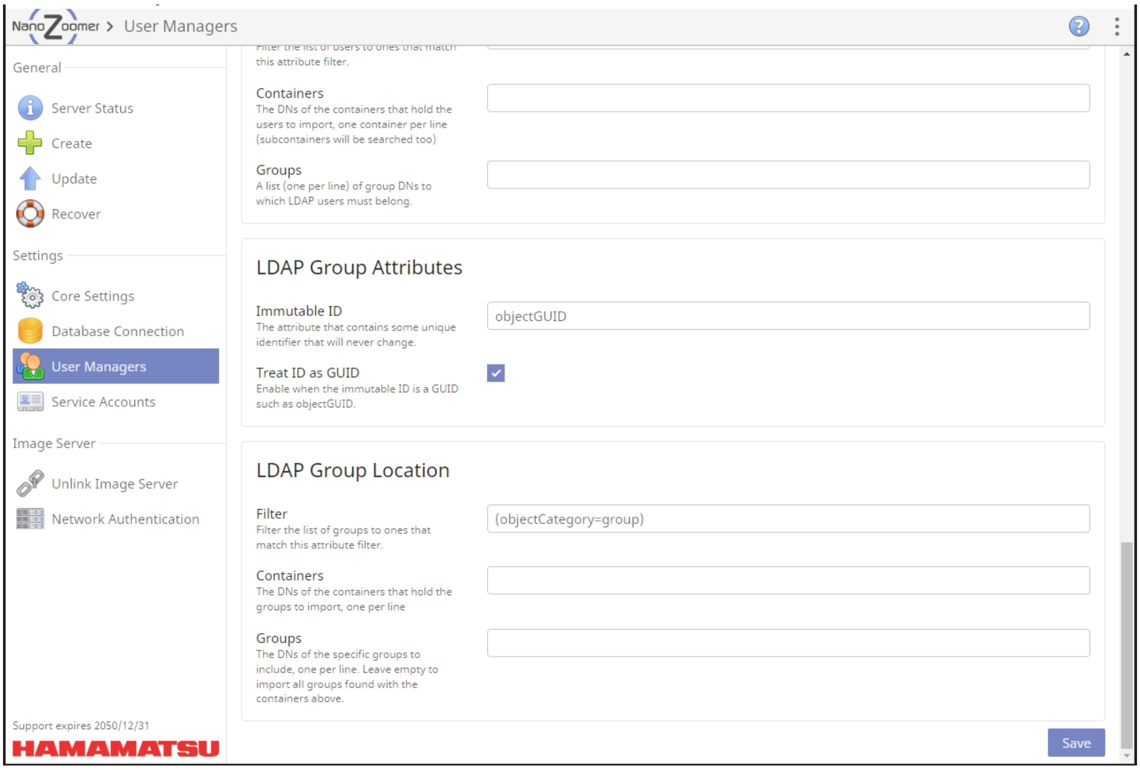


Image 6-12

Immutable ID

This setting should contain a user object attribute that uniquely identifies a group. It should also be immutable (it never changes), because this value will be used to store user information in the NDP.serve database. For example:

- objectGUID (default)
- objectSid
- uid

Treat ID as GUID

If the immutable ID is a GUID (such as objectGUID), this should be enabled. If the immutable ID is a string (such as uid), this should be disabled.

Filter

The default filter for groups is (objectCategory=group). The objectCategory attribute seems to be present in all LDAP server configurations, but you should check that it is present in your environment.

Containers

Distinguished Names of the containers that contain the groups that are to be included.

Groups

Distinguished Names of the groups to include. If no groups are specified then all groups found within the containers will be included.

6-1-8 SERVICE ACCOUNT

The account each NZConnectMD service runs under can be changed here. Alternatively they can be changed directly in the Windows application called Services. This is not typically needed (use network server authentication for connecting the image server to network drives).

Each service is displayed in a table with there columns:

- Service Name
- Friendly service name
- Username used to log in to the service in Windows

Editing an entry will bring up a window allowing a different account username and password to be specified. It can be unclear if the changes work so any change made here should be checked in Windows Services.

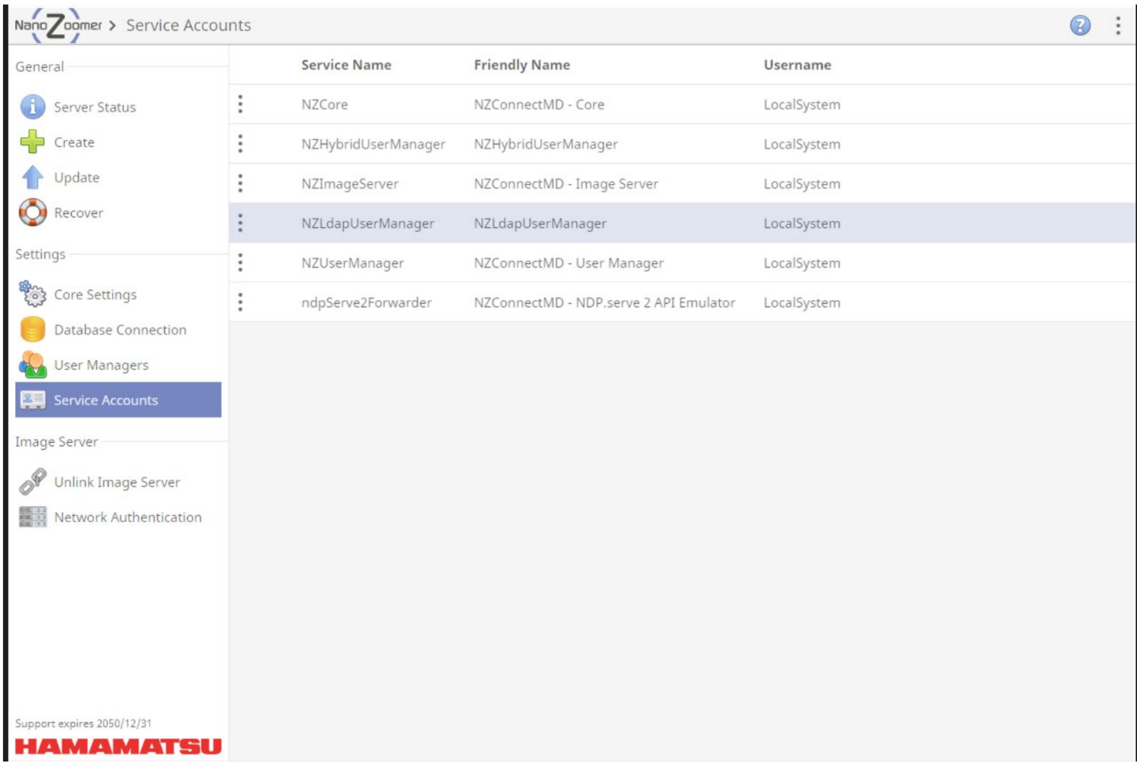


Image 6-13

6-1-9 UNLINK IMAGE SERVER

If the image server is connected to another instance of NZConnectMD, in order to add it to NZConnectMD it may require unlinking. This will prevent the image server from working with the NZConnectMD instance it was connected to, but will allow it to be added to the new one.
The web interface will prompt the user if this option is necessary – in a typical installation this option is unlikely to be needed.

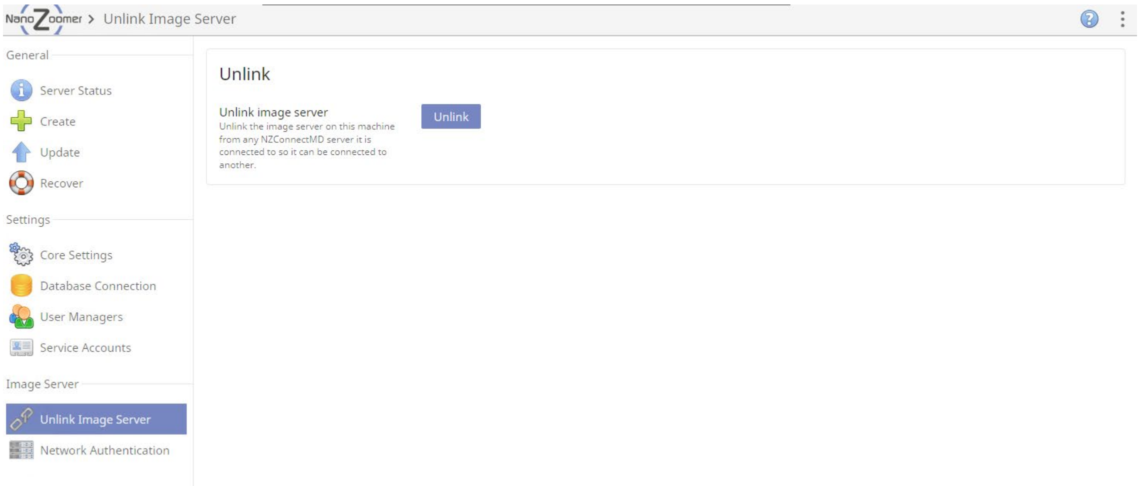


Image 6-14

6-1-10 IMAGE SERVER NETWORK AUTHENTICATION

Login credentials can be provided in this section to give the image server access to network paths that require authentication. Each entry can be tested to confirm the details are correct.

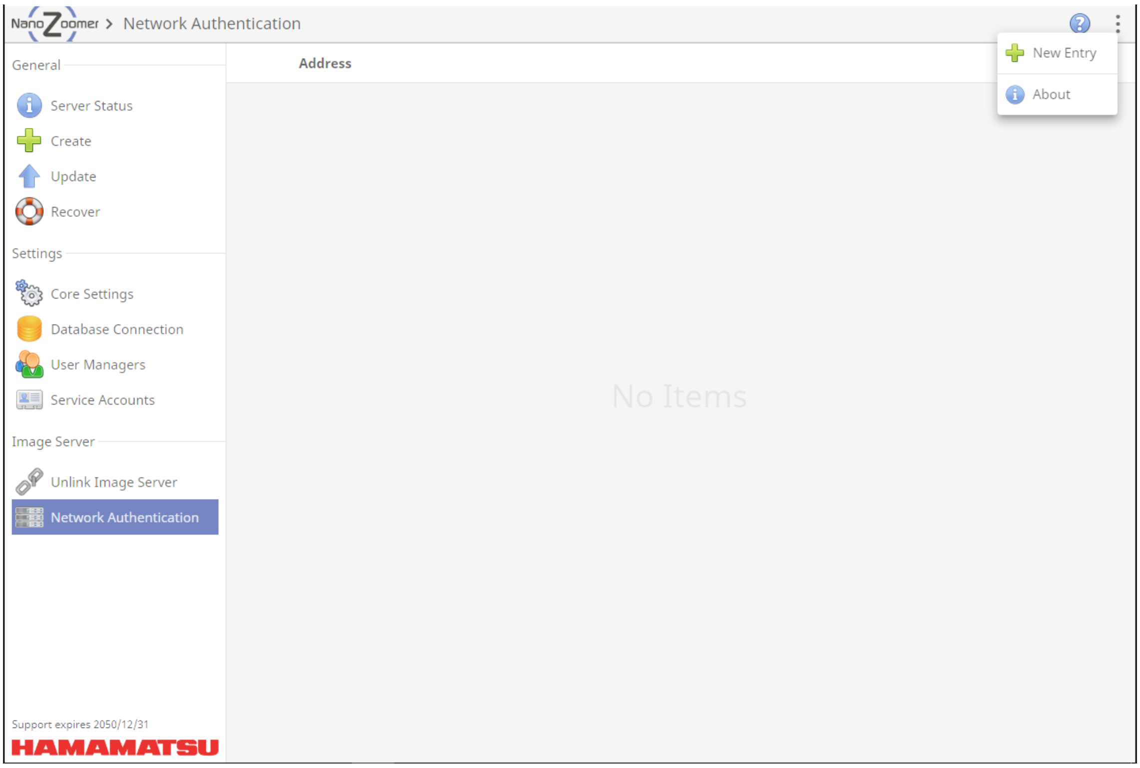


Image 6-15

To add a new entry, right-click in space or use the main context menu and choose the New Entry option. This will open a window where three required values can be provided:

- Address – the server address to connect to (e.g. ¥server¥share)
- Username – the username to connect as, this should be prefixed with the domain or remote machine name as appropriate (e.g. domain¥username)
- Password – the password for the above user account

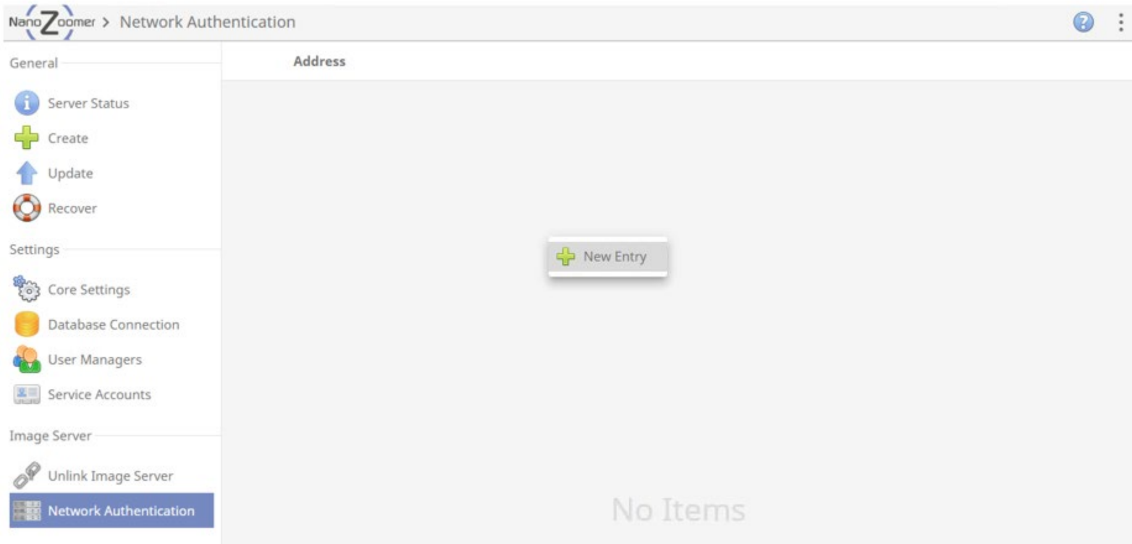


Image 6-16

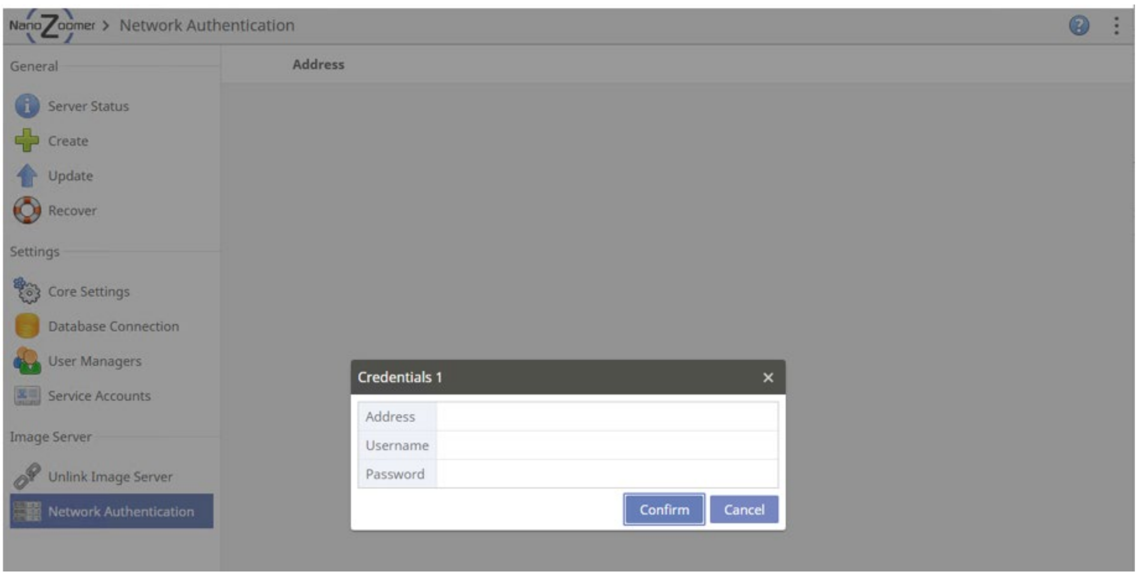


Image 6-17

6-1-11 REGISTER SCAN CONTROLLER

If the scan controller service is installed then this option will be available.
To register a scanner, the scan control service must be started.
For more information, look for Scan Control Service in the Scanning section.

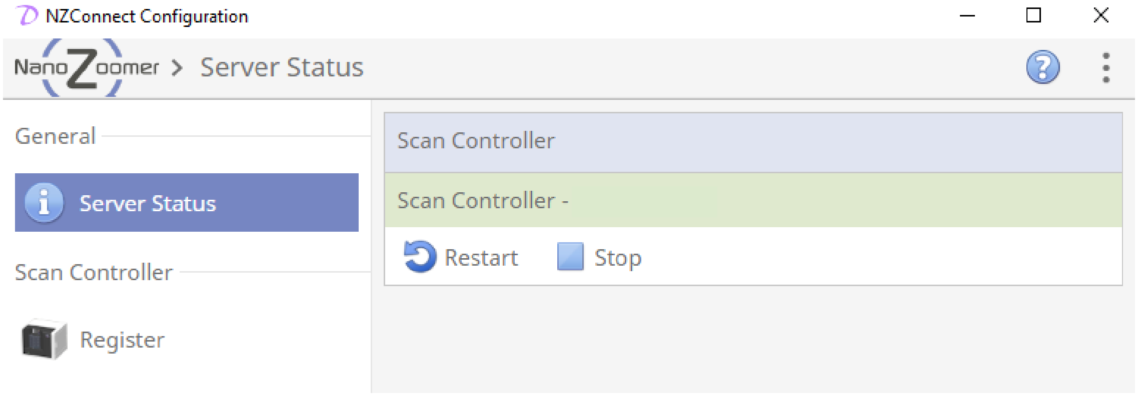


Image 6-18

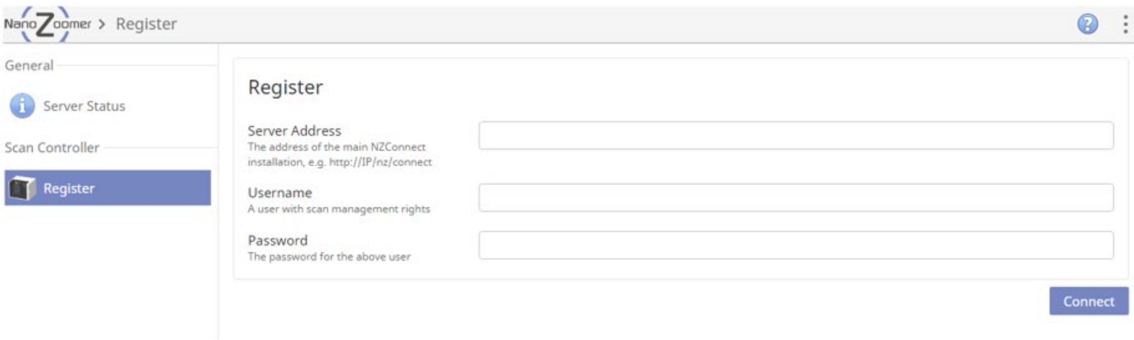


Image 6-19

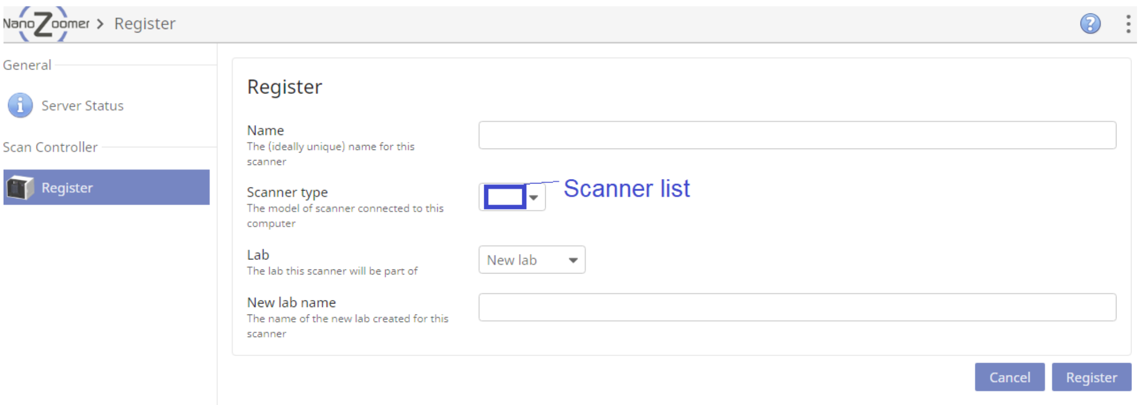


Image 6-20

Note

- When using NZAcquireMD/NZTuneMD, please stop SCAN CONTROL SERVICE. Otherwise, when you start the software, an error message will appear and you will not be able to operate it.
- When using NZConnectMD Scan, please close NZAcquireMD/NZTuneMD. Then, start "Scan Controller". Otherwise, an error message will appear on the scan control screen and scanning operations will not be possible.
- The version information is displayed in the "Scan Controller" service section in the image above.

6-2 COMMON FUNCTIONS

The homepage, signing in and out, and common functionality available to users.

6-2-1 HOMEPAGE

If signed out, the home page provides the option to sign in or continue as a guest (if guest access is enabled).
After signing in or continuing as a guest the following will be displayed:

- A widget allowing the user to sign out or edit their profile (subject to having permission)

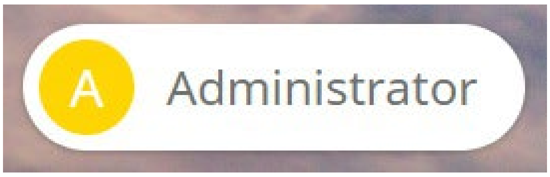


Image 6-21

- A list of all the server applications available (depending on the installed license and the user's permissions):
  - View
  - Conference
  - Scan
  - Manage

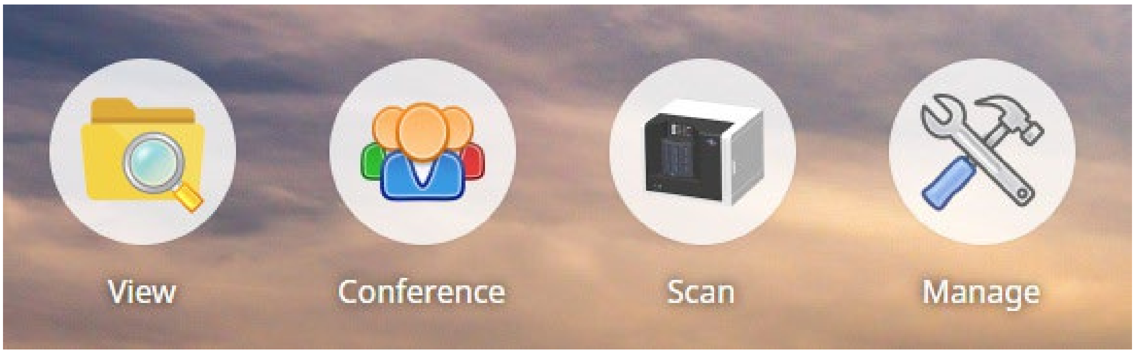


Image 6-22

Server Version

The server version is displayed in the bottom-left corner. The date that the current license covers updates until will also be displayed if the user has the Super User right.

Hamamatsu Logo

The Hamamatsu logo is displayed in the bottom-right corner and links the Hamamatsu website, the copyright notice is displayed below it.

6-2-2 SIGNING IN AND OUT

Signing in and out can be done either on the homepage or in a main Action Bar.

When a guest visits NZConnectMD, they will be greeted with a sign-in box. They can sign in (and optionally choose to be remembered between browser sessions) or continue to browse as a guest (if the guest account is enabled).
This sign-in box will optionally contain the homepage text and homepage image specified in the Server Settings.

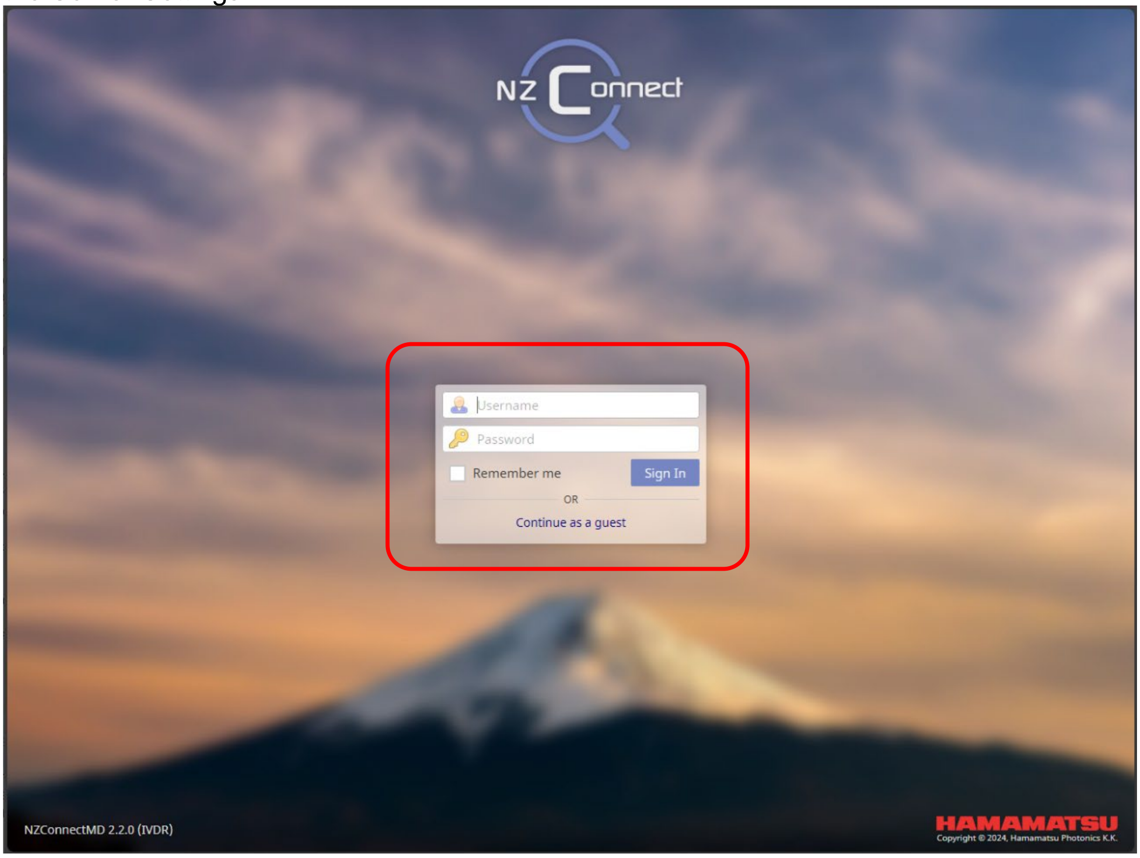


Image 6-23

Note

- Click “Continue as a guest” to sign in using the Guest user account.

Note

- If you need the Individual user account and password, contact your local NZConnectMD Scan/Serve administrator..

Once signed in, the user will be taken to their requested page. On the homepage, available applications will appear, as well as a widget containing the user's avatar and name. This widget can be used to access the Profile and to sign out.
This widget is also available in any main action bar (though only displays the user's avatar) – and can be used in the same way to sign in, sign out and optionally view the user's profile.

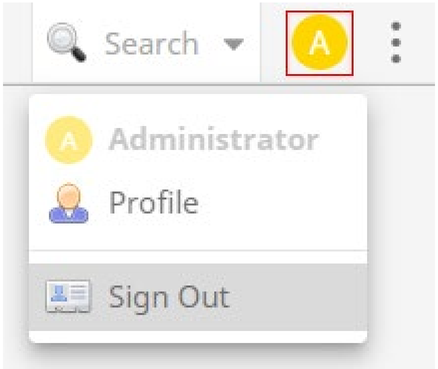


Image 6-24

Note

- When the time set in "Session Expiry" elapses from the state of work interruption (no operation) in NZConnectMD, the sign out process is automatically performed and the screen switches to the sign in screen. However, in order to prevent security accidents, if you interrupt your work and leave your seat, sign out once using this menu and sign in again when you continue working.

Because NZConnectMD is browser-based, it is possible to have multiple tabs or windows open. It's possible for these tabs to get out of sync if a user signs in/signs out. To prevent this, NZConnectMD tries to keep track of the current session and detect if it changes. If the session changes and NZConnectMD successfully detects this, the user will be presented with a lock screen similar in appearance to the home page. Instead of a sign-in form or a list of applications, the user will be greeted with the following:

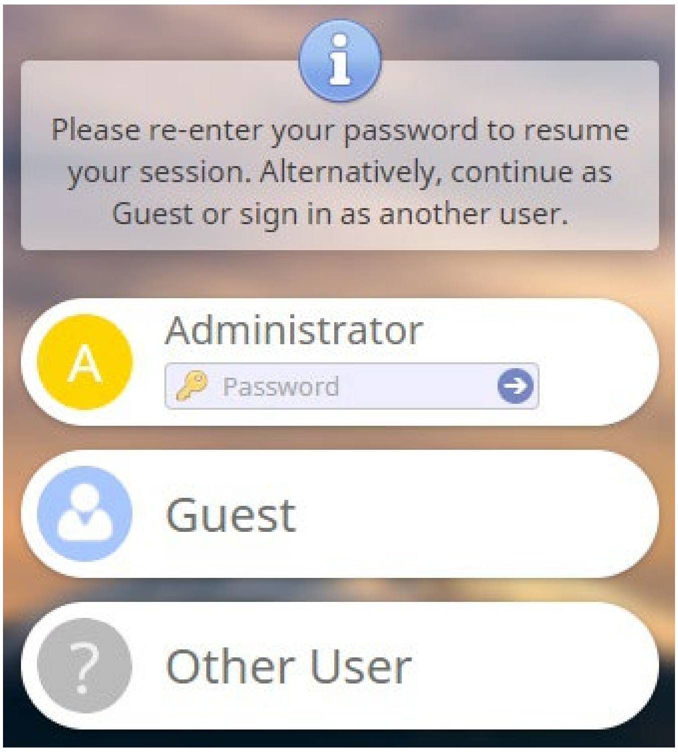


Image 6-25

- A message, describing what has happened
  - The session has timed out
  - The new session is associated with a different user
- The option to sign back in to the account that was already signed in (given the password)
- The option to continue as the user the new session is assigned to, unless:
  - That user is a guest and guest accounts have been disabled
- The option to sign in as any other user

6-2-3 ACTION BAR

There are two types of action bar in NZConnectMD; main action bars and windowed action bars.

Main Action Bars

The main action bar is an ever present part of the NZConnectMD experience and is at the top of the page in all applications.

Image 6-26

The breadcrumbs always contain a link to the homepage and the top level of the current application. The user’s avatar is always present to allow signing in, out and viewing the profile.

Note

- If the window size is small, the will be displayed.

If the window size is not small, the NanoZoomer will be displayed.

Windowed Action Bars

Windowed action bars only appear in certain windows where the primary focus is navigating some kind of file system.

Image 6-27

They have localized breadcrumbs without any external links (e.g. to the homepage), and do not have the user’s avatar.

Common Functionality

All action bars have a breadcrumb path allowing navigation within some context. For example, the View application will show a breadcrumb path from the homepage through to the current collection.

All action bars will have the context menu icon at the right, though this may be disabled if there are no options.

Optionally there may also be other page specific icons and search functionality on the right-hand side of the action bar.

When the current page has an item view and an item or multiple items are selected, a section of the action bar will be dedicated to showing an active item display. This display has the following functionality:

- Cancel (cross icon) – clears the selection
- Name – either displays the name of the selected item or the number of items selected
- Context Menu (icon) – opens a context menu with available options for the selected items

Image 6-28

6-2-4 PROFILE

The profile can be accessed by clicking on the avatar in the Action Bar or on the home screen, and choosing the Profile option.

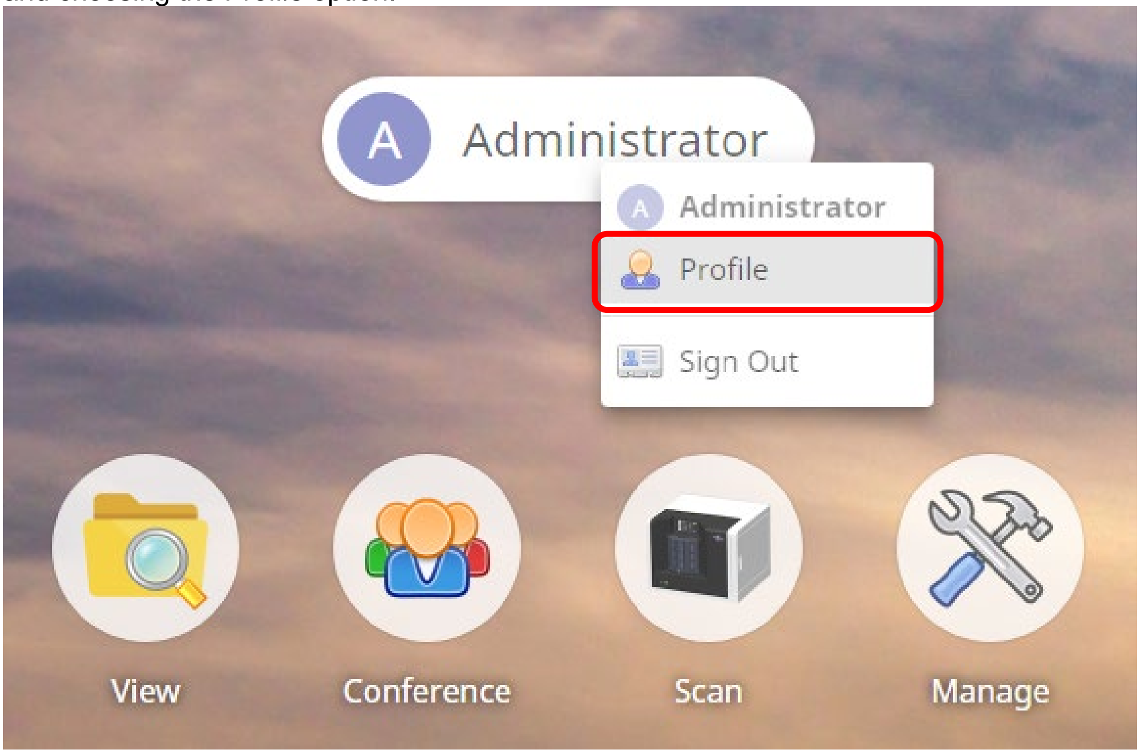


Image 6-29

To see this option, the user must have the right to edit their profile or to change their password. If the user only has the profile editing right, they will not have the option to change their password. If the user only has the right to change their password, they will not have the option to save their profile.

Note

- Only the user who has the right to edit profile can do the profile settings.

The profile contains the following options:

- Avatar Selection- Default Image Viewer
  - When opening a slide, if set to NZViewMD:
    - Checks the browser cookies to see if NZViewMD has been launched successfully in the past and then:
    - Opens the viewer if it has
    - Opens a window allowing the user to choose their viewer if it hasn't
  - If set to Web Viewer, the web viewer will open

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

- Browsing Mode
  - Continuous (recommended): loads items on demand as you scroll towards them so they are ready to view just in time.
  - Pages: splits items up into distinct pages and provides a control to navigate between pages

Note If the browser is Internet Exproler, only “Pages” can be selected.

- Full Name – read only
- E-mail – read only

There is also a list of groups displayed with a disabled User/Group Selector showing all the groups the user is a member of.

At the bottom of the profile window an option to change the user's own password is available if they have the right with "Change Password". This will launch the password change window:

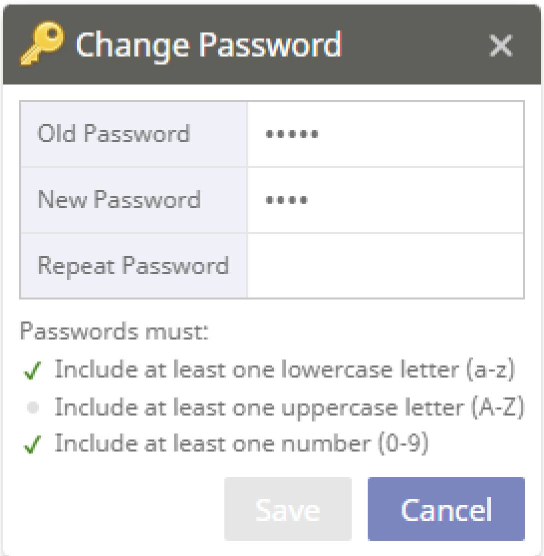


Image 6-30

The user must re-enter their old password as well as provide their new password twice. Helpful hints about the server's password rules will appear below these fields, allowing the user to check their new password is strong enough before trying to save.

6-2-5 SEARCH FILTERS

The search filter allows the filtering of a view to aid finding certain items. It has three options:

- Name Only – Only search by the name of items
- Match Exactly – Match the search term wholly and exactly
- Search – The search term (allows multiple search terms by separating with a new line)

The filter can be found in the main action bar, but will only be present if the current page supports it.

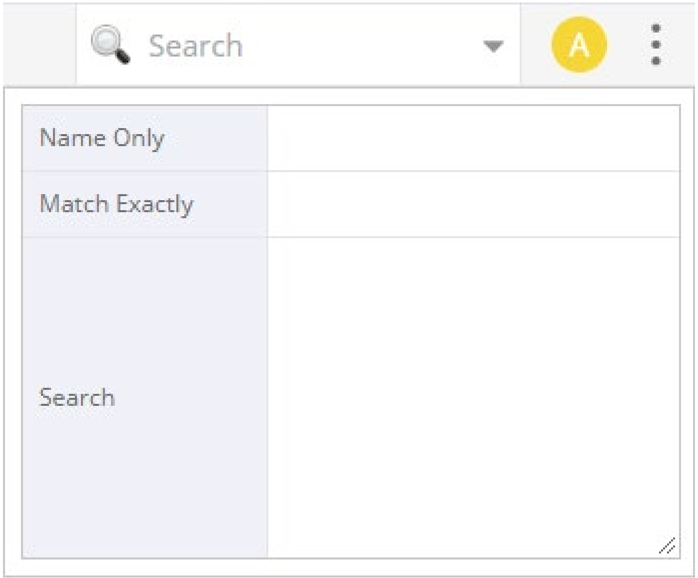


Image 6-31

Once the user stops typing briefly the view will be filtered. The following pages support the search filter:

- Manage / Users
- Manage / Groups
- Manage / Image Servers
- Manage / Image Repositories
- Scan / Profiles

6-2-6 USER/GROUP SELECTOR

This is a very common tool for choosing from the users and groups of the server.

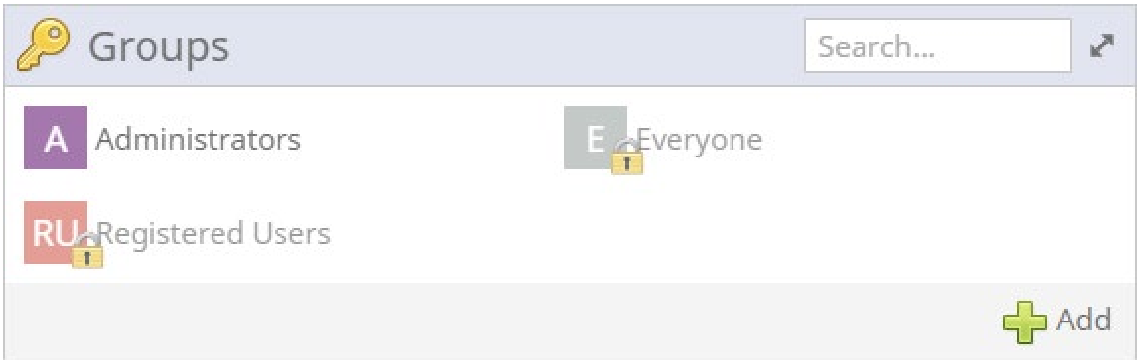


Image 6-32

The top bar contains:

- Information about what these users or groups are assigned to (in this case, the groups that the Administrator user belongs to)
- A search bar – filters the current view to find the search term (appears when more than one item is available)
- Maximize button – makes the selector fill the entire window

By default the main content area shows the currently chosen users/groups. This can be toggled to show the unchosen users/groups by using the Add button, and toggled back to show the currently chosen users/groups by pressing Cancel.

To select users or groups:

- Click on them
- Click on one and then Shift-click another to select a range
- Drag a box to select a range

To deselect users or groups:

- Click on them
- Click on one (to deselect it) and then Ctrl+Shift-click another

With a selection of users/groups, the available buttons will change.

When viewing chosen users/groups:

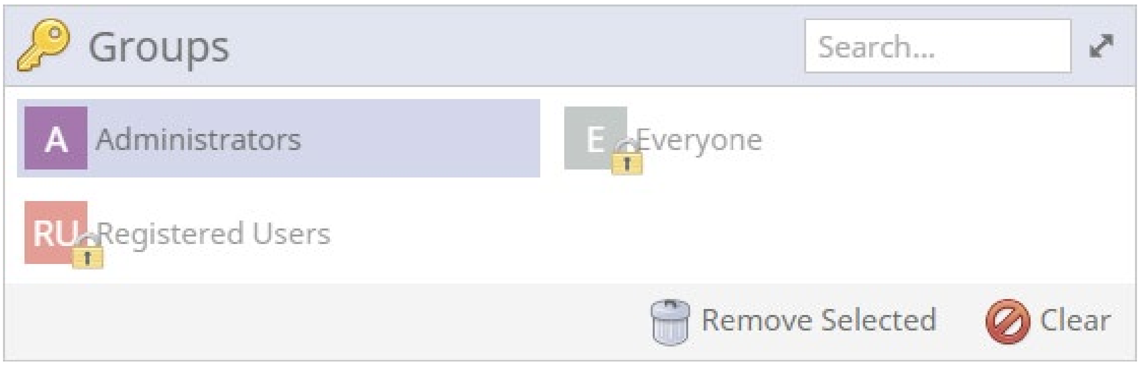


Image 6-33

When viewing unchosen users/groups:

Image 6-34

- Clear – cancel the selection (will always be available)
- Remove Selected – remove the users/groups from the list
- Add Selected – add the users/groups to the list

6-2-7 ITEM VIEW

Many pages within NZConnectMD utilise the item view. It is designed to display a series of items in various view modes and allow selections in a very similar way to Windows Explorer. The user can select items and open or right-click them for a context menu and further options.

View Modes

The view modes all provide different benefits, depending on what the user is most interested in. The below figures are for a standard 1080p screen:

- Overview – Large thumbnails and all metadata, up to 6 items per screen (size varies depending on amount of metadata)
- Icons – Large thumbnails with no metadata, 40 items per screen
- List – Small thumbnails with no metadata, 162 items per screen
- Details – Small thumbnails with all metadata, 20 items per screen

The display format of slide list can be changed.
The setting menu is displayed by clicking ⋮ in the “View” page.

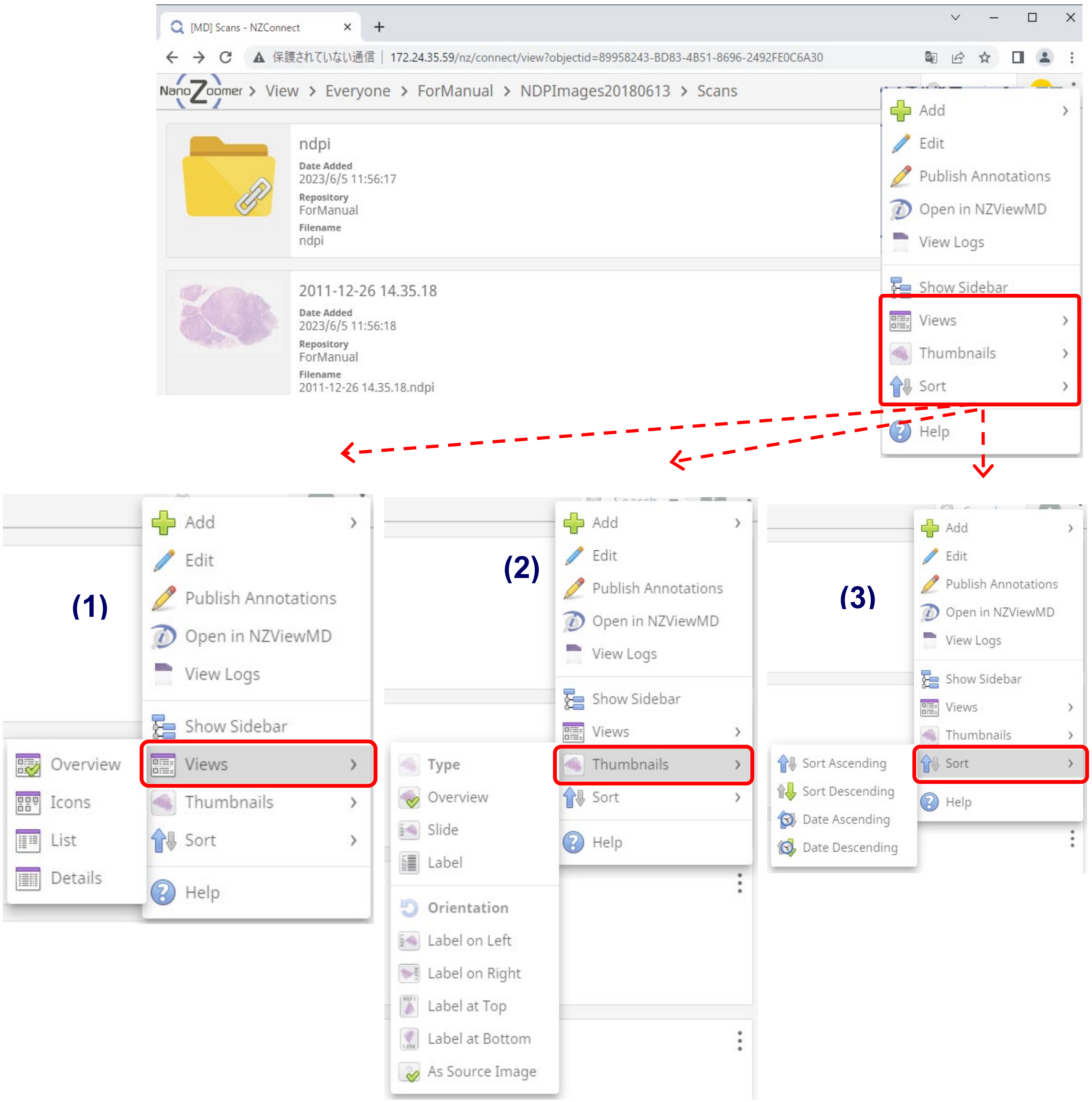


Image 6-35

(1) Views	for more information see the description of item view
(1) Overview	It displays the thumbnail image and the user defined fields vertically.
(1) Icons	It displays the image with the icon.
(1) List	It displays the image by the list.
(1) Details	It displays the image in detail.

HAMAMATSU
PHOTON IS OUR BUSINESS

(2) Thumbnails	customize the thumbnails of slide objects
(2) Type	label, slide image or overview (if a slide has no slide image or label, it will fall back to the overview image)
(2) Overview	The whole slide image is displayed on the thumbnail.
(2) Slide	The macro image is displayed on the thumbnail (*).
(2) Label	The label image is displayed on the thumbnail (*).
(2) Orientation	allows choosing the rotation of slide object thumbnails (defaults to the equivalent server setting, but the user can override it individually for each type of thumbnail)
(2) Label on Left	The thumbnail is rotated by 0 ° and displayed.
(2) Label on Right	The thumbnail is rotated by 180 ° and displayed.
(2) Label on Top	The thumbnail is displayed by rotating it 90 ° clockwise.
(2) Label on Bottom	The thumbnail is displayed by rotating it 90 ° counterclockwise.
(2) As Source Image	Displays the rotation of the thumbnail according to the settings of the original image.
(3) Sort Ascending	It sorts the image in ascending order of the name.
(3) Sort Descending	It sorts the image in descending order of the name.
(3) Date Ascending	It sorts the image in ascending order of the date.
(3) Date Descending	It sorts the image in descending order of the date.

Note

- (*) is displayed only if you have viewing permission. If you do not have viewing permission, the whole slide image will be displayed.

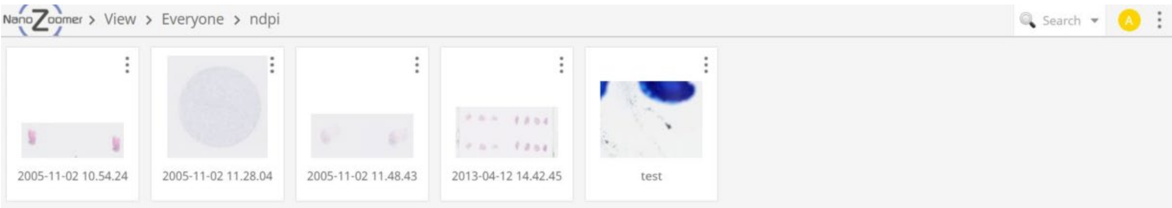


Image 6-36

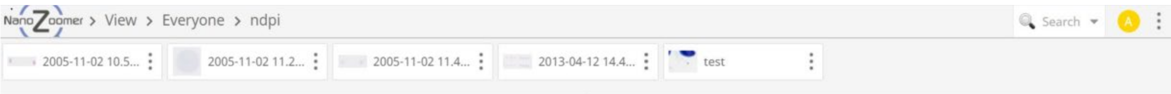


Image 6-37

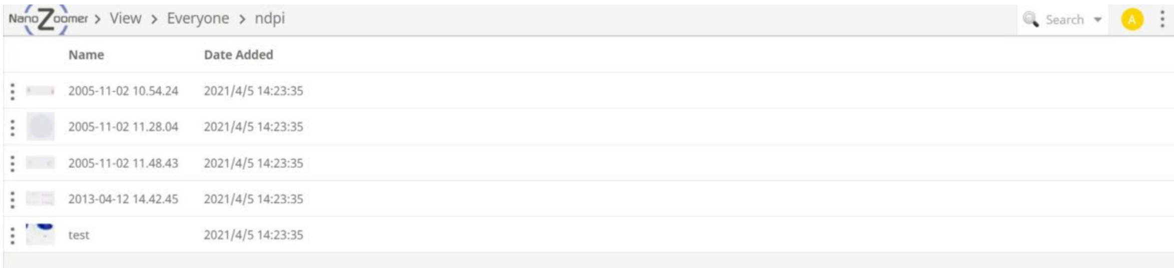


Image 6-38

Select "Open in NZViewMD" to launch NZViewMD and display the slide list in the File Browser.

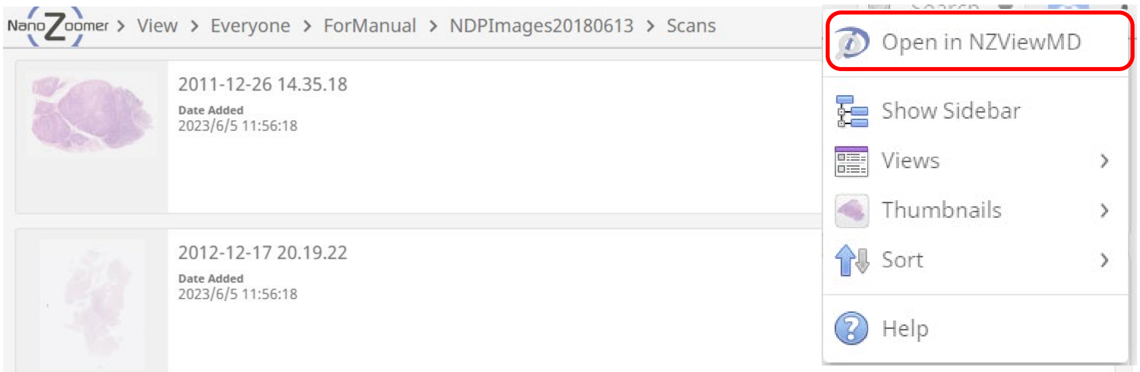


Image 6-39

Image 6-40

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

Note

- For the operation method of NZViewMD, please refer to NZViewMD instruction manual.

Selections

The method of selecting items in an item view is very similar to Windows Explorer:

- Single-click an item to select it
- Double-click an item to open it
- Drag starting from an empty area to create a selection box
- Select an item, then Shift-Click another item to select all items in the range
- Ctrl-Click an item to toggle it (select/deselect)
- Ctrl-Click an item to deselect it then Ctrl-Shift-Click another item to deselect all items in the range
- Ctrl-Drag or Shift-Drag with an already selected range to make a new selection without deselecting the previous items (Ctrl-Drag will toggle all items in the selection box)
- Drag an item to move it (only available in View application)

7. MANAGEMENT

Configure users, groups, metadata and other server settings to customize your experience.

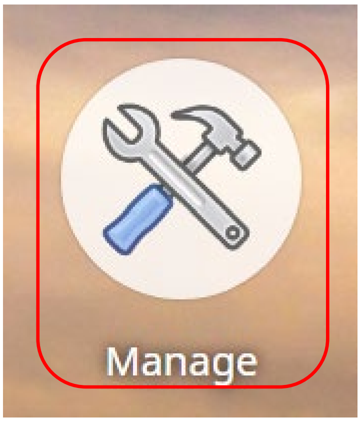


Image 7-1

7-1 USERS

Create accounts for your users, allowing them to sign in and have individual rights and permissions to use NZConnectMD.

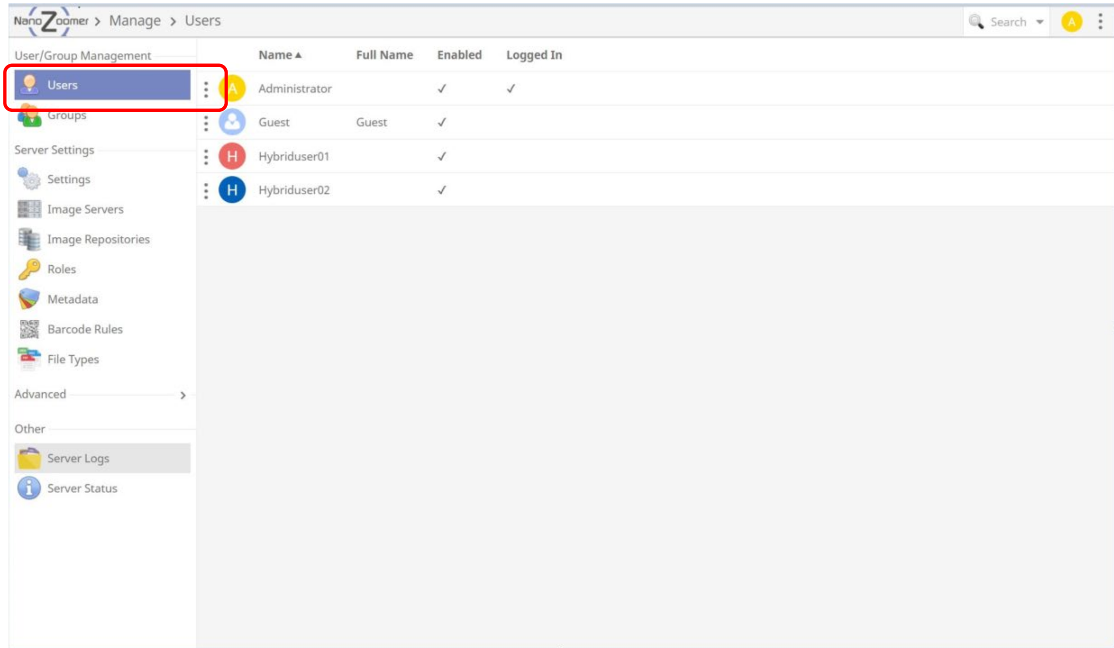


Image 7-2

Users can be configured in three ways using the Configuration Tool:

- Standard Users
- LDAP Users
- Both

When using both standard and LDAP users, two additional groups will be made available (Standard Users, LDAP Users).

The user accounts are listed on the “Users” page as below. Users who are currently logged in will be displayed the checkmark in "Logged in".

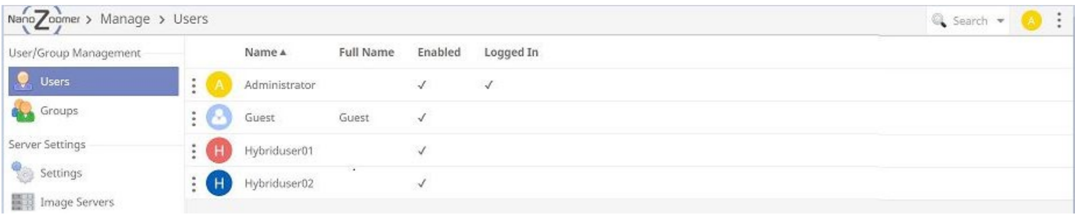


Image 7-3

7-1-1 MANAGING USERS

View all user accounts, see who is logged in and other actions you can take from the Users page.

To access user management the user must have the User/Group Management right. By default users are displayed in a table of the following attributes:

- Username
- Full Name
- Email
- Enabled
- Logged In

The “Logged In” column may be slightly outdated as it is updated periodically.

The list of users can be viewed in any view mode (changing the view mode also affects the Groups page) and filtered using the search filter.

In general most users have the following options available on their context menu:

- Edit
- Add to Group
- Disable – prevent users from logging in to the account
- View Logs
  - User Activity – any events done by this user
  - Change History – any events affecting this user (including signing in and out)
- Delete

There are some situations where some of these options will not be available:

- When multiple users are selected, Edit will not be available
- When a user cannot be deleted (LDAP users, yourself and the guest account) Delete will not be available
- When a user cannot be disabled (yourself) Disable will not be available

You are also able to add users using the main context menu, as long as the server is using the standard user manager and the number of users is less than the number allowed by the license.

The guest account can be disabled here; this prevents users from browsing the server when not logged in. The option to continue as a guest on the log-in screen will not be available.

7-1-2 CREATING A USER

Learn what all the available options are for when creating or modifying a user account.

When a new user is being added or an existing user being modified, the following window will appear:

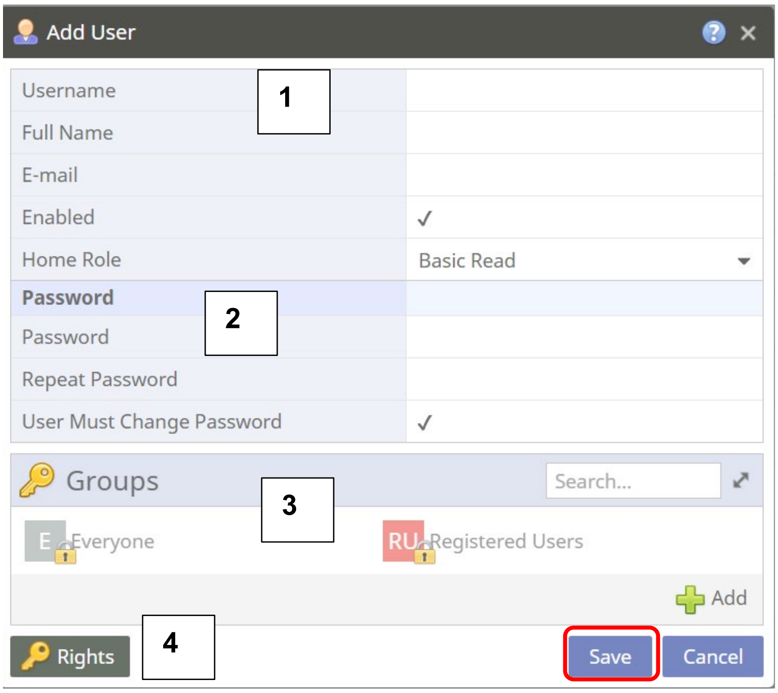


Image 7-4

1 Main User Options
2 Password Options
3 Groups
4 Rights

Main User Options

- Username – the name used to sign in to NZConnectMD

Note
- The length of the username must be at least 2 characters.

- Full Name – the name that will be displayed throughout the server for this user
- E-mail – the email address for this user
- Enabled – whether the account should be active and allow signing in (disabled when editing the currently logged in user)
- Home Role – For more information, see below and User Collections.

Home Role

Setting the user's role for the home folder.
In the default settings, you can select from the following.

Basic Read	Enable to view the images.
Standard Read	Enable to view the images with attached information.
Full Control	Enable to view and register the images.
Advanced	Enable to add the other users to the role.

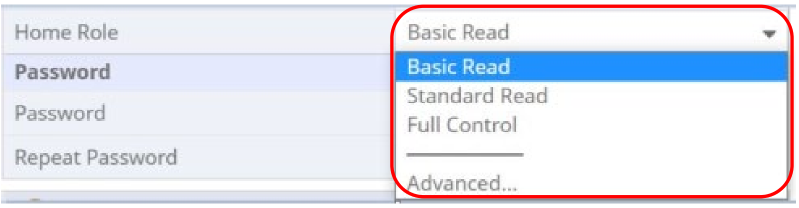


Image 7-5

Note

- Regarding the roles, please refer to "Roles".

Note

- When using the LDAP function, it is possible to import user information from an LDAP server (Active Directory).

Password Options

Password/Repeat Password

When creating a new account a password must be specified. When editing an account, these fields can be left blank unless overriding a user's password.

User Must Change Password

If this option is enabled, when the user next signs in they must provide a new password that they choose themselves.

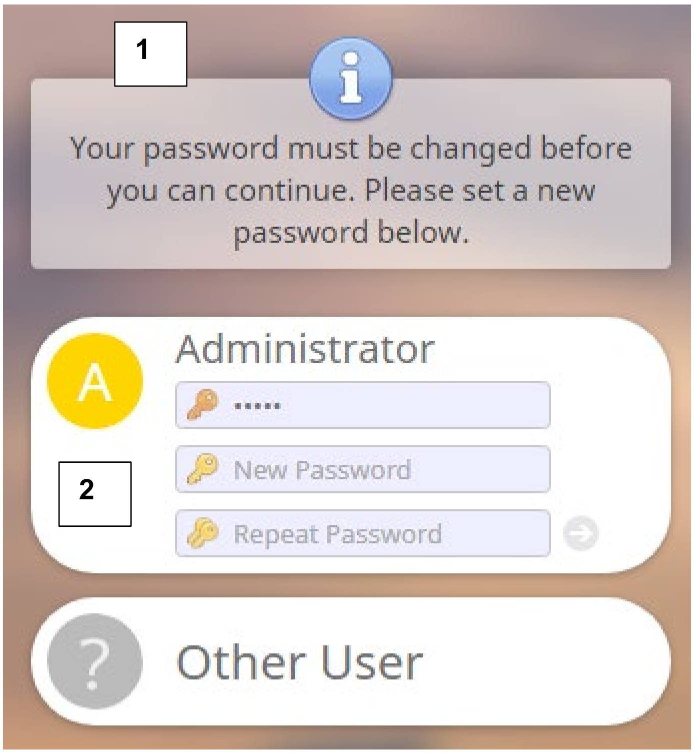


Image 7-6

1 User prompt to change password
2 New password fields for the user to type their chosen password

Groups

A User/Group Selector allowing groups to be added or removed from the user. There are some read only groups that cannot be changed such as LDAP Users, Standard Users, Everyone, Registered Users or any LDAP groups.

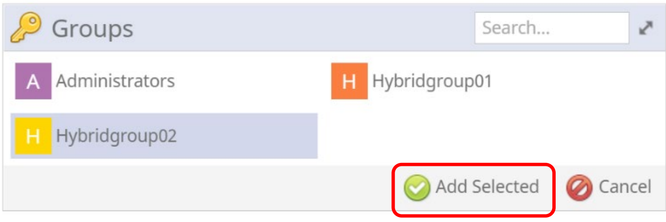


Image 7-7

Rights

Rights can be applied to both users and groups. As well as the built in server rights, permissions to use any plugins will also be available here. The built in rights that are available are:

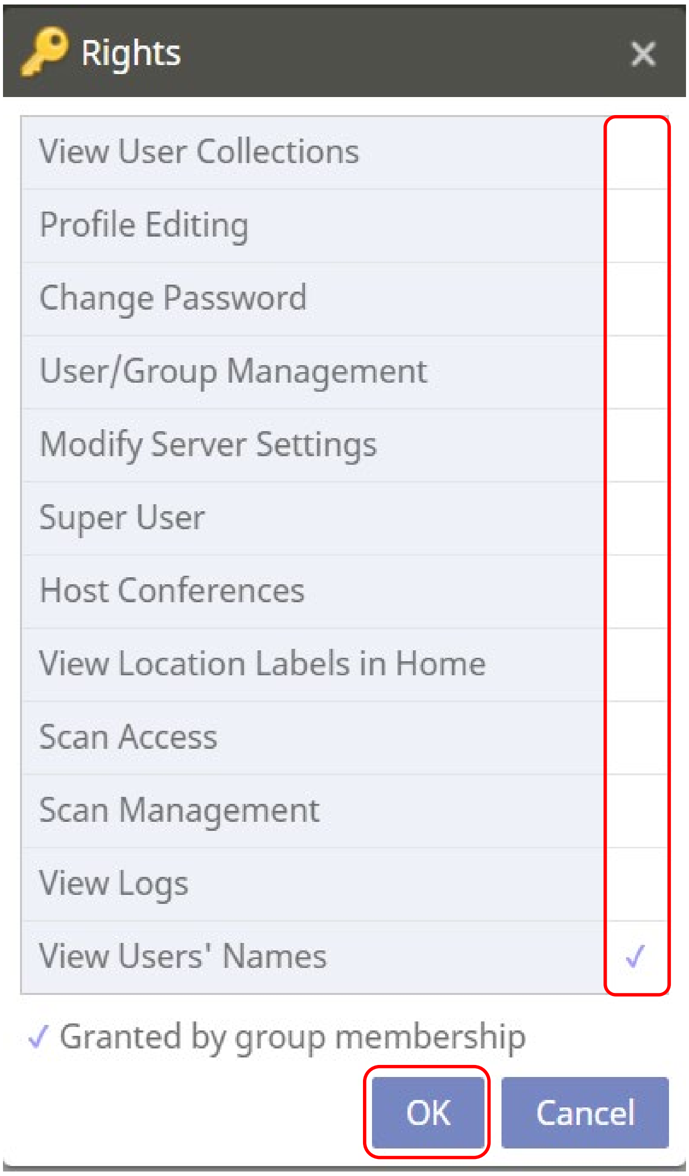


Image 7-8

- View User Collections – allow users to see the “User Collections” collection
- Profile Editing – allows users to access and change personal settings in the Profile window
- Change Password – allows users to change their password through the Profile window
- User/Group Management – allows creation, modification and deletion of users and groups

- Modify Server Settings – allows access to the below parts of the server:
  - Image Servers
  - Image Repositories
  - Roles
  - Metadata
  - Barcode Rules*
  - File Types
  - Server Logs
  - Server Status
- Super User – allows access and ability to do anything – should not be used as a normal account
- Host Conferences* – allows the user to set up conferences
- View Location Label – shows where objects on the View home screen have come from
- Scan Access* – allows the user access to the Scan application
- Scan Management* – allows access and ability to do anything within the Scan application
- View Logs – allows access to server logs throughout the application
- View Users' Names – allows the user permission to see usernames and the full names of other users, which is necessary for many functions within NZConnectMD. By default, this right is given to the Registered Users group (everyone other than Guest)

If adding/editing a user, the rights of the user's groups will be displayed with a lighter tick.

*Optional feature

Note

- "Host Conferences" is displayed when the option of Conference is enabled. The dedicated license for NZConnectMD is required to use the Conference option.

7-1-2-1 Edit Users

Select the user to be edited.

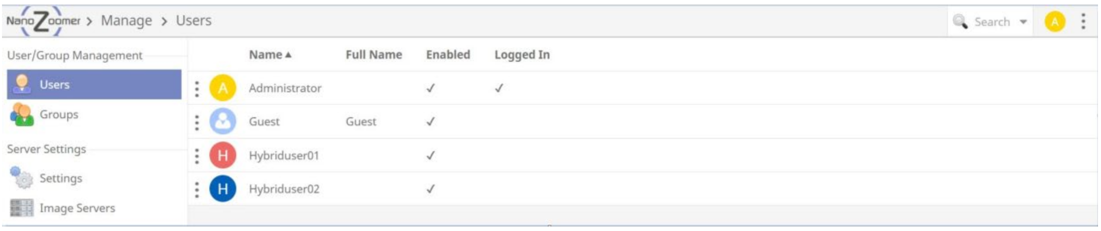


Image 7-9

The “Edit User” dialogue box will be displayed as below.
Enter the name of user, password and rights, and click “Save” in the bottom.

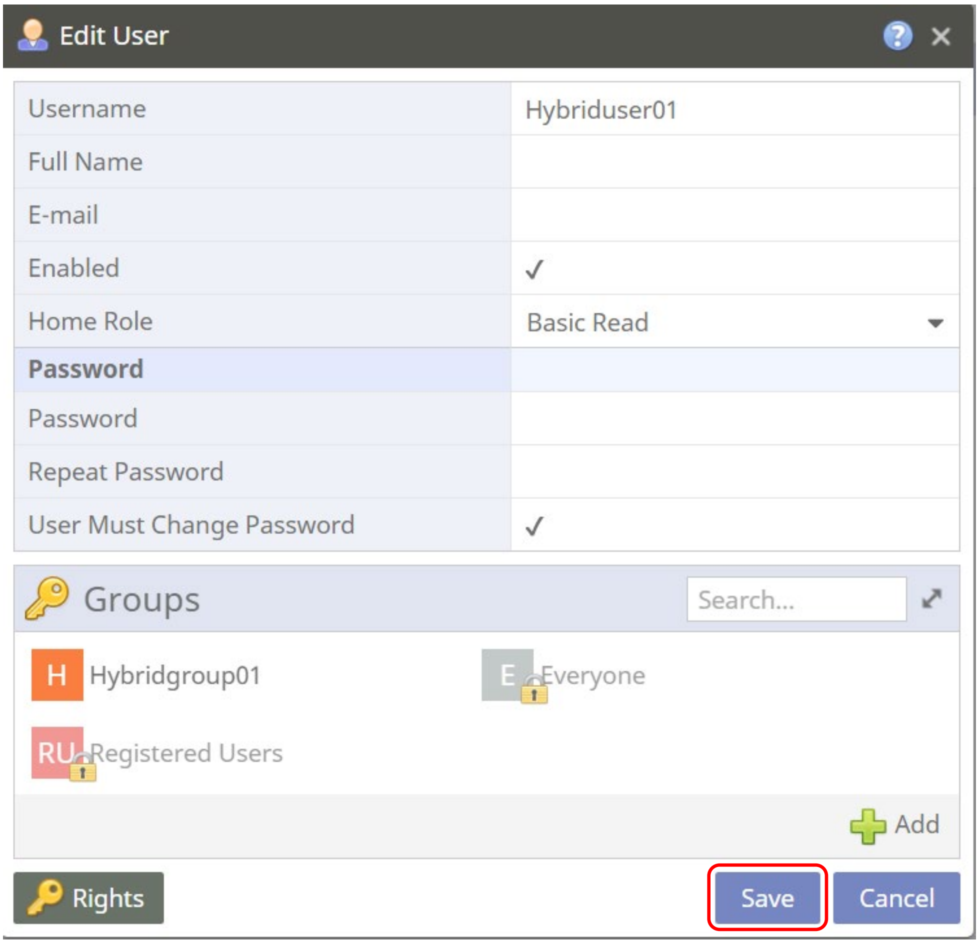


Image 7-10

Note

- When using the LDAP function, it is possible to import user information from an LDAP server (Active Directory).

On the “Users” page, click the ⋮ on the left side of the user name or the right click on the user name to display the following menu.

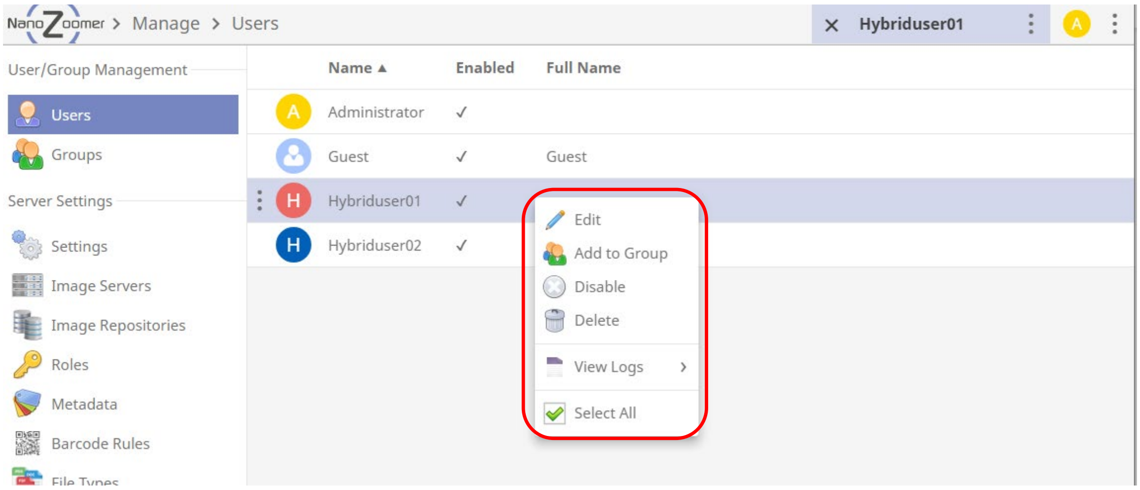


Image 7-11

- ･Edit — Edit the user account.
- ･Add to Group — Add the user account to the selected group.
- ･Enable/Disable — Enable/Disable the user account.
- ･Delete — Delete the user account.
- ･Select all — Select the all user accounts.

Note

- If you use the LDAP feature, you cannot delete imported users.

7-2 GROUPS

Groups can be configured in three ways using the Configuration Tool:

- Standard Groups
- LDAP Groups
- Both

Standard users cannot be added to LDAP groups, but LDAP users can be added to standard groups.

7-2-1 MANAGING GROUPS

View all groups, and all the other actions you can take from the Groups page.

To access group management the user must have the User/Group Management right*. By default groups are displayed in a table of the following attributes:

- Group Name

The list of groups can be viewed in any view mode and filtered using the search filter.

In general, there are 3 actions you can take on groups in this list:

- Edit
- Duplicate – create a new group with identical information/users
- Delete

There are some situations where all of these options will not be available:

- When multiple groups are selected, “Edit” will not be available
- When a group cannot be deleted (LDAP Users, Standard Users, Everyone, Registered Users or any LDAP groups) “Delete” will not be available
- When a user cannot be disabled (yourself and the guest account) “Disable” will not be available

You are also able to add groups using the main context menu, as long as the server is using the standard group manager.

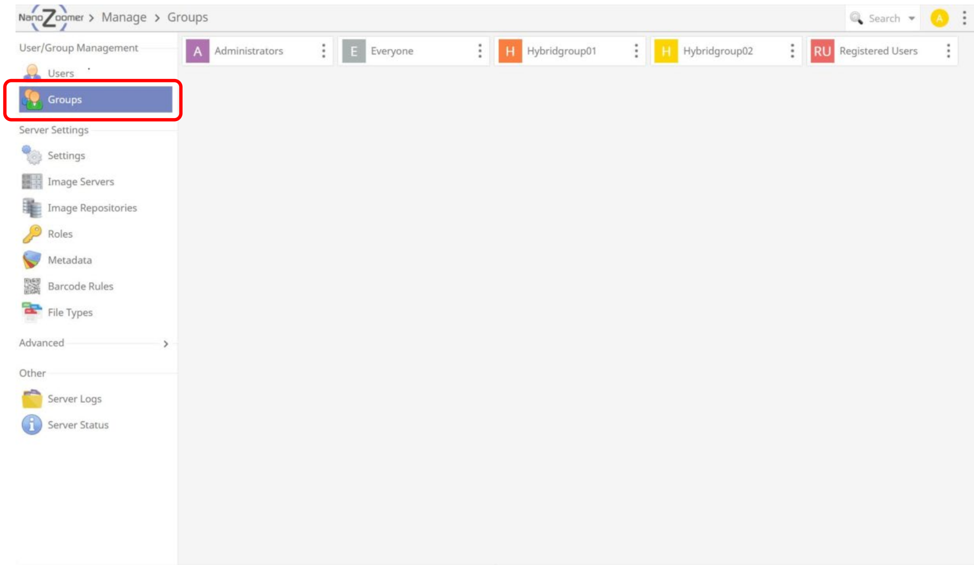


Image 7-12

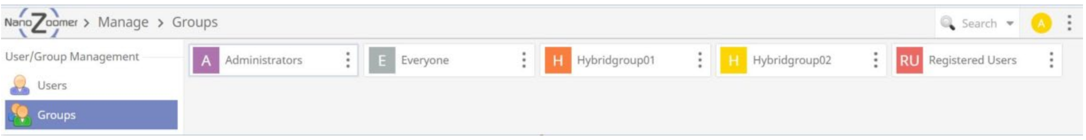


Image 7-13

7-2-2 CREATING A GROUP

Learn what all the available options are for when creating or modifying a group.

When a new group is being added or an existing group being modified, the following window will appear:

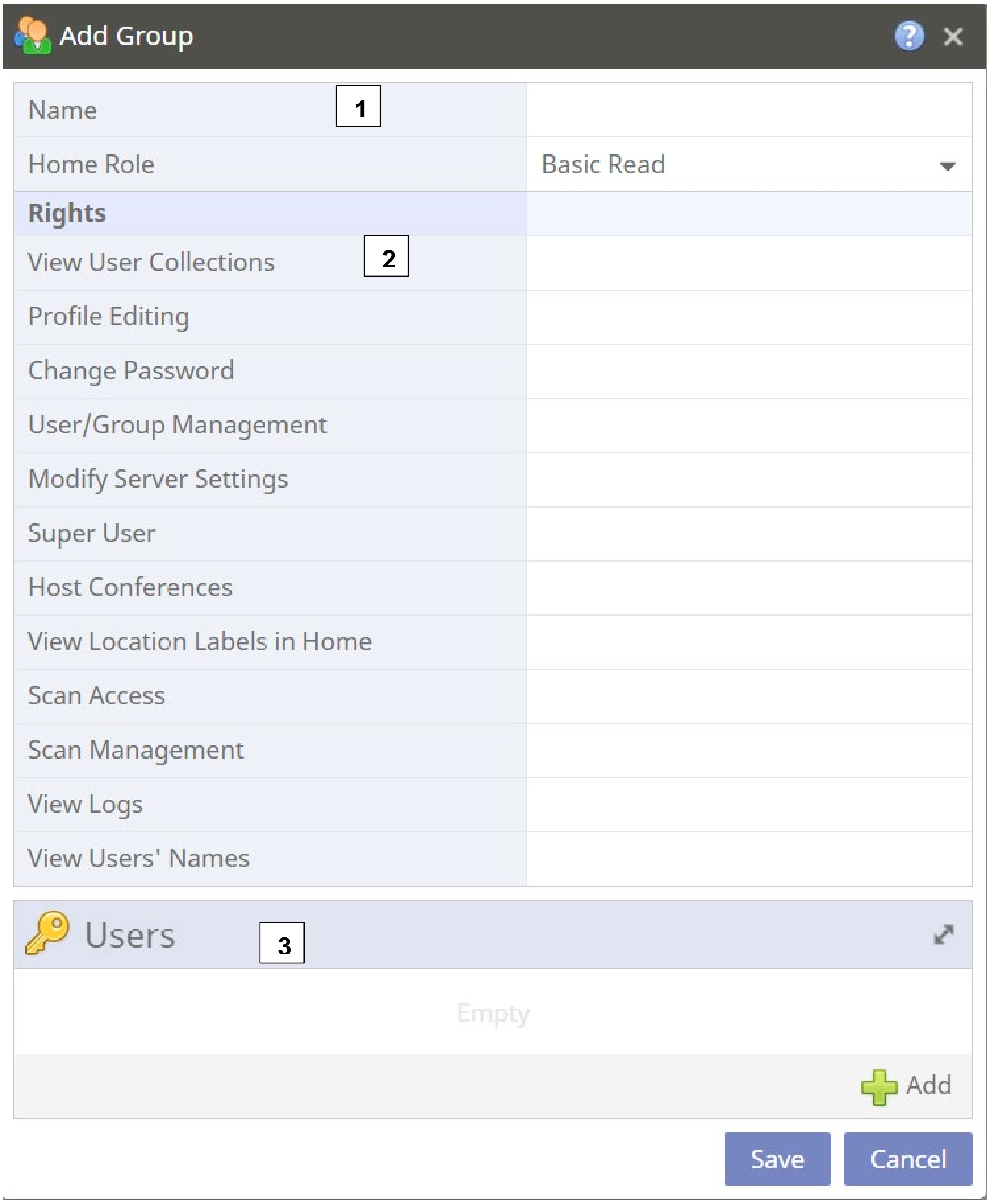


Image 7-14

1 Main Group Options

- Name

Note
- The length of the group name must be at least 2 characters.

- Home Role – For more information, see below and User Collections.

Setting the group's role for the home folder.
In the default settings, you can select from the following.

Basic Read	Enable to view the images.
Standard Read	Enable to view the images with attached information.
Full Control	Enable to view and register the images.
Advanced	Enable to add the other users to the role.

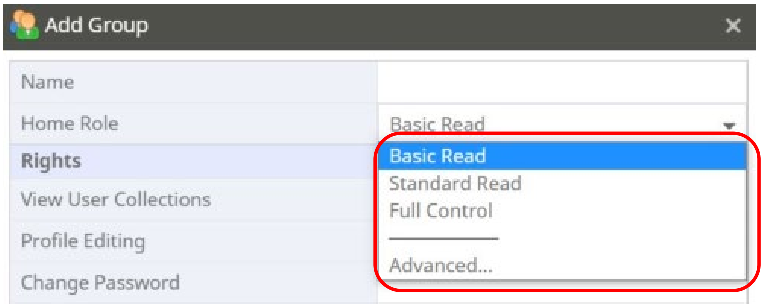


Image 7-15

Note
- Regarding the roles, please refer to "ROLES".

Note
- The LDAP function allows you to import group information from an LDAP server (Active Directory).

2 Rights – see Creating a User for more information

Setting group rights. Check the right you want to give the group.

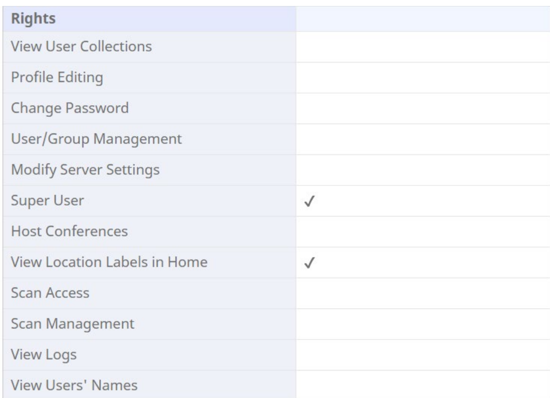


Image 7-16

･View User Collections	User collections appears on the “View“ page.
･Profile Editing	Give the right to edit the user profile.
･Change Password	Give the right to change password.
･User/Group Management	Give the right to manage users and groups.
･Modify Server Settings	Give the right to modify the server settings.
･Super User	Give the right to be the administrator.
･Host Conferences	Give the right to be host on the conference.
･View Location Labels in Home	Location Labels appears on the “View“ page.
･Scan Access*	allows the user access to the Scan application
･Scan Management*	allows access and ability to do anything within the Scan application
･View Logs	allows access to server logs throughout the application
･View Users’ Name	Give the right to view other participants' usernames when attending a conference

3 Users – choose the members of the group using a User/Group Selector (read-only for built in or LDAP groups)

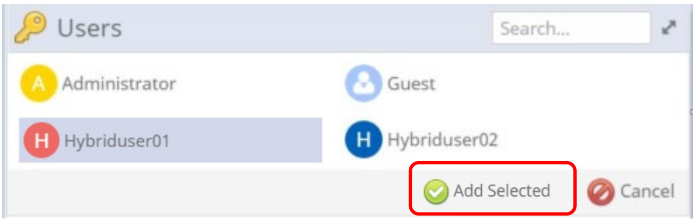


Image 7-17

7-2-2-1 Edit Groups

Select the group to be edited.

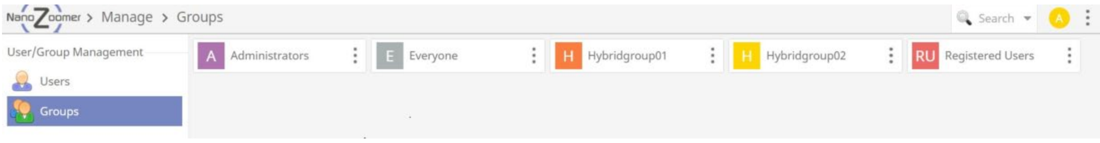


Image 7-18

The “Edit Group” dialogue box will be displayed as below.
Enter the name of group and rights, and click “Save” in the bottom.

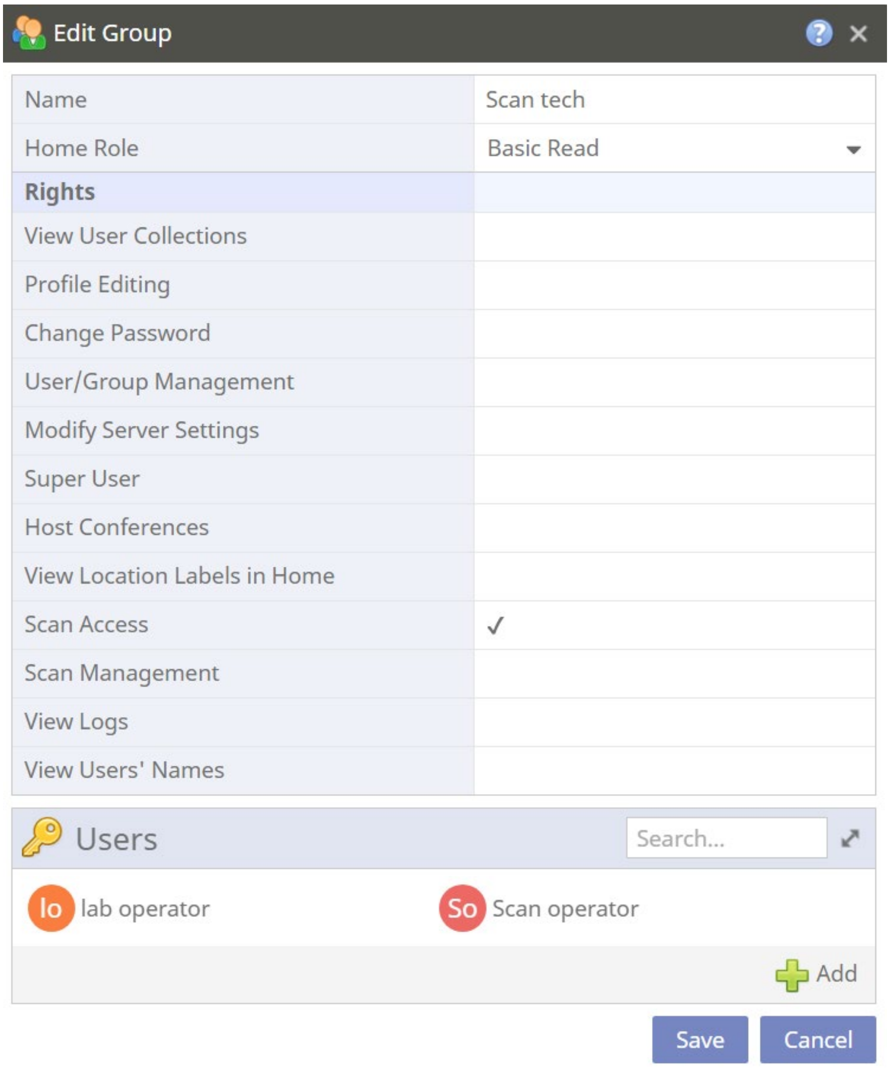


Image 7-19

Note

- Using the LDAP feature, you can only change the information participating in NZConnectMD for imported groups.

On the “Groups” page, click the ⋮ on the left side of the group name or the right click on the group name to display the following menu.

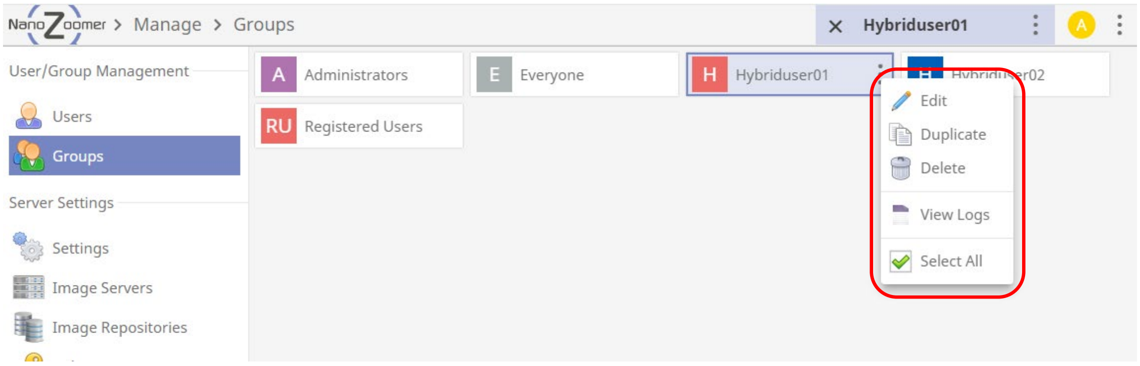


Image 7-20

- Edit Edit the groups.
- Duplicate Duplicate the groups.
- Delete Delete the groups.
- Select All Select the all groups.

7-3 SETTINGS

Configure behaviours of NZConnectMD.

If a user has the Modify Server Settings right, they can change any of the settings on this page.

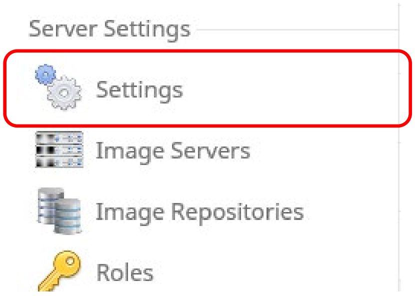


Image 7-21

General

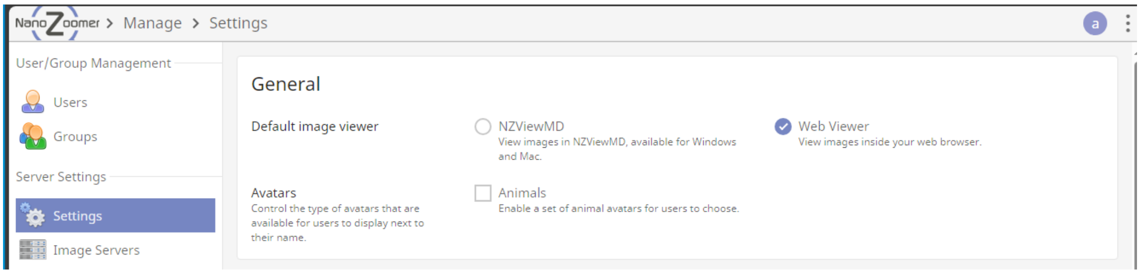


Image 7-22

- Default Image Viewer : Set the default image viewer.
  Select from NZViewMD or Web Viewer.
- Animal Avatars : If checked, you can select animal avatars for each user's icon.

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

File Store

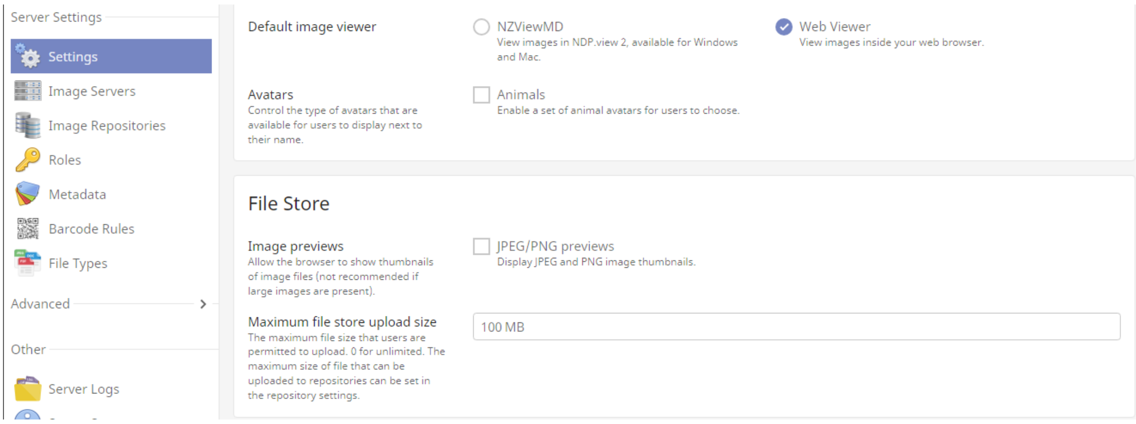


Image 7-23

- Image Previews : If checked, the png and jpg file thumbnails are listed with the image list.
- Max File Store Upload : Set the maximum size (MB) of the file to be uploaded to the File Size (MB) Store. The default value is 100 MB.

Customisation

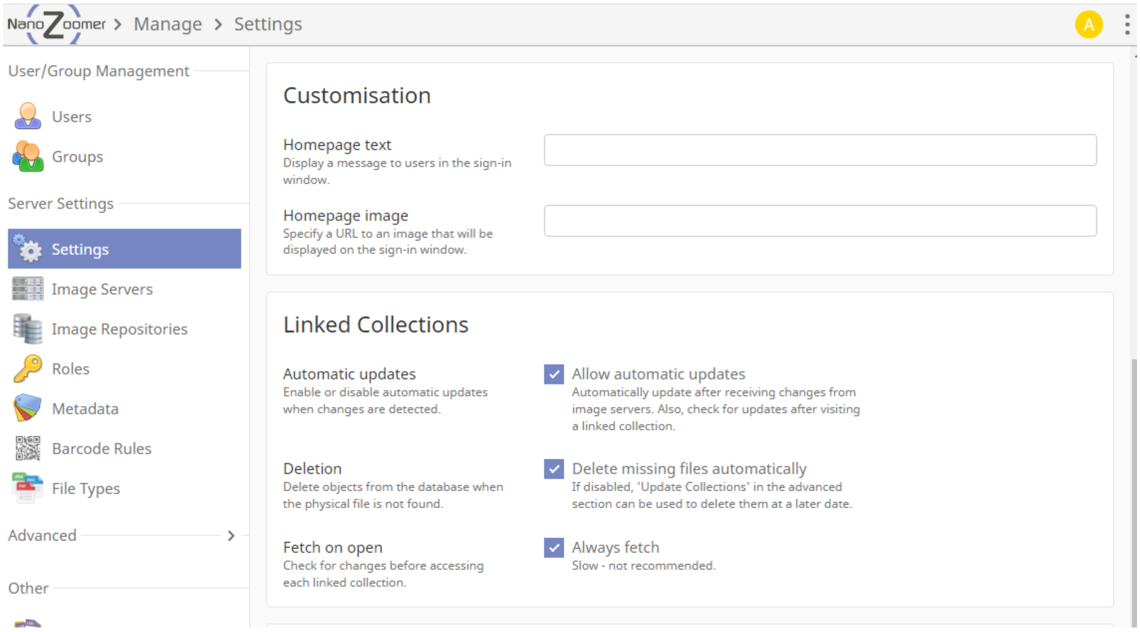


Image 7-24

- Home Page Text : The text is displayed on the top of Home Page. Enter the text, length [0 ≤ x ≤ 128]
- Homepage Image : The image (e.g. jpg, gif, png etc.) is displayed on the top of Home Page.
  Upload an image for your homepage by clicking inside the dotted box labeled "Click here or drag a file to upload" and selecting an image file, or by dragging an image file into the dotted box labeled "Click here or drag a file to upload".

Note

- The image size which can be displayed on the top of Home Page is up to the width 600 x height 180 pixels. If it is a much larger size, the reduced image maintained the aspect ratio of the image is displayed.

Linked Collections

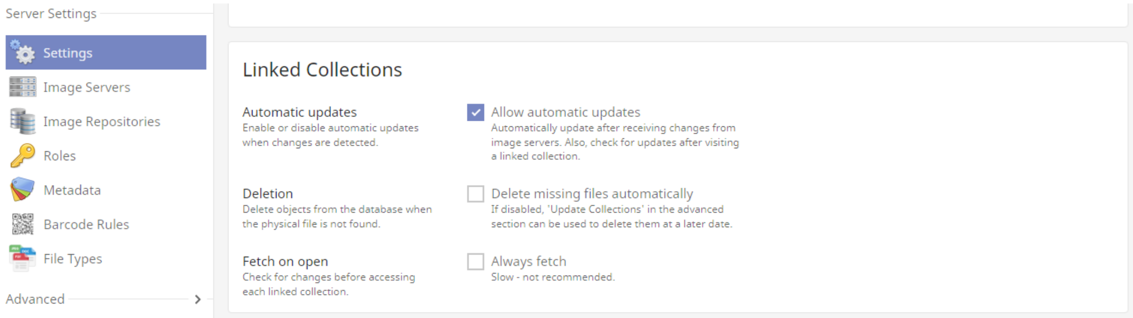


Image 7-25

- Allow automatic updates – required for the linked collection to be updated after the below events

  - ✧ When a collection is viewed, a job will be added to update that collection in the background (one level only, will not update sub-collections)
  - ✧ When a linked collection is added, a job will be added to update that collection in the background
    (including all sub-collections)
  - ✧ At 3am every day, all linked collections are updated

- Delete missing files automatically – if the physical file cannot be found, the object will be deleted from the database (deleted files can still be deleted manually using the advanced management option to update collections)

- Fetch on open – when a collection is opened, NZConnectMD will update the linked collection before returning the contents of the collection – this is not recommended for performance reasons

User Security

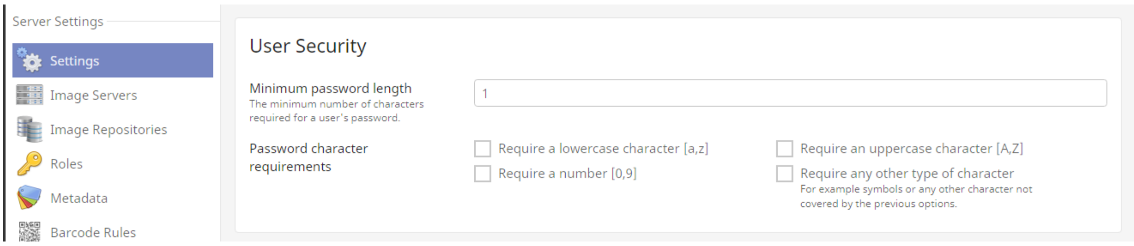


Image 7-26

- Minimum password Length : You can set a minimum password length. The length that can be set is 1 to 20.
- Password character requirement
- Require a Lowercase character [a,z] : If checked, lowercase letters are required for the password.
- Require an Uppercase character [A,Z] : If checked, uppercase letters are required for the password.
- Require a number [0,9] : If checked, numbers are required for the password.
- Require any other type of character : If checked, special characters are required for the password.

Default Orientations

Specify the default orientation for each type of thumbnail, as well as the default orientation to open images in the web viewer.

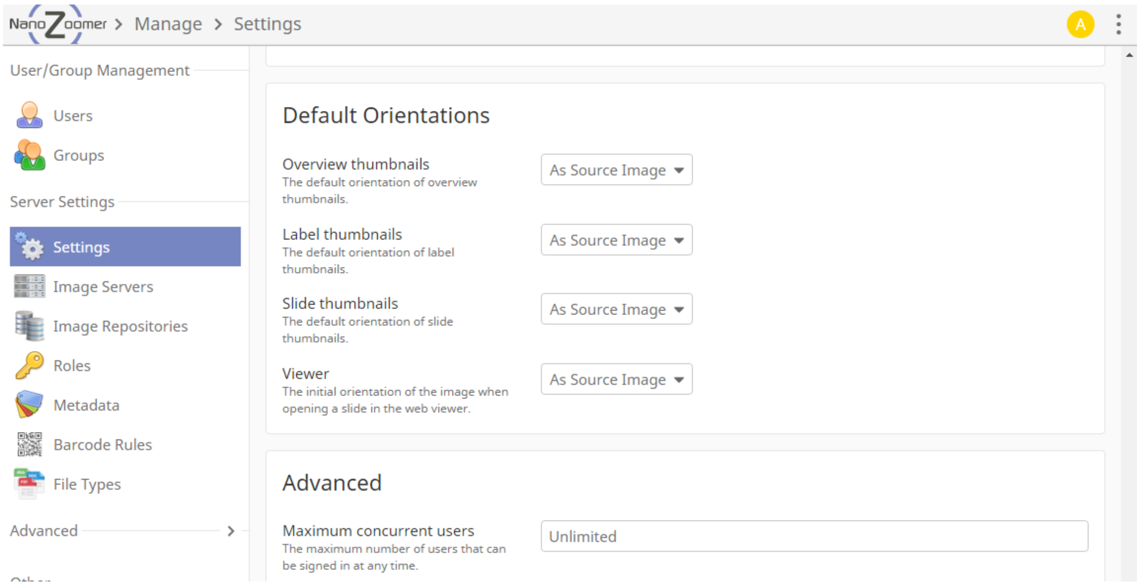


Image 7-27

- Overview Thumbnails : You can set the rotation direction of the overview thumbnail of the default display.
- Label Thumbnails : You can set the rotation direction of the label thumbnail of the default display.
- Slide Thumbnails : You can set the rotation direction of the slide thumbnail of the default display.
- Viewer : You can set the rotation direction of the default viewer.

Note

- The directions that can be set are 4 directions when the label is moved up, down, left, and right.

Advanced

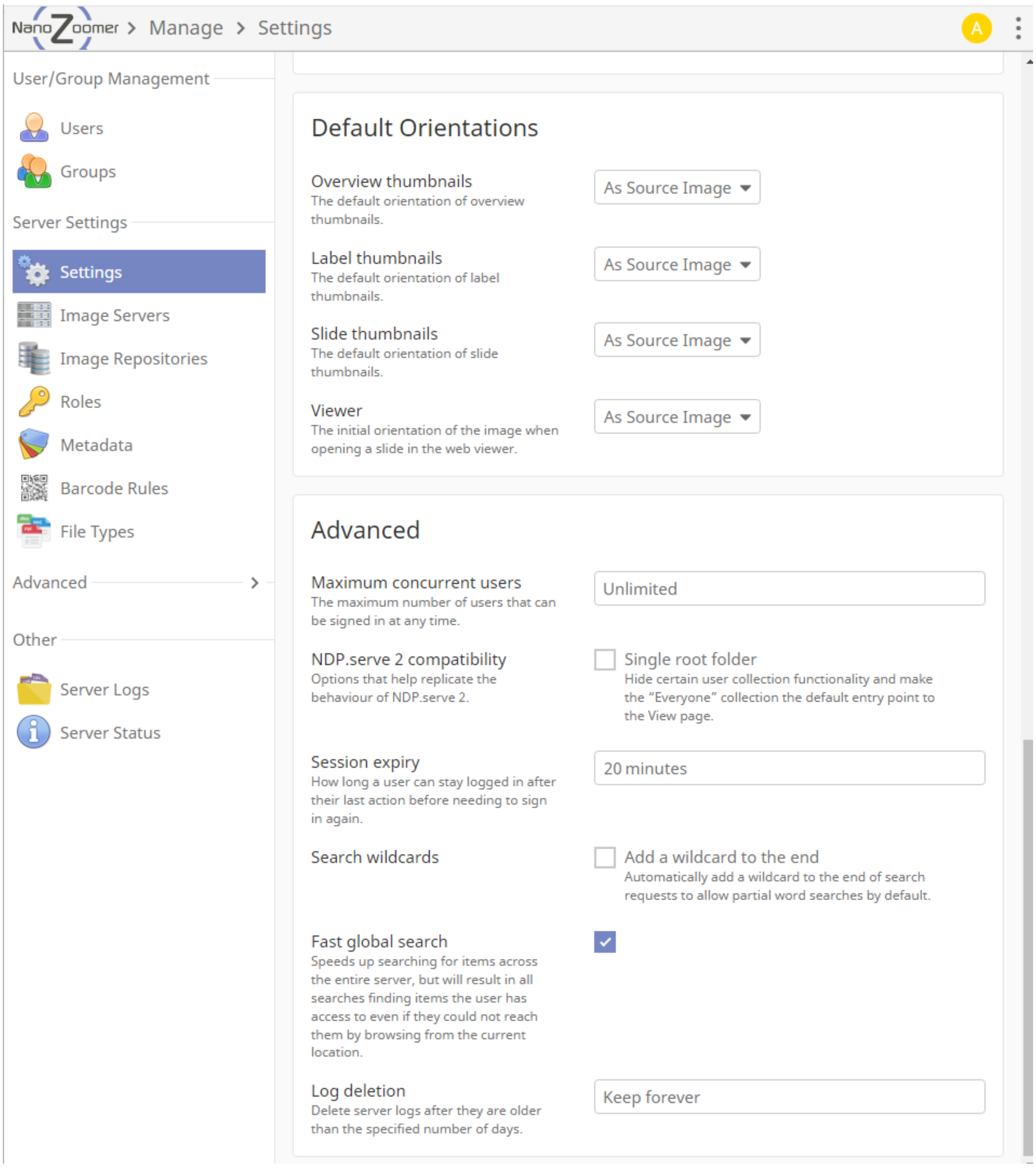


Image 7-28

- Maximum concurrent users – number of active sessions to allow before blocking sign in attempts (default of 0 representing no limit [0 ≤ x])
- NDP.serve 2 compatibility – “Single root folder” disables the behavior of User Collections.

  View the image in Compatibility Mode with NDP.serve 2.
- Session expiry(mins) – the number of minutes to keep a session alive with no communication to the server (default of 20 [5 ≤ x ≤ 1000000])
- Search Wildcards – “Add a wildcard to the end of searches” automatically put a wildcard (*) at the end of any search requests
- Fast global search – speeds up searching for items across the entire server (from the top level View application) but can find items the user has permission to that they may not naturally be able to navigate to
- Log deletion – once logs are older than the specified number of days, they will be automatically deleted

7-4 IMAGE SERVERS

Manage the servers used to access image data.

It is possible to run NZConnectMD with multiple image servers on different machines (if the appropriate purchases have been made), which can provide two key benefits:

- Load balancing
- Redundancy

In general most NZConnectMD installations will have only one image server, located on the same machine as the other NZConnectMD services. In such a case it is generally not needed to edit or add a new image server, other than to set server administrators.

Select “Image Servers” from the menu to start the process for the image server settings.

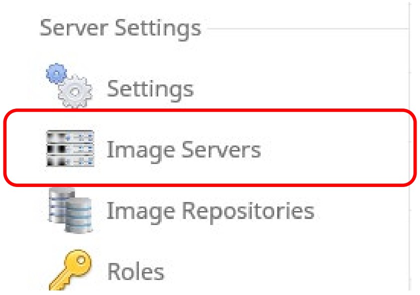


Image 7-29

The list of registered image servers will be displayed as below.

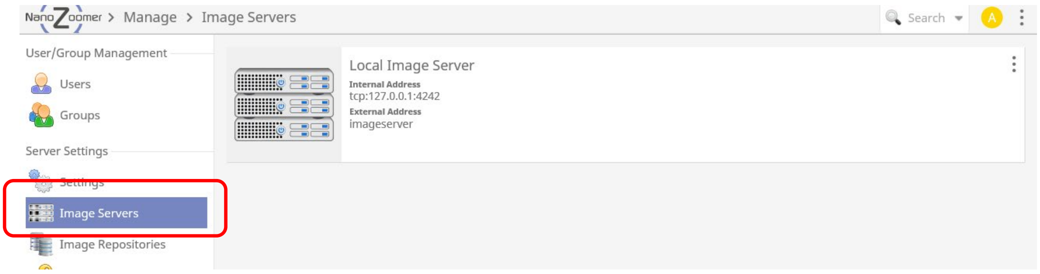


Image 7-30

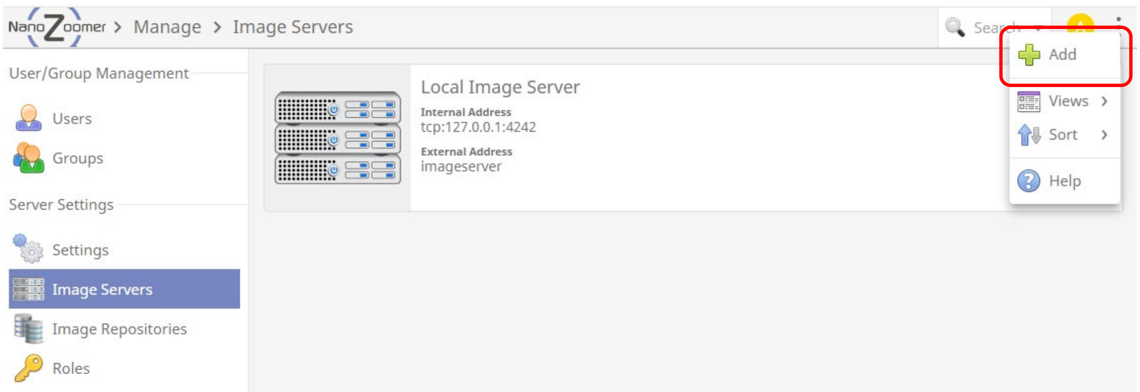


Image 7-31

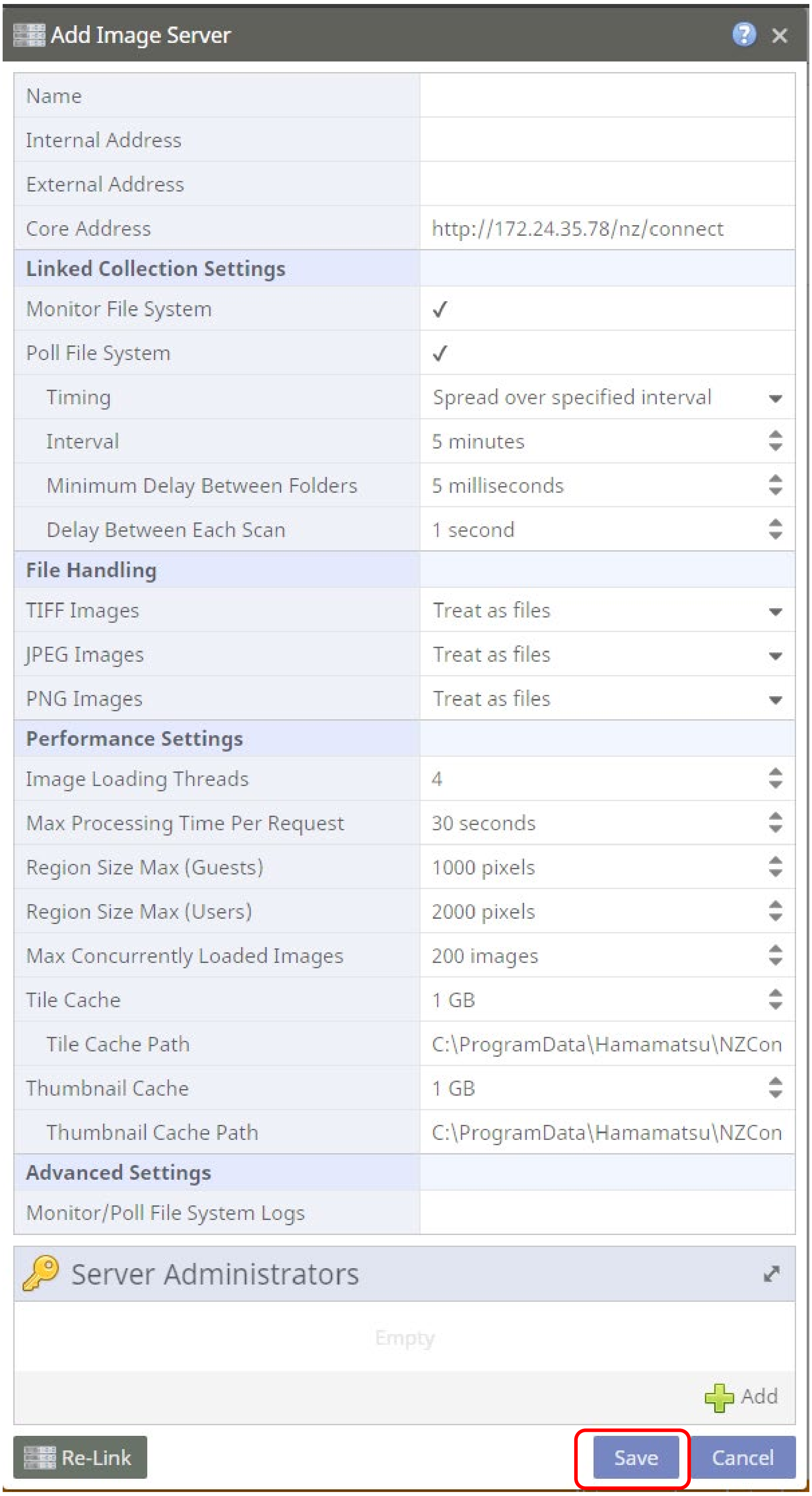

Add Image Server
Name
Internal Address
External Address
Core Address
http://172.24.35.78/nz/connect
Linked Collection Settings
Monitor File System
Poll File System
Timing
Spread over specified interval
Interval
5 minutes
Minimum Delay Between Folders
5 milliseconds
Delay Between Each Scan
1 second
File Handling
TIFF Images
Treat as files
JPEG Images
Treat as files
PNG Images
Treat as files
Performance Settings
Image Loading Threads
4
Max Processing Time Per Request
30 seconds
Region Size Max (Guests)
1000 pixels
Region Size Max (Users)
2000 pixels
Max Concurrently Loaded Images
200 images
Tile Cache
1 GB
Tile Cache Path
C:\ProgramData\Hamamatsu\NZCon
Thumbnail Cache
1 GB
Thumbnail Cache Path
C:\ProgramData\Hamamatsu\NZCon
Advanced Settings
Monitor/Poll File System Logs
Server Administrators
Empty
Add
Re-Link
Save
Cancel

Image 7-32

7-4-1 MANAGING IMAGE SERVERS

View all the available image servers in this installation, see their details and find the options to add/edit/remove them.

To access the image server management pages the user must have the right to Modify Server Settings. By default, servers are displayed in an Overview view with the following attributes:

- Name
- Internal Address
- External Address

The list of servers can be viewed in any view mode (changing the view mode also affects the Repositories page) and filtered using the search filter.

In general, these actions can be taken on groups in this list:

- Edit : Edit the image server.
- Delete : Delete the image server.
- View Logs : View image server configuration log

When selecting multiple image servers the only option available will be Delete.
It is strongly advised not to delete the default image server unless you know what you are doing.

- If you delete the default "Local Image Server", NZConnectMD may not work. Do not delete it unless you have a specific reason.

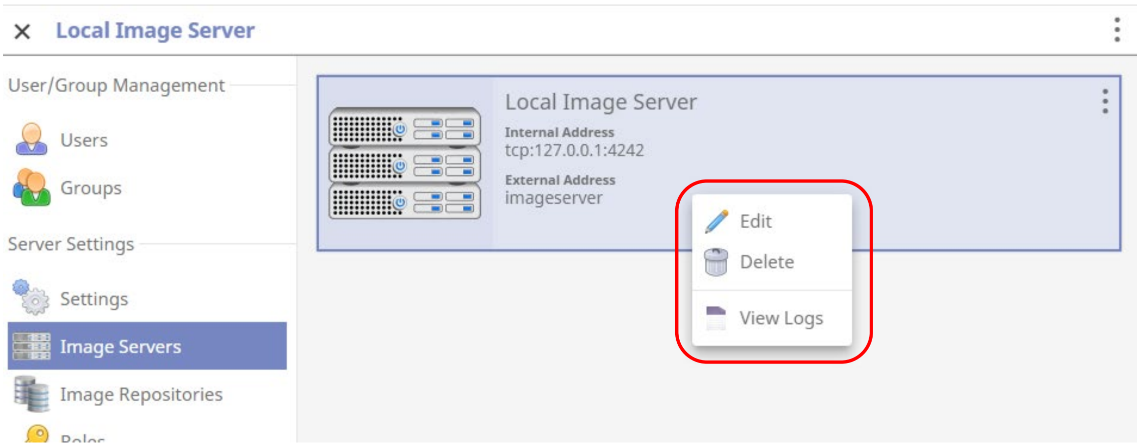


Image 7-33

7-4-2 CREATING AN IMAGE SERVER

Learn what all the available options are for when creating or modifying an image server.

A new image server can be added using the main context menu, but may be limited by the software license. When an image server is being added or modified, a window will appear with the following options.

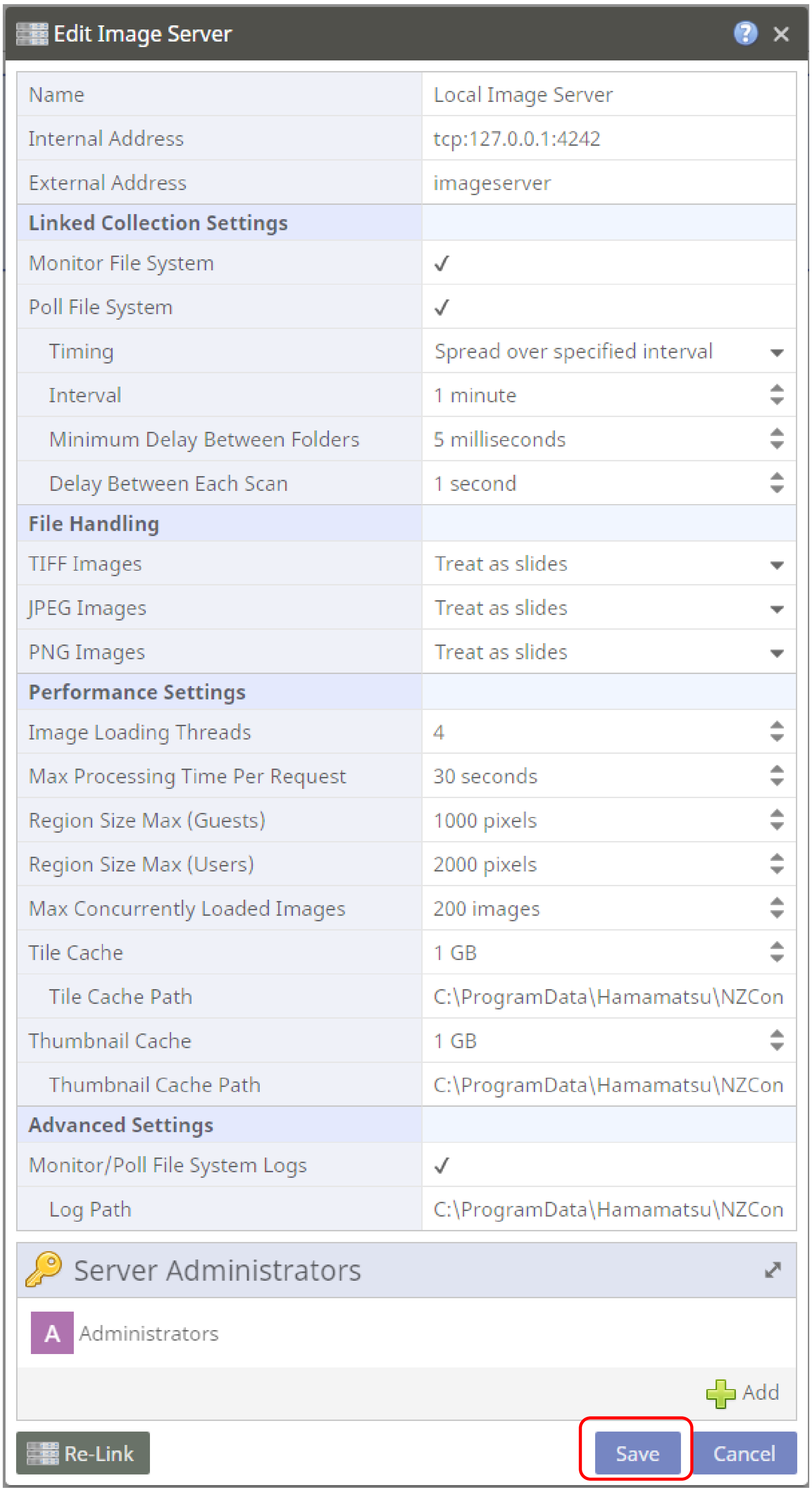

Edit Image Server
Name
Local Image Server
Internal Address
tcp:127.0.0.1:4242
External Address
imageserver
Linked Collection Settings
Monitor File System
Poll File System
Timing
Spread over specified interval
Interval
1 minute
Minimum Delay Between Folders
5 milliseconds
Delay Between Each Scan
1 second
File Handling
TIFF Images
Treat as slides
JPEG Images
Treat as slides
PNG Images
Treat as slides
Performance Settings
Image Loading Threads
4
Max Processing Time Per Request
30 seconds
Region Size Max (Guests)
1000 pixels
Region Size Max (Users)
2000 pixels
Max Concurrently Loaded Images
200 images
Tile Cache
1 GB
Tile Cache Path
C:\ProgramData\Hamamatsu\NZCon
Thumbnail Cache
1 GB
Thumbnail Cache Path
C:\ProgramData\Hamamatsu\NZCon
Advanced Settings
Monitor/Poll File System Logs
Log Path
C:\ProgramData\Hamamatsu\NZCon
Server Administrators
A
Administrators
Add
Re-Link
Save
Cancel

Image 7-34

Settings

The following values can be set or changed, and cannot be blank:

· Name	: the name of the image server.
· Internal Address	: the address used by NZConnectMD to communicate with the image server
· External Address	: the address used by client machines to communicate with the image server
· Core Address	: allows setting the address the image server will use to communicate with NZConnectMD, and will be prepopulated with a guess based on the client's URL (only appears when creating a new image server). The core address cannot be changed on existing image servers without unlinking.

Linked Collection Settings

The following settings affect how quickly changes within linked collections can be detected without user interaction.

- Monitor File System – attempts to use a Windows API to get real-time updates to the file system and trigger linked collections to update when changes are detected
- Poll File System – file system is regularly scanned for any changes to unmonitored repositories
- File System Check Interval – the number of minutes to attempt to manually scan all the repositories on the image server

  - Timing – choose from two different timing methods

    1. Spread over specified interval

       - Interval – the number of minutes to attempt to manually scan all the repositories on the image server
       - Minimum Delay Between Folders – the minimum amount of time to wait between scanning each folder for changes

    2. Fixed delay between folders

- Delay Between Folders – the amount of time to wait between scanning each folder for changes

  - Delay Between Each Scan – the amount of time to wait between each complete scan of all folders

Note

- The box can be set to a value between 0 and 60.

File Handling

The way TIFF, JPEG and PNG files are handled can be configured here. There are three options for how to treat these file types:

- As files – they will behave like any other file that you can download or preview in the browser if supported
- As slides – they can be viewed in the viewer, but will require the permission to download slides to be able to download them
- As slides if over a certain size – anything at or above the requested size will be treated as slides, anything lower will be treated as a file

These settings only apply to new files that are added to the server; existing files or slides of these file types will not be changed.

Performance Settings

After the connection fields, there are settings to tweak the performance of the image server:

- Image Loading Threads – The number of images that can be concurrently loaded (1-16)
- Max Processing Time Per Request – The amount of seconds allowed to get some image data out of a slide file; if this isn't met then the file is disabled until next restart
- Region Size Max (Guests/Users) – The maximum size region a guest or user can request, in pixels
- Max Concurrently Loaded Images – maximum number of whole slide images to keep loaded at once
- Tile Cache – image tiles are stored on disk to save on reading/processing costs when opening the slide file (0 to disable)
  - Tile Cache Path – the location on the image server to store cached tiles
- Thumbnail Cache – thumbnails of images are stored on disk to speed up browsing the server (0 to disable)
  - Thumbnail Cache Path – the location on the image server to store cached thumbnails

Advanced Settings

- Monitor/Poll File System Logs – generate detailed logs for the linked collection file system monitoring

  - Log Path – the path to store logs of the automatic and manual monitoring of the file system

Server Administrators

A User/Group Selector is provided to set administrators of this image server. Image server administrators have the following abilities:

- Add new repositories (and connect them to image servers that they are administrators of)
- Change the details of any repository connected to the image server

- If a repository has multiple sources and a user doesn't have access to them all, they can still modify the paths for their image servers, deactivate or remove non-primary sources

Default Image Server

The default image server is set up with the following details:

- Name – Local Image Server
- Internal Address – tcp:127.0.0.1:4242
- External Address – imageserver
- Core Address – tcp:127.0.0.1:4250
- Settings
  - Image Loading Threads – 4
  - Max Processing Time Per Request – 0 (disabled)
  - Region Size Max – 512

Re-linking

You may encounter the following errors after modifying certain image server settings incorrectly:

- This image server is already linked to an NZConnectMD instance
- This image server must be linked to a host NZConnectMD instance before it can be used

The Add/Edit window provides “Re-Link” to aid recovery from these situations. A confirmation dialog will appear to ensure the user knows the reasons for requesting a re-link:

- The image server was accidently deleted and needs to be recreated
- The image server was accidently unlinked and needs to be re-linked

- Upon confirming a re-link the Core Address field will be shown (if an existing image server) or hidden (if a new image server). Saving should now no longer cause any of the above two errors.

7-5 IMAGE REPOSITORIES

Repositories are used to access the file system on an image server. They can be connected to any number of image servers to provide redundancy and load balancing. When adding slides or linked collections to NZConnectMD, the user can browse the contents of a repository to select files to add.

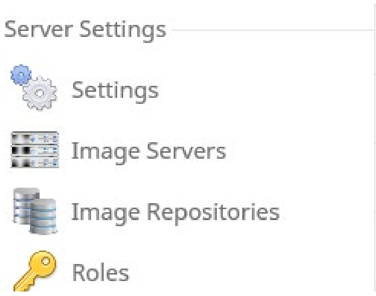


Image 7-35

7-5-1 MANAGING REPOSITORIES

View all the image repositories you have permission to see, check their details and find the options to add/edit/remove them.

To access the repository server management pages the user must have the right to Modify Server Settings or be an Image Server Administrator. If the user doesn't have the appropriate rights any repositories that do not have an image server that they are an administrator of will be hidden. By default repositories are displayed in an Overview view with the following attributes:

- Name
- Image Server (primary)
- Path (on primary image server)

The list of repositories can be viewed in any view mode and filtered using the search filter. In general, there are 2 actions you can take on groups in this list:

- Edit
- Delete

There are some situations where all of these options will not be available:

- When selecting multiple repositories, "Edit" will not be available
- When selecting a repository that is connected to an image server you have no permission to administrate, the option to ""Delete" will not be available.

7-5-2 CREATING A REPOSITORY

Learn what all the available options are for when creating or modifying an image repository.

A new repository can be added using the main context menu. When adding or modifying a repository, the following window will appear:

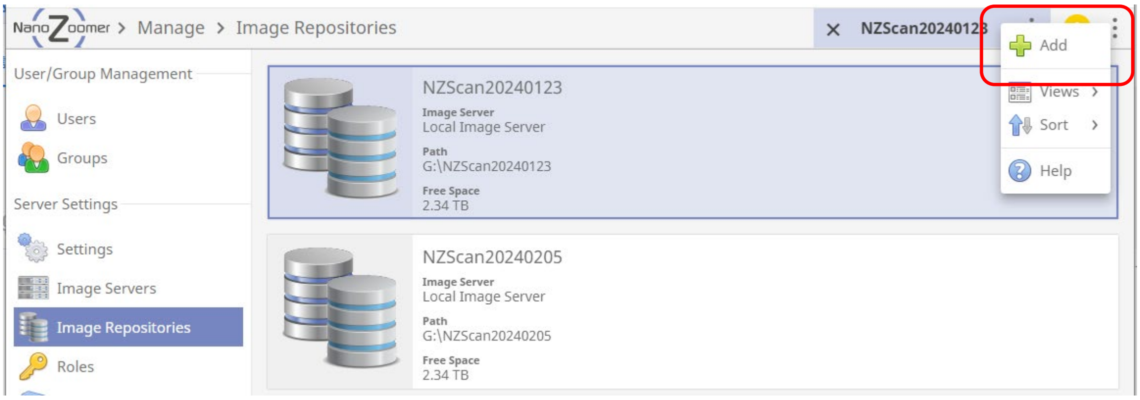


Image 7-36

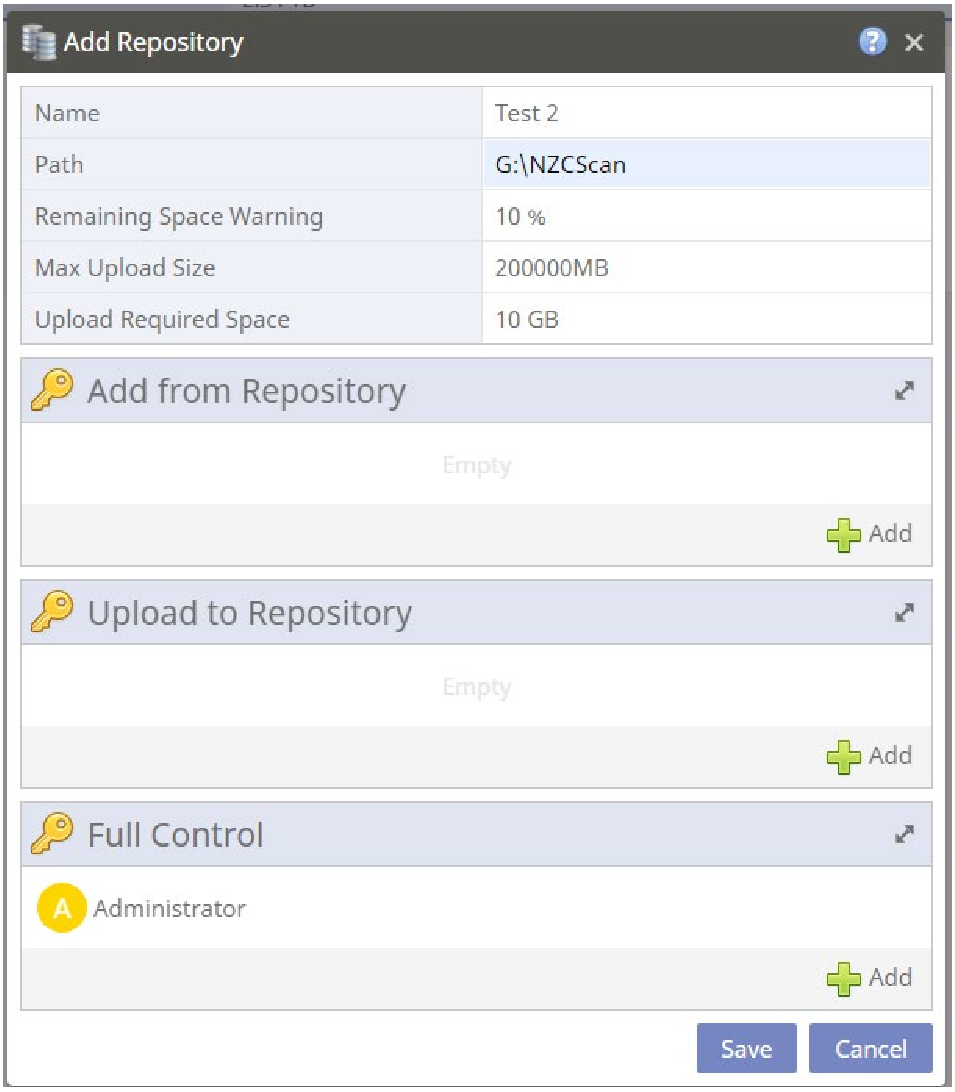

Add Repository
Name
Test 2
Path
G:\NZCScan
Remaining Space Warning
10 %
Max Upload Size
200000MB
Upload Required Space
10 GB
Add from Repository
Empty
Add
Upload to Repository
Empty
Add
Full Control
A
Administrator
Add
Save
Cancel

Image 7-37

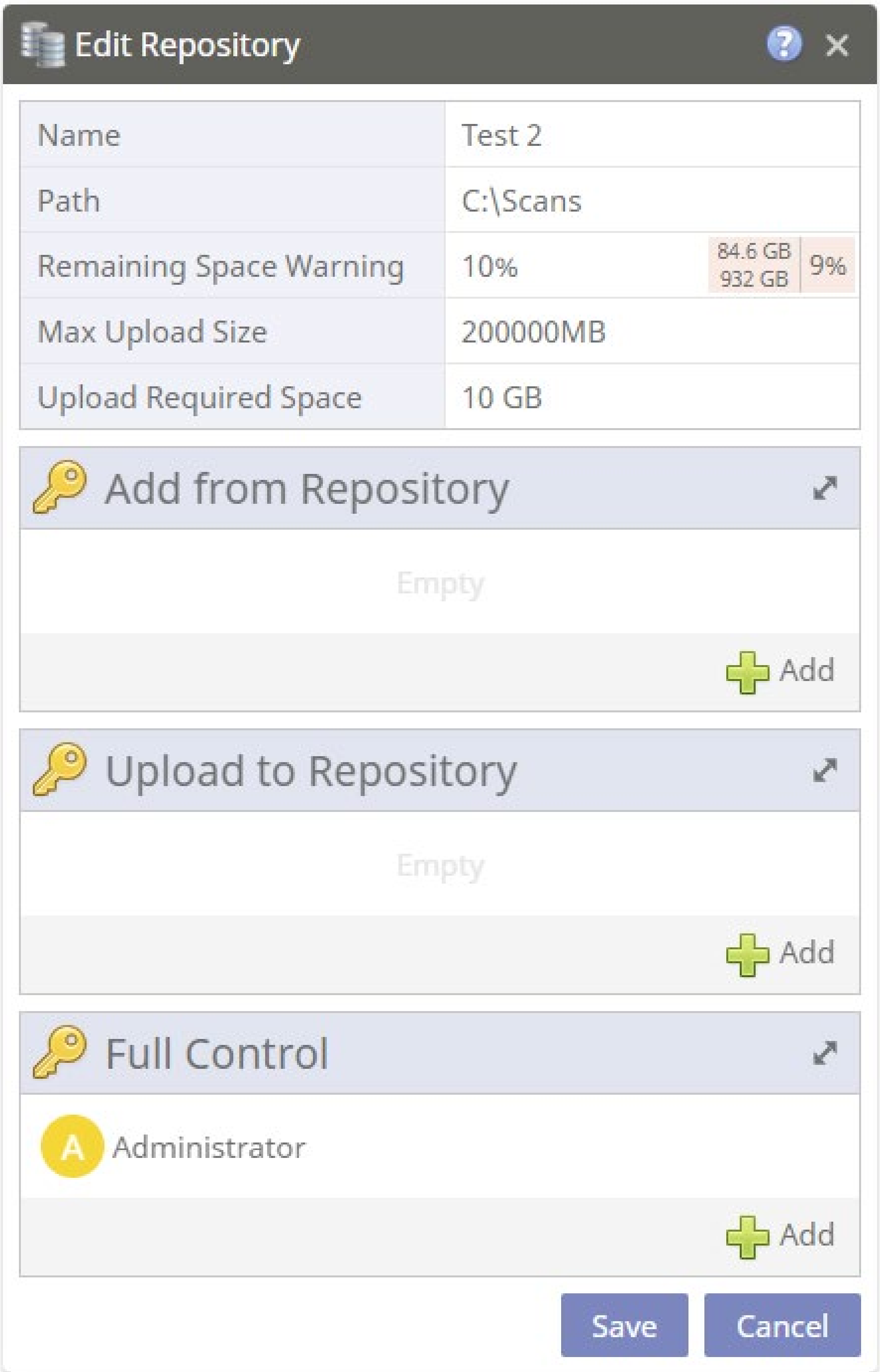

Edit Repository
Name
Test 2
Path
C:\Scans
Remaining Space Warning
10%
84.6 GB
932 GB
9%
Max Upload Size
200000MB
Upload Required Space
10 GB
Add from Repository
Empty
Add
Upload to Repository
Empty
Add
Full Control
A
Administrator
Add
Save
Cancel

Image 7-38

Main Settings

The following values can be set or changed:

- Name (cannot be blank)
- Image Servers*
- Primary Server*
- Remaining Space Warning – if the amount of free space on the disk falls under this threshold a warning will appear in the bottom-left of the home screen for super users
- Max Upload Size(MB) – files must be smaller than this to be uploaded to the repository. The default value is 200 000 MB.
- Upload Required Space(GB) – the disk the repository is on must have this much space to accept uploads. The default value is 10 GB.
- Path (per chosen image server, cannot be blank)
- Active* (per chosen image server, except the primary server)

*These options are only visible when multiple image servers are available

When editing an existing repository, if the user does not have the appropriate rights and isn't an image server administrator to all of the image servers connected to the repository, the options to edit the repository will be limited in the following ways:

- Cannot change the primary server
- Cannot remove image servers (the interface allows it, but it will not be saved)
- Cannot see or change the respective image servers and paths

Permissions

User/Group Selectors are provided to set the possible permissions of a repository. There are three types of permission:

- Add From Repository – allows users to add objects from the repository to the server
- Upload To Repository – allows users to upload files to a repository when uploading inside a linked collection
- Full Control – provides benefits of all previous permissions and also allows users to delete files from a repository when both in a linked folder and browsing a repository

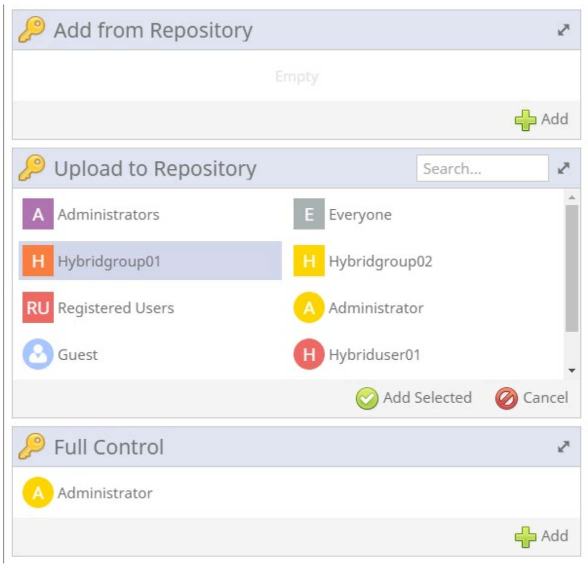


Image 7-39

7-5-2-1 Edit the Repositories

On the “Image Repositories” page, click the right click on the image repository to display the following menu.

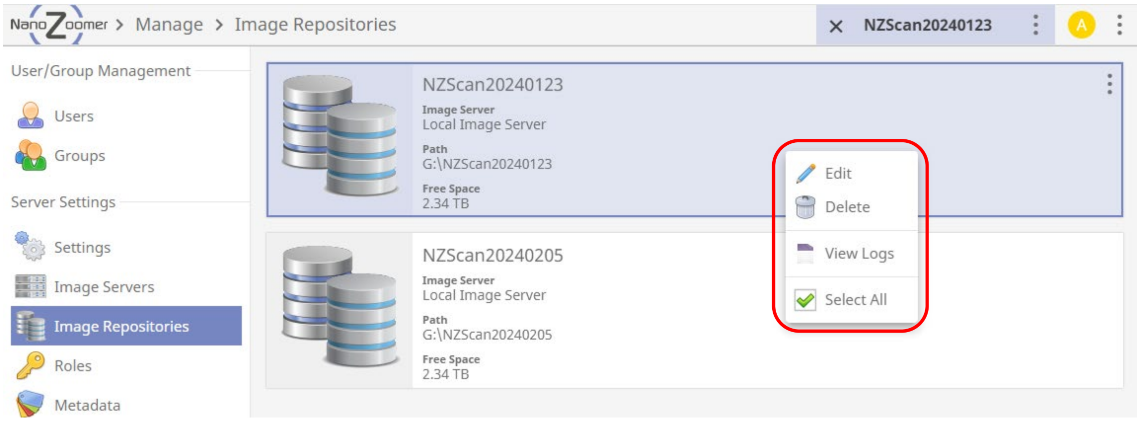


Image 7-40

- Edit : Edit the image repository.
- Delete : Delete the image repository.
- View Logs : Displays the log of the selected image repository.
- Select All : Select the all image repositories.

Double click the image repository or select "Edit" from the right click menu, dialogue box will be displayed as below. Edit the name of image repository, path, max upload size and permissions and click “Save” in the bottom.

Note

- “Select All” is displayed when multiple image repositories are registered.

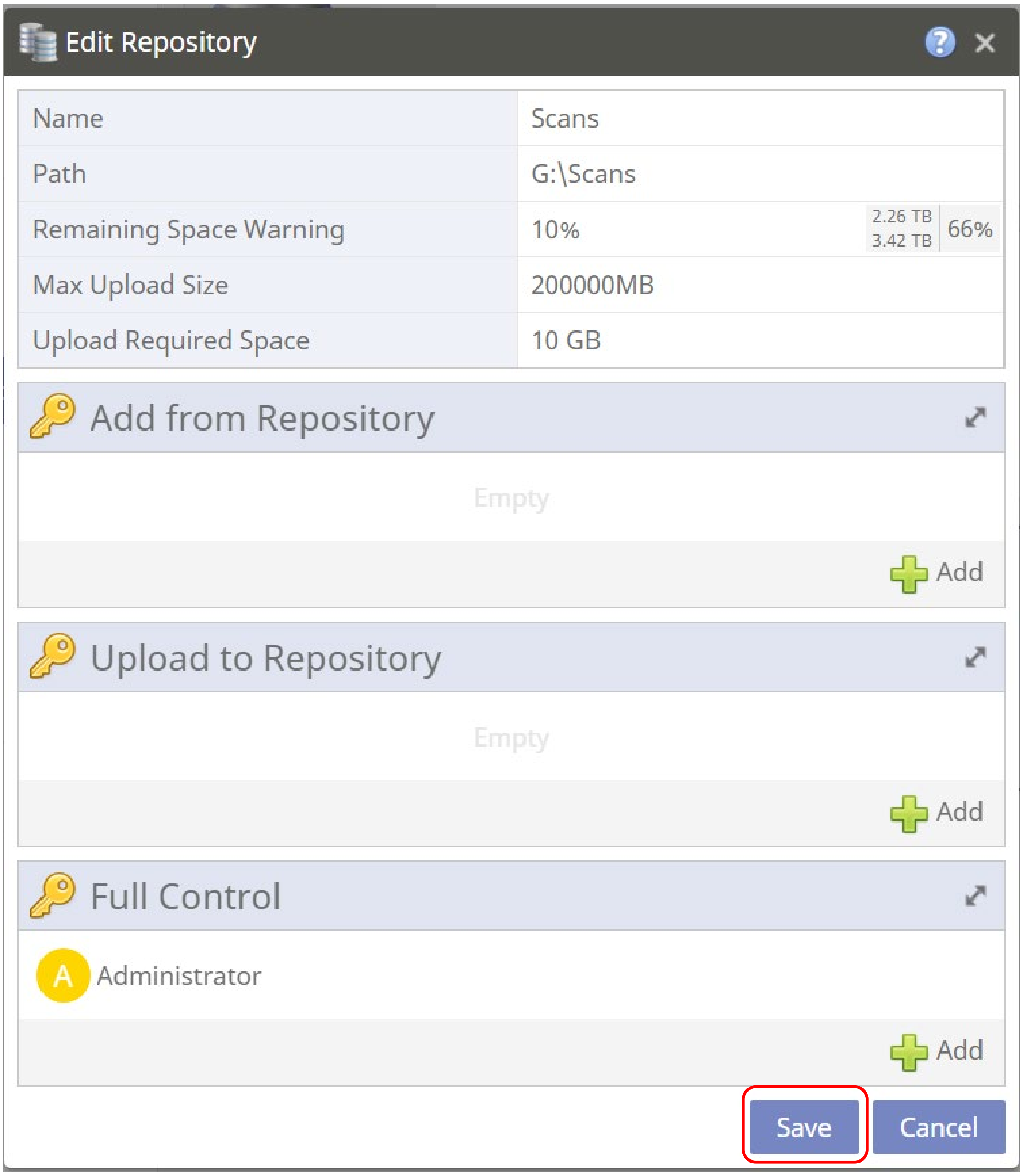

Edit Repository
Name
Scans
Path
G:\Scans
Remaining Space Warning
10%
2.26 TB
3.42 TB
66%
Max Upload Size
200000MB
Upload Required Space
10 GB
Add from Repository
Empty
Add
Upload to Repository
Empty
Add
Full Control
A
Administrator
Add
Save
Cancel

Image 7-41

7-6 ROLES

Roles are used to provide a group of permissions to an object or object tree within View.

Select “Roles” from the menu to start the process for the roles(management groups of permissions) settings.

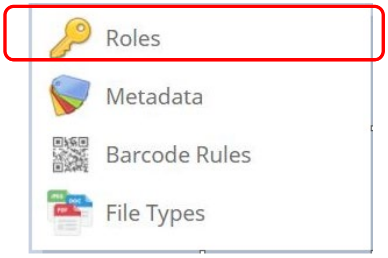


Image 7-42

Roles can be created, modified and deleted with the Modify Server Settings right.

Name	Read	Write	Save Annotations	Publish Annotations	Read Restricted Metadata	View Slide Images	Copy and Export	View Labels	Share	Download Slides	Upload	Role for Uploaded Files	
Basic Read	✓					✓							
Standard Read	✓		✓		✓	✓	✓	✓	✓				
Full Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

Image 7-43

The permissions available to be part of a role are:

- Read – allows an object to be viewed
- Write – allows creation of new objects (except uploading files) and an object to be:
  - Edited
  - Moved
  - Added to another collection
  - Deleted
- Save Annotations – allows annotations made on slides to be saved to the server
- Publish Annotations – allows annotations to be published to other users
- Read Restricted Metadata – allows metadata marked with the restricted flag to be seen on objects
- View Slide Images – allows viewing the slide image of a slide in a viewer
- Copy and Export – allows use of copy/export options in a viewer (note that the user can still capture images using screenshotting tools)
- View Labels – allows viewing the slide label in a viewer

- Share – allows creation of sharable links that inherit some of the creator’s permissions
- Download Slides* – allows downloading of slides (only some formats available)
- Upload – allows adding new files to the server via upload from the user’s device
- Role for Uploaded Files – Specify the role to be automatically added to the uploaded file.
- Delete ( ) – Delete the corresponding role.

*This option is only available if the setting in the Configuration Tool on the Image Server tab “Allow downloading slides” is enabled.

Note

- The checkbox of “Download Slides” is only available as long as the download function of slide files in Configuration Tool is activated.

Note

“Download” for slide is an option only available for those who have permission to execute downloading.

Note

The slide formats permitted for downloading are “ndpi” and “ndpis”.

There is another option in the table to set the “Role for Uploaded Files” which lets a role be set on any uploaded file for the uploader. This can be utilized to allow deletion of newly uploaded files by the uploader if desired.

New roles can be added using “+” button or removed by using the “Trash” button at the end of each row.

Once any changes are made, “Save” button will appear at the bottom of the page to save the changes.

7-6-1 ADD AND EDIT THE ROLES

In the "Roles" page, the roles can be added or modified.
To edit a registered role, change the name and permissions and click "Save". To add a new role, click the at the top of the role list, enter the name and permissions for the new role to be added under the registered role, and click "Save".

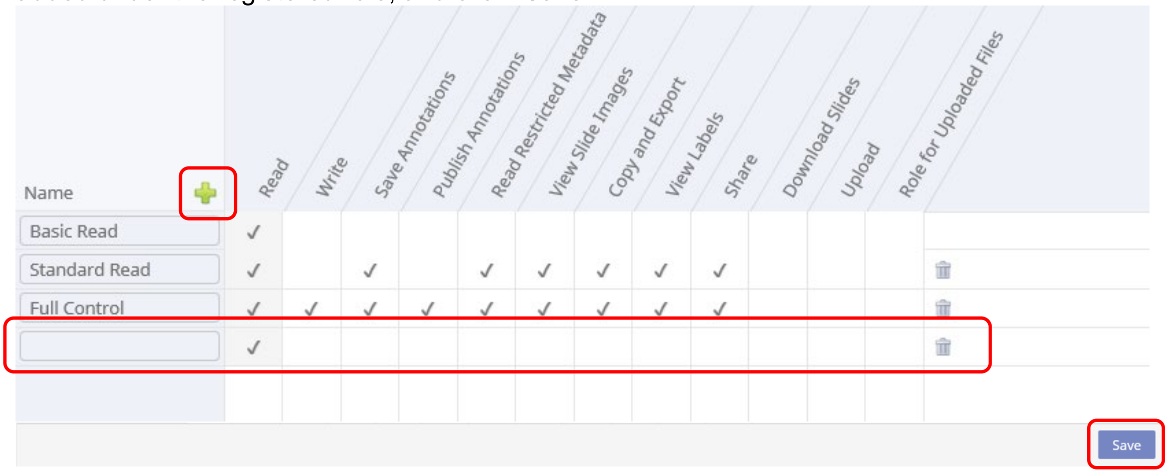


Image 7-44

・Read	Permission to view the images.
・Write	Permission to save the images.
・Save Annotations	Permission to save the annotations.
・Publish Annotations	Permission to publish the annotations.
・Read Restricted Metadata	Permission to view the restricted metadata.
・View Slide Images	Permission to display the macro images.
・Copy and Export	Permission to copy and export the images.
・View Labels	Permission to display the labels on the macro images.
・Share	Permission to create shared links.
・Download Slides	Permission to download slides.
・Upload	Permission to upload files.
・Role for Uploaded Files	Specify the role to be automatically added to the uploaded file.
・Delete ( )	Delete the corresponding role.

Note

- "Write" permission enables you to establish permission settings for viewing reference and labels. Personal information on reference and labels can be viewed on the local viewer by those who do not have permissions for viewing. Therefore, please keep that in mind when you create settings.

Note

- Slide files downloaded by way of "Download Slides" might have personal information on reference and labels, which can be viewed on the local viewer by those who do not have privileges for viewing. Therefore, please keep that in mind when you create settings.

Note

- "Role for Uploaded Files" can only be selected from one of the existing roles. Specify a role that includes "Write" so that the uploaded file can be deleted by the user who uploaded it.

Note

- "Download" for slide is an option only available for those who have permission to execute downloading.

Note

- The slide formats permitted for downloading are "ndpi" and "ndpis".

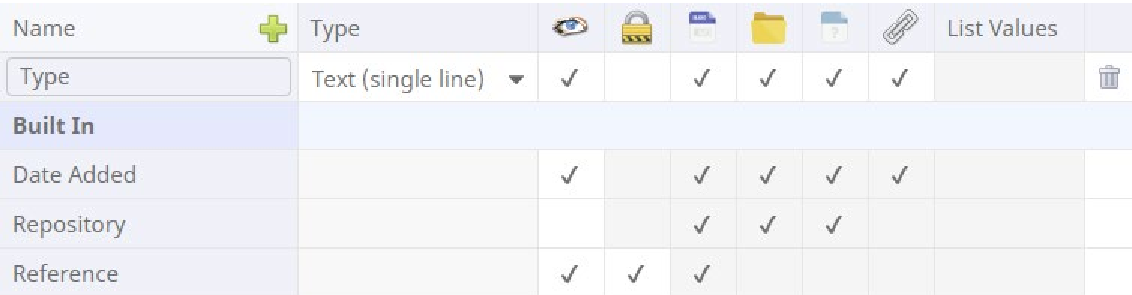
7-7 METADATA

Metadata can be used to display additional information about an object when browsing within View or viewing an image.

Select “Roles” from the menu to start the process for the metadata settings.

Image 7-45

Metadata types can be created, modified and deleted with the Modify Server Settings right.



Name	Type							List Values	
Type	Text (single line)	✓		✓	✓	✓	✓		
Built In									
Date Added		✓		✓	✓	✓	✓		
Repository				✓	✓	✓			
Reference		✓	✓	✓					

Image 7-46

Changing the visibility of metadata is a heavy operation that linearly increases with the amount of objects in the server as entries are moved into/out of tables and indexes are reformed to allow fast searching. Ideally it should rarely be done and it is recommended to set up the visibility of metadata before filling the server with slides.

Once changes are made to the metadata table “Save” button will appear at the bottom of the page to save the changes.

Built In Metadata

A range of built in metadata is available for display.

- Date Added – the date an object was added (visible by default for all types of object)
- Repository – the repository the object is from if applicable
- Filename – the filename of the object if applicable (restricted by default)
- Reference – the slide reference (visible by default and restricted)
- Other slide information
  - Lens

- Creator
- Scanner Make
- Scanner Model
- Scanner Serial
- Firmware Version
- Scan Date
- Filter Set
- Exposure Ratio
- Exposure Time
- Red Gain
- Green Gain
- Blue Gain
- Wavelength
- Lamp Age
- Illumination
- JPEG Quality
- Scan Time
- Size
- Compression
- No Sub-images
- Format
- Image Width
- Image Height
- Width
- Height
- No Layers
- Focus Score
- Barcode 1-8
- Case (created from the Scan application)

The visibility of built in metadata can be changed, as well as whether Reference and Filename should be restricted or not.

Custom Metadata

Custom metadata can be added using “+” button or removed by using the “Trash” button at the end of each row.

The following options available for custom metadata:

- Name
- Type
  - Text (single line)
  - Text (multi line)
  - Number (integer)
  - Number (real)
  - Timespan
  - Date
  - Date/Time
  - Yes/No
  - List (a choice of item from a drop-down)
  - Multi-Choice List (a choice of multiple items in a list)
- Visibility – whether this metadata will be displayed throughout the server
- Restricted – whether the user must have the Read Restricted Metadata permission to see it
- What types of object it applies to
  - Slide
  - Collection
  - File
  - Link
- List Values – only available if the type is List or Multi-Choice List, allows choosing the values that should be available for selection, allowing for separators within the lists

7-8 BARCODE RULES OVERVIEW

Automatically split slide references into multiple metadata fields.

7-8-1 INTRODUCTION TO BARCODE RULES

Understand the concept of the barcode rule feature and how it can help extract information from your slide's barcode.

The data contained within a barcode varies considerably between different laboratories but in general they fall into one of two categories:

1 A simple serial number; i.e. a unique reference number for each slide that is tied to the corresponding patient/case etc. via a database (e.g. LIMS). These are typically 1D barcodes (although 2D is also no uncommon)

2 A barcode containing meaningful data directly within itself. These are typically 2D barcodes due to requiring a larger data capacity. They may contain data such as: patient name, date of birth, block number, sample number, tissue type, stain used etc.

The barcode processor is aimed at case no. 2 i.e. where multiple pieces of data are contained within the (predominantly 2D) barcodes. These can already be used within NZConnectMD; they can be read by NDP.scan/NZAquire with the 2D barcode option or can be decoded from the label images stored inside SVS files directly by NZConnectMD itself. The barcode processor is not concerned with reading the barcode itself from an image but rather properly handling the content of the text that has already been read from the physical barcode.

Without the barcode parsing option the entire contents of the barcode are included in the Reference metadata field. This is not very convenient to manage.

The barcode processor allows the components of the barcode to be split up into separate fields; this has a number of advantages:

- Easier for the user as each field is labelled appropriately not just buried in a long string with no context
- The user can search for and sort by the individual fields within the barcode
- Security can be set on individual fields, e.g. if a user should not have access to the patient name and date of birth but should be allowed to see the staining type this can be achieved by marking some of the extracted fields as restricted but others not. With a single Reference field the whole thing needs to be either protected or not.
- Allows the user to only include the relevant parts, i.e. if part of the barcode contains irrelevant information it can be excluded from being displayed in the server

7-8-2 USING BARCODE RULES

A detailed breakdown of how to set up barcode rules for all your different types of barcodes.

Barcode processing rules can be managed with the Modify Server Settings right.

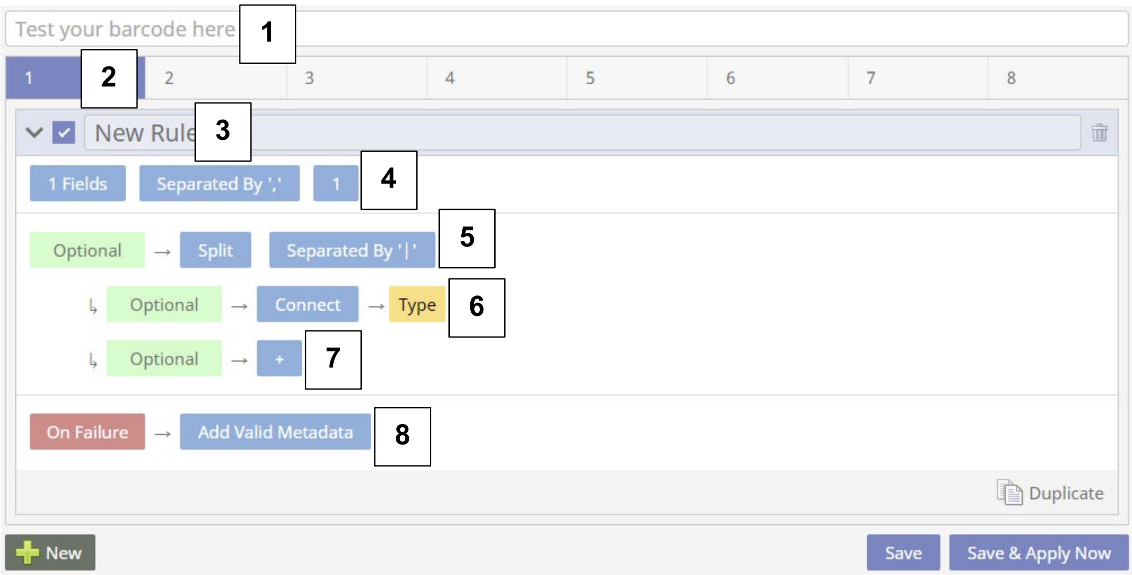


Image 7-47

1 Text box for visualising how a barcode will be processed by the below rules
2 Tabs for targetting the different barcode metadata in a slide file

- Tab 1 is fine for most situations; this is used for the Reference or Barcode 1 metadata
- Tabs 2-8 are for slides where barcode information is stored in the Barcode 2-8 metadata

3 Rule title bar, consisting of:

- Collapse/Expand using the chevron
- Enable/Disable the rule using the checkbox
- Name the rule using the text field (cosmetic, no need to set)
- Use the “Trash” button to delete the rule

4 Rule options:

- Number of fields
- Separator (see Splitting a Barcode below)
- Barcode number (use this to move the rule to a different tab)

5 An example of a barcode part being split further with the Split command
6 An example of a barcode part being connected to custom metadata
7 Actions can be assigned using the action button
8 Failure behaviour

To set up barcode rules, it is a good idea to have an example barcode to see how it will be split up based on the specification you choose. You can use the New/Duplicate buttons to create additional rules. When there are multiple rules, the Move Up/Move Down buttons can be used to change the execution order of the rules.“Save & Apply Now” button can be used to run the barcode rules against all existing slides. The option to overwrite existing metadata can be chosen after pressing the button.

Splitting a Barcode

There are two configurable buttons for splitting a barcode.

Use “Fields” to specify how many fields of data your barcodes have.

Use “Separator” to specify either:

- A separator character that signifies the end of a field
- That each field has a fixed width

Fields can be further split using a “Split” node, which allows splitting in two using another separator.

Examples of using these buttons can be seen in the table below.

1 15-111532-020805 HER2

2 Abraham,12/3/1981,S08-03003,A,Cytokeratin,Breast,Cytokeratin 080215-1,3

3 01500111532020805HER2

Barcode	Fields	Separator	Result
1	2	Space	15-111532-020805 HER2
1	3	-	15 111532 020805 HER2
2	8	,	Abraham 12/3/1981 S08-03003 A Cytokeratin Breast Cytokeratin 080215- 1 3
3	4	Fixed Width (3, 8, 6, 4)	015 00111532 020805 HER2

Failure

There are several ways a barcode processor can fail to parse a barcode. When this happens, the next active barcode processor (if one exists) will attempt to process the barcode. If no processor is successful a final failure action will take place, which can be changed on the final active processor. There are three failure responses:

- Add valid metadata – anything that was successfully parsed before failure will be added
- Don't add any metadata – no metadata will be added, but the slide will still be added
- Don't add the slide – if the slide is being added automatically (e.g. through a linked collection) then adding the slide will fail

Converting Data to Metadata

Once the barcode is split, you'll have many entries listed that look like the below:

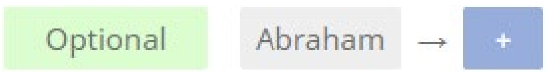


Image 7-48

Optional/Required Button

Each field has an Optional/Required setting. If a field is marked as required, but the field is empty, the rule will fail.

Current Field Data

The grey box shows the current value of the data in this field using the example barcode.

Action Buttons

“+” allows you to perform some action on the data in this field. There are several options possible, outlined below. For actions that assign values to metadata, note that control characters in code point ranges [U+007F–U+0084, U+0086–U+009F] are removed.

Connect

This is the simplest action. The data stored in this field will be stored in the metadata field you specify, unless that field is a date or date/time type. In that case, a window will appear allowing the input to be converted into the appropriate format. All formatting information is provided on the page. Look through the operators listed, and type the format in the top input box, remembering to also type any constant characters like “–” or “/”. The test output should not be an error.

Input	Format	Output
24/05/2020	%d/%m/%Y	2020-05-24
240520	%d%m%20y	2020-05-24
20200524	%Y%m%d	2020-05-24

Split

This function splits the field into two.

Map

This function is ideal for assigning to “List” type metadata fields if there is inconsistency in the way it is specified in the barcode. For example, if the field contains staining information, but the barcodes you use can have a range of identical values (HER2, Her2, Her 2), you can use this function to match the inputs (HER2, Her2, Her 2) to the desired list option in the metadata field. This function can also be used in other field types, but you must specify the output instead of choosing from a list.

Match

This function is available to provide another way to make the rule fail. Choose some text to match, and if the data in this field does not equal the text, then the rule will fail.

Lookup

If the barcode is in a format that needs some further processing (for example, an identifier that is used to access information from another system) then the Lookup function can be used. This option is only available if a plugin has been configured. For more details on how to configure a plugin see the Integration / Plugins section.

Lookups should be made as efficiently as possible, to prevent delays adding slides.

7-9 DETAILED EXPLANATION OF THE BARCODE PROCESSOR FOR NZCONNECTMD

The function, Barcode processor for NZConnectMD, makes it possible to split fields of Barcode(Reference) information of the slide images which will be published newly or already published in the past and register them as the Custom metadata（Image 7-49）.

Note

- It is necessary to add the Custom metadata to use Barcode processor in advance. Please refer to “Custom Metadata” for the details.

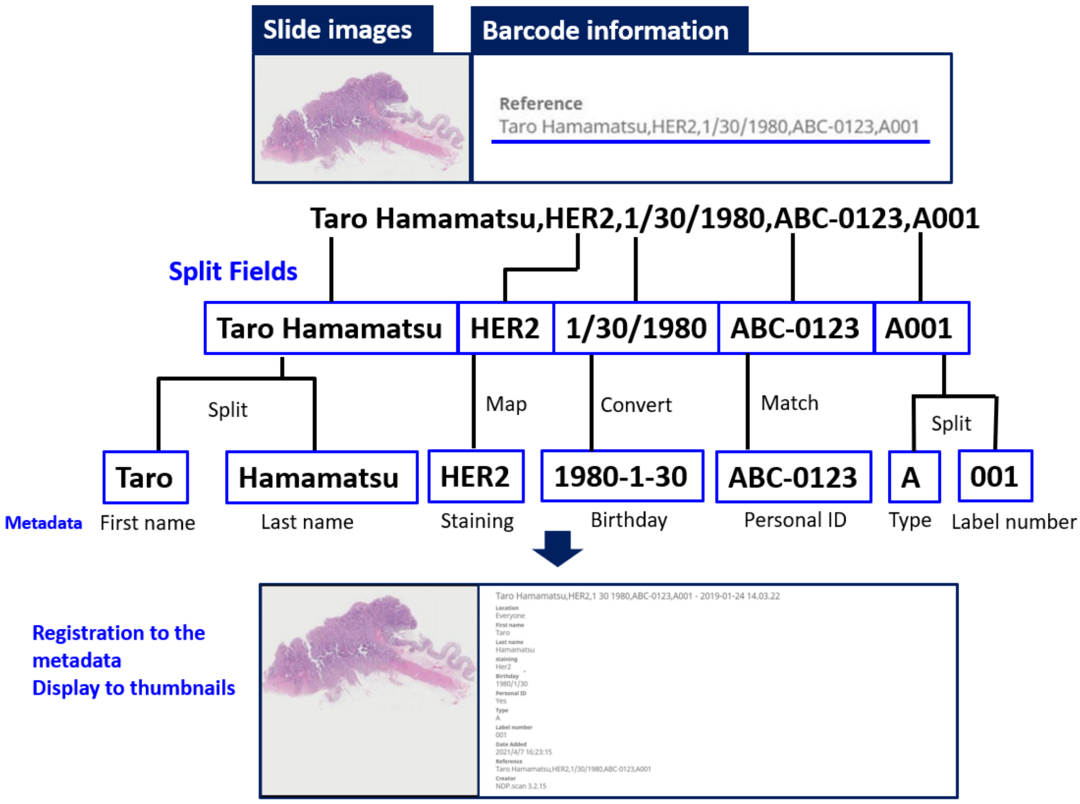


Image 7-49

To set the Barcode processor, click "Manage" from the Home page of NZConnectMD, and then click "Barcode Rules" (Image 7-50).

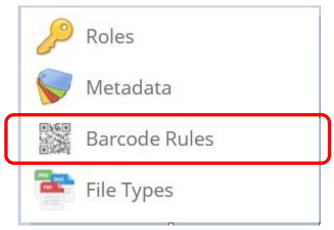


Image 7-50

7-9-1 BARCODE PROCESSOR CREATING SCREEN

Click “Add” on the “New” creation page（Image 7-51）.

Image 7-51

It will be the following screen（Image 7-52）.

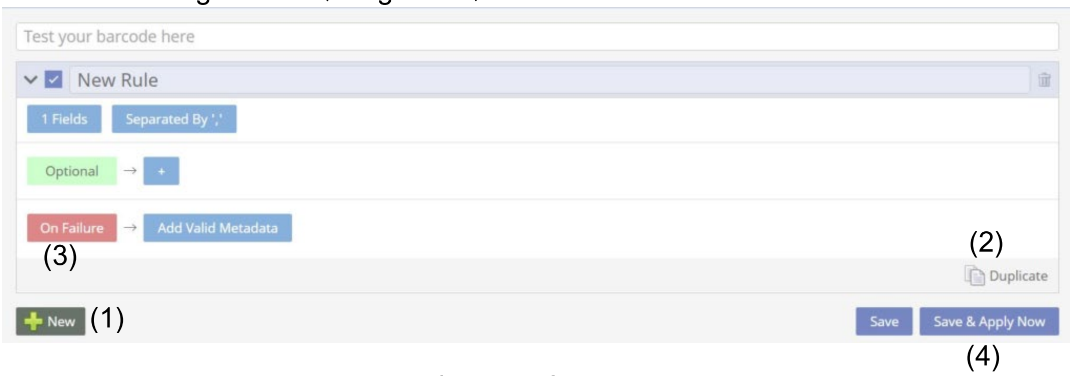


Image 7-52

① **New**

Barcode processor is created newly. It's possible to make more than one.

② **Duplicate**

The existing Barcode processor is copied. Click the "Duplicate" at the bottom right of the barcode processor you want to copy. It's possible to make more than one.

③ **On Failure**

The action of Barcode processor is selected in the case of Barcode(Reference) information is applied and the error is caused. The choices are displayed by clicking this (Image 7-53).

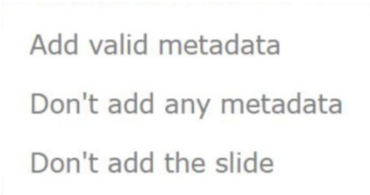


Image 7-53

- Add valid metadata
  The items of Barcode(Reference) which don't cause error will be added to the metadata.
- Don't add any metadata
  No items of Barcode(Reference) will be added to the metadata when there are items which cause error.
- Don't add the slide
  No slide images will be added when there are items which cause error.

Note

- Even if there are items which cause error, the slides images which were already published in the past are not unpublished.

④ Save & Apply now

Barcode processor is run to the all slide images which were already published in the past.

Note

- It is run to all slide images which were already published in the past. It is not possible to designate and run it for the specific published slides.

7-9-2 BARCODE PROCESSOR CREATING PRECEDURE

(1) Start to create the Barcode processor

It will be the following Barcode processor creating screen by clicking the “New” (Image 7-54).

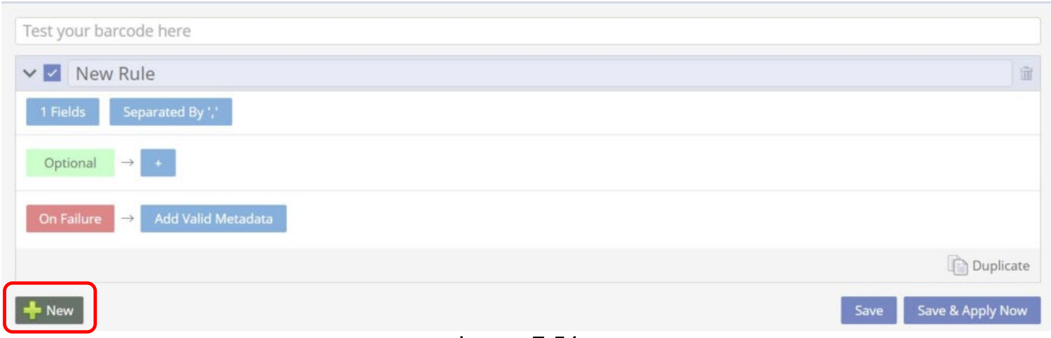


Image 7-54

(2) Enter of Barcode processor name

Enter Barcode processor name (Image 7-55).

Image 7-55

(3) Enter of Barcode (Reference) information

Enter Barcode(Reference) information (Image 7-56).

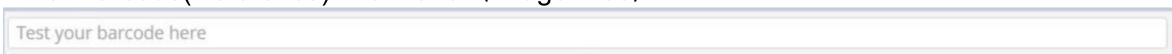


Image 7-56

(4) Setting of the split number of fields

It's possible to set the split number of fields by clicking the "1 FIELD". Enter the split number on the basis of Barcode(Reference) information (Image 7-57).

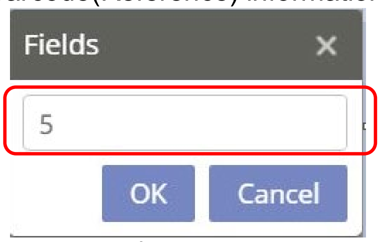


Image 7-57

Note

- The spin button is not available depending on the kind of browsers.

(5) Setting of the split method

The split method is set by clicking the "Separate with". The split method has the split by Separator and one by Fixed width. Select one based on the number of information in the Barcode (Reference).

(5-1)Separate with

Barcode(Reference) is split by using the character string and the symbol included in it. Enter the split symbol to the edit box which is displayed by clicking “Separated with”(Image 7-58).

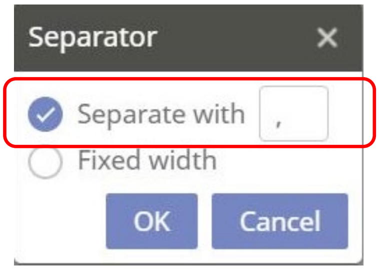


Image 7-58

In the example below, the barcode “Taro Hamamatsu, HER2,1 30 1980, ABC-0123, A001” is divided into 5 fields with the division symbols “,” (Image 7-59).

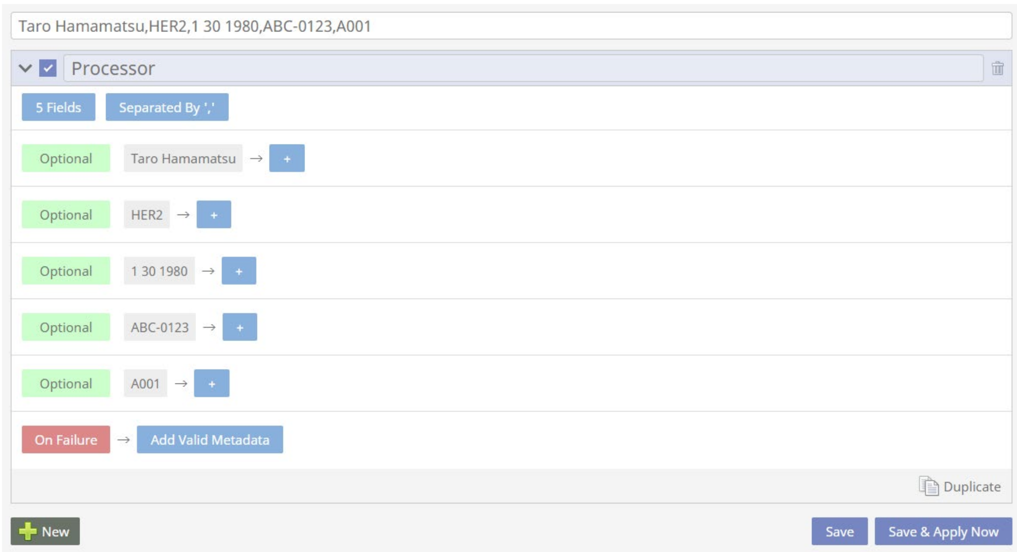


Image 7-59

(5-2)Fixed width

Barcode(Reference) is split by using the fixed width. It will be displayed like by clicking the “Fixed width” (Image 7-60).

Image 7-60

Enter the width value to the edit box which is displayed by clicking the "Width Of 1"(Image 7-61).

Image 7-61

Note

- The spin button is not available depending on the kind of browsers.

In the example below, the barcode “Taro Hamamatsu, HER2,1 30 1980, ABC-0123, A001” is divided into 9 fields with the fixed width (Image 7-62).

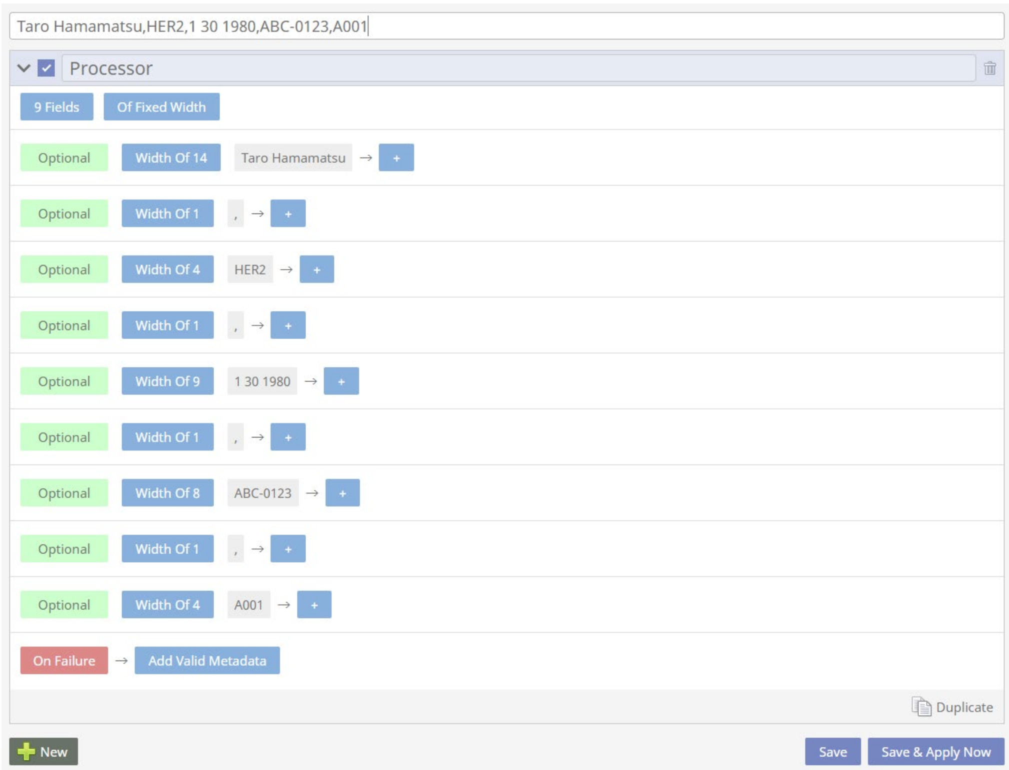


Image 7-62

(6) Registration to metadata

The split character string is registered to metadata. The choices are displayed by clicking the right "+" in each field.Select the most suitable feature according to the contents of each split character string and register them to metadata (Image 7-63).

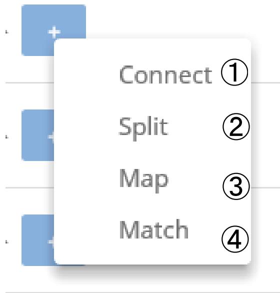


Image 7-63

① Connect

The split character string is registered to metadata. The metadata list is displayed created beforehand by clicking the “Connect”. Select the metadata you would like to register. In the example of, the split character string as “Taro” is registered to metadata "First name" (Image 7-64).

Image 7-64

② Split

The split character string will be separated more.
It is split by the same way as (5). In the example of, "Taro Hamamatsu" is split into "Taro" and "Hamamatsu" by set the space (space character) as the split symbol (Image 7-65).

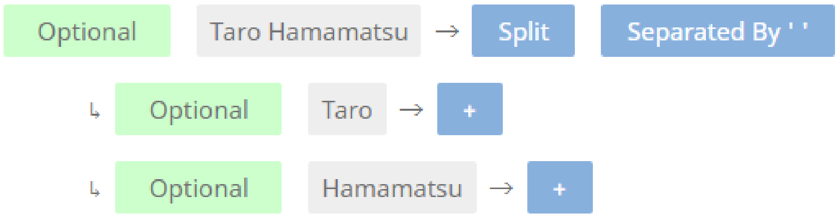


Image 7-65

③ Map

The output can be set for the specific input. The metadata list is displayed created beforehand by clicking the “Map”. The edit box is displayed by selecting the metadata you would like to register. Set the output character string and set one which corresponds to it (Image 7-66).

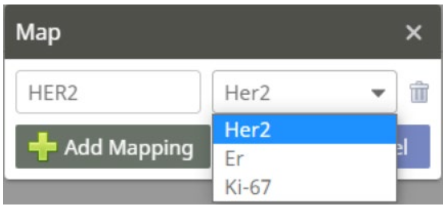


Image 7-66

Note

- The custom metadata by the “Text” or the “List” format are available for Map. Please add the custom metadata by the list format beforehand. Please refer to “Custom Metadata” for the details.

If "HER2" is set as the input and "Her2" is set as the output, "Her2" is registered to metadata "staining" when “HER2” is entered (Image 7-67).

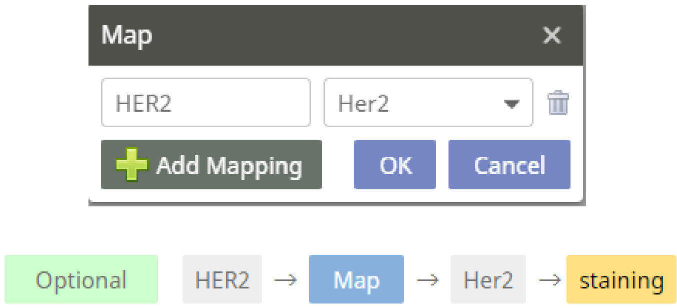


Image 7-67

It's possible to add the condition by clicking the “Add Mapping" (Image 7-68).

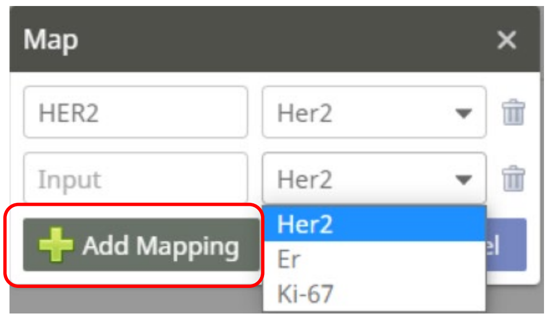


Image 7-68

The error is caused when all except character string is set as the input of Map is entered (Image 7-69).

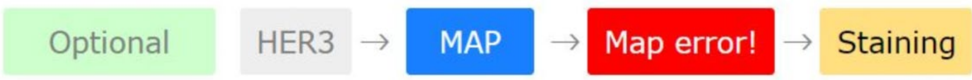


Image 7-69

④ Match

It’s possible to judge whether the character string set as Match is included in the head of the character string or not. The edit box is displayed by clicking the “Match” (Image 7-70).

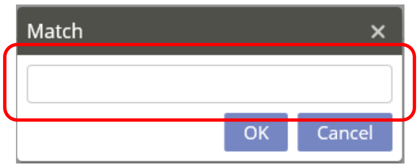


Image 7-70

Enter the character string for the comparative target. In the figure below, the entered string is "ABC-0123" and the comparative target character string is "ABC" and the judgement is match (Image 7-71).

Image 7-71

In the figure below, entered string is "ABD-0123" and the comparative target character string is "ABC" and the judgement is no match and it cause an error (Image 7-72).

Image 7-72

② Convert

When there is information of the date and time in the split character string, the display format can be changed.
Click "Connect" and click the one whose metadata type is "Date" or "Date/Time", and it will be displayed as shown in the figure below (Image 7-73).
The display format is converted by the format in the blue frame when the character string is entered to the red frame part.

Image 7-73

In the example of the input format, "1/30/1980" (month day year) is converted to "1980-01-30" (year month day) by the format in the blue frame (Image 7-74).

Image 7-74

It is possible to output the same format by setting the format even if the inputted character string is different like the below table (Image 7-75).

Input	Format	Output
30/01/1980	%d/%m/%Y	1980-01-30
300180	%d%m%19y	1980-01-30
19800130	%Y%m%d	1980-01-30

Image 7-75

Note

- There are cases that it cannot be converted correctly depending on the format of the inputted character string.

(7) Option and Required

The error can be caused on each item when there is no input to each item. It's possible to change "Option" and "Required" alternately by clicking the "Optional" which is to the left of each item. When the “Required” is selected the error is caused if there is no input (Image 7-76).

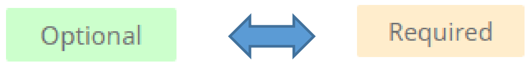


Image 7-76

(8) Save of Barcode processor

The created Barcode processor can be saved by clicking “Save” (Image 7-77).

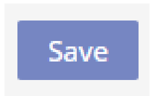


Image 7-77

Note

- When the page besides the Barcode processor is displayed before save, the contents of the setting will be deleted. Please be sure to save without fail when the Barcode processor is created.

7-9-3 EXAMPLE OF THE CREATED BARCODE PROCESSOR

Barcode processor is created by using the following Barcode (Reference) information.

Barcode(Reference) information： Taro Hamamatsu,HER2,1/30/1980,ABC-0123,A001

Barcode processor is created so that Custom metadata may be displayed like below figure (Image 7-78).

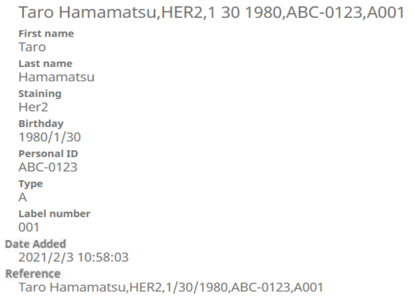


Image 7-78

Note

It is necessary to create the below Custome metadata in advance.
First name, Last name, Staining, Birthday, Personal ID, Type, Label number

Note

- The view order of Custom metadata in Image 7-78 is displayed by the registration order of Custom metadata.

The created Barcode processor is in the (Image 7-79).

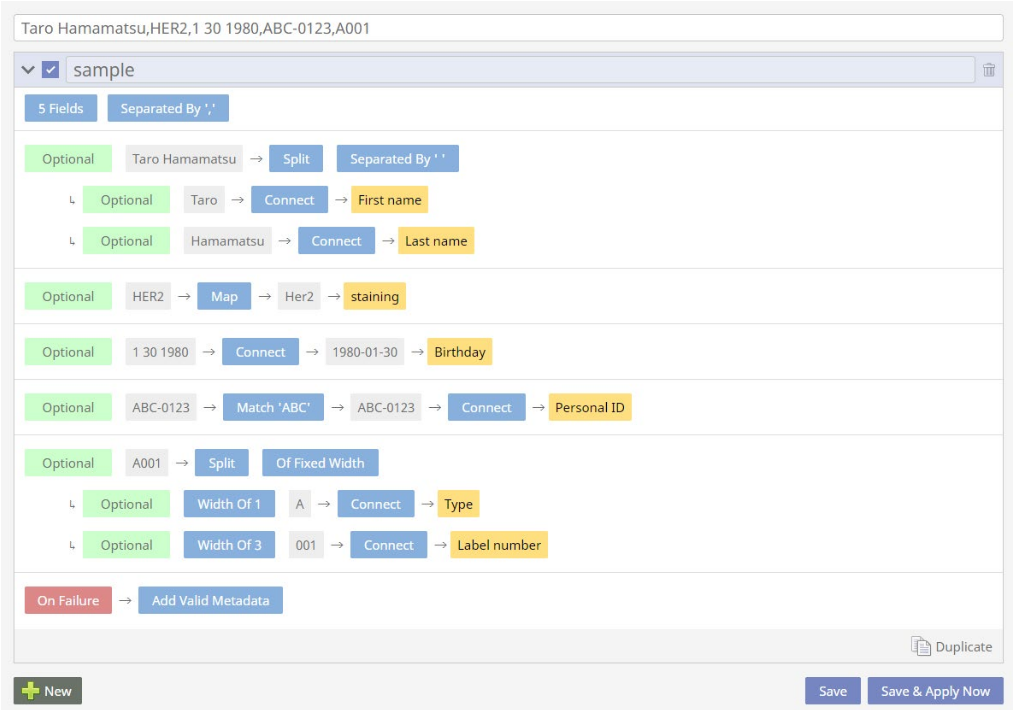


Image 7-79

Note

The Barcode (Reference) information may include the personal information. If Barcode processor is created and run by the wrong Barcode information itself or the wrong settings, the wrong Custom metadata is displayed on NZConnectMD screen or there is a fear of the information leak. Therefore, please keep that in mind when you create Barcode processor and do the movement tests by entering Barcode (Reference) information and importing tests by using the virtual slide files which include one. And check that only correct Custom metadata are displayed on NZConnectMD screen.

Note

- The view order of Custom metadata in Image 7 78 is not the one of Barcode processor creating screen. It is the registration order of Custom metadata. Please refer to "Custom Metadata" for the details.

HAMAMATSU
PHOTON IS OUR BUSINESS

7-9-4 ABOUT THE BEHAVIOR OF BARCODE PROCESSOR

The operating condition of Barcode processor which is already created is as follows.

(1) On - Off of movement for Barcode processor

It's possible to change on-off of movement of Barcode processor by the check box on Barcode processor tab. In the the "Processor1" and "Processor3" are in the condition which can run. The Barcode processor doesn't work when all are checked out (Image 7-80).

Image 7-80

(2) The execution order of Barcode processor and the end timing of the movement

When there is more than one of Barcode processor created by “New” and “Duplicate”, Barcode processor is run by the order from the top to bottom of the displayed Barcode processor. In the figure below, the order of "processor 2", "Processor 3" and "processor 1" is run (Image 7-81).

Image 7-81

Note

- You can change the execution order of the barcode processor with the “Move Up” and “Move Down”. Change the vertical display of the barcode processor so that the barcode processor you want to execute with priority is displayed at the top.

When the error is caused after running Barcode processor, the next one is applied. And it completes the registration of the metadata by Barcode processor which does not cause error at all. When the error is caused in all Barcode processor, the error processing in the 7-9-1③ is run and finished.

(3) Deletion of Barcode processor

It can be deleted by clicking the on the right side of the Barcode processor name. The below message is displayed and click "OK" on it (Image 7-82).

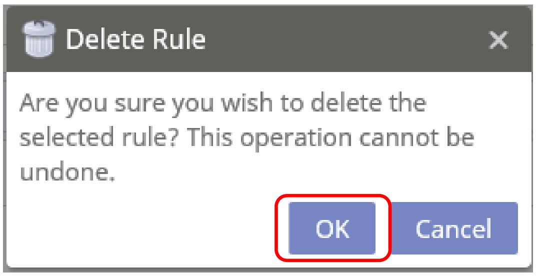


Image 7-82

Note

- It's not possible to restore Barcode processor after deleting it. Please be careful sufficiently not to delete the wrong Barcode processor.

7-10 FILE TYPES

File types can be used to limit the use of files in several places within NZConnectMD.

File types can be managed with the Modify Server Settings right. If a file type is missing or not enabled, it will not be possible to:

- View an existing file with the missing extension (an error will occur when trying to open it)
- Download an existing file with the missing extension
- Upload a file with the missing extension
- View/add a file from a repository with the missing extension

Each file type has three settings that can be changed:

- Extension (the file extension – limited to 10 characters)
- Enabled
- MIME Type (allows NZConnectMD to serve the file with the correct MIME type)

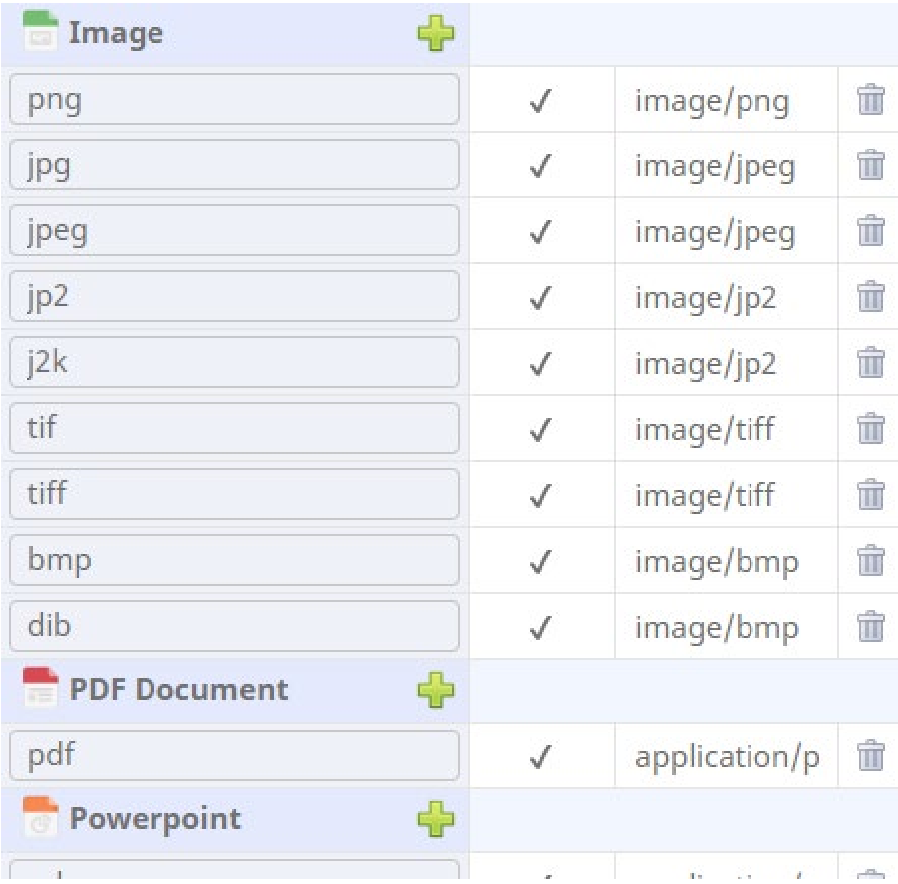


Image 7-83

File types are split into categories, which has no purpose other than changing the icon displayed along with the file.
The options are:

- Audio
- Document
- Executable
- HTML
- Image
- PDF Document
- Powerpoint
- Photoshop Image
- Plain Text
- Video
- Spreadsheet
- Archive
- Other

7-11 ADVANCED

Perform actions that typically should be necessary without instruction from an engineer.

Select “Advanced” from the menu to perform maintenance on NZConnectMD.
Click the arrow in the figure below to display four maintenance menus.

Image 7-84

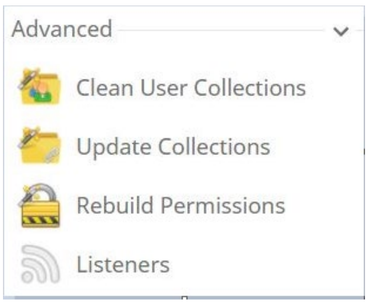


Image 7-85

･Clean User Collections	It deletes the unused contents in the User Collections.
･Update Collections	The latest information in the linked folders is reflected in the database.
･Rebuild Permissions	It rebuilds the database cache.
･Listeners	It registers the user as a listener to be notified when the contents of the folder are changed. Set when it is integrating with other systems.

Note

- Please run the maintenance menu when requested by technical support.

7-11-1 CLEAN USER COLLECTIONS

Remove unneeded collections that have been added inside the "User Collections" collection.

Cleaning user collections requires the Super User right.

When a user is created, a collection is also created inside the User Collections collection. Especially with LDAP, it is possible for these collections to not be removed when a user or group no longer exists. This tool allows a quick method of deleting these collections.
When opened, a list of any excess user collections will appear. The user can click on any of the user collections to remove them from the list. Any user collections left on the list will be deleted once “Delete” is pressed.

7-11-2 UPDATE COLLECTIONS

Manually trigger an update of all linked collections on the server.

Updating all linked collections requires the Super User right.

This tool’s functionality changes depending on a setting in the Configuration Tool on the Image Server tab: Delete objects from the database when the physical file is not found.

If this setting is off, a checkbox will appear allowing the update to be run with deletions enabled or not.

Updating linked collections involves finding every linked collection on the server, and comparing its contents with the contents of the folder on disk. It can be a slow process.

7-11-3 REBUILD PERMISSIONS

Resolve unexpected permission issues by rebuilding the entire permission cache (slow).

Rebuilding the permission cache requires the Super User right.

NZConnectMD caches a lot of permission related information to speed up browsing. If there is some unexplainable behaviour relating to permissions, it may be worth rebuilding the permission cache. Note that this process can take an extremely long time, potentially over 24 hours depending on the size of database.

7-11-4 LISTENERS

Listeners are used by third parties and internally to detect changes (new objects, deleted objects and changed objects).

Managing listeners requires the Modify Server Settings right.

This page provides an easy way to see all listeners registered to the server as well as modify or create new ones instead of using an API (documented separately).

The following information is shown or set here, ordered by Last Access (most recently used first):

- Name – the ID of the listener
- User – the user who made the listener
- Object ID – the ID of the object the listener is attached to (the creator must have read permission to the object)
- Recursive – whether objects within the specified object will also be listened to
- Last Access – the last time the listener was accessed
- Expiry – how long after last access the listener will be deleted – 0 for never
- Add/Add New/Remove/Edit – the types of events to listen for
- Slide/Collection/File/Link/Annotation/Metadata – the type of object to listen for

7-12 SERVER LOGS

Select “Server Logs” from the menu to view the information of server logs.

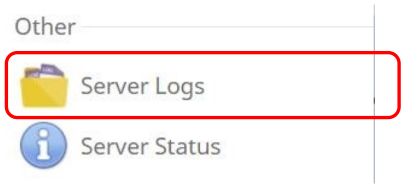


Image 7-86

The “Server Logs” page will be displayed as below.

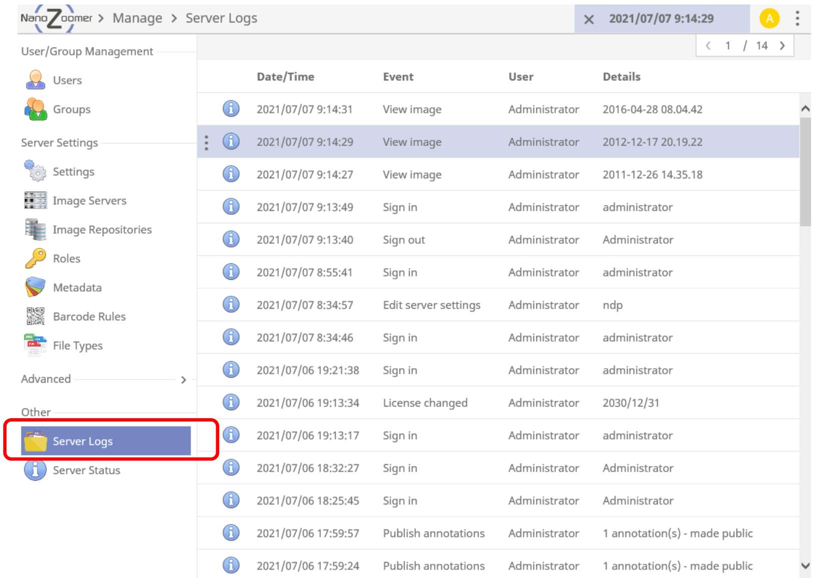


Image 7-87

Viewing server logs requires the View Logs right.

Various actions and automatic events are logged in NZConnectMD:

- Sessions
  - Sign in
  - Sign out
  - Failed sign in
- Objects
  - Add object
  - Edit object
  - Delete object
  - Move object
  - Copy object (add to collection)
  - View image
  - Publish annotations
  - Download image

  - View file

- Users
  - Add user
  - Edit user
  - Delete user
  - Change password
  - Failed change password

- Groups
  - Add group
  - Edit group
  - Delete group
  - Add user to group
  - Remove user from group

- Image servers
  - Add image server
  - Edit image server
  - Delete image server

- Repositories
  - Add repository
  - Edit repository
  - Delete repository

- Roles
  - Add role
  - Edit role
  - Delete role

- Metadata
  - Add metadata
  - Edit metadata
  - Delete metadata

- Settings
  - Edit server settings
  - License changed

- Errors
  - Barcode decode error
  - Access denied
  - Invalid object

  - Error

- Legacy Scan Events (events that are no longer in use)

  - Log cut off changed
  - References uploaded
  - Register box
  - Register cassette
  - Change cassette owners
  - Check scan areas
  - Archive cassette
  - Unarchive cassette

- Labs

  - Add lab
  - Edit lab
  - Delete lab
  - Hide lab
  - Unhide lab

- Scanners

  - Add scanner
  - Edit scanner
  - Delete scanner
  - Move scanner

- Scan profiles

- Add scan profile
- Edit scan profile
- Delete scan profile
- Edit scan profile permissions

- Scanner Interactions

  - Start scanner
  - Stop scanner
  - Cassette added
  - Cassette removed

- Scan Flow

  - Set up slide
  - Skip slide
  - Reject scan
  - Accept scan
  - Scan published
  - Scan deleted
  - Slide scanned
  - Scan failed

- Reject scan area
- Accept scan area
- Macro captured
- Slide identifier changed

The log is displayed in a table with the following attributes:

- Date/Time
- Event
- Event User
- Session
- IP Address
- User Agent
- Path
- Object
- Parent
- Old Parent
- User
- Group
- Role
- Metadata
- Image Server
- Repository
- Generic
- Value Name
- New Value
- Old Value
- Slide
- Profile
- Cassette
- Scanner
- Lab
- Error
- Details

If none of the loaded log entries have a value in any column, the column will not be visible. Each column heading can be interacted with:

- A click will sort the column, toggling between ascending/descending order
- The context menu for the column heading provides further options:
  - Filter
  - Sort Ascending
  - Sort Descending
  - Hide

The main context menu can be used to:

- Unhide columns
- Clear filters
- Export

Each log entry can be opened to display details in a table. Each table entry can be clicked to filter the logs to that value, or can be used to add the chosen filter without replacing the currently defined filters. Some columns have , which can be used to open the relevant page elsewhere on the server. For example:

- Object/Parent/Old Parent: opens the object in the View application (for annotations, the slide will open)
- Event User/User: opens the user management page with the specific user opened for editing
- Group: opens the group management page with the specific group opened for editing
- Image Server: opens the image server management page with the specific image server opened for editing
- Repository: opens the repository management page with the specific repository opened for editing
- Profile: opens the scan profile
- Scanner: opens the scanner status page
- Cassette: opens the cassette overview
- Slide: opens the slide view window

Filtering

All columns can have filters applied. By default this will normally just be a text field. Some columns allow more complex filtering.

Status

The status column has no title but can be filtered between the three event status types:

- Info
- Warning
- Error

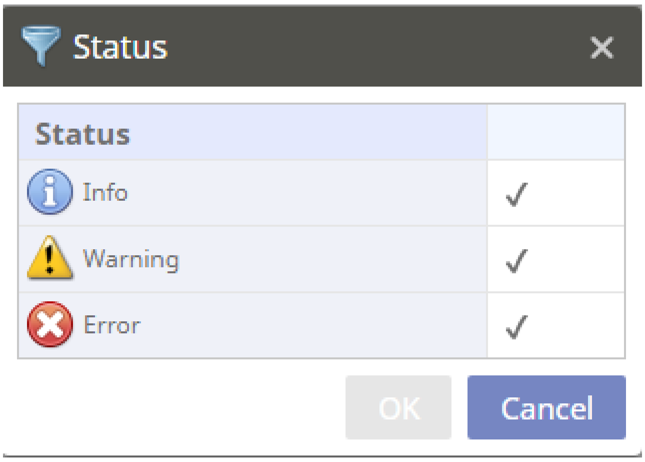


Image 7-88

Date/Time

A date from and date to can be specified. At least one of them should be given to be able to apply the filter.

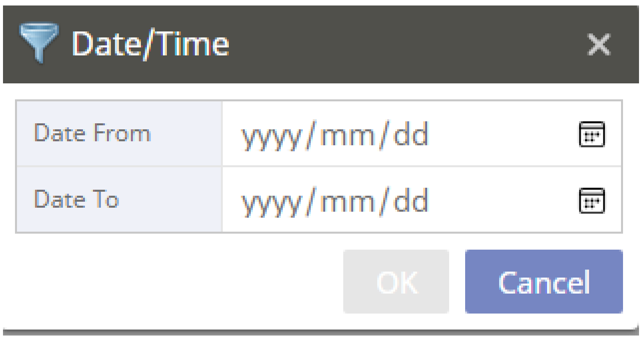


Image 7-89

Event

Each event and/or event category can be enabled or disabled.

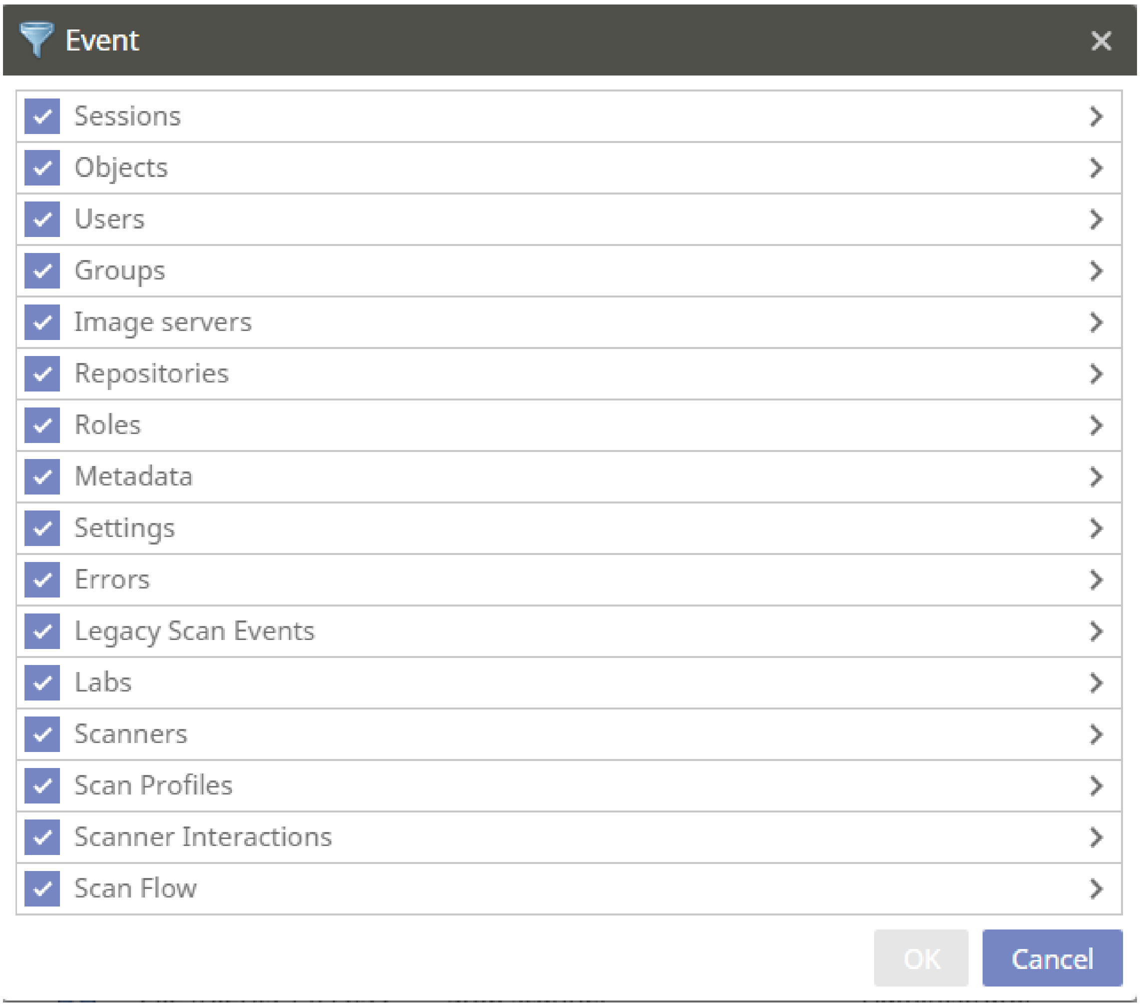


Image 7-90

Object/Parent

For these columns you can sort by type or by object. The type filter is simple and a type can be chosen from a dropdown list or a custom type specified.

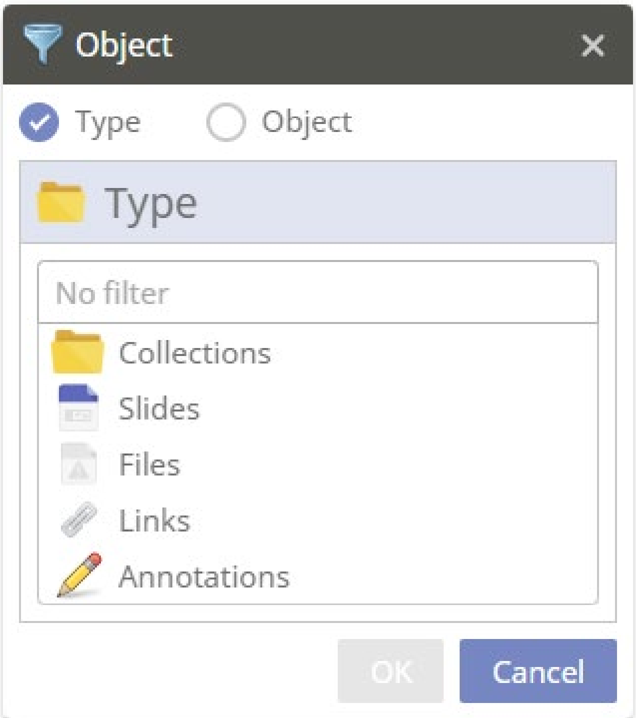


Image 7-91

The object filter allows:

- Specifying an ID manually
- Browsing the server to find a specific slide/file/link object
- An option to filter both in the Object column and the Parent column at the same time (the object only has to appear in one of the columns)

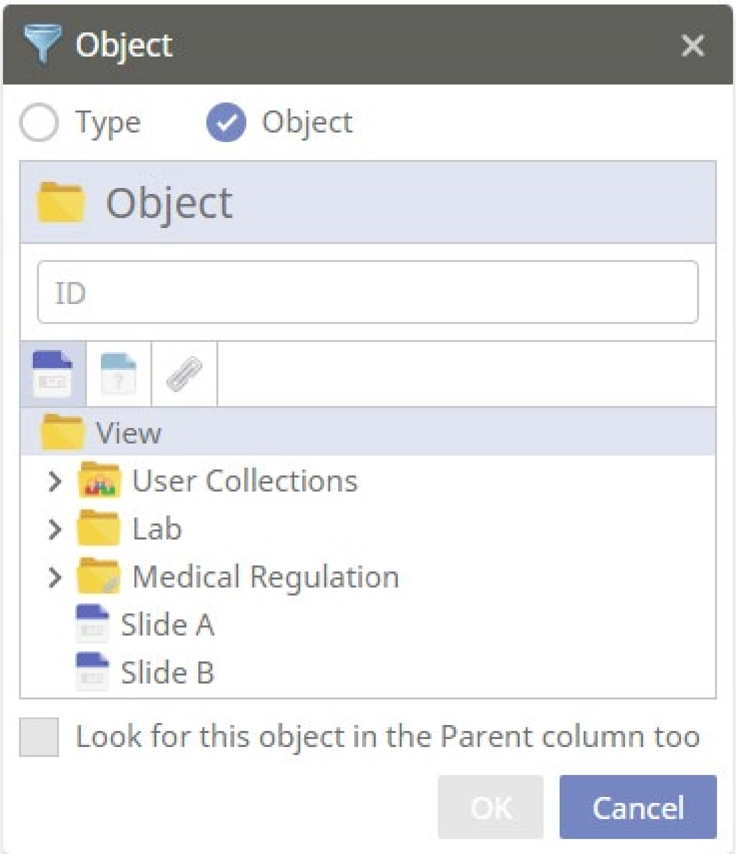


Image 7-92

Image 7-93

Cut Off

Automatic deletion of old server logs can be managed from the main server settings.

Export

The log can be exported using the main context menu. This has the potential to be a very big file, and filters should be appropriately set to minimize the scope of the request.

HTTP Logs

The main context menu also provides the option to see the HTTP logs from the server PC if the user is a super user. These can be browsed and are separated into folders by month. Each log can be individually downloaded.

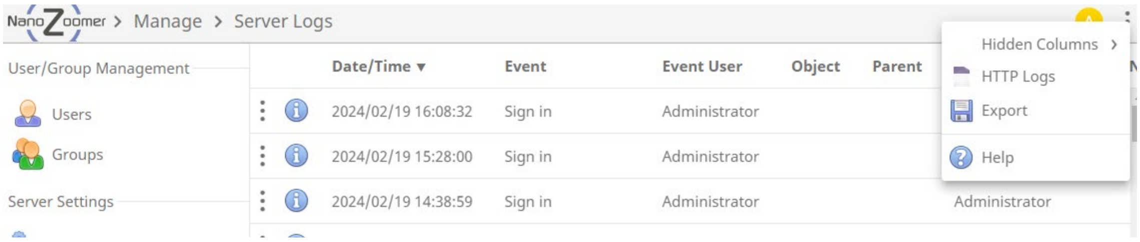


Image 7-94

7-13 SERVER STATUS

Viewing the server status requires the Modify Server Settings right.

The page allows changing the server license as well as showing various server statuses:

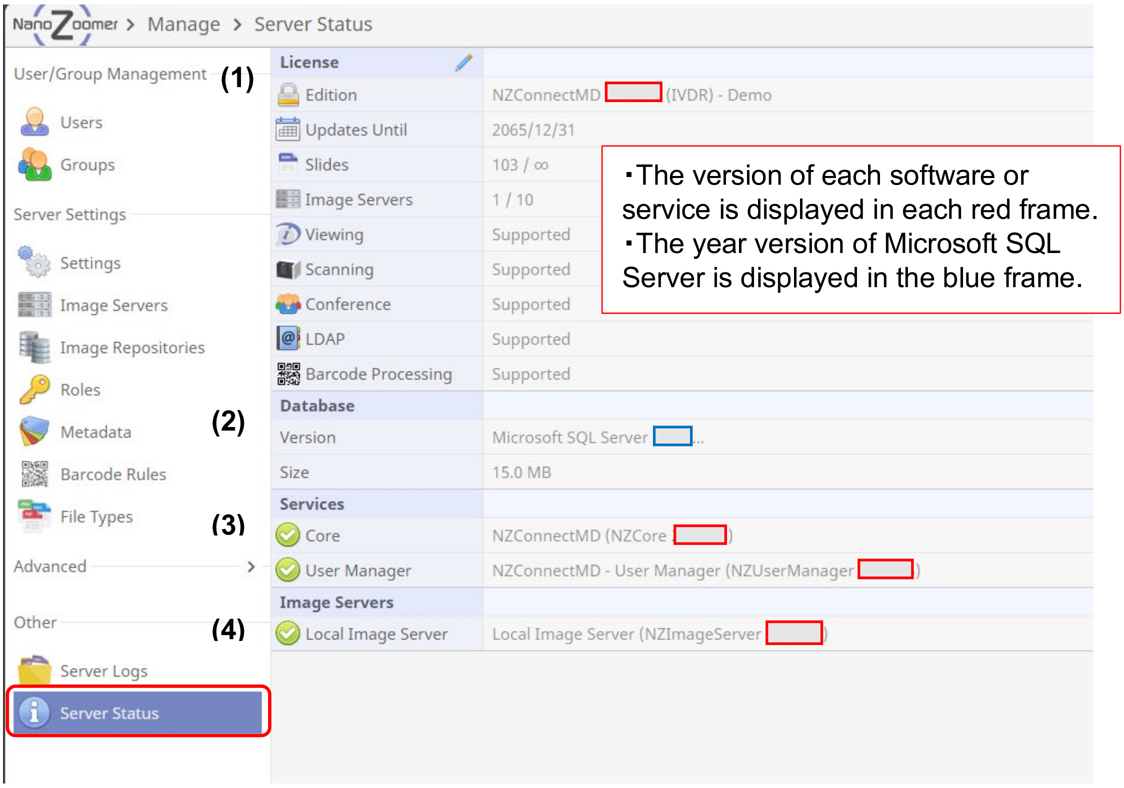


Image 7-95

(1)	License	You can enter the license. Click the to display the license dialogue box.
	Edition	It displays the version of NZConnectMD software.
	Updated Until	It displays the support expire.
	Slides	Number of slides and how many slides are supported.
	Image Servers	Number of image servers and how many image servers are supported.
	Viewing	It displays whether the "View" function is supported or not.
	Scanning	If you enter a license that supports both this software and NZConnectMD Scan U16414-21MDEU, the "Scan" icon will be displayed and enabled.
	Conference	It displays whether the "Conference" function is supported or not.
	Barcode Processing	Displays whether the "Barcode Processor" is supported. If you enter a license that supports both this software and NZConnectMD Scan U16414-21MDEU, the barcode processor function will be enabled.
	LDAP	It displays whether the "LDAP support" function is supported or not.
(2)	Database	—
	Version	It displays the version of SQL database software. (with detailed information in the tooltip)
	Size	It displays the database size in use. - to easily see when close to any limitations (e.g. SQL Server Express's 10GB limit)
(3)	Services	It displays the information of NZConnectMD services. ➢ Core ➢ Group Manager ➢ User Manager ➢ Object Manager ➢ Session Manager ➢ Rights Manager
(4)	Image Servers	It displays the information of the registered image server list.

Note

- If you use more than the number of license available in license code, you may receive an error message that the license is oversubscribed. In this case, contact a Hamamatsu subsidiary or your local distributor.

8. WEB VIEWER

The web viewer allows slide images to be viewed quickly within the browser, providing a subset of features available in the installable viewing software NZViewMD.

The web viewer is used in several places around the server. In some situations such as when previewing a slide in a repository, the features available will be limited.

The operation method of Web Viewer is same as NZViewMD basically.

Note

- Basic operation instructions for viewing images with the web viewer can be displayed by clicking the help icon on the toolbar of the web viewer.

Note

- Refer to NZViewMD instruction manual for details. If you cannot find out how to operate, contact a Hamamatsu subsidiary or your local distributor.

Note

- Web Viewer is not supported for the following functions.
  If you need the following functions, use NZViewMD software.
  - File browser operation
  - Annotation list
  - Export images with changes for resolution and format (BMP, TIFF)

8-1 OPENING IMAGES

You can open images by right-clicking the slide and choosing **Open in Browser**. Up to 4 slides can be opened at the same time by selecting all of them before right-clicking.

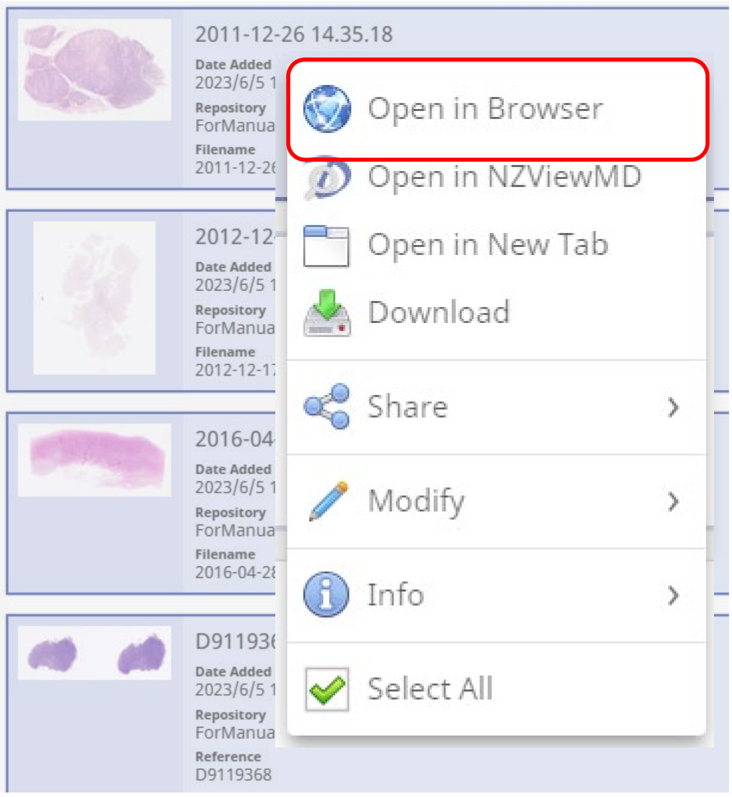


Image 8-1

Layouts

If there are less than 4 images open in the web viewer and the current layout isn't 3 columns or 3 rows, it is possible to drag a slide from the item view over the web viewer. When the slide is over the web viewer, drop zones will appear. These zones allow the user to open the slide in a given location. Positioning the mouse over one of these zones will expand the zone to show where the image will open.

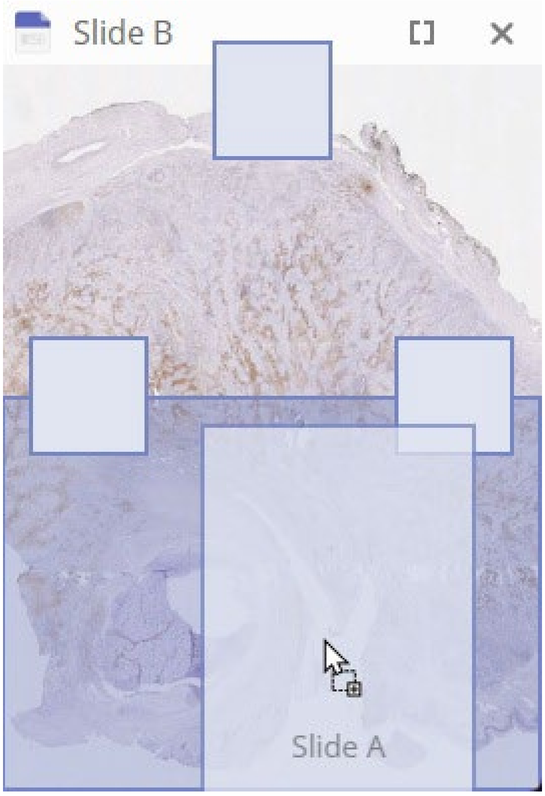


Image 8-2

It is also possible to choose a layout using the option in the toolbar and then drag a slide into the desired location.

Dragging a slide to a location that already has a slide in will open the slide in its place.

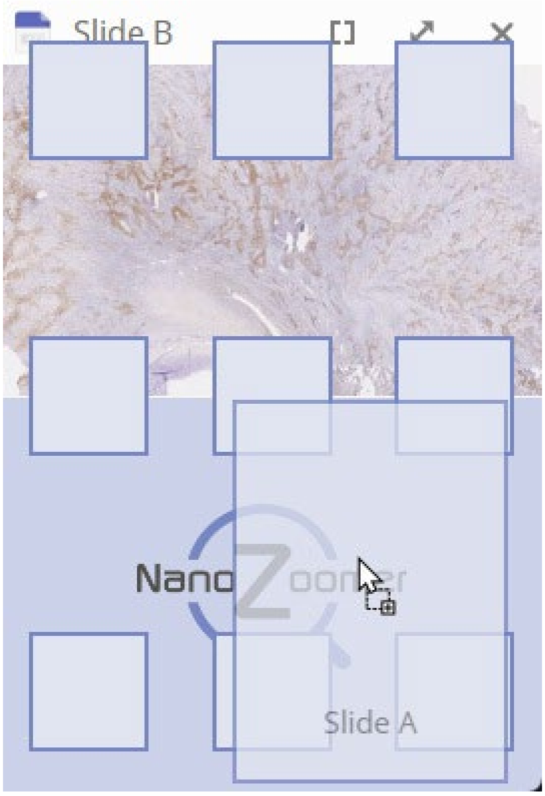


Image 8-3

Dropping multiple slides over the web viewer will not show any drop zones. All the current images will be closed and up to 4 of the newly dropped slides will be opened.

The web viewer remembers the last layout used for each number of slides, and will default to the remembered arrangement whenever the number of slides changes.

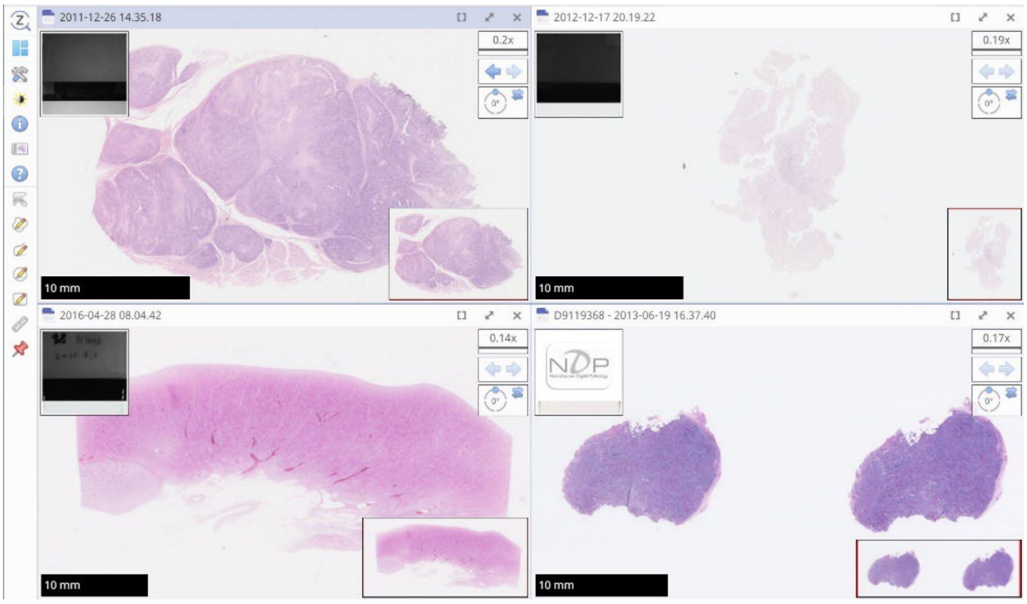


Image 8-4

Note

- Images displayed in multi windows can be selected only from the same slide list on the slide list or search results page.

Note

- When multiple images are selected on the slide list , regarding the display position of the image on the multi window, it will be displayed in the order of upper left -> upper right -> lower left -> lower right, from the top after checking in the slide list. You cannot change their display position.

Synchronising Layouts

Images open in a layout can be synchronised so that all images move together. This is useful for comparing serial sections stained with different dyes.

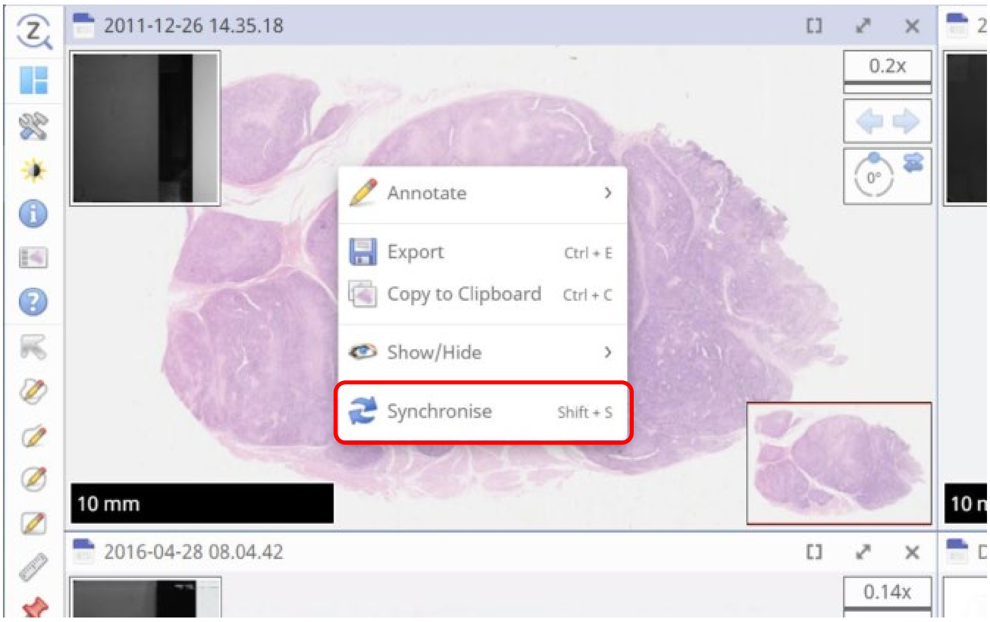


Image 8-5

To synchronise the sections of a layout:

- Right-click on any image and select **Synchronise**
- Move the coloured crosshairs to matching locations on each image

To cancel the synchronisation, right-click on any image and select **Desynchronise**

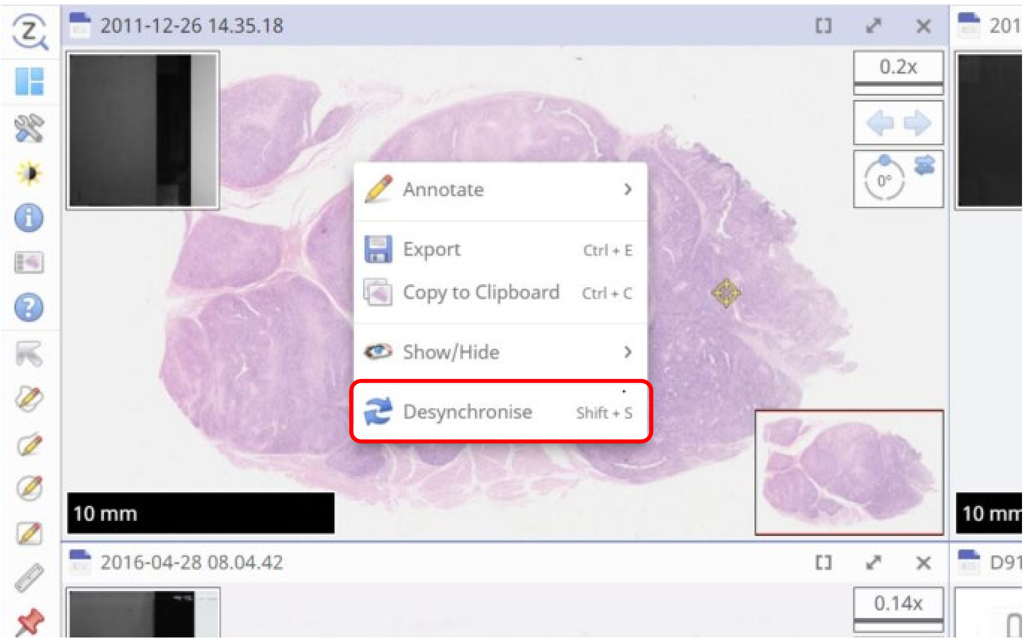


Image 8-6

8-2 NAVIGATING IMAGES

There are lots of ways to interact with the image which are outlined below. If the settings window is available there are some customisations that can be made to personalise the navigation experience.

Panning

Drag the image around by holding down the left mouse button and moving the mouse.

Use the arrow keys to pan at a continuous speed.

Use the middle mouse button to enter joystick mode  - the further from the start position the mouse moves, the faster the image will pan in that direction.

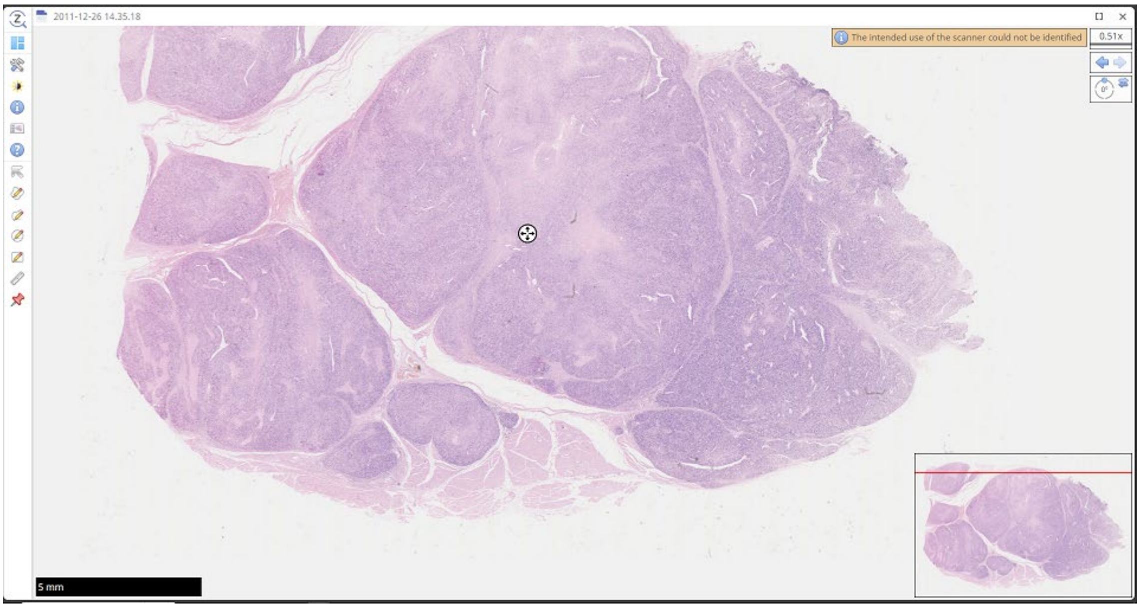


Image 8-7

Zooming

Scroll the mouse wheel forwards to zoom into the cursor position and scroll backwards to zoom out.

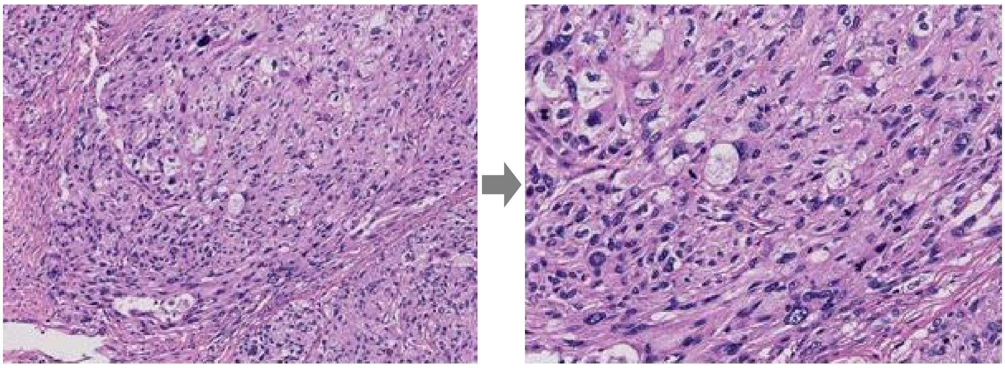


Image 8-8

Drag a box with the right mouse button to zoom directly to the selected area.

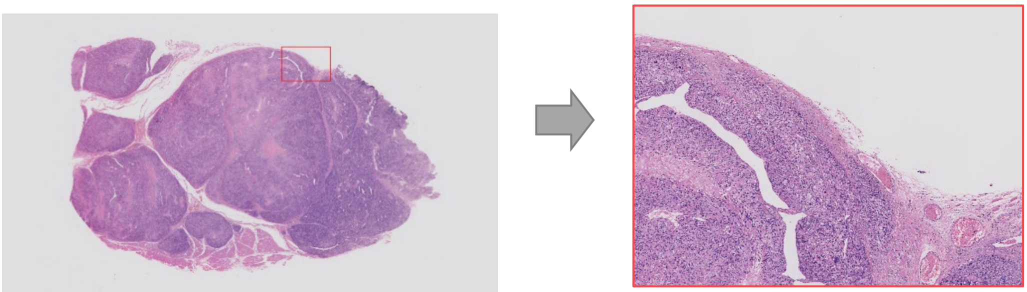


Image 8-9

Double-click anywhere on an image to move and zoom to that position.

Use the + and - keys to zoom in and out continuously.

Click the magnification button at the top-right of the window to see a list of preset magnifications. Click on an item in the list to select that magnification.

Use the number keys to jump directly to preset magnifications:

- 0: Fit to screen
- 1: 1.25x
- 2: 2.5x
- 3: 5x
- 4: 10x
- 5: 20x
- 6: 40x
- 7: 80x
- 8: 160x

Key	Magnification	Key	Magnification
+	Increase	**-**	Reduce
0	Overview	**5**	20x
1	1.25x	**6**	40x
2	2.5x	**7**	80x
3	5x	**8**	160x
4	10x		

If the image source magnification is not in this list, then the higher power lenses will vary accordingly.

Rotation

To freely rotate the image, hold down the Ctrl key and press the left or right arrow keys. Alternatively, drag the ball around the rotation widget.

To rotate the image in 90° steps, press the R key.

Image 8-10

Specify an angle by double-clicking the text within the rotation widget, typing the desired angle, and pressing Enter.

Note

- See “WIDGETS AND OVERLAYS” below.

Mirror and Flip

To mirror the image horizontally, hold the Alt key and press the M key.

The image can also be mirrored by clicking the mirror icon in the top-right corner of the window.

To flip the image vertically, hold the Alt key and press the F key.

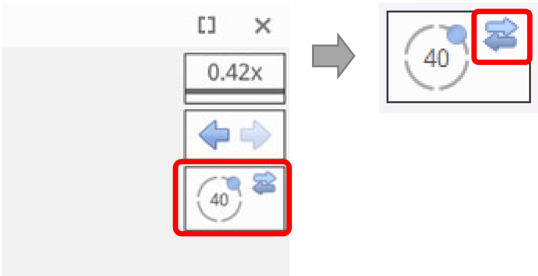


Image 8-11

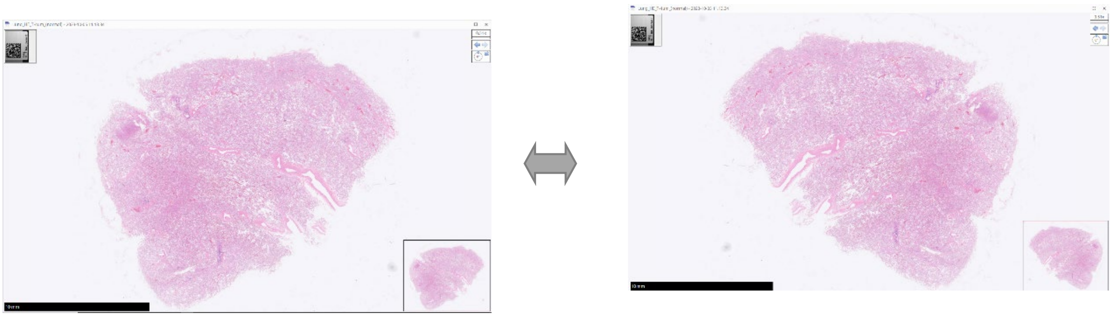


Image 8-12

8-3 WIDGETS AND OVERLAYS

All the widgets described here can be shown or hidden by using the  Show/Hide option in the main context

menu. They can be hidden using the  Hide option from each widget's own context menu. If the Settings window is available, the visibility settings can also be changed from the Interface tab.

Title

If the web viewer does not have a title bar (e.g. when in a window like the quality check slide view) then the title widget will be displayed in the top-left corner.

The title is the name of the object or the filename if browsing a repository.

Label

Underneath the title will be the slide's label if the user has permission to view labels and the slide has a label available. Clicking the label will cause it to rotate by 90°. There are additional options on the label's context menu:

- Small – set the label size to no bigger than 64x64
- Medium – set the label size to no bigger than 128x128
- Large – set the label size to no bigger than 192x192
- Rotate – rotate the label by 90°

Widgets

In the top-right corner of the image are the image control widgets.

Lens

This widget displays the current magnification of the view.

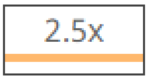


Image 8-13

Clicking on it will show a menu with magnification options in. The keyboard number keys (0-9) will set the magnification to the appropriate lens (clamped with consideration to the overview lens and maximum digital zoom navigation setting).

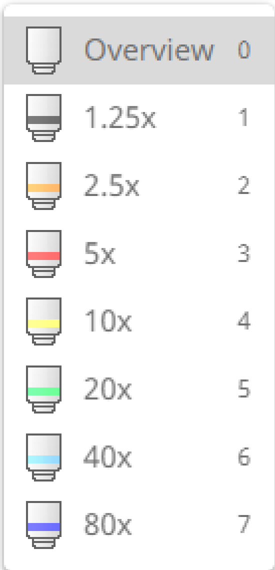


Image 8-14

The overview option will bring the entire image into view.

History

The history widget allows going back and forward through the navigation history that is recorded. If it is not possible to go back or forward any further, the arrow will be disabled. The user can either click (to step just one action) or hold the mouse down to continue stepping back/forward until the mouse is released.

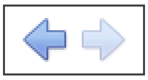


Image 8-15

Rotation

The rotation widget allows rotation and flipping. The image can be flipped on the y axis. The rotation ring can be clicked to set a rotation, or the ball dragged for finer control. For even finer control, the text inside the rotation widget displaying the current angle can be double-clicked and a new angle typed.

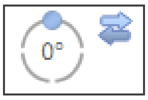


Image 8-16

1. Double click the text part of the rotation widget.

Image 8-17

2. The cursor will be displayed and you will be ready to enter numbers.

Image 8-18

3. Enter the angle you want to rotate and press the “Enter” key.

Image 8-19

4. It will be rotated at the angle you entered.

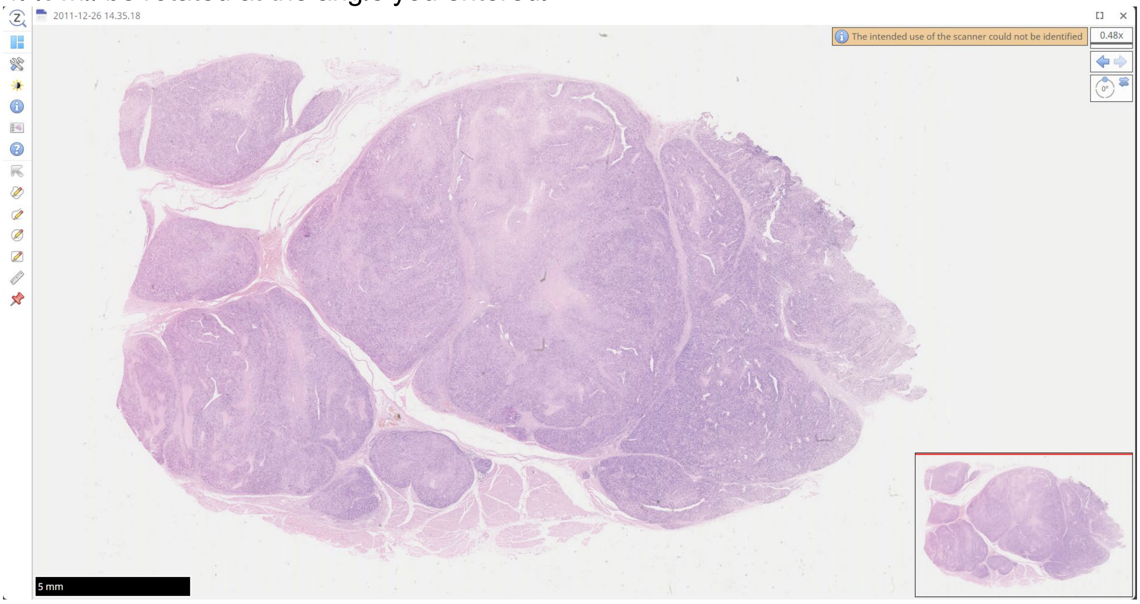


Image 8-20

Layers

Some images are scanned with multiple Z-layers that allow focusing through the image in the viewer. These are useful for specimens that have a larger depth of field than the objective lens of the scanner. Z-stack images allow all parts of an image to be captured in focus even if they are at different depths on the slide.

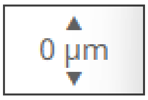


Image 8-21

The layers widget is only visible on a slide with multiple layers. The current layer will be displayed and arrows can be clicked to move between layers. **Ctrl + Mouse Wheel, PgUp** and **PgDn** will also move between layers.

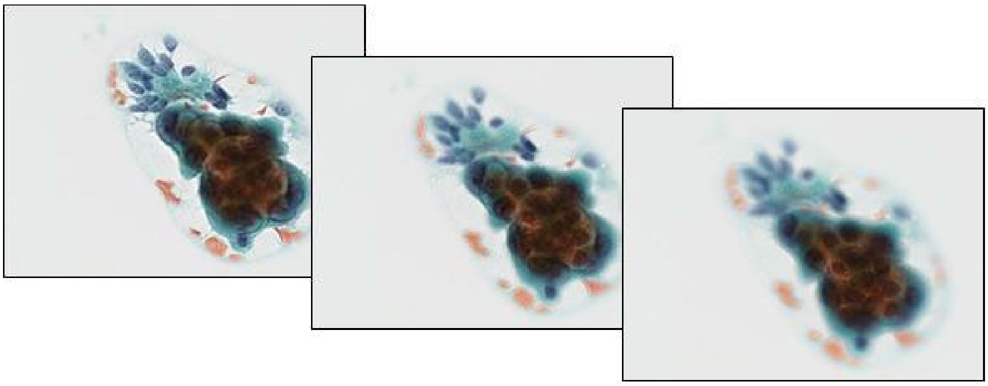


Image 8-22

Map

The map in the lower-right corner of the window displays an overview of the image as well as the current region being observed. Visibility can be toggled with the **M** key. The context menu options provided are:

Option	Behaviour
Small	Change the size to 1/5th the dimensions of the view
Medium	Change the size to 1/4th the dimensions of the view
Large	Change the size to 1/3rd the dimensions of the view
Enable Tracking	Start tracking
Show Track Map	Show tracking information over the map
Reset Track Map	Reset tracking information
"Show Focus Map" and "Hide Focus Map"	Toggle between “Show focus map" and “Hide focus map.”
Hide Map	Hide Map

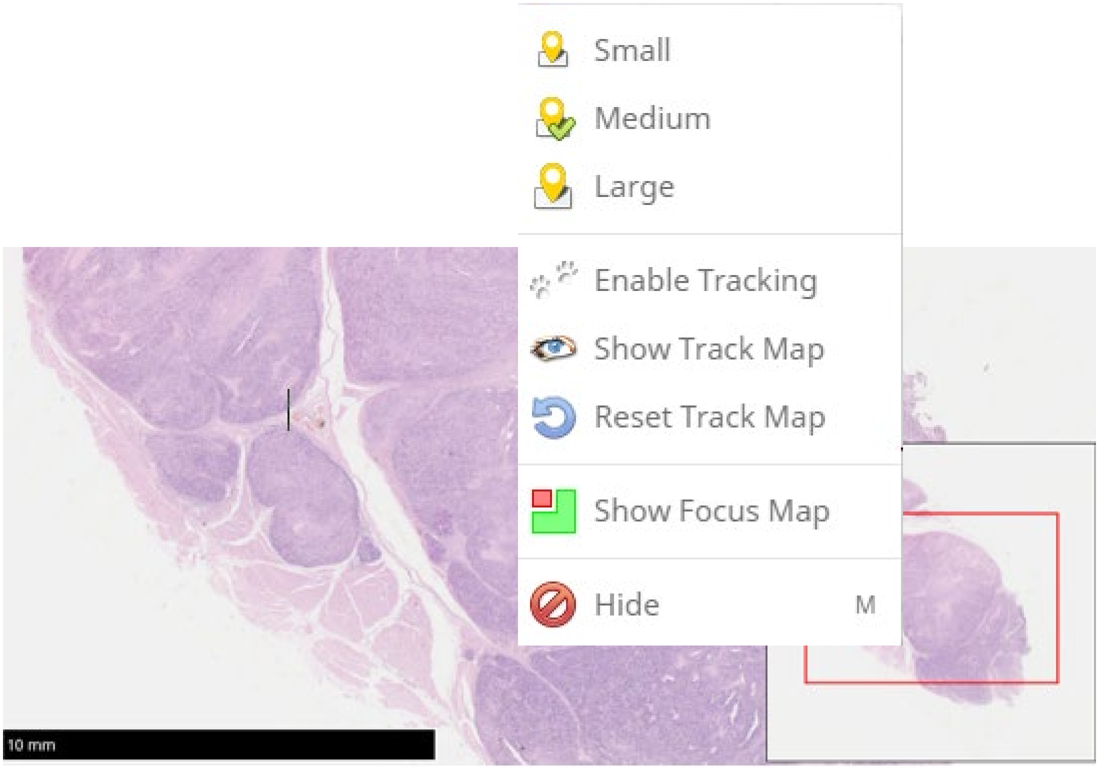


Image 8-23

Navigation

Click on the map to jump directly to the selected position at the current magnification.

Hold the left mouse button and move the mouse to quickly pan around the image.

Drag a box using the right mouse button to view the selected area immediately.

Tracking

Tracking is used to keep track of areas of the image that the user has visited. The map will become dark, and viewing the image at varying resolutions will reveal lighter areas on the map, bordered with a nearby lens value.

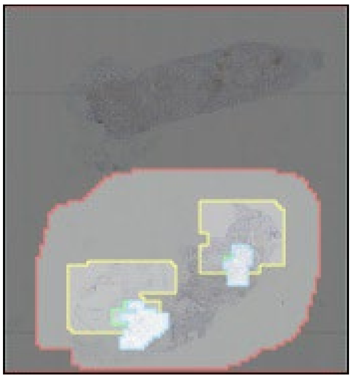


Image 8-24

There is a startup setting to enable tracking and the track map on open.

Scalebar

The scalebar shows an appropriate screen measurement depending on the current magnification to aid in determining the size of content in the image. Visibility can be toggled with the **B** key.

There are interface settings to control the design of the scalebar as well as the minimum size. The design can also be changed in the scalebar's context menu between these options:

- 

Block
-  Ticked White
-  Ticked Black

8-4 ANNOTATIONS

Drawing

After selecting an annotation to draw in the toolbar or on the context menu, the annotation can be drawn on the image.
For pin annotations, clicking will place the pin at the chosen point. For all other annotations, the user can click or click and drag to place them.

Image 8-25

For pointers, circles, rectangles and rulers the behaviour is similar; the first click (or the beginning of a drag) will place the first point. The second click (or the end of the drag) will place the final point and finish the drawing.

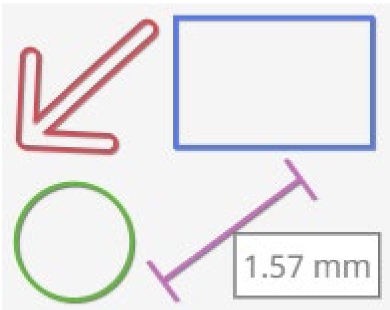


Image 8-26

For freehand/freehand lines, a click and drag will behave similarly to the above annotations. If the user does a single click instead, the annotation can be drawn in “point-to-point” mode, where each click will add a new line connecting the previous point. At any point with an annotation started in this way, the user can click and drag to draw outside of point-to-point mode. Upon releasing the drag, the user will be returned to point to point mode. To finish drawing, the user can double click or right-click and choose the “Finish Drawing” option. In this context menu are also options to cancel the drawing and delete the last placed point.

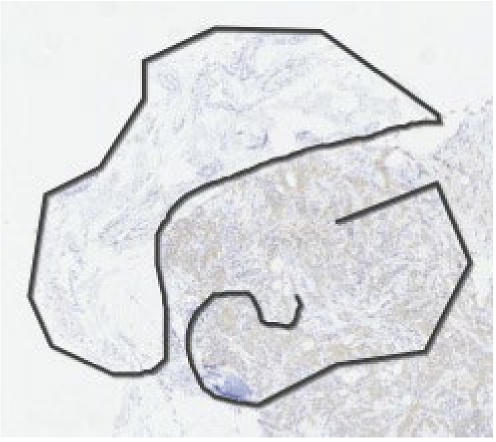


Image 8-27

Annotation Details

Once drawing the annotation is completed, this window will appear. The user can specify:

- Title
- Show Title – whether the title should be visible on the image
- Description
- Show Area/Perimeter/Radius – whether these values should be visible on the image (only if applicable to the annotation type)
- Colour

Hover

When hovering over an annotation, more information will appear, including:

- Title
- Owner
- Description

Context Menu

The options available on the annotation's context menu are:

- Goto – change the position/scale to the values that were used when creating the annotation
- Edit – opens the annotation details window
- Move – attaches the annotation to the mouse, allowing the user to click and place it elsewhere
- Cut – removes the annotation and saves it for later pasting
- Copy – saves the annotation for later pasting
- Delete – removes the annotation

Editing Annotations

When an annotation is being edited, the annotation details window will appear but the user can still interact with the image. As well as changing all the information in the window, the user can interact with the annotation on the image in the following ways:

- Freehand annotations:
  - Click + Drag a point to move it
  - Click a point to select it, then Shift + Click other points to select them
  - Shift + Drag to select an area of points
  - Ctrl + Shift + Drag will select an area to de-select
  - Ctrl + Click will toggle a point selected/deselected
- Circle annotations:
  - Click + Drag a point to adjust the radius
- Rectangle annotations:
  - Click + Drag a point to adjust the width/height
- Ruler/pointer annotations:
  - Click + Drag a point to move the point

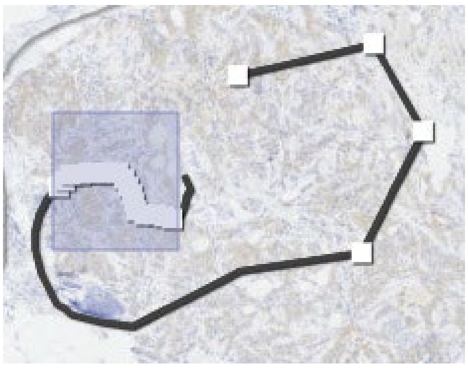


Image 8-28

8-5 WINDOWS

8-5-1 IMAGE CONTROLS

Customise the image colours and apply a sharpen filter.

The Image Controls window can be found in the Toolbar or by pressing the I key.

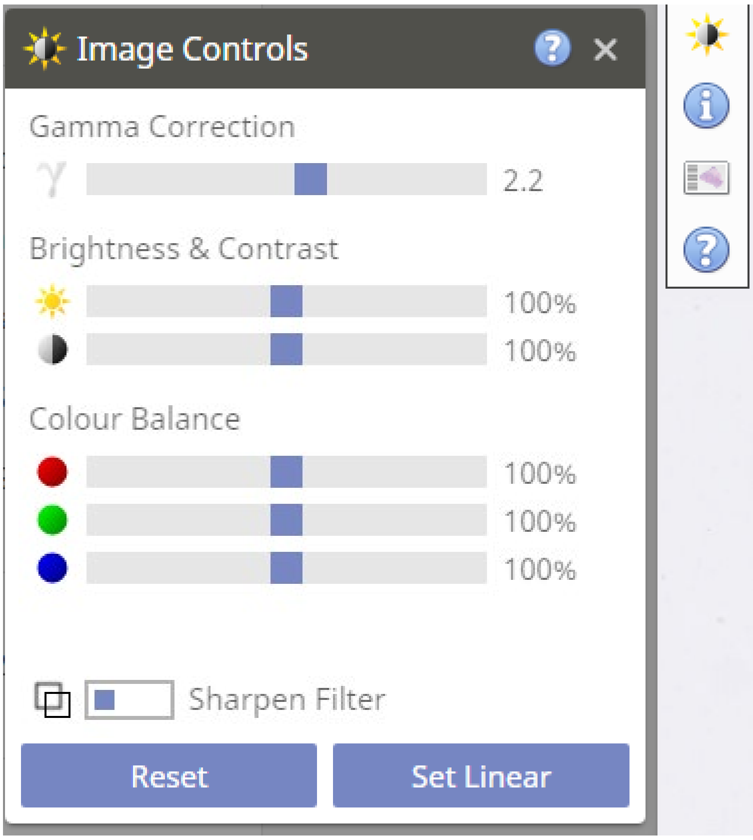


Image 8-29

All images have the following options:

- Gamma
- Brightness
- Contrast
- Red Balance
- Green Balance
- Blue Balance
- Colour Profile (disabled if not available)
  - ➢ This affects both the main image and the slide image
  - ➢ Enabling this option will change the current and default gamma to 1.0 and apply the colour profile
  - ➢ Disabling this option will change the current and default gamma to the image's default gamma and will no longer apply the colour profile

- Sharpen Filter
- Filter Set Controls – for fluorescence images
  - Single channel images will have a wavelength slider (turned off when set to the far left, otherwise 380 nm to 645 nm)
  - Multichannel images will have the following options:
    - Checkbox with the name of the channel to enable or disable the channel
    - Brightness
    - Wavelength
- Reset All – resets all settings to their default
- Set Linear – resets all settings to their default and gamma to 1.0

8-5-2 IMAGE INFO

View information related to the slide, such as the reference, resolution and the hardware used to create it.

The Image Info window can be opened by pressing F. If the slide has any of the information below, it will be displayed.

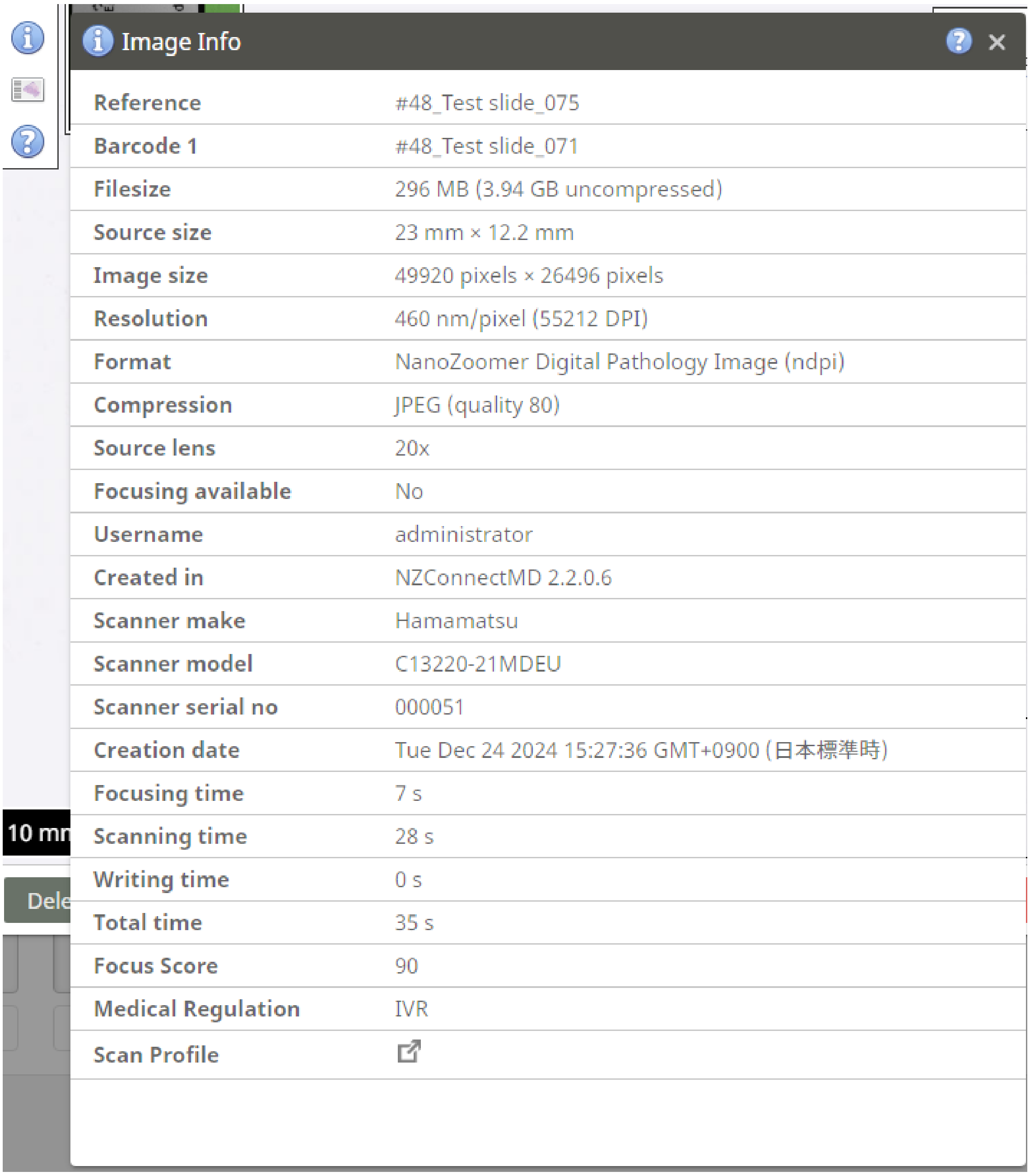


Image 8-30

- Reference
- Barcode 1
- File Size
- Source Size
- Image Size
- Resolution
- Format
- Compression
- Lens
- Focus Range
- Layers
- Focusing Available
- Username
- Creator
- Hardware Make
- Hardware Model
- Hardware Serial
- Colour Profile
- Slide Image Colour Profile
- Creation Date Time
- Filter Set Name
- Exposure Ratio
- Colour Balance
- Focus Time
- Scan Time
- Write Time
- Total Time
- Focus Score
- Medical Regulation
- Scan Profile
- Number of Annotations
- Custom Server Metadata

Note

- We use the term "Medical Regulation(medical device regulation)".
  For example, MDR(EU)/IVDR(EU)/FDA(US)/PMDA(Japan)

8-5-3 SLIDE IMAGE

View a picture of the slide and label.

This window opens when the user presses “G” on the keyboard while the slide image is displayed. Not all slides contain a slide image and the user must have permission to view slide images. If available, a blue box will display the actual scan area.

Image 8-31

8-5-4 SETTINGS

Change functionality of the web viewer, such as navigation preferences, interface visibility and startup options.

This window can be opened by pressing **P**. It is split into tabs, each tab having relevant settings.

Navigation

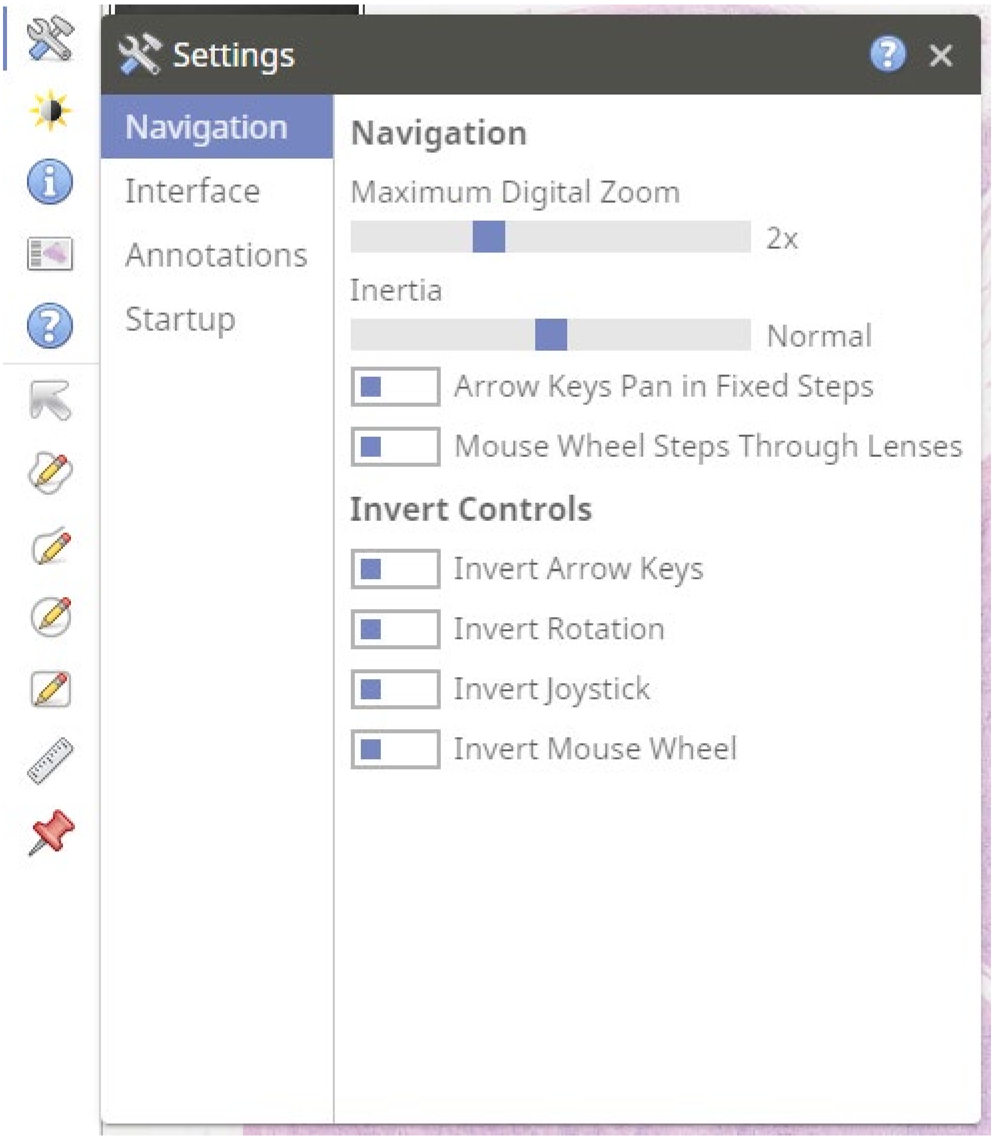


Image 8-32

Setting	Behaviour
Maximum Digital Zoom	Control how far past source resolution to allow zooming (e.g. if the slide is 20x, a 2x digital zoom will allow zooming to 40x)
Inertia	Control how quickly any movements come to rest after panning the image with a left-click drag
Arrow Keys Pan in Fixed Steps	Allow pressing arrow keys to move a fixed amount in one press
Mouse Wheel Steps Through Lenses	Scrolling the mouse wheel one notch will change the lens to the next available lens instead of freely
Invert Arrow Keys	The arrow key panning directions are inverted
Invert Rotation	Rotating the image will rotate the opposite direction
Invert Joystick	Panning with the joystick (middle mouse button) will move in the opposite direction
Invert Mouse Wheel	Zooming with the mouse wheel will zoom in the opposite direction

Interface

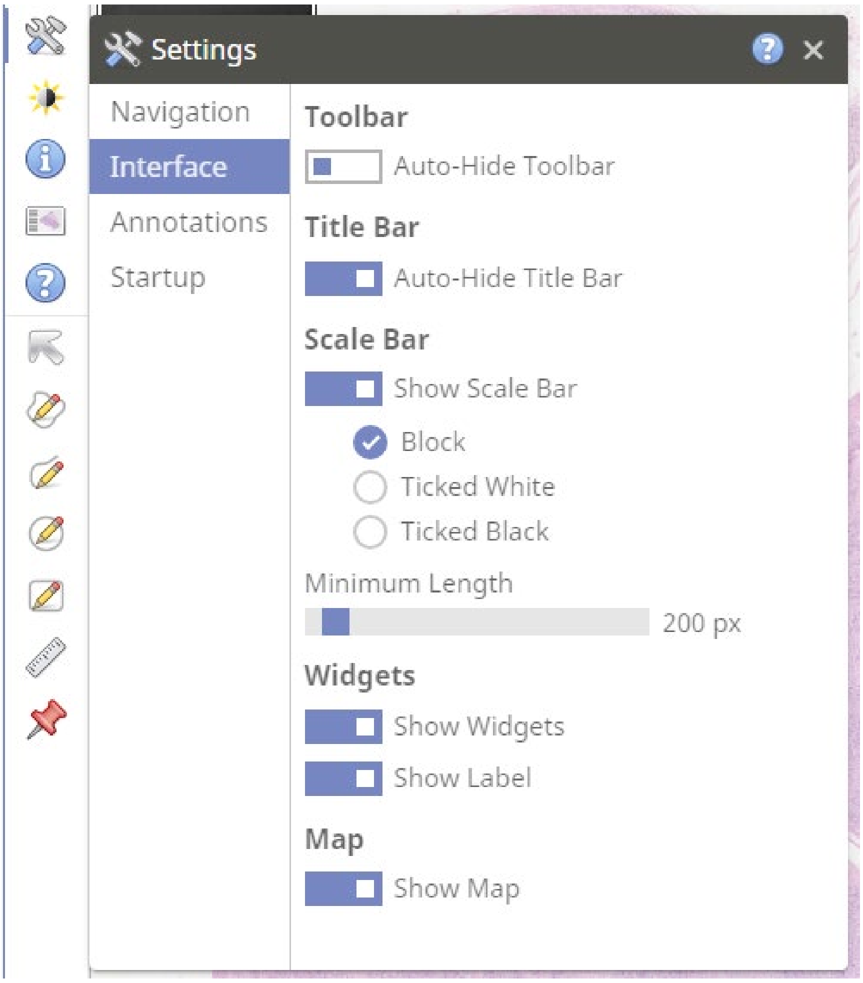


Image 8-33

Setting	Behaviour
Auto-Hide Toolbar	Automatically hide the toolbar when the mouse isn't nearby
Auto-Hide Title Bar	Automatically hide the title bar when the mouse isn't nearby
Show Scale Bar	Toggle the visibility of the scale bar (**B**)
Scale Bar Design	Block, Ticked White or Ticked Black
Scale Bar Minimum Length	The smallest the scalebar will appear (between 150 and 1000 px)
Show Widgets	Toggle the visibility of widgets
Show Title	Toggle the visibility of the title (only available if the title in a widget instead of the title bar)
Show Label	Toggle the visibility of the label
Show Map	Toggle the visibility of the map (**M**)

Annotations

This section has the option to show/hide annotations (the shortcut for this is the **A** key).

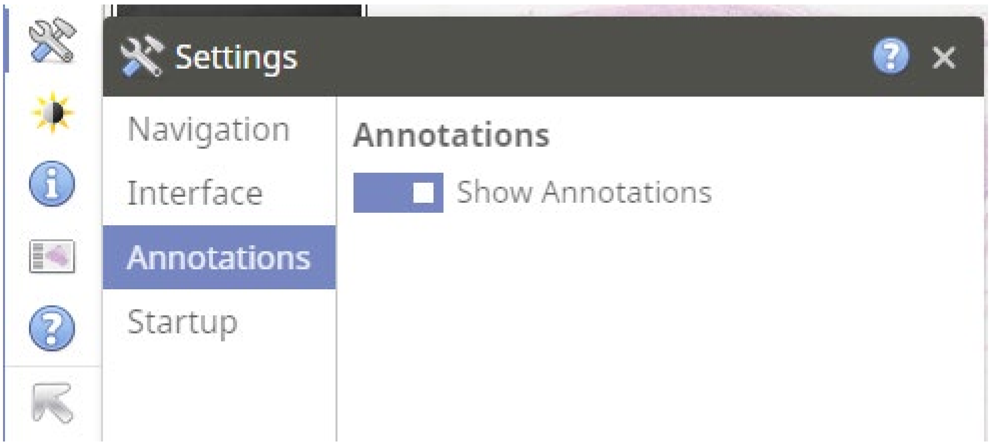


Image 8-34

Startup

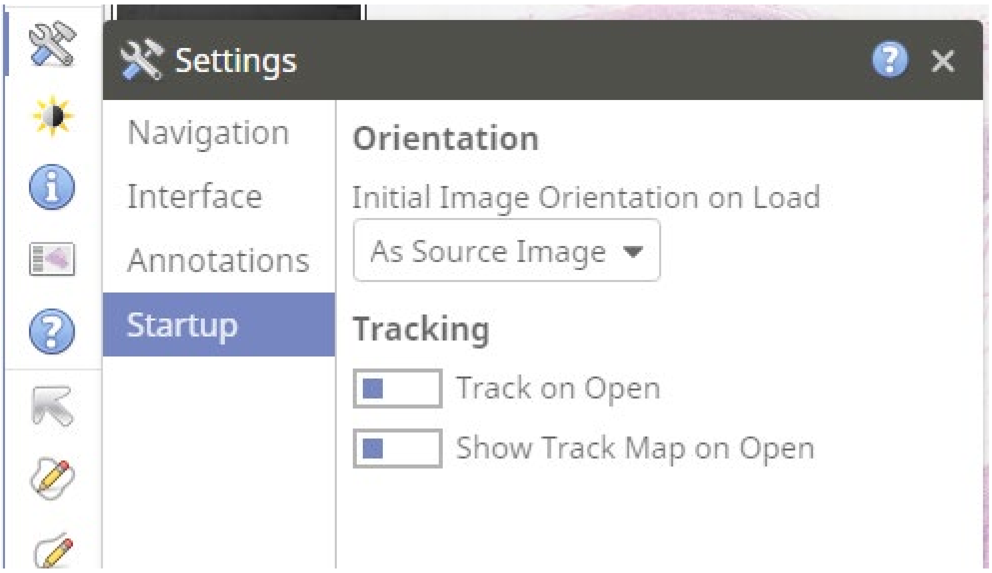


Image 8-35

This section has settings that affect what happens when an image is loading or loaded.

- Orientation
  - Initial Image Orientation on Load – set the rotation of the image when it first loads
    - As Source Image – some images contain their prefered viewing angle
    - Label on Left (or Right/Top/Bottom) – ignore the angle stored in the file and force the image to load a specific way round based on the position of the label on the slide
- Tracking
  - Track on Open – start tracking what parts of the image have been seen and at what resolution
  - Show Track Map on Open – show the above tracking information on top of the map

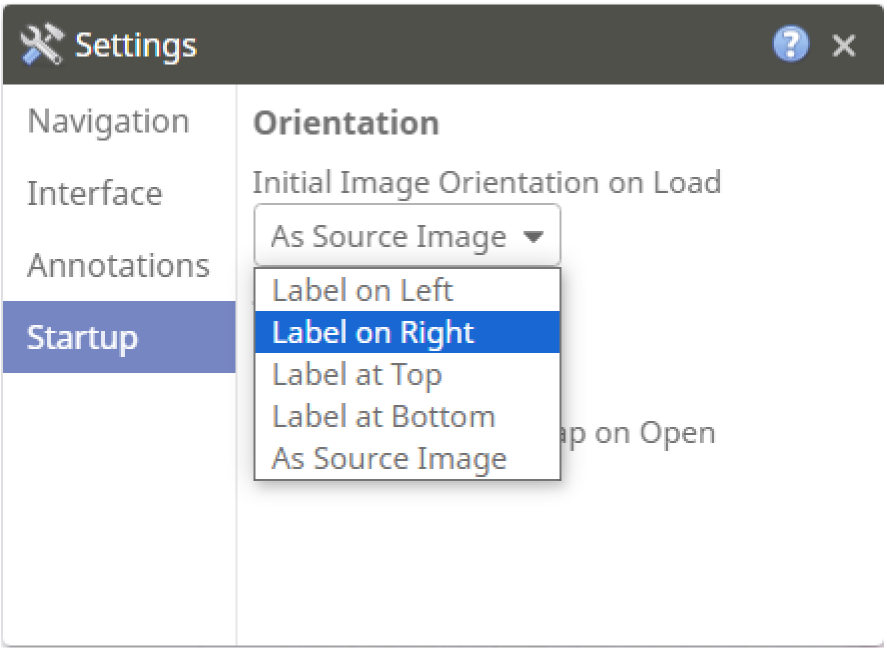


Image 8-36

8-6 OTHER INTERFACES

Context Menu

The main context menu (accessed by right-clicking anywhere on the image) has the following options depending on permissions:

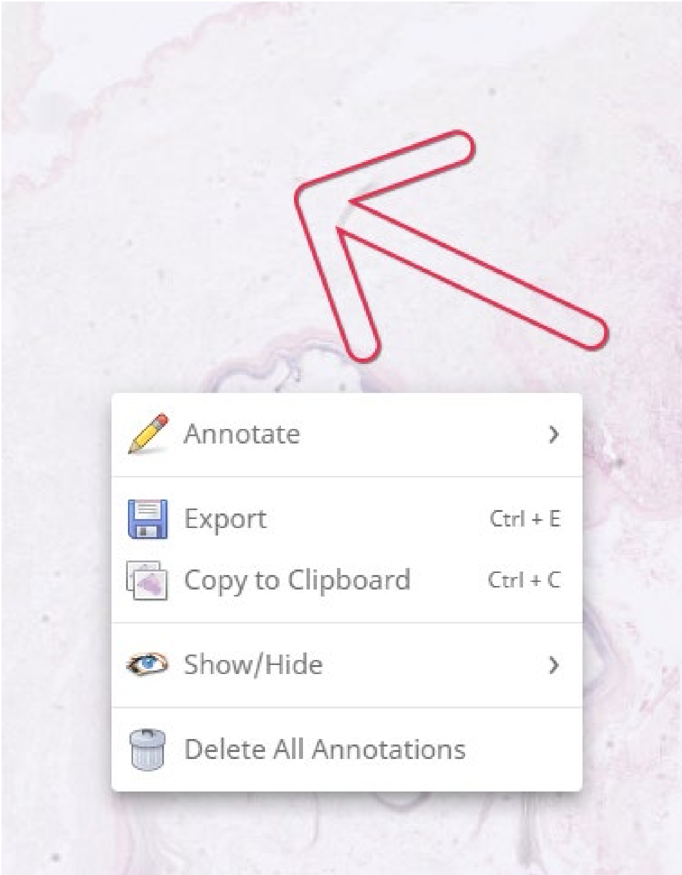


Image 8-37

Option	Behaviour
Annotate	Start drawing an annotation (pointer, freehand area, freehand, circle, rectangle, ruler, pin).
Export	Download the currently visible area of the image (**Ctrl + E**).
Copy to Clipboard	Copy the currently visible area of the image to the clipboard (**Ctrl + C**). If copying to the clipboard is not available in the browser, launches a window that allows copying to clipboard using the browser's built in behaviour.
Show/Hide	Show or hide various UI elements (annotations, map, scale bar, widgets, title, label).
Delete All Annotations	Delete all the annotations from the image. Not shown if there are no annotations to delete.
Paste Annotation	Attaches the annotation to the mouse (**Ctrl + V**), allowing the user to place it with a click. Not shown if an annotation hasn't been copied or cut.

Toolbar

A toolbar is available on the left-hand side of the viewer. It can either be permanently visible or automatically hide when the mouse is not near. It has the following options:

- Layout – choose from a set of layouts allowing the display of up to 4 images at once
- Tool – Select whether panning should be done with the pointer or in joystick mode.
- Windows
  - Settings
  - Image Controls
  - Image Info
  - Slide Image
  - Help
- Annotations
  - Pointer
  - Freehand Area
  - Freehand
  - Circle
  - Rectangle
  - Ruler
  - Pin

Image 8-38

At the top of the toolbar is the NanoZoomer logo, which launches a context menu when clicked. This menu can have the following options on it, permissions allowing:

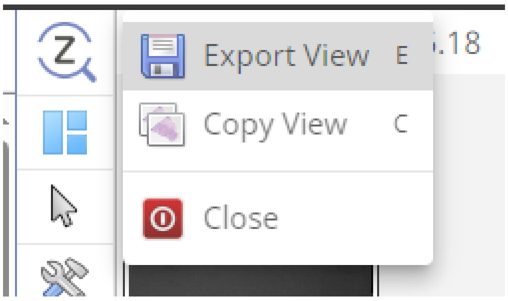


Image 8-39

Option	Behaviour
Export View	Download an image of the entire web viewer, including toolbar and widgets (E).
Copy View	Copies the entire web viewer to the clipboard (C). If copying to the clipboard is not available in the browser, launches a window that allows copying to clipboard using the browser's built in behaviour.
Close	Closes the web viewer.

In certain places the web viewer is used, some of the toolbar options will not be available. In these situations (described elsewhere), the toolbar will typically be always visible and floating in the top-left corner rather than flush with the entire left side.

Title Bar

A title bar is available at the top of each image in the web viewer. It can either be permanently visible or automatically hide when the mouse is not near. It has the following components:

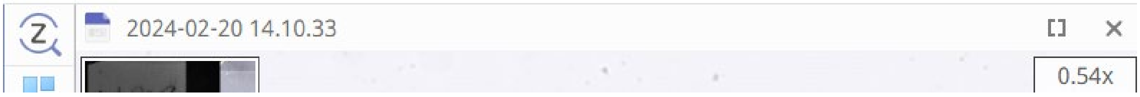


Image 8-40

- A slide icon
- The title of the slide (if the option to show the title is enabled)
- The option to maximize the viewer
- The option to maximize one image within the viewer (if more than one is open)
- The option to close the image

The title bar is only visible when viewing slide objects in the View application. In other cases, a small widget will appear above the label to show the slide's title.

Right-clicking on the bar, or left clicking on the icon will open the slide item's context menu.

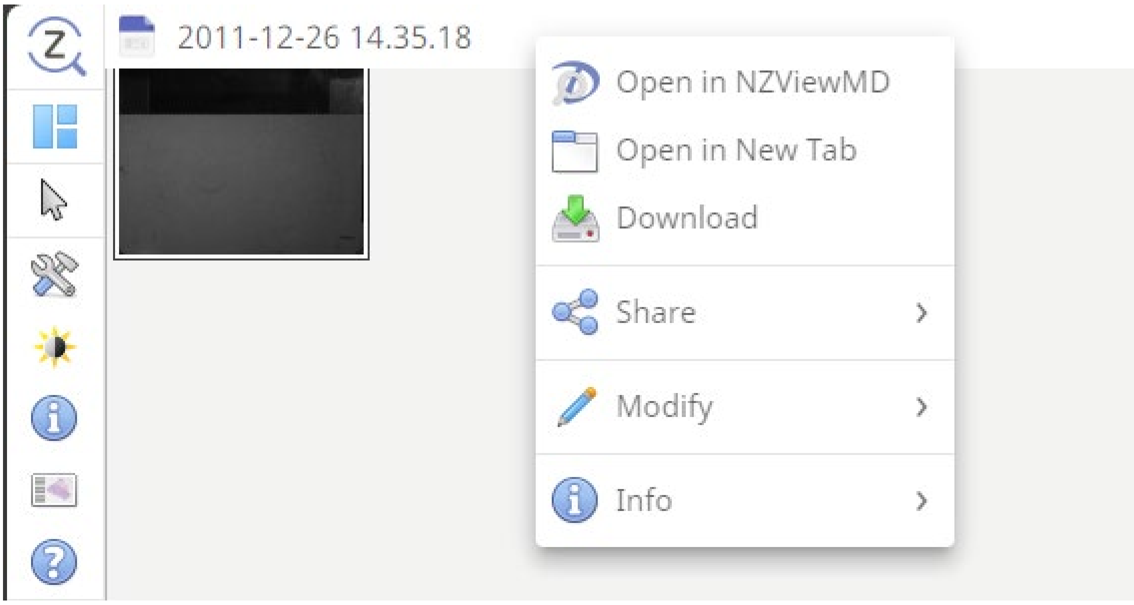


Image 8-41

8-7 DATA/SETTINGS STORAGE

All settings for the web viewer are stored in the browser's local storage. This includes settings that aren't in the settings window such as the rotation of the label widget.

Image controls are also saved in the browser's local storage, but due to different images having different available settings, the following process is followed:

- Save all the common image controls except gamma
- Save gamma for the current image default gamma and colour profile combination
- Save all custom image controls (brightness and wavelength of channels) with the name of each channel, so images that have different custom controls but share certain channels can use the same values

8-8 MESSAGE OPTION FOR MEDICAL DIAGNOSIS

If the opened image is not an image acquired for diagnostic use or it is unclear whether the opened image is one acquired for diagnostic use or not, a message to show that fact can be displayed on the Web viewer.

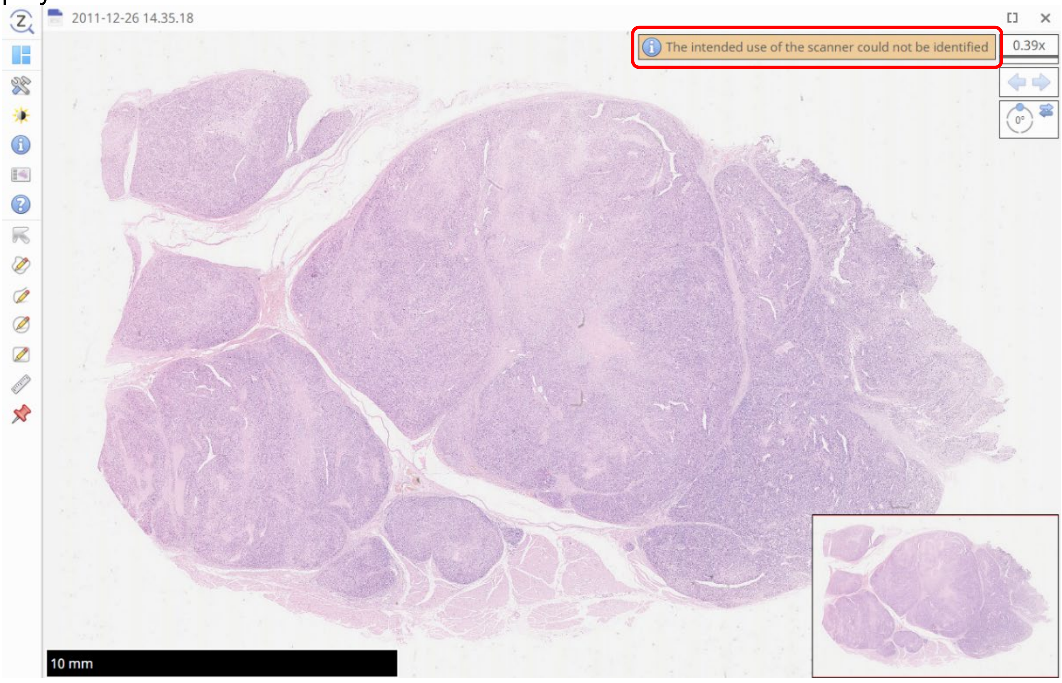


Image 8-42

Display message:

- RUO tag

Short Message: Intended use is for Research Only

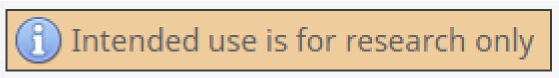


Image 8-43

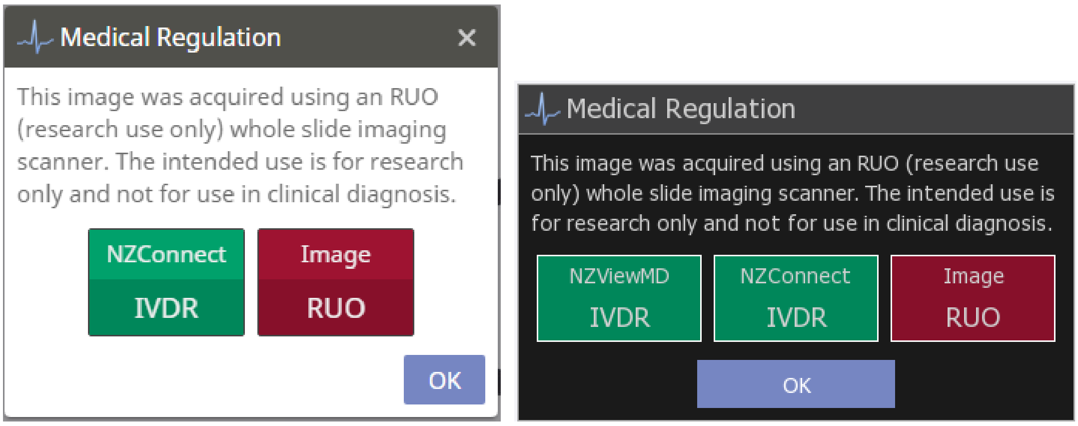
Detailed message(caption: message)

Medical Regulation:

Note

- We use the term “Medical Regulation(medical device regulation)”.
  For example, MDR(EU)/IVDR(EU)/FDA(US)/PMDA(Japan)

This image was acquired using an RUO (Research Use Only) whole slide Imaging scanner. The intended use is for research only and not for use in clinical diagnosis.



(a) Web Viewer (b) NZViewMD

Image 8-44

- Unknown tag

Short message: The intended use of the scanner could not be identified.

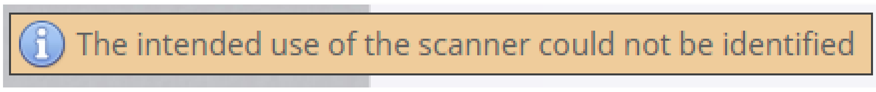
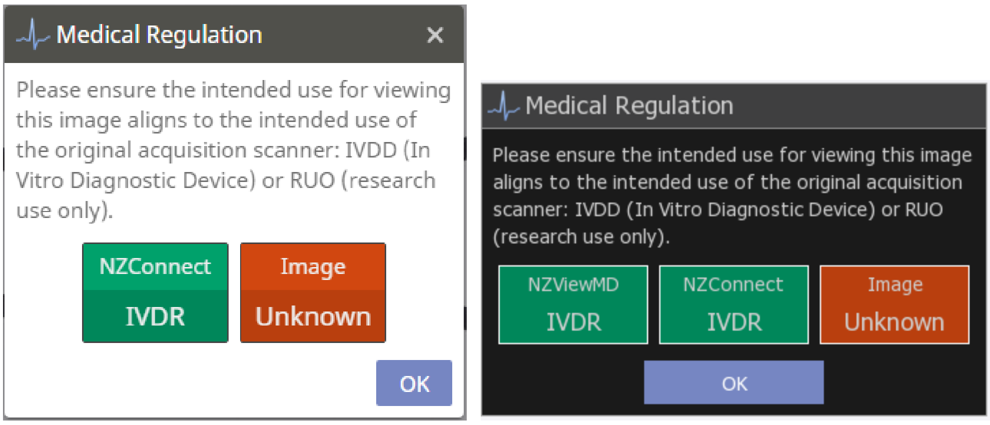


Image 8-45

Detailed message (caption: message)
Medical Regulation:
Ensure the intended use for viewing this image aligns to the intended use of the original acquisition scanner: IVDD (In Vitro Diagnostic Device) or RUO (Research Use. Only).



(a) Web Viewer (b) NZViewMD

Image 8-46

- IVDD tag
- USA tag
- KOR tag
- JPN tag

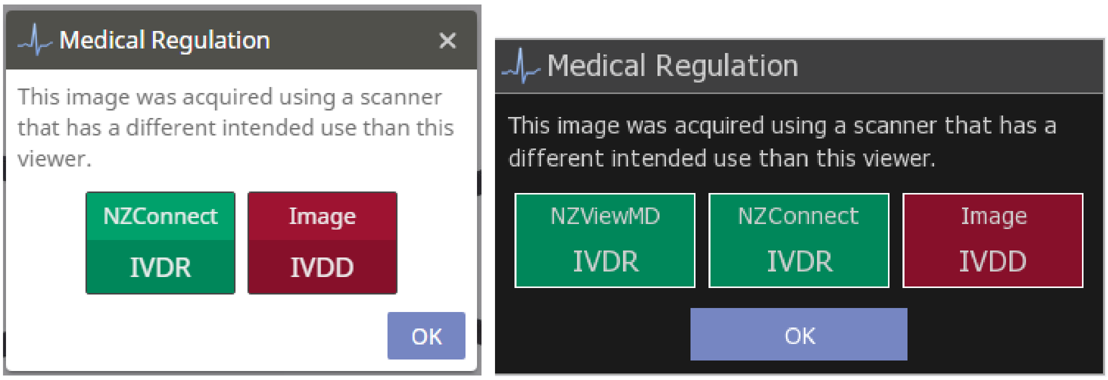
Short Message: Intended Use mismatch

Image 8-47

Detailed message(caption: message)
Medical Regulation:
This image was acquired using a scanner that has a different intended use than this viewer.

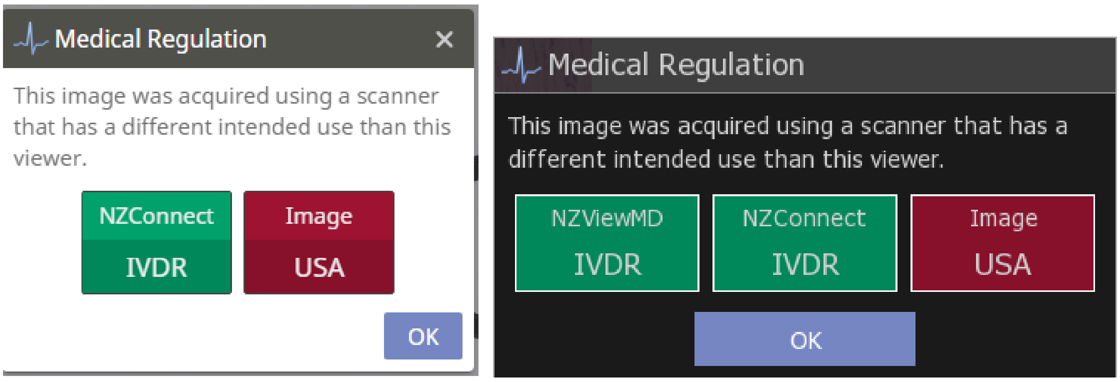
- Do not use the image that displays these messages for diagnostic procedures.

- Do not use the image that displays these messages for diagnostic procedures unless it is confirmed that the image is one acquired for diagnostic use.



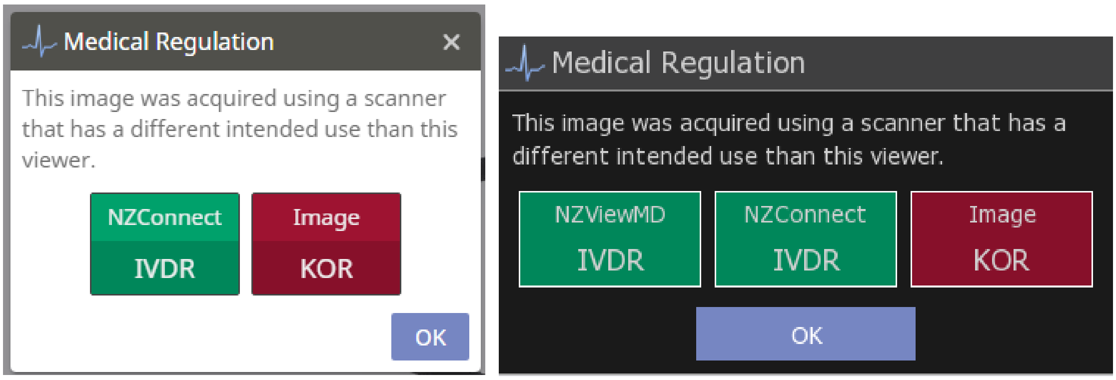
(a) Web Viewer (b) NZViewMD

Image 8-48 -IVDD tag



(a) Web Viewer (b) NZViewMD

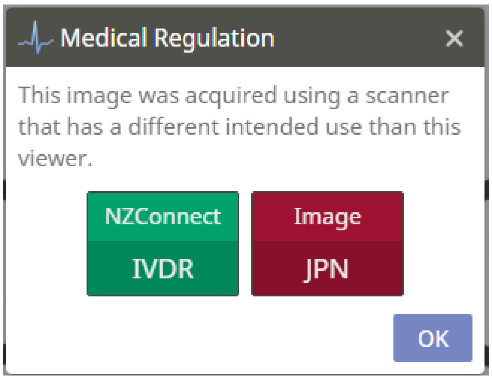
Image 8-49 -USA tag



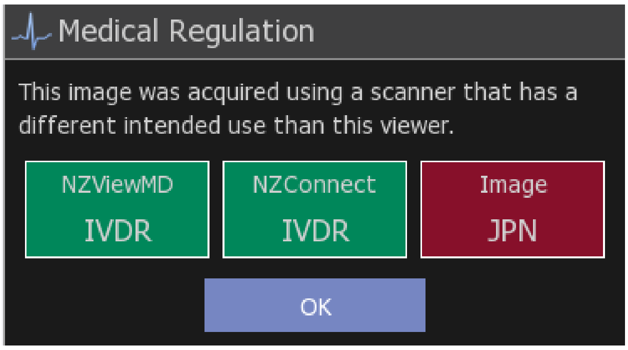
(a) Web Viewer (b) NZViewMD

Image 8-50 -KOR tag

HAMAMATSU
PHOTON IS OUR BUSINESS



(a) Web Viewer



(b) NZViewMD

Image 8-51 -JPN tag

Note

- In NZViewMD (EU) version 1.0.4, "IVDR" is displayed as "IVR" and "IVDD" as "IVD".
  IVR (= Regulation (EU) 2017/746 on in vitro diagnostic medical devices(IVDR))
- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

- IVDR tag

(1) Until the image display is completed

Short Message: Loading(XX%)

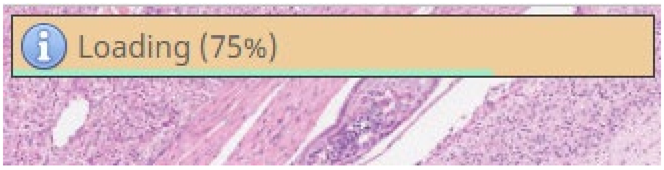


Image 8-52

Detailed message(caption: message)
Medical Regulation: No message is displayed.

(2) After completion of image display

Short Message: Update completed

Image 8-53

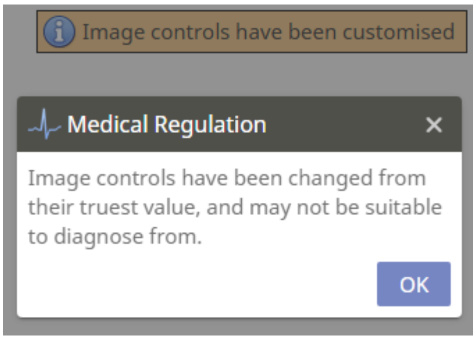
*Short messages are hidden within seconds.

Detailed message(caption: message)
Medical Regulation: No message is displayed.

(3) When image controls have been customized

Short Message: Image controls have been customized

Detailed message (caption: message)
Medical Regulation: Image controls have been changed from their truest value, and may not be suitable to diagnose from.



(a) Web Viewer

(b) NZViewMD

Image 8-54

9. VIEW

Organise and view your slides in a way that works for you.

This application is used to serve slides and files to users using a virtual file system and web-based slide viewer.
Browsing the file system makes use of the item view control.

Note this application makes use of drag gestures in several locations, and these gestures are currently not available using touch controls.

Note

- Only the user who has the authority to publish can set the permission. With respect to permission, contact your local NZConnectMD Scan administrator.

9-1 OBJECT TYPES

There are four types of object that can be seen when browsing.

Collections

Collections are a very similar concept to the folders you're used to working with in Windows. They can contain any number of objects inside. One major difference is collections can be placed in multiple locations – a change inside a collection in one location will also happen to the collection in other locations. In Windows terminology then, a collection is similar to a shortcut to a folder.

Image 9-1

Links

Links are very simple objects that contain a URL. Opening it will redirect the user to the specified URL.

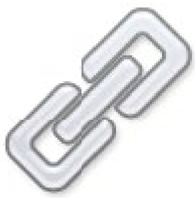


Image 9-2

Files

The types of files that can be added are determined by the file types enabled on the server. Opening these will launch a file viewer window which will attempt to display the file in the web browser. This window can be maximized. If the file cannot be displayed, the window will provide an option to download the file.

Image 9-3

Slides

Opening a slide can open the web viewer, open NZViewMD or open a window allowing a choice. This is determined by a server and user setting described in the Profile.

Image 9-4

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

9-2 USER COLLECTIONS

User collections are used to form the entry point of the View application. Every user and group has a user collection.

When a user first enters View, they will see the contents of both their user collection and every user collection of the groups they are a member of. For example, User A is a member of Group X and Group Y. Their View homepage will consist of the contents of those three user collections.

If a user has the View Location Label right, and is using an item view that shows metadata, the user collection an object came from will be shown.

If a user has the View User Collections right, they will be able to see the User Collections collection:

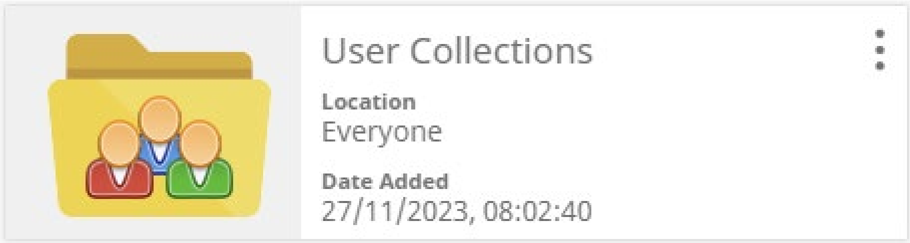


Image 9-5

This allows them to directly access all the user collections they have permission to see. This is typically not necessary for a standard user.

Home Roles

When managing users and groups, the Home Role can be set. This determines the permissions associated with the user or group's user collection.

The options provided are each individual role and an advanced option. In most cases it makes sense for the home role to be one of the existing built in roles; the user will then have all the permissions from the role on their own user collection (or the group's user collection).

In some cases this may not be flexible enough. It may be desired to give some third party access to a user's user collection or multiple roles to the user. This can be achieved with the advanced option which allows full customisation of the user collection's permissions (or by editing the user collection directly).

Note

- Please refer to " Management of Users and Groups".

9-3 PERMISSIONS

If a user has the Write permission to an object, then they can edit its permissions. By default, permissions assigned to a collection are inherited by objects inside it. It is possible to disable this by editing the permissions of an object inside and unchecking the option to inherit from the parent collection.

As mentioned previously, permissions are grouped into roles. Users and groups can be assigned roles on any object to give them appropriate permissions.

9-4 LINKED COLLECTIONS

Linked collections are collections that replicate a folder on the file system. When a slide or file is added to the file system and NZConnectMD detects the change, it can automatically add the object.

Image 9-6

There are two locations for settings that affect the behaviour of linked collections:

Server Settings

There are three options for linked collections in the main server settings:

- Allow automatic updates – required for the linked collection to be updated after the below events
  - When a collection is viewed, a job will be added to update that collection in the background (one level only, will not update sub-collections)
  - When a linked collection is added, a job will be added to update that collection in the background(including all sub-collections)
  - At 3am every day, all linked collections are updated
- Delete missing files automatically – if the physical file cannot be found, the object will be deleted from the database (deleted files can still be deleted manually using the advanced management option to update collections)
- Fetch on open – when a collection is opened, NZConnectMD will update the linked collection **before** returning the contents of the collection – this is not recommended for performance reasons

Image Server Settings

There are three options for linked collections when creating/editing an image server:

- Monitor File System – attempts to use a Windows API to get real-time updates to the file system and trigger linked collections to update when changes are detected
- Manually Check File System – file system is regularly scanned for any changes to unmonitored repositories
- File System Check Interval – the number of minutes to attempt to manually scan all the repositories on the image server

9-5 BACKGROUND CHANGES

When browsing a collection, the contents of the collection may change (either due to being a linked collection or another user interacting with it). When you enter a collection, NZConnectMD will check if anything has changed after 3 seconds, and then every 20 seconds after that. If a change is detected, a message will appear informing the user of the change and allowing them to refresh.

9-6 MAIN MENU

The main menu and the folders that you have permission to view are displayed in the tree structure on its window. You can go to the corresponding page by clicking any hierarchy.

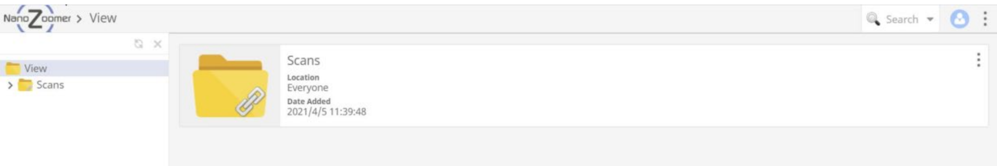


Image 9-7

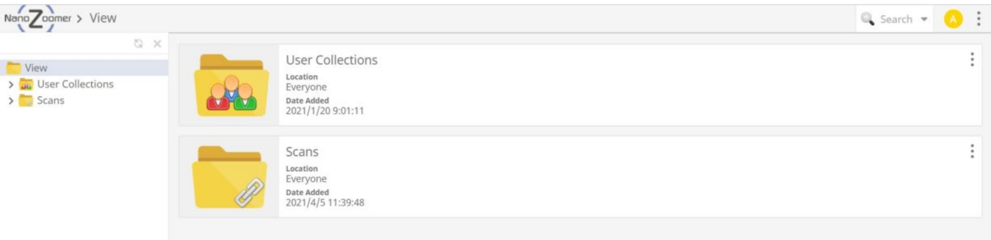


Image 9-8

Pages within the View application have several options on the main context menu:

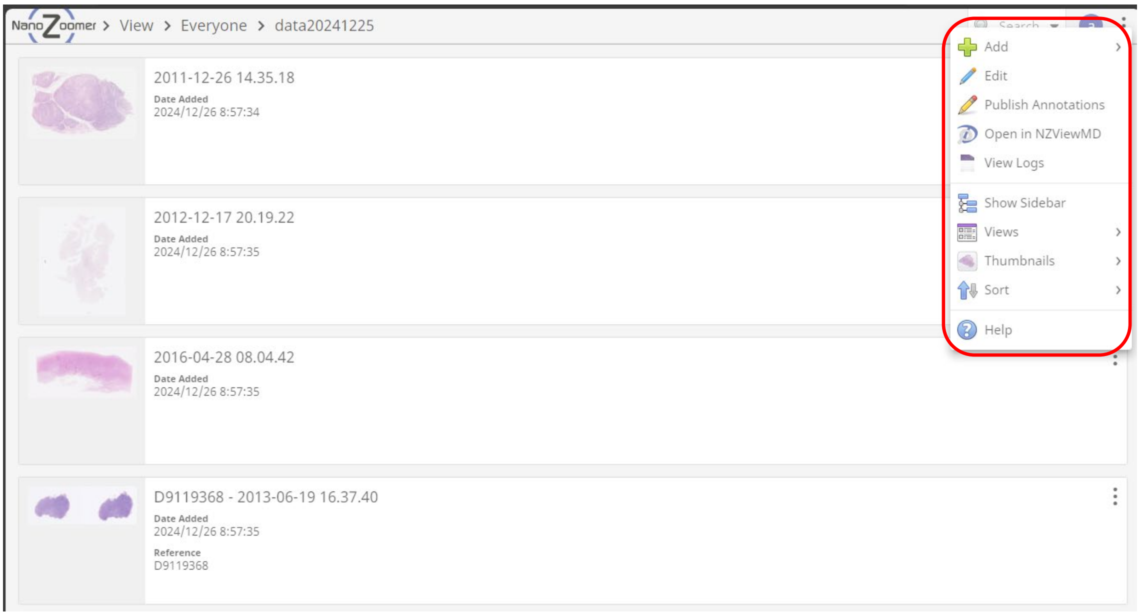


Image 9-9

- Add – add a new item (if the user has write permission)
- Edit – available when inside a collection (if the user has write permission)
- Publish Annotations – available when inside a collection (if the user has permission to publish annotations)
- Open in NZViewMD – opens the current collection in the NZViewMD browser (if not on a search page)
- View Logs – open the logs for this collection (available when inside a collection)
- Show Sidebar – shows a tree view of the file system
  - Stays in sync with the item view's location
  - Can be used to navigate to a different collection
  - Objects can be dragged onto entries in the sidebar to move them (where permissions allow)
  - Buttons at the top of the sidebar allow closing and refreshing
  - The sidebar will try to stay in sync if local changes are made, but manually refreshing will be necessary in other circumstances
  - The sidebar will stay open when refreshing the page or visiting another URL within the View application
  - If there isn't enough space for both the sidebar and the object browser, the sidebar will appear on top of the object browser
- Views – for more information see the description of item view
- Thumbnails – customize the thumbnails of slide objects
  - Type – label, slide image or overview (if a slide has no slide image or label, it will fall back to the overview image)
  - Orientation – allows choosing the rotation of slide object thumbnails (defaults to the equivalent server setting, but the user can override it individually for each type of thumbnail)
- Sort – simple sort options are available by name or date

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

9-7 SEARCHING

Performing a Search

The search bar can be accessed in the top right corner, next to the user's profile picture:

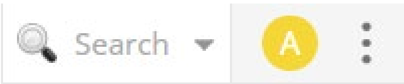


Image 9-10

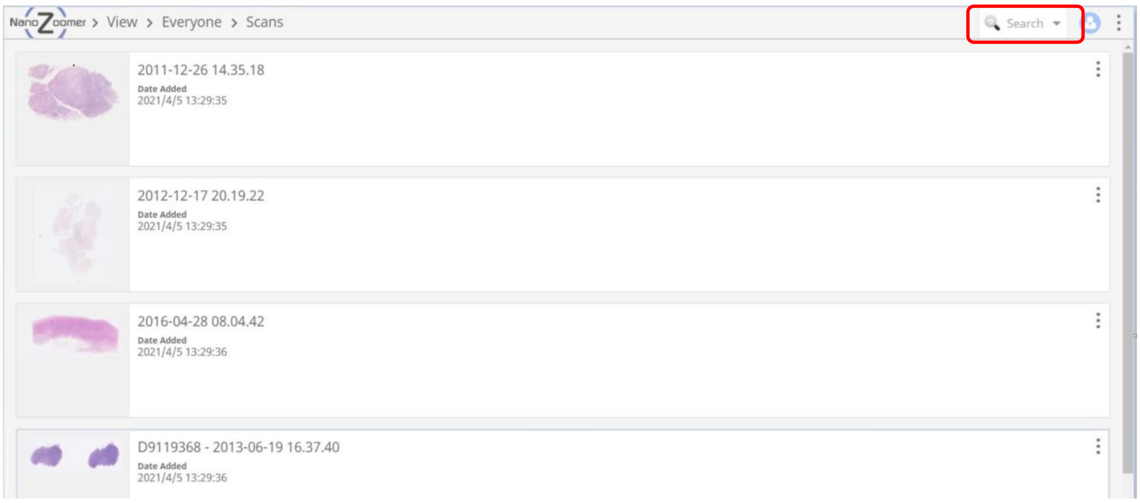


Image 9-11

The user can type directly into the box and then press the Enter key to perform the search. Alternatively the arrow can be clicked to show more advanced search options which are outlined below.

Advanced Search

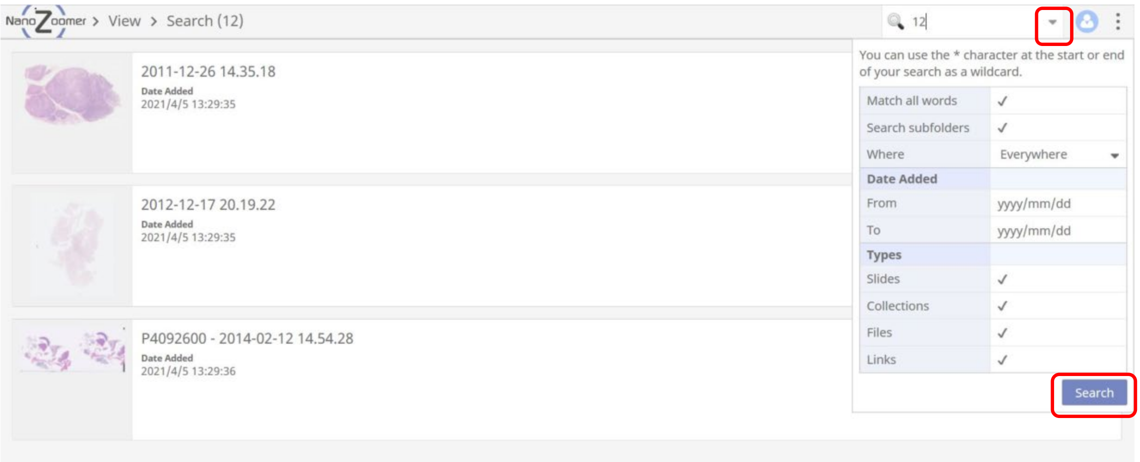


Image 9-12

- Search term
  - ➢ The search term supports wildcards (the * character) to allow searching for partial words
  - ➢ Putting a * at the end of a word will match words that start with the specified prefix
  - ➢ Putting a * at the start of a word will match words that end with the specified suffix – this option tends to be substantially worse for performance
- Match all words
  - ➢ If checked all words must be present
  - ➢ If not checked any of the specified words must be present
- Search subfolders
- Where
  - ➢ Everywhere (all of the below)
  - ➢ Name
  - ➢ Annotations
  - ➢ Individual visible metadata
- Date Added (from, to)
- Types – if no options are selected, they will all be reselected when a search occurs
  - ➢ Slides
  - ➢ Collections
  - ➢ Files
  - ➢ Links

HAMAMATSU
PHOTON IS OUR BUSINESS

Other Notes

NZConnectMD does some early limitations to search results (before checking permissions and locations) to provide very fast searches. As a result, if the search terms used are too vague, the results shown to the user may not include every match. If this is the case, a message will be shown asking the user to be more specific in their search request.

When searching subfolders NZConnectMD can return faster results by searching from the top level View application instead of from inside a collection.

Search results will include metadata with the name of the containing collection.

9-8 ADDING NEW ITEMS

Add Menu

The main context menu provides the option to add new objects. This submenu is only available if the user has the permission to write or upload to the current collection (or any of their user collections when on the top View application page). When adding to the top View application page, a window will appear asking which user collection the user wishes to add to.

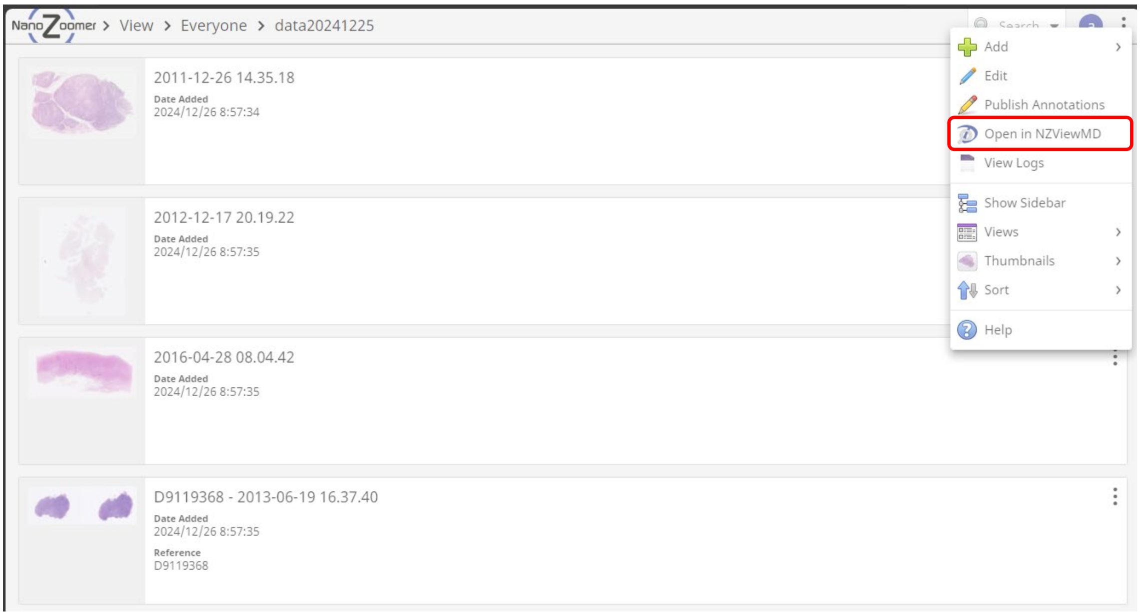


Image 9-13

The “+” Add menu can have up to four options:

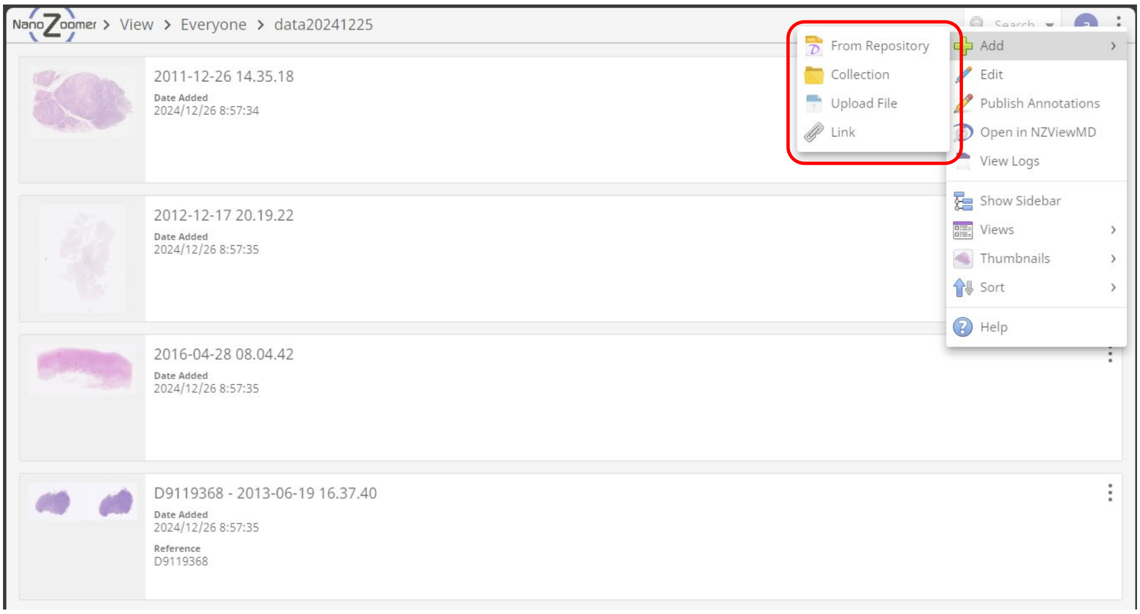


Image 9-14

- From Repository (requires write permission)
    - If the user does not have permission to add from the repository (grantable by editing an existing repository) then the message ***No Repository Available*** will be displayed instead
- Collection (requires write permission)
- Upload File (requires upload permission)
- Link (requires write permission)

Note

- For each details, please refer to the next paragraphs.

When you select either one, the dialogue box shown below will be displayed.

Image 9-15

Specify the groups or users to view the slide image.

・Everyone : It includes the registered users and guest users.
・Registered Users : It is the group consisting of registered users.
・Administrator : It is the user registered as administrator.
・Administrators : It is the group consisting of users registered as administrator.
・Other : Users/groups other than the above.

Note

- If you want to publish to a group or user other than the above four initial setting groups, specify from the tree display displayed by clicking "Other".

Upload Destination

If the user chooses to upload a file inside a linked collection where the user has permission to upload to the collection's repository (grantable by editing the repository) then a window will appear with a choice of where to upload:

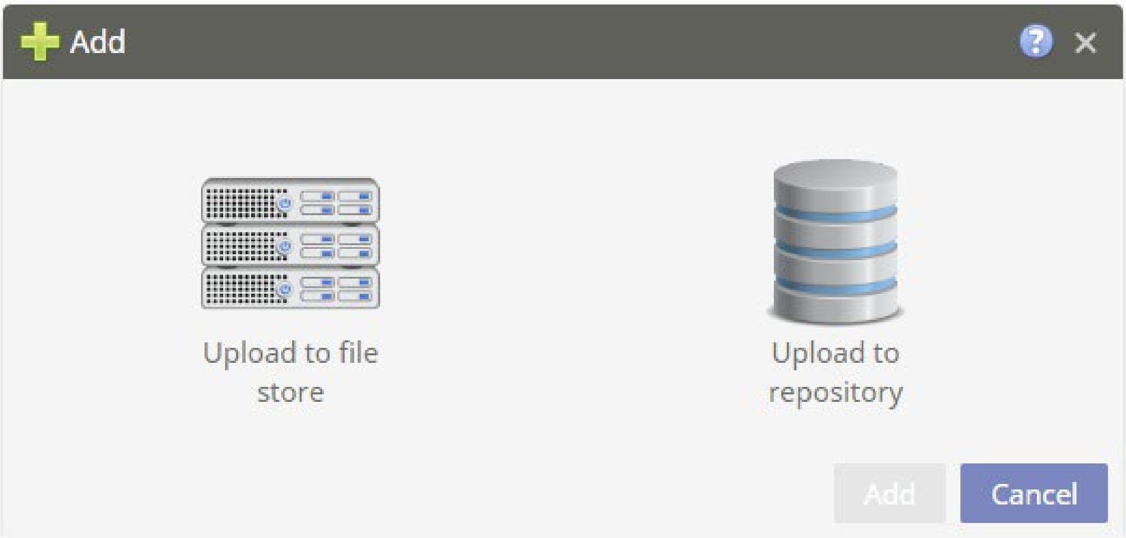


Image 9-16

- Upload to file store – the default location for uploaded files
- Upload to repository – upload to the folder the linked collection is associated with (allows uploading slides)

Uploads to a repository allow most of the supported slide formats, as well as any of the file types set up on the File Types page. Uploading slides is not possible if the image is composed of multiple files (.vms, .vmu, .mrxs, .vsi).

Multi-channel image sets (.ndpis) can be uploaded provided that all of the component channel's .ndpi files are uploaded alongside the .ndpis file.

From Repository

When adding files from a repository a window will appear that allows browsing all repositories the user has access to using an item view with similar thumbnail controls as the View application.

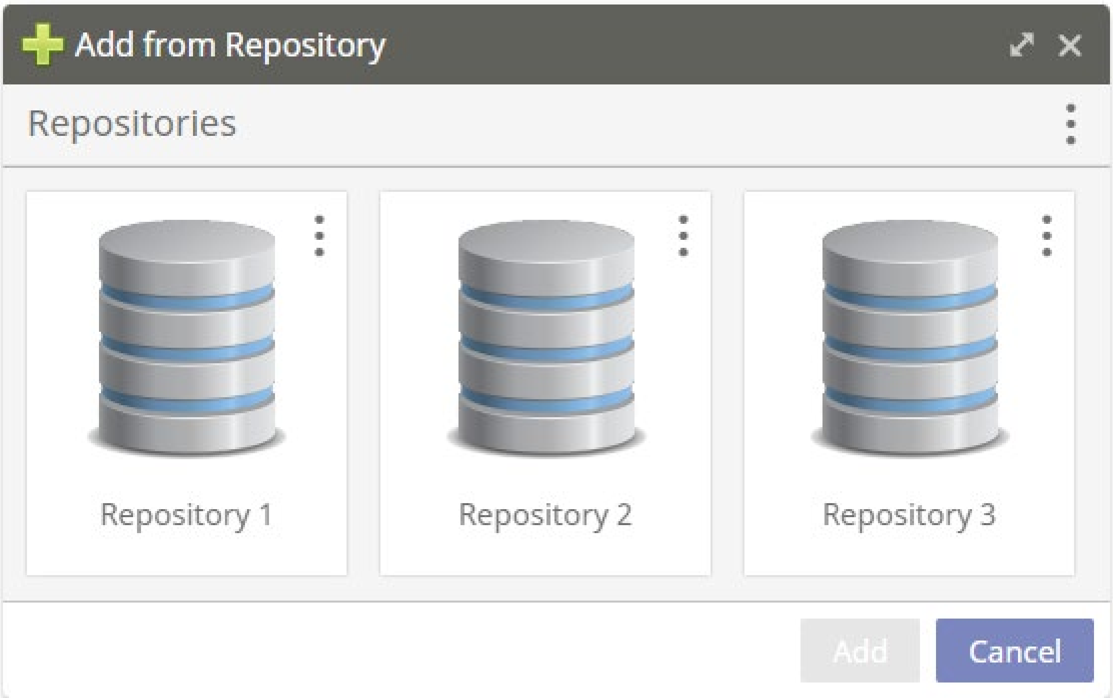


Image 9-17

You can preview slides in the web viewer and preview or download files by opening them. The web viewer will be limited:

- The label will be visible if present
- The toolbar will be in light mode
- Annotations will be visible
- Annotations cannot be created or modified
- The settings window will not be available
- The help window will not be available
- Exporting is not available

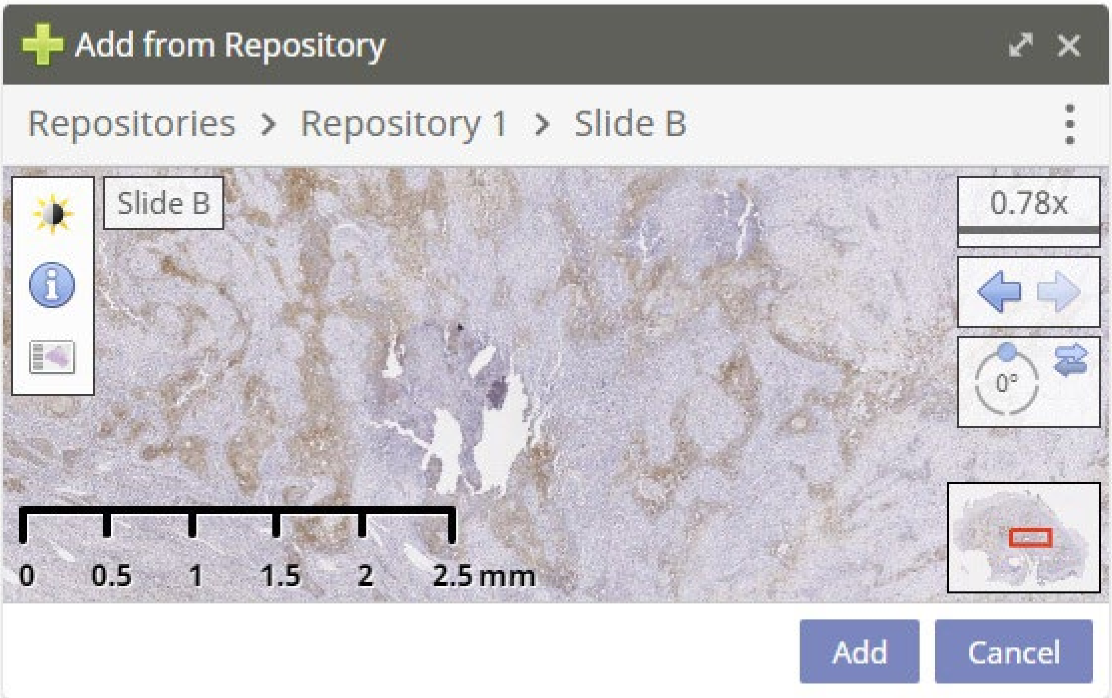


Image 9-18

To continue the adding process “Add” can be pressed to start adding either the selected items or the slide that is being previewed.

Add Window

The next window allows entering information about the item you are adding, which will typically vary based on type.

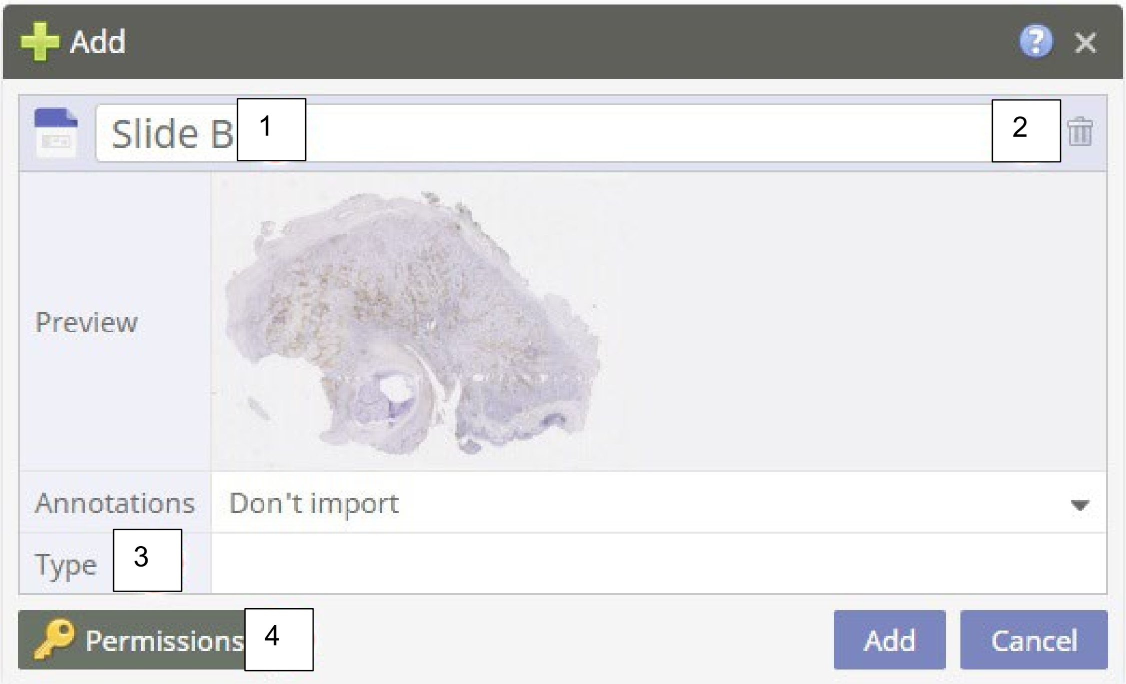


Image 9-19

1 A field for changing the name of the object

2 The option to cancel adding this item (other items being added at the same time can still be added)

3 Custom metadata as determined by the metadata configured on the server

4 Button to customise permissions

Upload Zone

If uploading a file, an area will appear that can be clicked to open a file chooser so the file(s) to upload can be selected. The user can also drag files from their operating system into the drop area. Once done, the upload will begin immediately and a row in the table of information for the object will be used to display the upload progress.

Object Tables

For every object being added to the server, a table will be displayed allowing the name and custom metadata of the object to be set. There are several type specific options that will also appear in the tables:

- Slides
  - If there are barcode processor rules in use, the connected metadata will be prepopulated or an error will be displayed if all rules fail
  - A preview of the slide will be displayed
- Collections added from the repository will have an option to be kept updated
  - When enabled this will create a linked collection
  - When disabled this will immediately add all of the collection's contents but not keep it updated
- Slides and Collections will have the option to import slide annotations and make them either public or with the current user as the owner – editing a linked collection will also have this option, and trying to save after changing it will bring up a confirmation to:
  - Inform the user the setting only affects newly added slides
  - Give an option to only change the current collection and not apply the setting to all sub-collections
- Links will have a field to specify the URL

The metadata entries in the table should have appropriate controls depending on the type of metadata. Browser support is not perfect for date and time input fields so these may fall back to simple text fields.

- Text (single line) – A text input
- Text (multi line) – A text area
- Number (integer) – A number input
- Number (real) – A number input
- Date – A date chooser
- Time – A time chooser
- Date/Time – A date/time chooser
- Yes/No – A drop-down with Unset/Yes/No options
- List – a drop-down with a choice of user defined items
- Multi-Choice List – a multi-selection box allowing a selection of 0 to all choices

If multiple objects are being added when a row of the table is selected the option to **Copy to All** will be shown. This will allow the copying of an entry to every object table that has the same entry.

If the user changes their mind about adding one of several objects, the object can be marked as not to be added using the bin icon. To undo this action the bin will turn into an undo icon and can be pressed to restore its previous state. Files that fail to upload will automatically be marked in this way, and pressing the undo icon will trigger an attempt to re-upload the file.

Permissions

The permissions button in the bottom-left corner of the window will launch a permissions window.

A summary of all the inherited permissions is provided at the top of this window, and the option to turn off the inheritance from each parent collection is available.

After the inherited permissions section, the user can see all additional permissions that are assigned to the current objects. In the case of adding a new object this section will be empty until "Add Role" button is pressed which will create a User/Group selector with a drop-down inside allowing a role to be chosen. The user can then specify the users or groups to give the role to for the objects being added. "OK" button will confirm (but not save) these choices and "Cancel" button will discard them.

Image 9-20

9-9 INTERACTING WITH ITEMS

The context menu for a selection of items can have numerous options, with different requirements to be available:

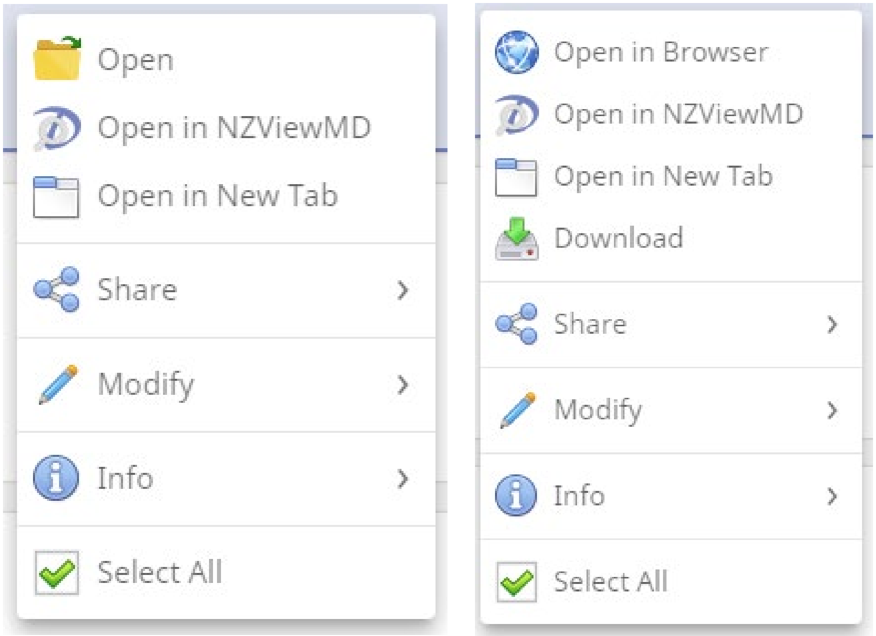


Image 9-22

- Open – 1 non-slide object selected
- Open in Browser – 1 to 4 slides selected
- Open in NZViewMD – 1 to 4 slides selected or 1 collection selected
- Open in New Tab – 1 object selected (if a file is selected, the permission to copy and export is required)
- Plugin Options – any configured right-click menu plugin will appear here if appropriate
- Download – slides/files selected:

  - If slides are selected, the server must have downloading enabled and the user must have permission to download slides
  - If files are selected the user must have the copy and export permission

Note

- “Download” for slide is an option only available for those who have permission to execute downloading.

Note

- The slide formats permitted for downloading are “ndpi” and “ndpis”.

- Get or Create Link – 1 object selected
- Copy Link Address – 1 object selected (if a file is selected, the copy and export permission is required)

Note

- For viewing the image with no permission to access, it is necessary to enter the username and the password.

- Edit – user must have write permission

- Move – user must have write permission to the object and parent, not be a linked object inside a linked collection
- Add to Collection – user must have write permission
- Publish Annotations – collections/slides, user must have permission to publish annotations
- Check Permissions – 1 object selected and the user must have write permission
- Delete – user must have write permission (will also not be available on certain special collections – User Collections and every user collection)
- View Logs – view logs relating to this object

Note
- The menu displayed on the screen varies, depending on the viewing permission and user permissions.

Note
- Those slides in the automatically linked folders are not allowed to move to another folders; therefore "Move" menu will not be available.

Open

This option is available on collections, links and files.

- Collection – opens the collection
- Link – goes to the link's address
- File – launch a file viewer window which will attempt to display the file in the web browser – if the file cannot be displayed, the window will provide an option to download the file

Open in Browser/Open in NZViewMD

These options open the selected slides in split screen mode in the chosen viewer. If the selected object is a collection, NZViewMD will open its browser to the same location.

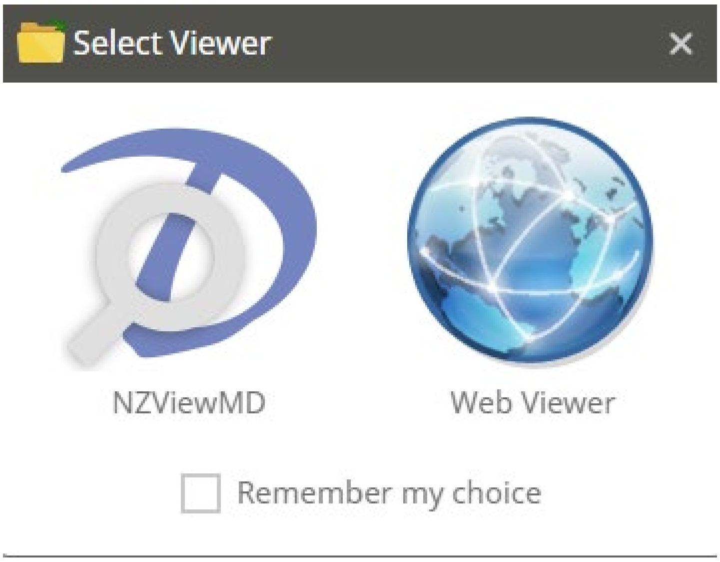


Image 9-23

Note
- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

Note	• Regarding browsing the digital slides published on NZConnectMD with NZViewMD, refer to NZViewMD instruction manual for details.
Note	• The viewer is changeable. Refer to GETTING STARTED – COMMON FUNCTIONS - PROFILE for details.
Note	• When you view the images on NZConnectMD, you may be restricted some part of operations because of no access permission (display image information, save annotations, export images, etc.). With respect to access permission, contact your local NZConnectMD administrator.

Open In New Tab

There are small differences in behaviour to the normal open option other than being opened in a new browser tab:

- Slides:
  - Will always open in the web viewer
  - The web viewer will be maximized
  - The browser (accessed by un-maximizing the web viewer) will show the same location as the original tab, unless the original location was a search page, then it will show the location that was being searched
- Files will be opened/downloaded directly by the browser

Download

The selected slides or files will be downloaded.

Get or Create Link

Share links can be sent to other people to give them access to objects they do not have access to themselves.
Using the share link will make use of certain permissions of the creator of the share link (if they have them):

- Read
- View Macro Images
- View Labels
- Read Restricted Metadata
- Copy/Export
- Download

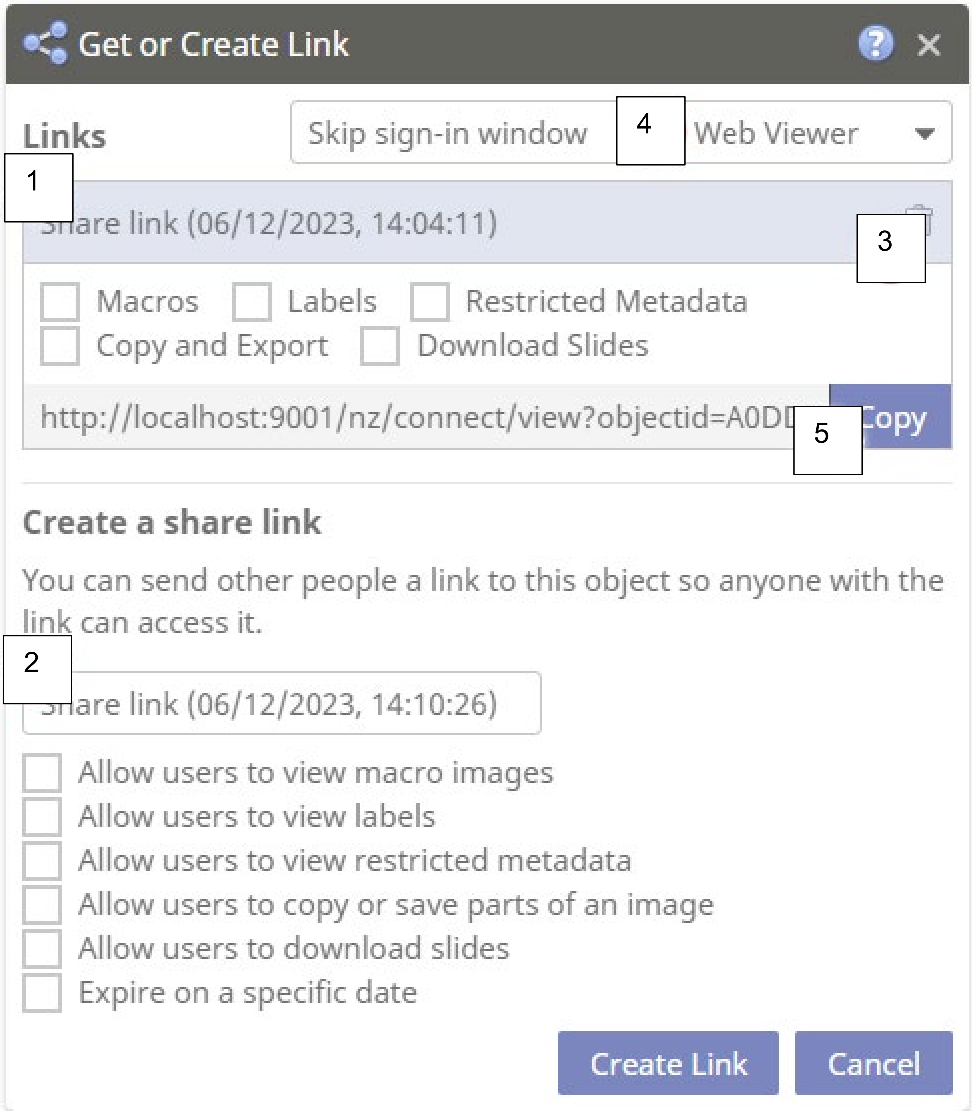


Image 9-24

1 List of share links already on this object
2 Customisation options for creating a new share link
3 Delete an existing share link
4 Configure some extra parameters in the links in section 1
5 Copy button to copy the link to the clipboard

Note

- Only those who have access permissions are entitled to create shared links.

Creating a Share Link

There are five choices when making a share link:

- Name – allows keeping track of multiple share links
- Allow users to view macro images (if creator has permission)
- Allow users to view labels (if creator has permission)
- Allow users to view restricted metadata (if creator has permission)
- Allow users to copy or save parts of an image (if creator has permission)
- Allow users to download slides (if creator has permission)
- Expire on a specific date – specify a date the share link will expire

Note

- Slide files downloaded by way of “shared link” might have personal information on reference and labels, which can be viewed on the local viewer by those who do not have privileges for viewing. Therefore, keep that in mind when you create settings of shared link.
- UTC (Coordinated Universal Time) is used.

Modifying Share Links

After creating a share link it will appear in the top section of the window showing all the above settings. From here it can be deleted or any of the permissions can be modified (saves instantly).

Using Share Links

At the top of the window are two drop-down boxes that allow customising the links before they are copied.

The first drop-down allows the user to choose what happens when someone who is not signed in accesses the link:

- Skip sign-in window (default)
- Allow users to sign in

Using these options the link sharer can allow the user to sign in (or continue as a guest, if guests are enabled) before visiting the link, or take the user directly to the item without prompting to sign in.

The next drop-down allows choosing how links to collections and slides are opened:

- Default Viewer – the user's preference (default)
- Web Viewer
- NZViewMD
- Plugins – any right-click plugins will also be available here

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.

Both of these choices are remembered by the browser for next time.

After setting the above drop-downs, use on the appropriate share link to copy the link to the clipboard and send it to the recipient.

When a user opens the link, they will gain additional permissions from the link's creator as chosen above. They will maintain the benefit of additional permissions within the chosen object for as long as they use the same browser tab.

Copy Link Address

Copies the address of the item to the clipboard similar to the similarly named option when right-clicking a normal web link.

Edit

Launch the add window prefilled in with the correct information, allowing modification of the chosen objects and changing of permissions. For more information, see Adding New Items.

Move/Add to Collection

These windows allow an object to be moved to a different collection, or added to another collection. A tree view is used to allow selection of a collection the user has write access to and an option is provided to either inherit permissions from the new collection or not. If the top level entry (View) is selected, a window will appear allowing the user to choose the destination from any of their home collections.

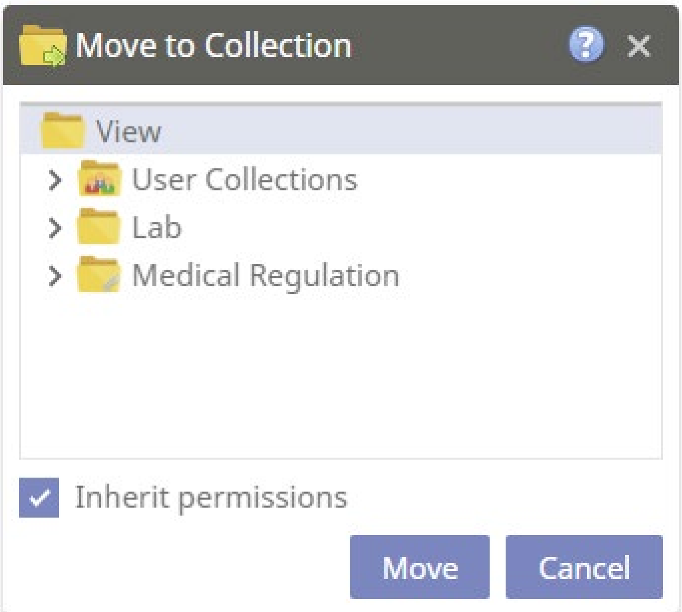


Image 9-25

The user must have write permission to the new location. If the user tries to move an object to or from the User Collections collection, an error will occur.

Note

- Those slides in the automatically linked folders are not allowed to move to another folders

Publish Annotations

Annotations can be published to allow other users the permission to see them when looking at a slide. Annotations can be published on a collection or a slide. Publishing on a collection will publish annotations on slides anywhere within. To publish an annotation it must belong to the user publishing, or a super user can publish annotations for others.

As well as one off publishing, rules can be set up to automatically publish new annotations that are created (as long as the user that makes the annotation has permission to publish annotations).

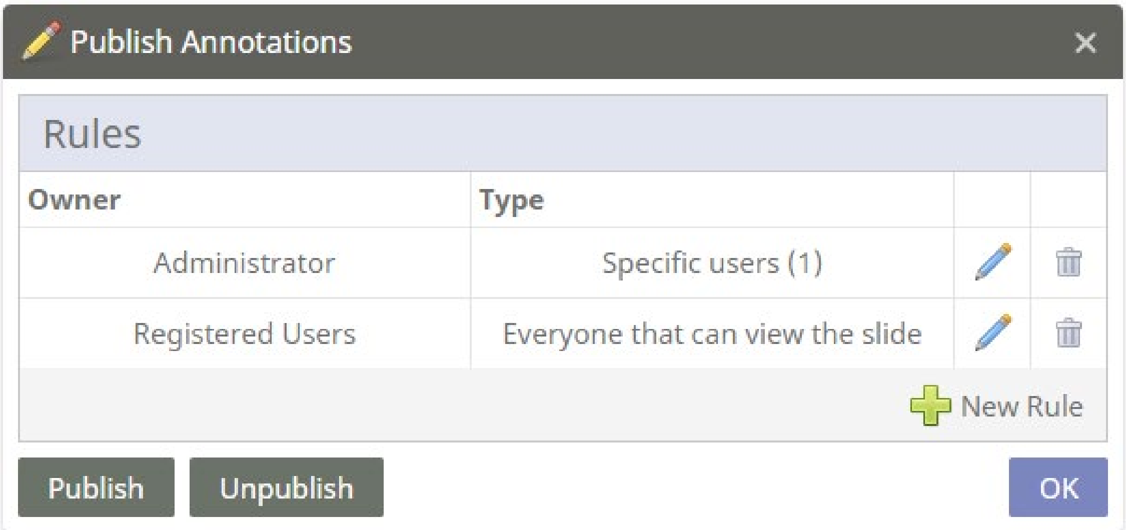


Image 9-26

A window will appear with all the current publishing rules that apply to the selected items. Up to two tables will be shown; one for rules inherited from parent collections and one for rules directly set on the selected item. If multiple items are selected, the inherited rules will not be displayed.

On the table of rules for the currently selected items, the user may be able to edit, delete and add rules. A super user can edit, delete and add rules without restriction. A normal user will be able to edit or delete their own rule (or rules, if multiple items are selected) and will be able to add a new rule in these circumstances:

- The user has no current rules set up on the item
- The user has selected multiple items

Choosing to add or edit a rule will open the Publish window, with a few more options than normal. A rule that is created will overwrite any existing rule for the item and user.

Underneath the rule tables are the option to publish and unpublish annotations directly without setting up any automatic rules.

Note

- The annotation publishing rules are rules that apply to new annotations that will be created in the future. If you want to publish the existing annotation that has already been created, check "Publish existing annotations" and set the settings for viewing permission.

Note

- The settings for viewing permission of annotations are performed in addition to the current publishing settings. If you want to cancel the settings of viewing permissions and set the settings for new viewing permission, check "Unpublish from other users" and set the settings for viewing permission.

Note

- If you create a rule for a folder, that rule will be inherited by all the images in it.

Publish Window

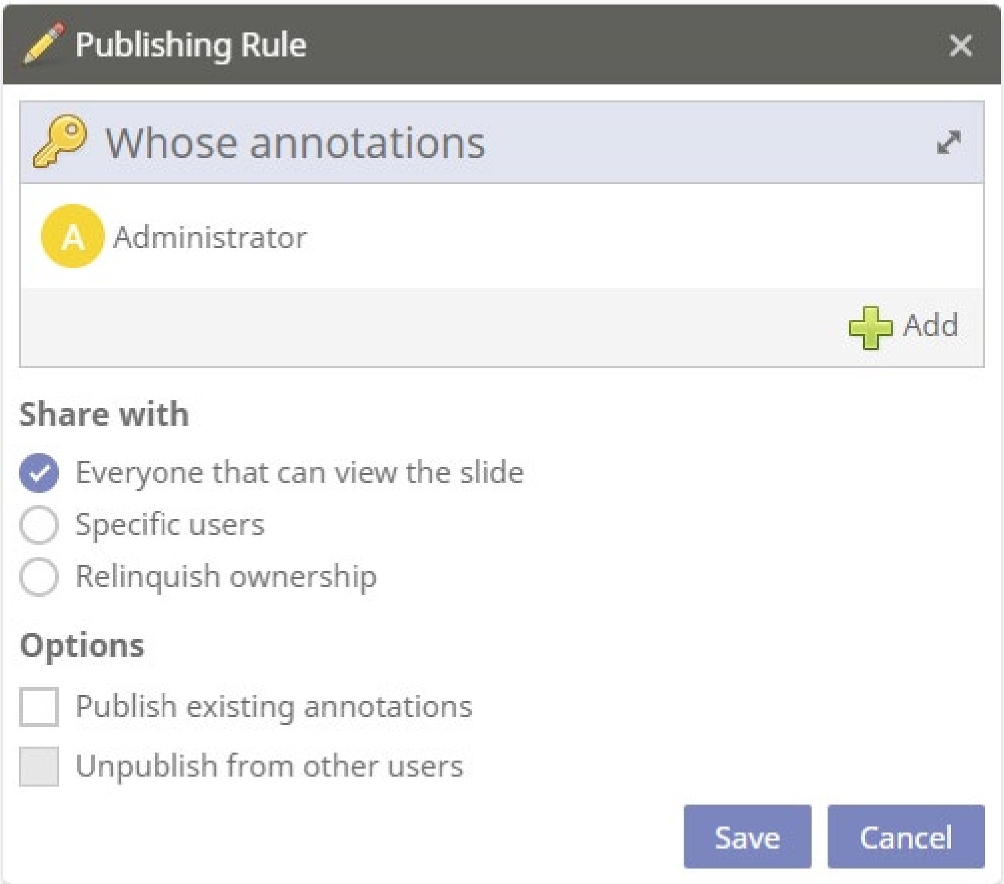


Image 9-27

In this window there are up to three sections to configure:

- Whose annotations to publish (if a super user)
- Who to share the annotations with
- Other context specific options

Whose Annotations to Publish

This option allows the super user to publish annotations on behalf of other people. For example, if making a rule the super user could choose the Everyone group here so all annotations were always automatically published.

Who to Share With

There are three options when determining who the annotations will be published to:

- Everyone that can view the slide - this option allows anyone with access to the slide to see the annotations
- Specific users - Choose specific users and groups to share annotations with
- Relinquish ownership - The user is no longer the owner of the annotation, and anyone who can view the slide can see it (irreversible)

Other Options

- Publish existing annotations - if creating/editing a rule, this option allows the rule to be immediately applied to the selected items
- Unpublish from other users - only visible when creating/editing a rule and only selectable with the previous option enabled, this option will unpublish existing annotations before applying the new settings

Note

- The settings for viewing permission of annotations are performed in addition to the current publishing settings. If you want to cancel the settings of viewing permissions and set the settings for new viewing permission, check " Unpublish from other users " and set the settings for viewing permission.

Note

- Annotations that can be published are annotations that have already been created at the time of settings for viewing permission.

Unpublish Window

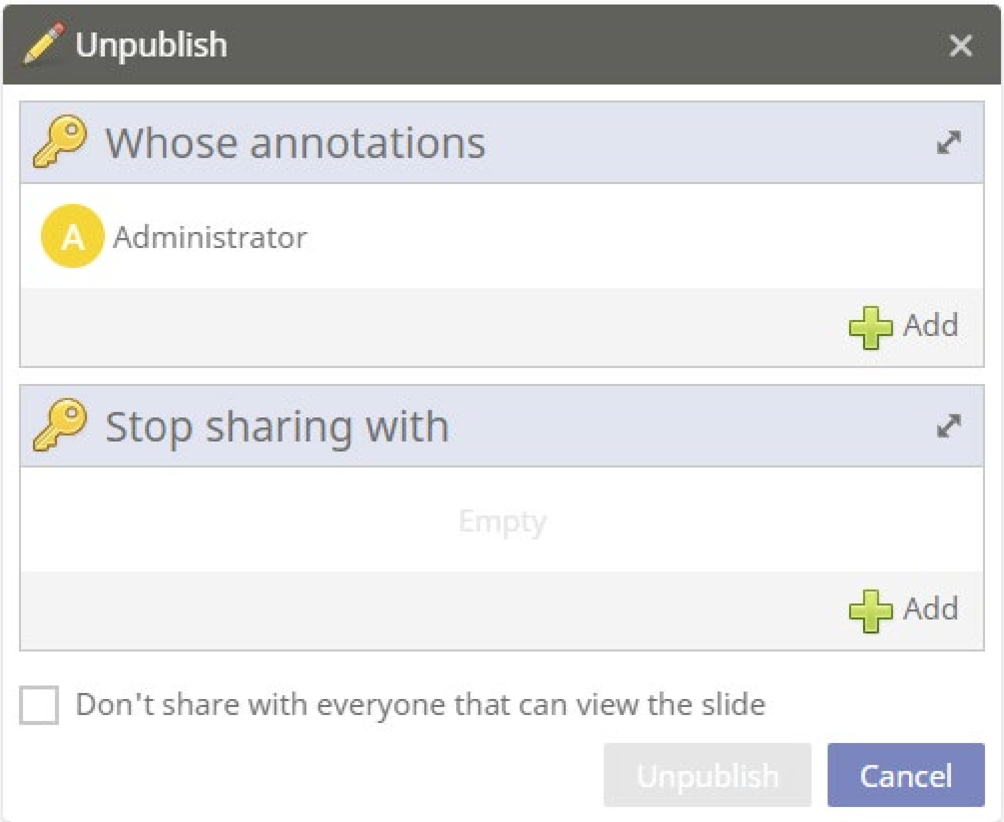


Image 9-28

In this window there are up to three sections to configure:

- Whose annotations to publish (if a super user)
- Who to stop sharing the annotations with
- Option to stop sharing with everyone that can view the slide

The first section here (whose annotations to publish) is described in the previous section. The other two options will undo the equivalent share options made in the Publish window (sharing with specific users, and sharing with everyone that can view the slide).

If all the following circumstances are met, the state of the window will change slightly:

- When publishing an individual slide and
- When the slide has published annotations to individual users/groups, or to anyone who can view the slide and
- No publishing has been done since the window has opened and
- The user is not a super user

In the above case, irrelevant options may be hidden and the list of users that can be chosen to stop sharing with will be limited to those that currently can see the user's annotations.

Annotations that have had their ownership relinquished cannot be unpublished.

Check Permissions

See the permissions that apply to the object for any user (defaults to the current user, changed using the dropdown at the top of the window):

- Role – The roles that apply (or super user)
- User or Group – The user or group the role is assigned to
- Inherited From – The object that has these permissions assigned

Below this table of roles, the individual calculated permissions are shown.

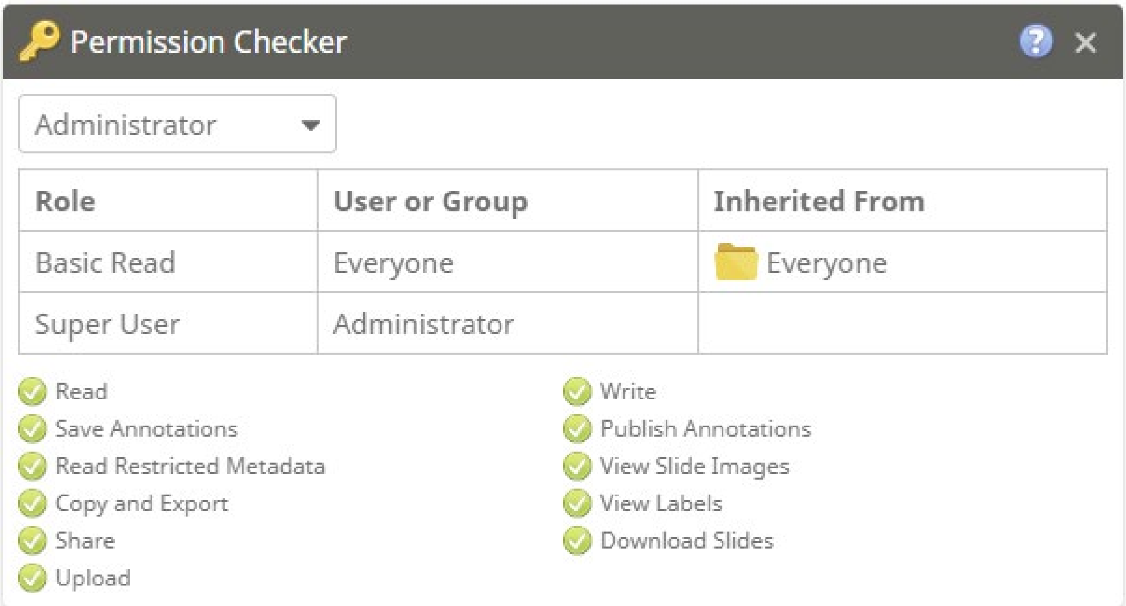


Image 9-29

Delete

When the user chooses to delete an object, they may have up to three options:

- Delete selected – delete the object from this location
- Delete in other locations – delete the object from all locations the user has permission to (if there are multiple locations the user has permission to)
- Delete from the file system – delete the physical file associated with the object (if in a linked collection and the user has the full control permission on the repository)

After this a confirmation dialog will appear to prevent accidental deletions.

View Logs

Shows a log window with all events associated with the selected object.

9-10 SPLIT-SCREEN VIEW

When a slide is opened, the view will be split between the browser and the web viewer. By default this will be a 50%/50% split. If the window is taller than it is wide, the two halves will be stacked on top of each other rather than side-by-side.

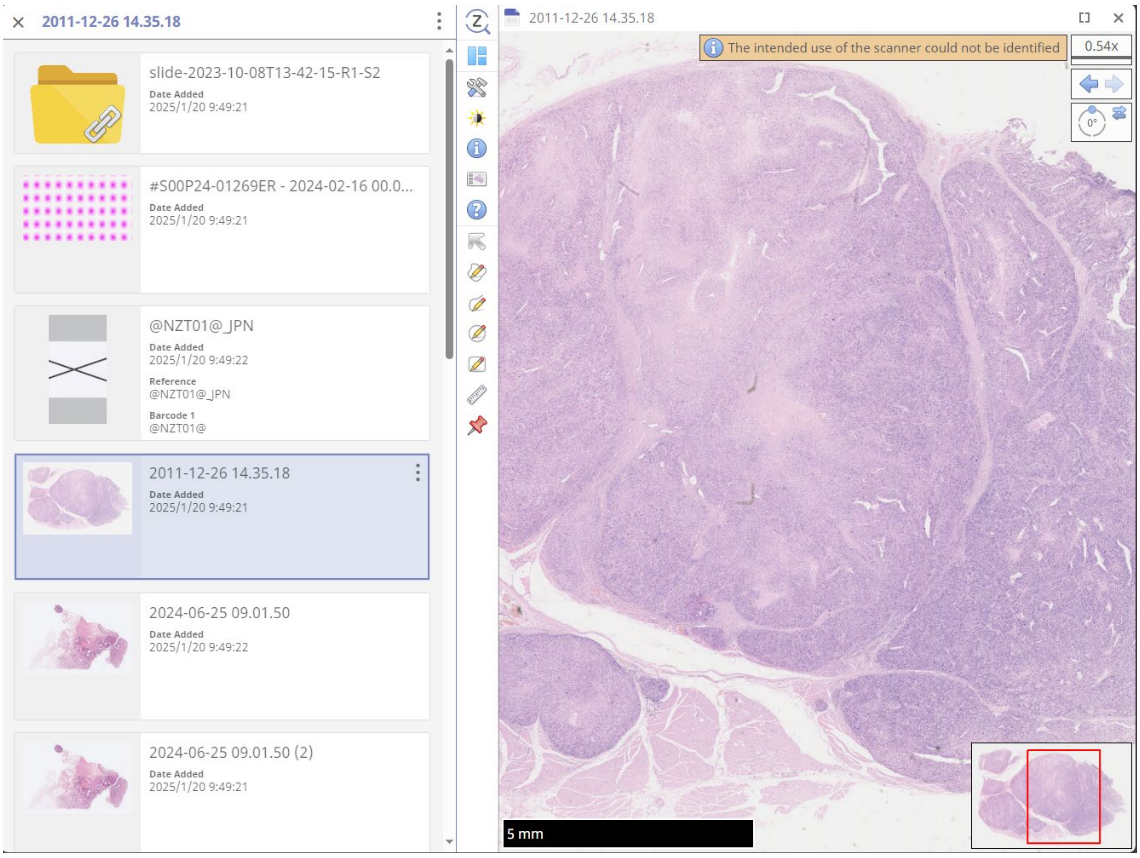


Image 9-30

The split can be moved by clicking and dragging the divider to a new location, providing each half is at least 320px wide (or high). Double clicking on the divider will reset it back to the default setting.

This information is saved in the browser's local storage. Whenever a change is made it is saved for the specific window size and also separately for that orientation (side-by-side or stacked). When opening a split-screen view in the future NZConnectMD will first look for the window size saved data first, before falling back to the orientation saved data. This allows the user to have multiple saved split configurations for different window sizes.

10. CONFERENCE

View slides with others in realtime.

10-1 INTRODUCTION TO CONFERENCING

This feature is available if NZConnectMD was purchased with the Conference option.

Conference is an inexpensive software module for NZConnectMD which enabled synchronized viewing of high quality digital slides over a local or wide area network for web-based slide conferences, education and training, and remote discussion of pathology slides.

It allows images controlled by chosen users to be viewed by a networked group of participants. The group can simultaneously view, in real time, mouse cursor positions and image annotations. In addition, a built-in chat function allows text communication between the host and participants.

The host has full control of the conference session and can select the slides for the conference session, control access to images and pass control to the conference participants for zooming, panning and positioning the view of the image.

The application will be accessible from the homepage. Entering it will present the user with an item view of currently running conferences. The main context menu has the option to add a conference.

Note

- The conference function is available when combined with NZConnectMD Serve U16179-21MDEU. For detailed instructions, refer to the NZConnectMD Serve U16179-21MDEU instruction manual.

Note

- NZViewMD must be installed for browsing with NZViewMD.
- NZViewMD is only compatible with Windows.
  If you are viewing on an OS other than Windows, please use the Web viewer.
- For instructions on how to use NZViewMD, please refer to the NZViewMD instruction manual.

10-2 CREATING A CONFERENCE

When the user chooses to add a conference they will be presented with the following window:

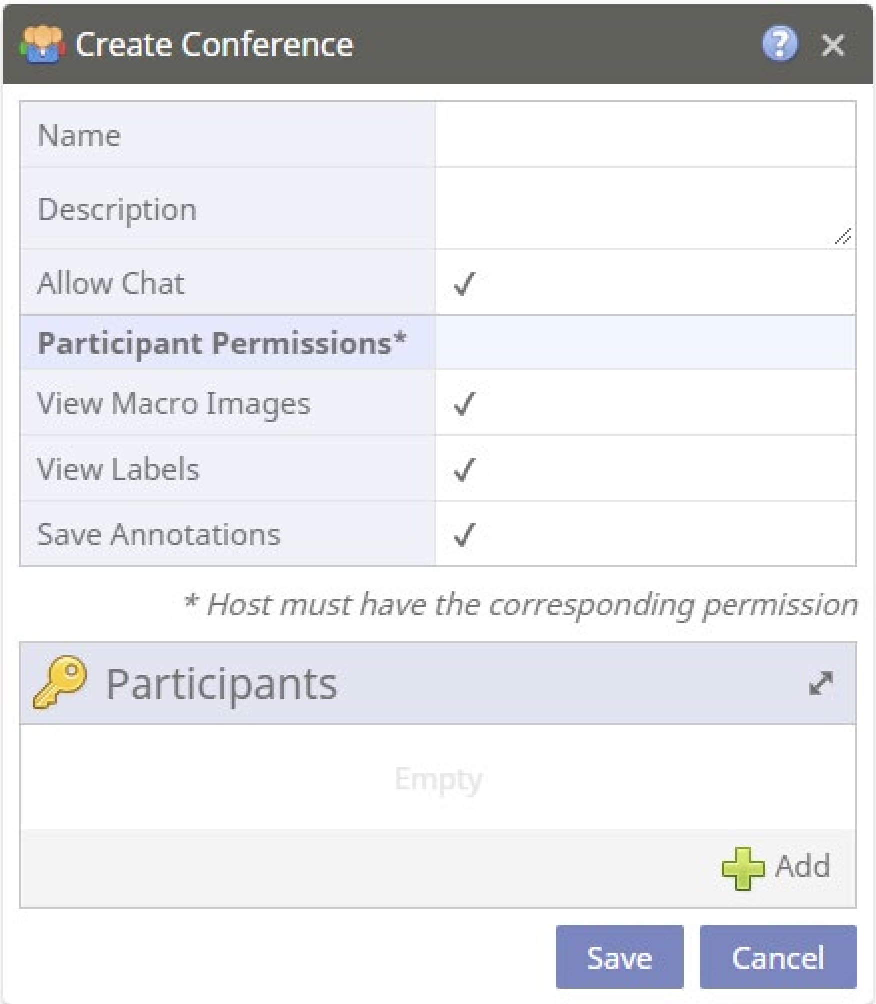


Image 10-1

- Name – displayed in list of conferences
- Description – displayed in list of conferences
- Allow Chat – allow participants to chat using the built-in chat tool
- Participant Permissions – allow participants to inherit the following permissions (if the host has them):
    - View Macro Images
    - View Labels
    - Save Annotations
- Participants – choose which users and groups can participate in the conference

Once created, all these settings can be changed by editing the conference using the context menu.

10-3 CONFERENCING

10-3-1 ENTERING A CONFERENCE

Learn how to enter a conference, and what happens once you do.

There are three options available in a conference's context menu: Open, Open in Browser, Open in NZViewMD.
These options behave the same way they do in the View application.

As the information that follows focuses on the web viewer and browser, a brief description of where certain items are located in NZViewMD is provided:

- The participant list and chat is in one window, and cannot be closed
- If chat is not available, some versions of NZViewMD will still show the chat box
- The option to lock/unlock synchronization is in the image's context menu
- The option to resynchronize is in the image's context menu
- The NZViewMD browser can be used to select images to view

When the host opens the conference in the browser, they will be taken to the View application. There will be one or two additional buttons in the action bar:

Image 10-2

- Conference Controls
- Conference Chat (if enabled)

When a participant opens the conference in the browser, they will be redirected to a waiting page for the host to choose a slide with the same options in the action bar as above.

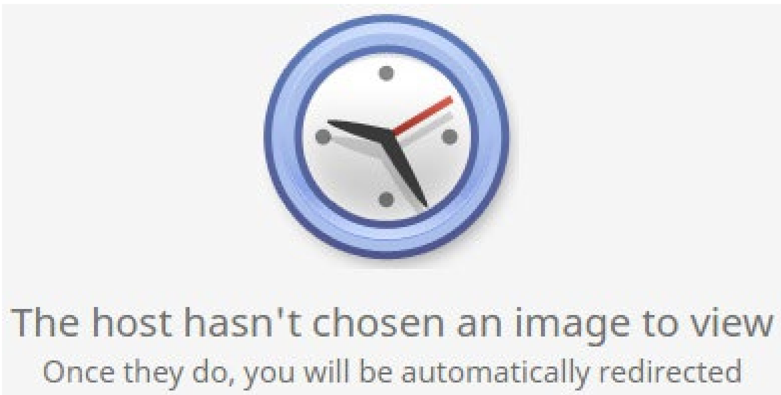


Image 10-3

Once a slide has been opened by the host the participant will be redirected to the web viewer. Note conferences are currently limited to viewing one slide at a time.
When inside the web viewer the two options (Conference Controls and optionally Conference Chat) will be available in the web viewer toolbar.

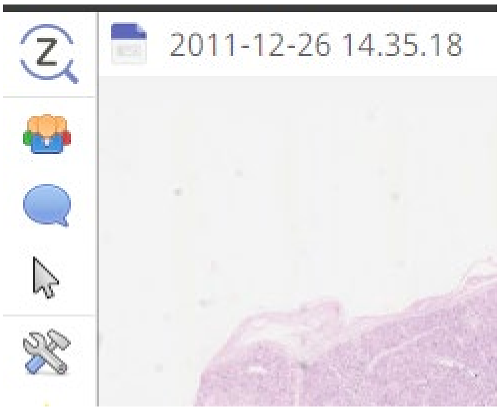


Image 10-4

For participants, the ability to close or maximize the web viewer will be unavailable; it will always be maximized and to close it the conference must be left.

If synchronization is locked, there will be a widget showing this:

Image 10-5

10-3-2 CONFERENCE CONTROLS

View the options available to the user and host once they have joined a conference, such as locking synchronisation and leaving the conference.

Pressing the conference controls button will bring up the following controls:

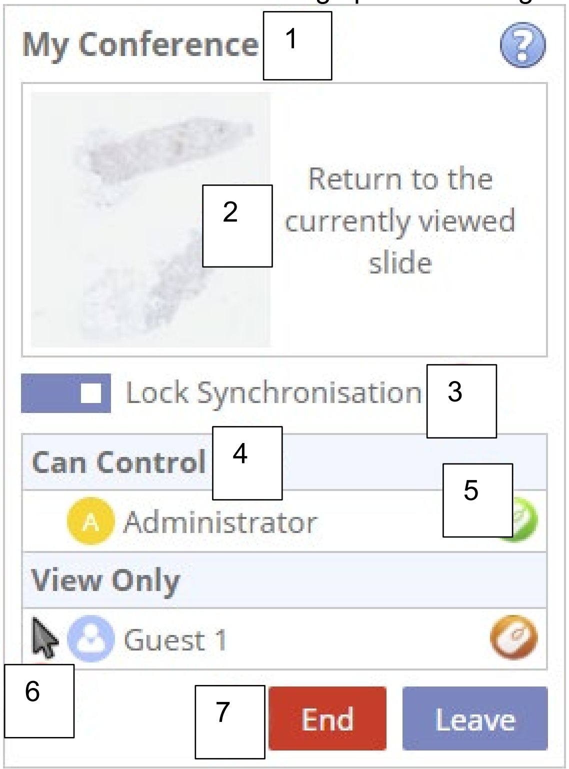


Image 10-6

1 Name of conference
2 Option to return to current image with thumbnail (if the host and the current image has been closed)
3 Option to lock synchronization (if the host)
4 A table showing who can currently control the image and who can simply view it
5 The option to give or take a user's control (if the host)
6 The option to turn other user's cursors on or off to see where they are pointing their mouse (the host's cursor is enabled by default for participants)
7 The option to leave the conference (also an option to end the conference if the host)

10-3-3 CHAT

Learn how to use the chat tool inside a conference (if enabled by the host).

When the chat window is closed or minimized, the chat button will display the number of unread messages.
Clicking the chat button will launch the chat window, fixed in the bottom-right corner of the screen. The window can be closed in the usual way or minimized by clicking anywhere on the title bar. A minimized chat will also display the number of unread messages as well as pulse a different colour when a message is received.

The chat window is comprised of a content area for existing messages, an input field to type and a button to send messages. The name and avatar of the user is displayed with their messages, as well as the time if over ten minutes has passed since the last message. The user's messages are displayed on the right, whilst other user messages are displayed on the left.

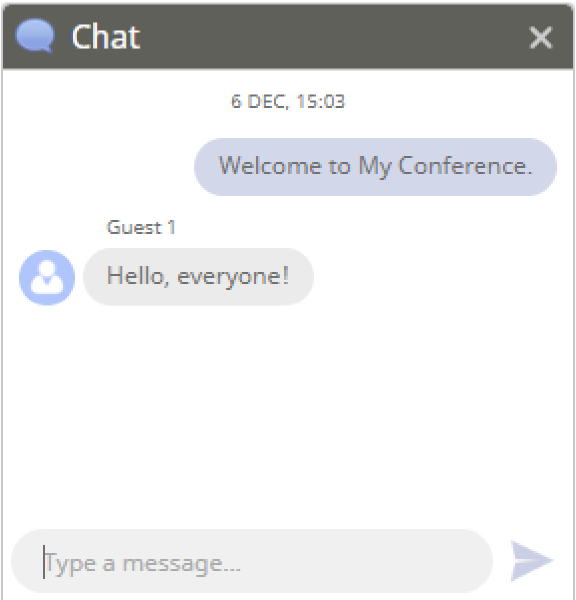


Image 10-7

When the user receives a message and the chat window is closed, it will be opened.

If the host disables or enables chat during the conference, the chat window and button will disappear or appear as appropriate.

10-3-4 VIEWING

Learn how to work with annotations inside a conference, and how to keep everyone's screen in sync.

When a slide is first opened, if the host has annotations available they will be given the option to share them with the conference. If the host gives another user control for the first time, they will also be given the same request if necessary.

If the option to add annotations is declined, the existing annotations will be slightly transparent to indicate that they are not in a conference. The annotation context menu will have an option to manually add it to the conference.

If a participant doesn’t have control, the only option they will have on existing annotations will be to copy it.

Whenever an annotation is created (by host or participant) it will be automatically added to the conference if the creator has control.

Synchronisation

If synchronization is enabled, every participant’s view and image controls will stay in sync. Any desynchronized user will be updated to the correct position/values. If a user has control, they will be able to change the view and image controls.

If synchronization is disabled, participants are free to navigate and change the image controls. When they do this without control and are no longer in sync, the synchronization widget will show a Resynchronize button that will bring the user back to the correct view and image controls.

Image 10-8

If a user with control makes a change, any participants that are not desynchronized will be kept updated with changes.

11. SCANNING

Remotely create scanning profiles, prepare cassettes for scanning, check slide quality and monitor the scanning process.

11-1 INTRODUCTION

The Scanning module for NZConnectMD provides an efficient scanning workflow for multi-user scanners by separating work that can be done remotely from the software on the scanning PC.

This workflow works best when slides are individually barcoded, as this allows slides to be removed and identified when returned to the scanner. Slides that do not have barcodes will appear as new slides if taken from and returned to the scanner, so ideally scans should be fully quality checked before being removed from the scanner.

Note

- Each slide should have a barcode. Slides with no barcodes must be named before scanning.

Note

- Barcodes may not be read correctly due to small size, low print quality, adhesion of dirt, and so on. Since the system itself cannot judge whether it is reading barcodes correctly, pay attention to barcode print quality and verify barcode information as necessary.

Note

- If the scan area is set to “Automatic”, the system may not be able to detect all desired tissue areas (for example, if the contrast is too low). For this reason, be sure to verify the scan area after scanning.

11-2 SETTINGS

Barcode Reader

A handheld barcode reader can be registered here. Clicking “Register Barcode Scanner” will display a barcode that you can scan with your handheld barcode reader to automatically register the reader’s prefix and suffix.

Image 11-1

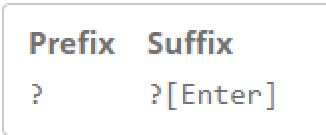


Image 11-2

Once the barcode has been scanned, it will automatically close and the detected prefix and suffix will be displayed, as shown above. You can also delete a registered barcode reader by using .

By using the handheld barcode reader to scan a slide barcode, appropriate information about the slide will be displayed as if the barcode was typed in the barcode entry field in the sidebar.

Permissions

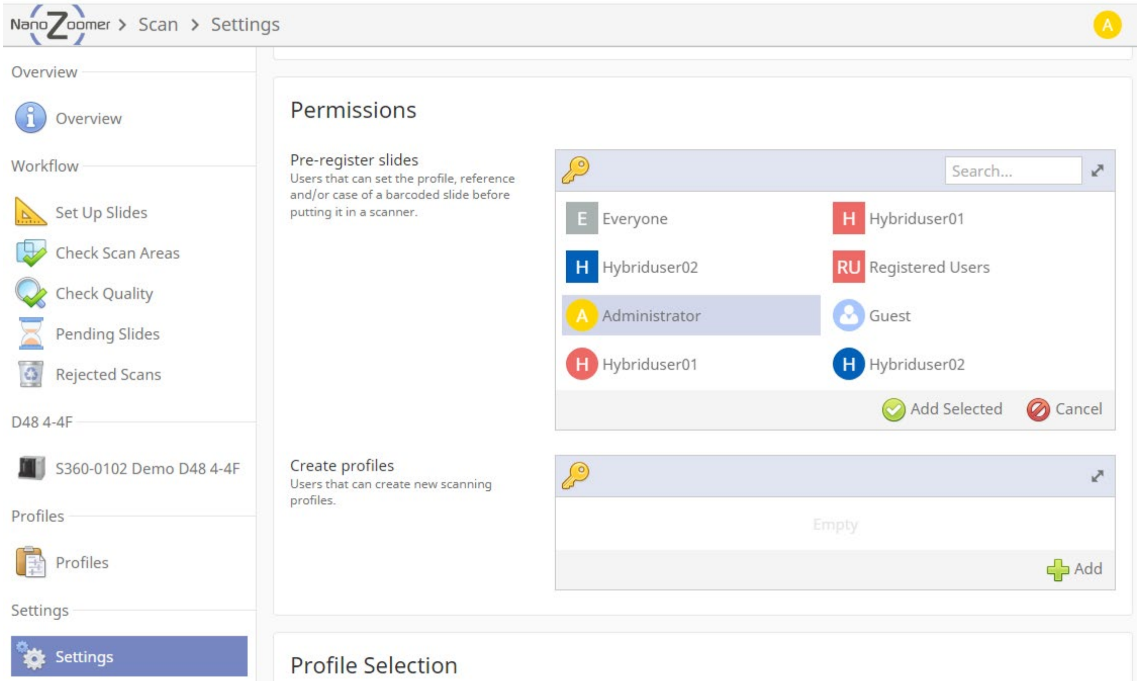


Image 11-3

Pre-Register Slides

This permission allows a user to preset some values for a specific slide, which will be used when the slide is first seen:

- Profile
- Case
- Reference

They can do this by entering the barcode in the barcode entry field in the sidebar or using a handheld barcode reader to scan the slide’s barcode.

Create Profiles

This permission allows the creation of new scanning profiles on the Profiles page.

Profile Selection

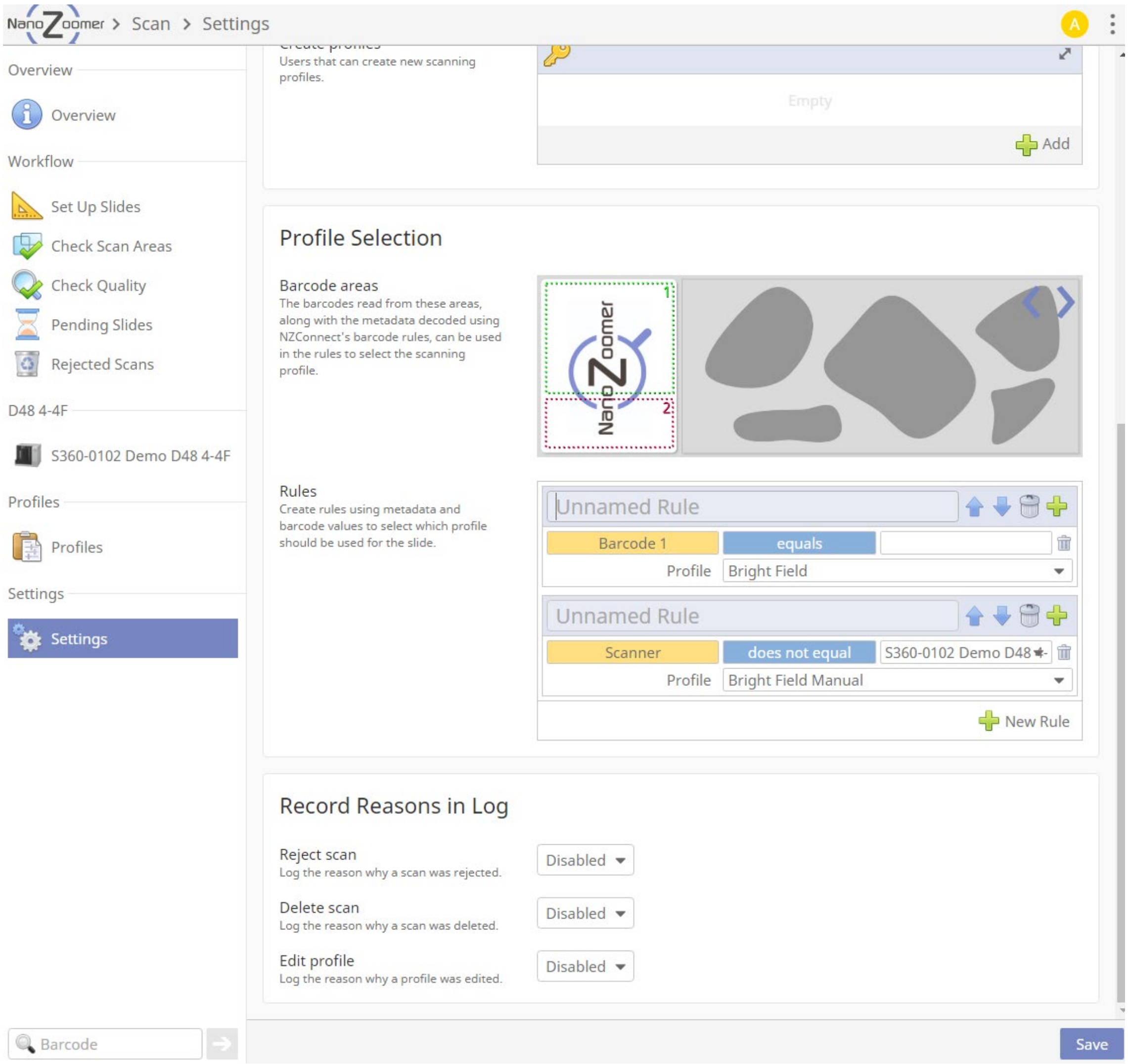


Image 11-4

As the only distinguishing part of a slide put in the scanner, the barcodes read from the slide label can be used to determine the scanning profile used for the slide. This section allows configuring these scanning rules.

Barcode Areas

Without knowing what any slide is ahead of time, it is necessary to know how to read any barcodes on the slide without needing to know the entire scanning profile. This control allows the user to specify barcode areas exactly as they would for a scanning profile. The user is presented with a slide image where they can draw the barcode areas.
For more information about how to use this control, see the barcode section of Scan Areas (Slide Image Control).

Image 11-5

When a slide is sent to the scanner, the barcode areas specified here will be used to extract information from the slide to determine how to proceed after capturing the slide image. Once the barcode information is extracted, the next section allows customisation of how to handle the slide.

Rules

When the scanner takes the slide image, the barcode information is sent back to the server and run through the Barcode Rules, which can be configured in the normal server management pages.

In this control, a series of rules can be created to determine which profile to assign to the slide, by performing simple comparisons with reference/barcode metadata and custom metadata that may be populated by the “Barcode Rules”. The rules will be tried one by one until all comparisons succeed. A rule with no comparisons will always succeed, and can be used as a backup profile (e.g. in manual mode, to prevent slides with missing barcodes from being scanned immediately).

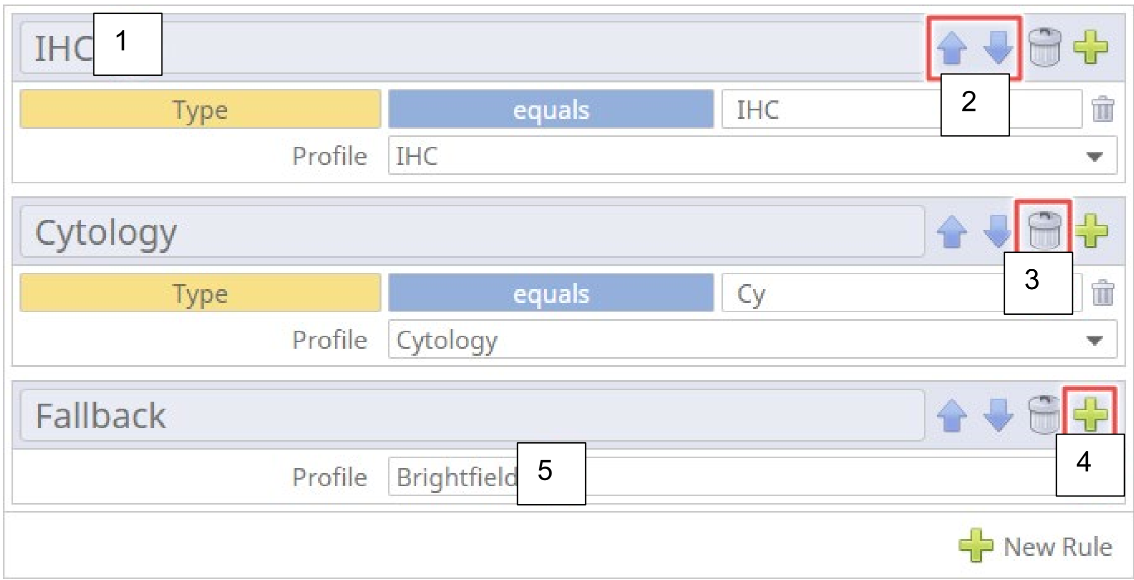


Image 11-6

Each rule has the following options:

1 Name – cosmetic
2 Move up/down – allows reordering of rules
3 Delete
4 Add – adds a new comparison to this rule
5 Profile – the desired profile if all comparisons are successful

The options for comparison are:

- Lab (only equals comparitor with a dropdown list of labs)
- Scanner (only equals comparitor with a dropdown list of scanners)
- Custom metadata (that can be extracted from barcode rules)
- Built-in metadata for barcodes 1-8 (if configured above)

The comparisons available are very simple, and operated on between the mentioned metadata and a custom string. The operations available are:

- equals
- does not equal
- is greater than
- is less than
- starts with
- ends with
- contains
- is empty
- is not empty

If the chosen profile has an automatic scan mode, the slide will be scanned. If the profile is manual or if there is no profile, the slide will not be scanned, but will move into the “Set Up Slides” flow.

Record Reasons in Log

For logging purposes it can be necessary to supply reasons for certain actions that a user takes.
The following actions support the option of providing a reason:

- Rejections
- Deletions
- Profile edits

Each action can be individually configured with the following settings:

- Enabled (dropdown list)
    - Disabled – no prompt for providing a reason
    - Optional – prompted to provide a reason, but the user can choose “Not specified”
    - Required – the user must provide a reason when prompted
- Reasons – a list of possible predefined reasons the user can give (one per line)
- Custom reasons – if the user can freely type a reason that is not predefined

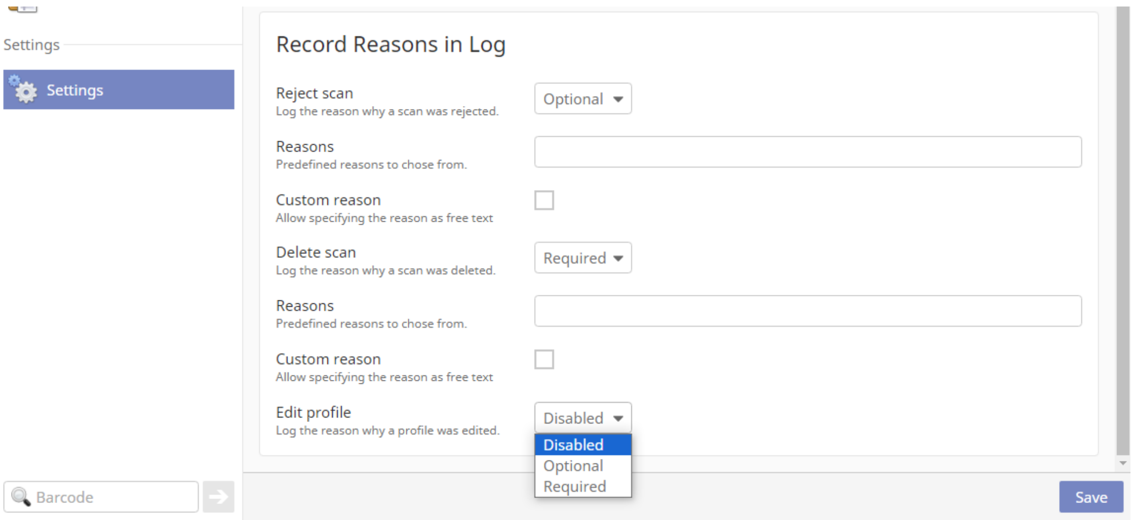


Image 11-7

When the user performs an action that allows a reason to be provided, a window will appear with a dropdown list (if predefined reasons are configured). This list will have the following options:

- Blank – if the reason is optional this option can be reselected, otherwise it will disappear once changed
- Each individual predefined reason
- Custom – if a custom reason is allowed this can be chosen to show a text field and allow the user to type a custom message

If predefined reasons are not specified and custom reasons are enabled then the user will be shown a text field and not a dropdown list.

In some cases rejecting slides can cause a slide deletion, in which case the user will be able to provide reasons for both actions in the same window.

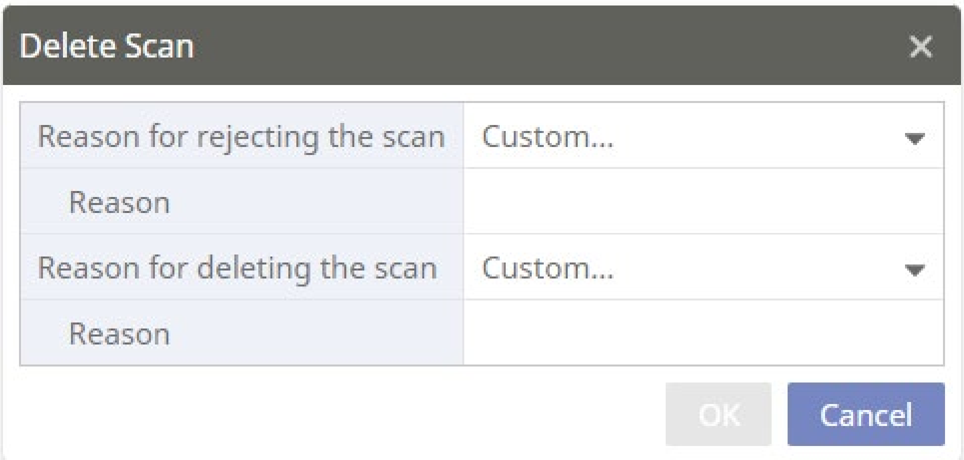


Image 11-8

11-3 BASIC WORKFLOW

User

1 Fill a cassette up with slides
2 Place the cassette next to any compatible scanner
3 Wait for the Scanner Operator to put it in the scanner
4 Slide is scanned or sent to “Set Up Slides” flow, depending on barcode mapping configuration
5 Confirm the scanning profile (optional - if the slide was sent to “Set Up Slides”)
6 Check the scan area (optional - depends on profile)
7 Check the scan (optional - depends on profile)
8 View the slides in NZConnectMD

Scanner Operator

This user can stop/start the scanners and add/remove cassettes. They will make use of the scanner status page, which will tell them when cassettes can be removed.

Their workflow is very basic:

1 Use the status view to see what needs to be done
2 Pause the scanner when suitable
3 Open the door
4 Remove cassettes that don’t need to be in the scanner
5 Add cassettes into the scanner
6 Close the door
7 Resume the scanner
8 Archive slides that have been finished

11-4 SCAN CONTROL SERVICE

The following sections describe the functionality of the software on the scanning PC.

Note

- When using NZAcquireMD/NZTuneMD, please stop SCAN CONTROL SERVICE. Otherwise, when you start the software, an error message will appear and you will not be able to operate it.
- When using NZConnectMD Scan, please close NZAcquireMD/NZTuneMD. Then, start "Scan Controller". Otherwise, an error message will appear on the scan control screen and scanning operations will not be possible.

Setup

The NZConnectMD configuration application on the scanner PC is used to establish a connection from the scanning service to NZConnectMD.

When launched, it will default to controls allowing the scanning service to be started or stopped. There will also be an option to register a scanner, which is necessary to add the scanner to NZConnectMD.

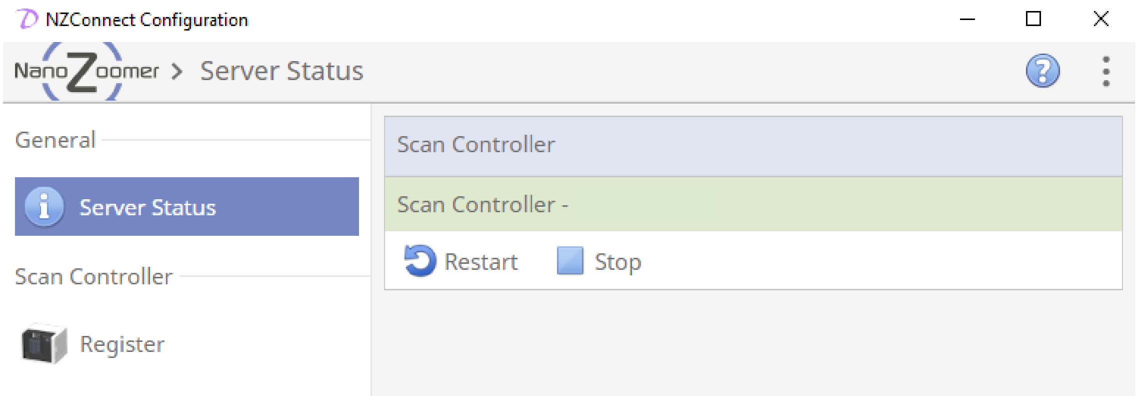


Image 11-9

The Register page can be used to connect the scanner to NZConnectMD's core service.

Note

- When using NZConnectMD Scan, please close NZAcquireMD/NZTuneMD. Then, start "Scan Controller". Otherwise, an error message will appear on the scan control screen and scanning operations will not be possible.
- The version information is displayed in the "Scan Controller" service section in the image above.

Connecting to the NZConnectMD Server

Before the scanner can be registered, connection details must be provided:

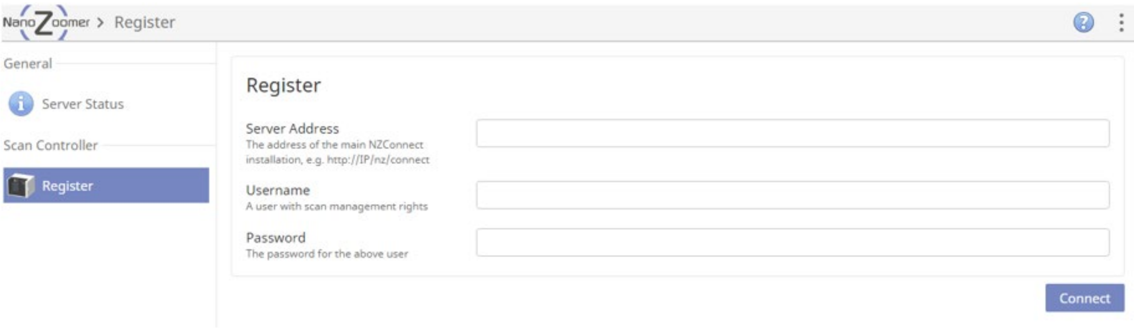


Image 11-10

- Server Address
    - TCP (only if the server and scanner software are on the same machine - tcp:localhost:4250)
    - HTTP (e.g. http://IP/nz/connect)
- Username (a user with the **Scan Management** right)
- Password (for the given user)

> - The scanner must be turned on and finished with its initialisation steps before a connection to the server can be established. Attempting a connection before this process is finished will result in an error.

Choosing a Name and Lab

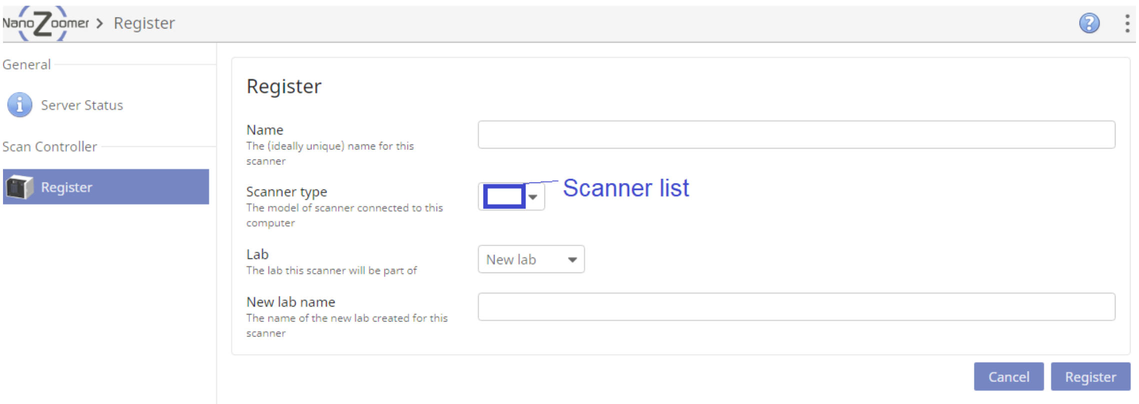


Image 11-11

Once a connection is successfully established, some further options can be provided:

- Name (can be changed later in NZConnectMD)
- Scanner type(The model of scanner connected to this computer)
- Lab (a new lab can be provided, or any existing labs can be selected)
- New lab name(The name of the new lab created for this scanner)

Service

A brief summary of the functions of the service running on the scanner PC is provided below.

- At start-up or after the door has been opened and closed, retrieve a list of cassettes currently in the scanner
- Whenever idle, and between each job, query NZConnectMD's scan module with a list of installed cassettes to retrieve the next action(s) to perform
- While scanning, regularly send updates to the NZConnectMD scan module with the current progress

11-5 LABS

A lab is a group of scanners that are on the same site.

Overview

When a user first enters the scanning application they will see a list of scanners and labs if they have the appropriate permissions for the lab.

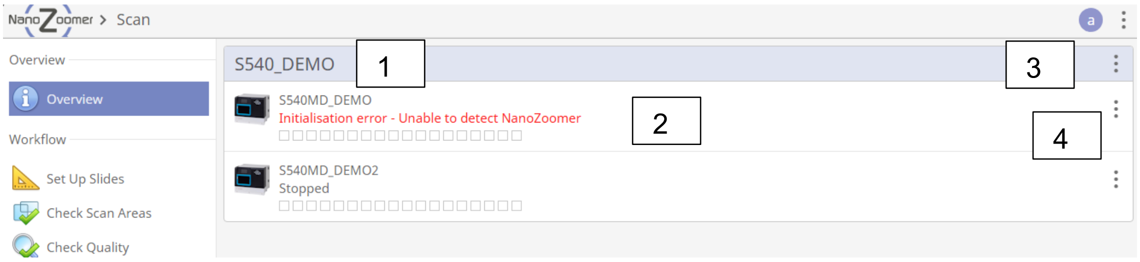


Image 11-12

1 Lab name
2 Scanner information

- Scanner name
- Scanner status
- Cassette status

3 Lab menu (**Scan Management** right required)
4 Scanner menu (**Scan Management** right required)

HAMAMATSU
PHOTON IS OUR BUSINESS

Lab Settings

The lab settings can be changed by using the Edit Lab option in the lab menu. The settings available in the lab settings window are outlined below:

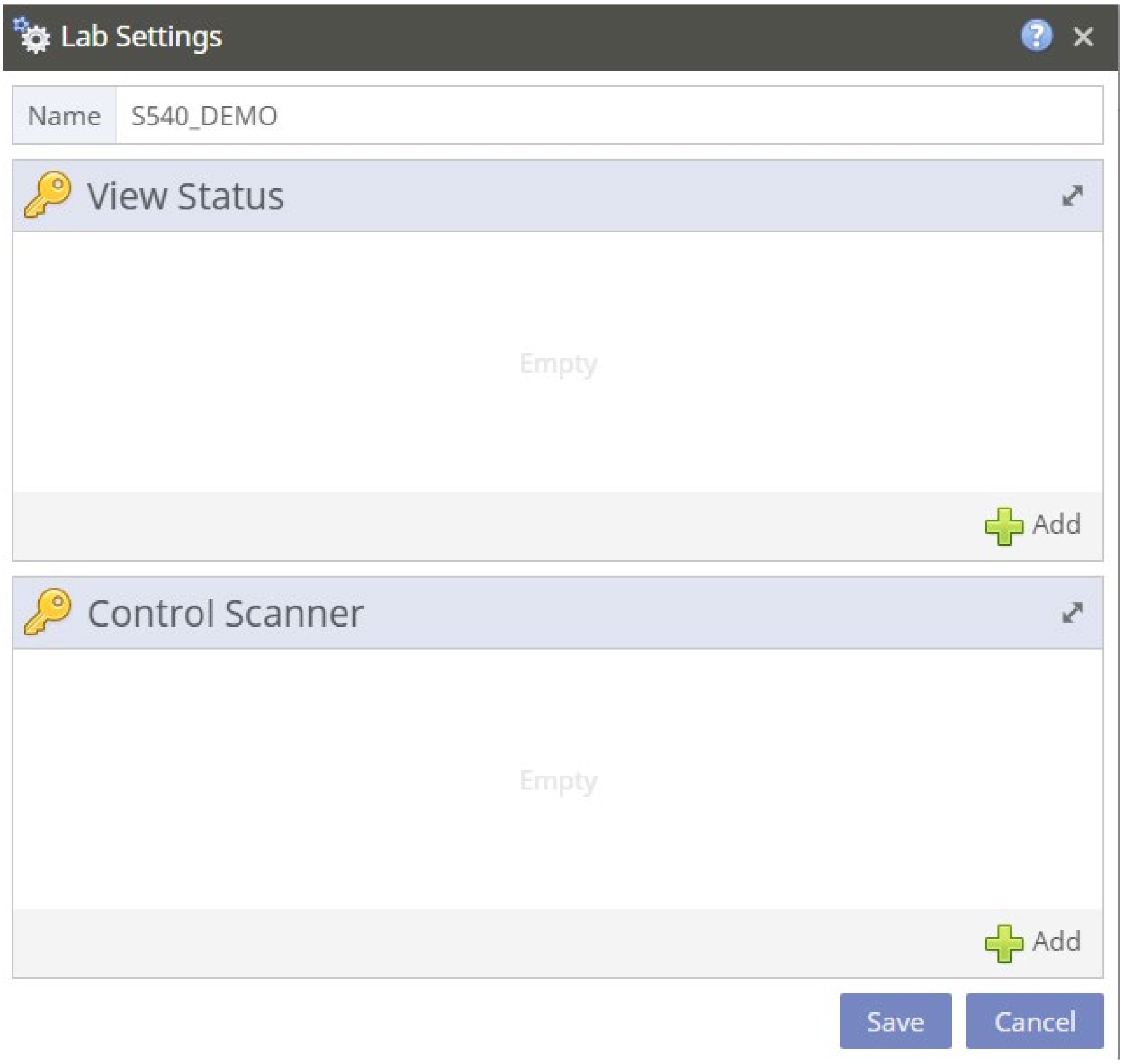


Image 11-13

- Name
- View Status (permission) - this permission gives a user access to the status of the scanners in the lab, using the Status page. It is critical to the Scanner Operator workflow
- Control Scanner (permission) - this permission gives a user the ability to stop and start the scanners from the Status page. This is necessary for unloading and loading cassettes. It is critical to the Scanner Operator workflow

Scanner Settings

The lab settings can be changed by using the Edit Lab option in the lab menu. The settings available in the lab settings window are outlined below:

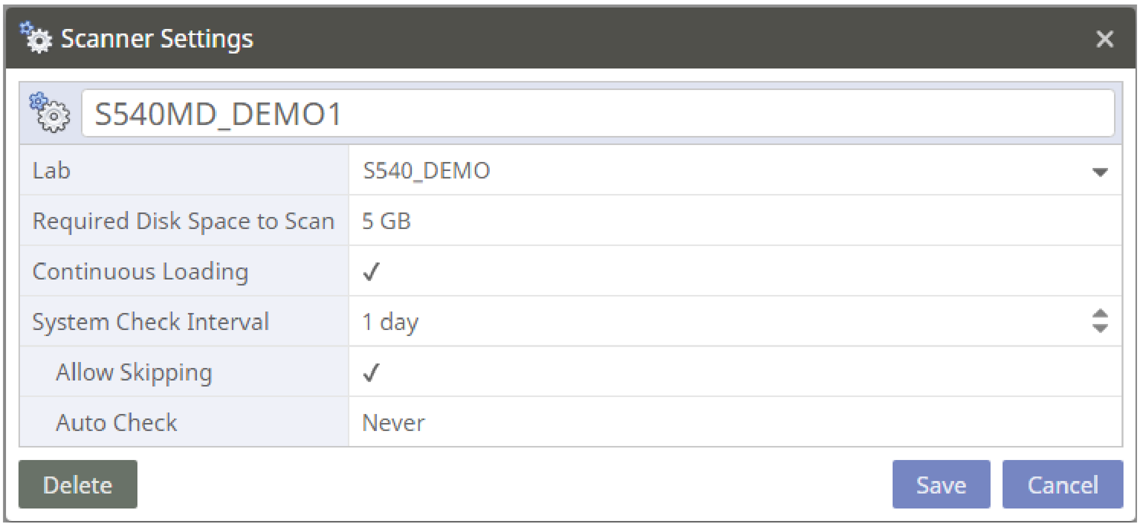


Image 11-14

- Name
- Lab - allows moving a scanner between labs
- Required Disk Space to Scan - if the drive the temporary scan folder on the scanner PC is on has less than this much space, no new scans will be started until space is made available.
- Continuous Loading
  - Checking "Continuous Loading" enables the feature. (Default is off)
  - When this feature is enabled, you will be able to add or replace slides during scanning by clicking on the red-framed padlock symbol shown below on the scanner's touch panel.
  - The slide cassette access door can only be opened when it displays "Unlocked." 10 seconds after you close the door, the door will lock and the status will change to "Locked."

Check status	Option	Description
Unchecked	Disable	Click the Stop or Pause button to add or replace slides. (default)
Checked	Enable	Slides can be added or replaced while scanning is in progress.

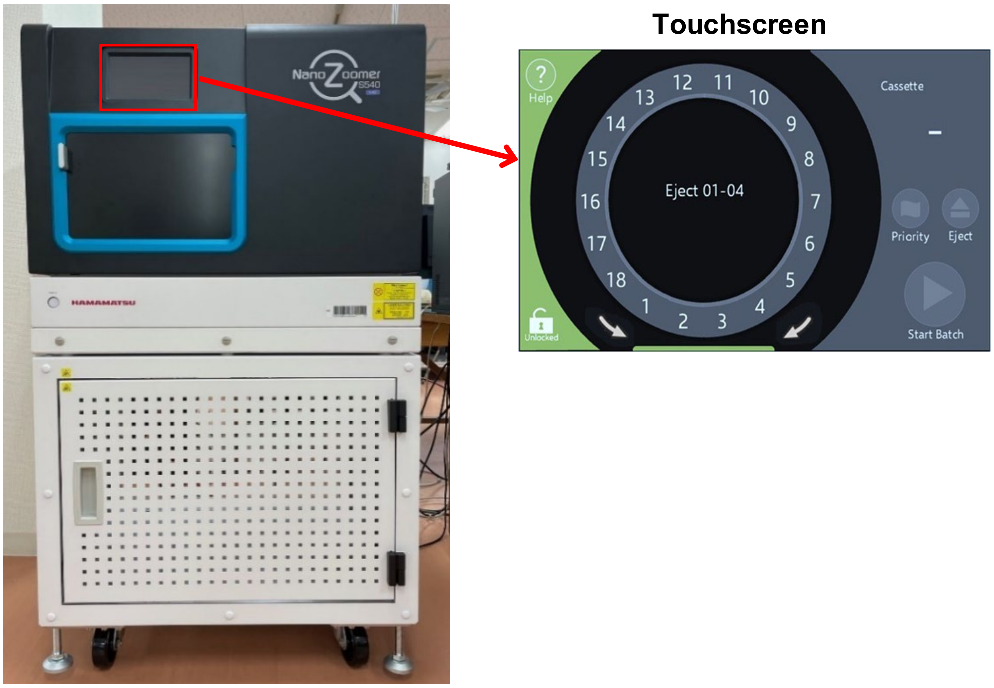


Image 11-15 S540MD Slide scanner and the touchscreen

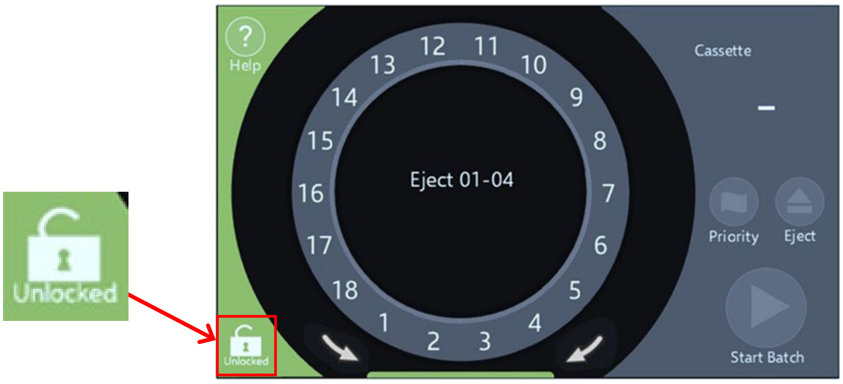


Image 11-16 Touchscreen on the front of the scanner

Note

- This function is only available on the NanoZoomer S540MD slide scanner system. If you connect a scanner that does not have this function, it will be grayed out and disabled.

Note

- See the “NanoZoomer S540MD C17400-21MDEU System Instruction Manual”, for the details of the touchscreen.
- See the “NanoZoomer S540MD C17400-21MDEU NZAcquireMD Instruction Manual”, for more details of “Continuous loading” function.

- System Check Interval

  Number of days between mandatory system checks, requiring the use of a blank slide and chart slide. Can be disabled to only have user requested system checks. For more information, see
  Scanner Status.

  - System check Interval (default is 1day)
  - Allow Skipping (default is on)
  - Auto Check (default is Never)

- System Check Interval

  Number of days between mandatory system checks, requiring the use of a blank slide and chart slide. Can be disabled to only have user requested system checks.

- Allow Skipping

  if the system check interval is enabled, having this option enabled will show an option to skip the system check on the scanner status page, within the message bar. This skip button will be available when within two hours of the system check time.

- Auto Check

  if the system check interval is enabled, automatically perform system checks during specified times, if the scanner has built in system check slides or a system check cassette is already in the scanner.

- Working Hours

  if auto check is enabled, specify the days and time window that system checks can be automatically performed within.

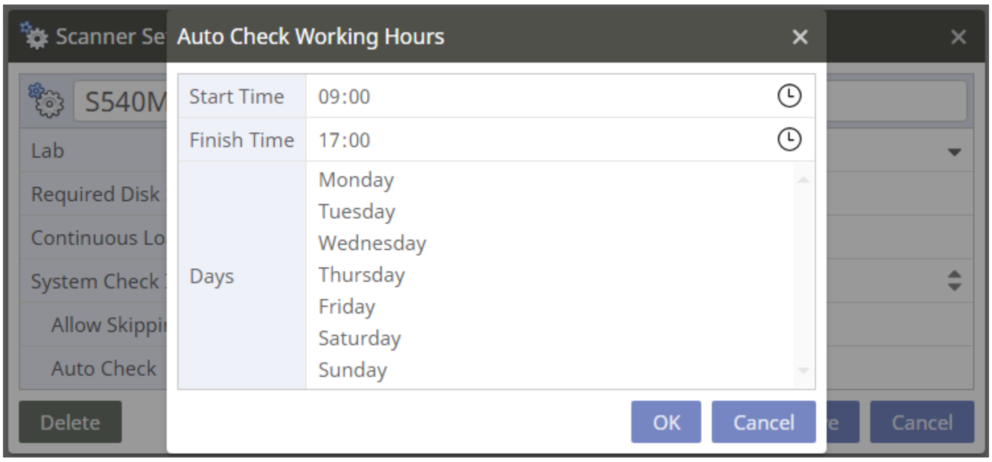


Image 11-17

Note

- The Auto Check function is only available on the NanoZoomer S540MD slide scanner system.
  If a scanner without this function is connected, the Auto Check item will not be displayed.
- If you wish to use the Auto Check feature, be sure to install system check slides using NZConnect Scan beforehand .

11-6 PROFILES

11-6-1 PROFILE MANAGEMENT

View, change or import/export all the scanning profiles available to you.

Scanning profiles are shared across all labs. Entering the Profiles page will show all the available profiles that you have permission to use.

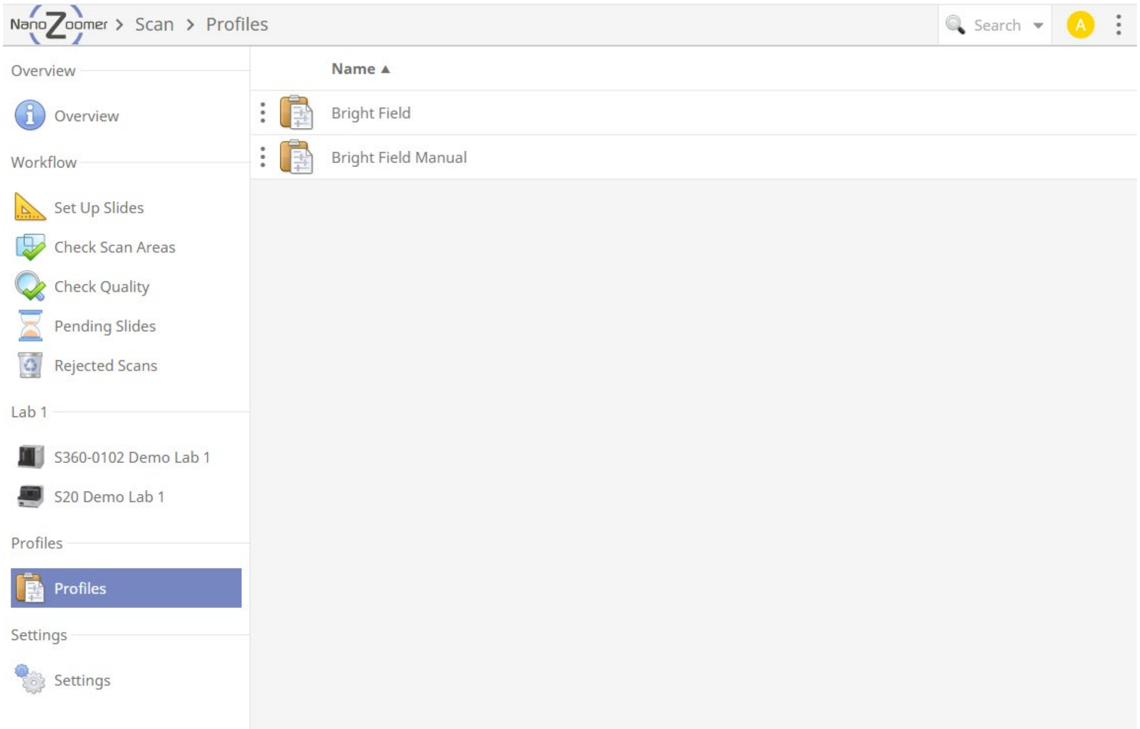


Image 11-18

Adding a New Profile

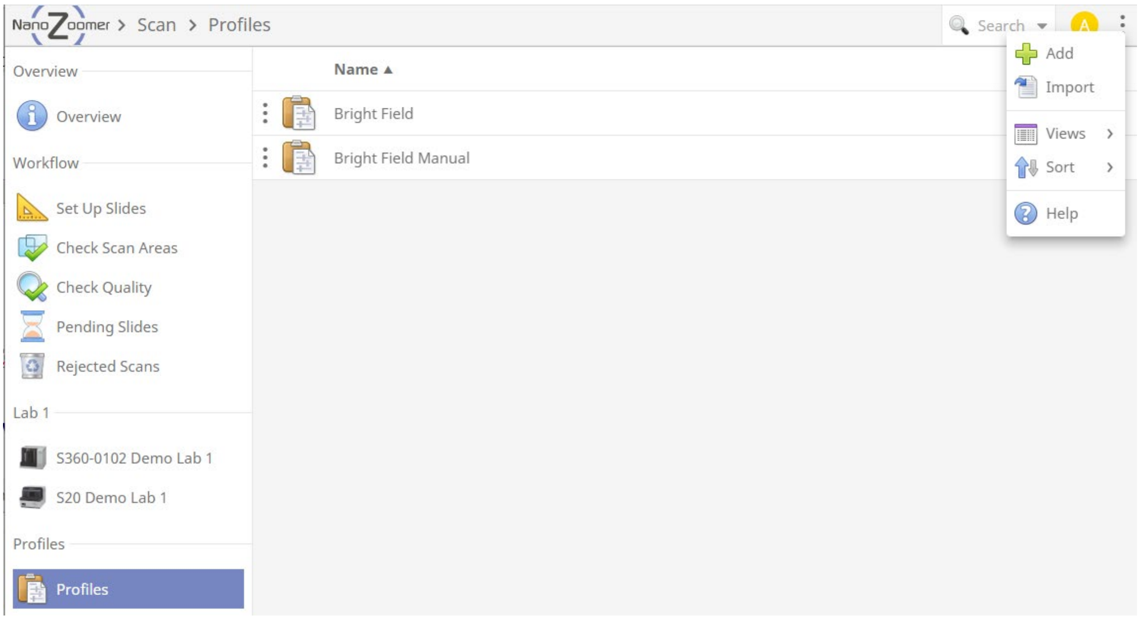


Image 11-19

If the user has the **Create Profiles** permission then the main context menu will provide them with two options for creating a new profile:

- Add
- Import (an exported profile from NZConnectMD or NZAcquireMD)

This user will also be able to duplicate an existing profile using the context menu for an individual profile. This option will take you to the new profile creation page with all the values prepopulated from the duplicated profile.

For more information on creating a profile, see Profile Creation.

Managing Existing Profiles

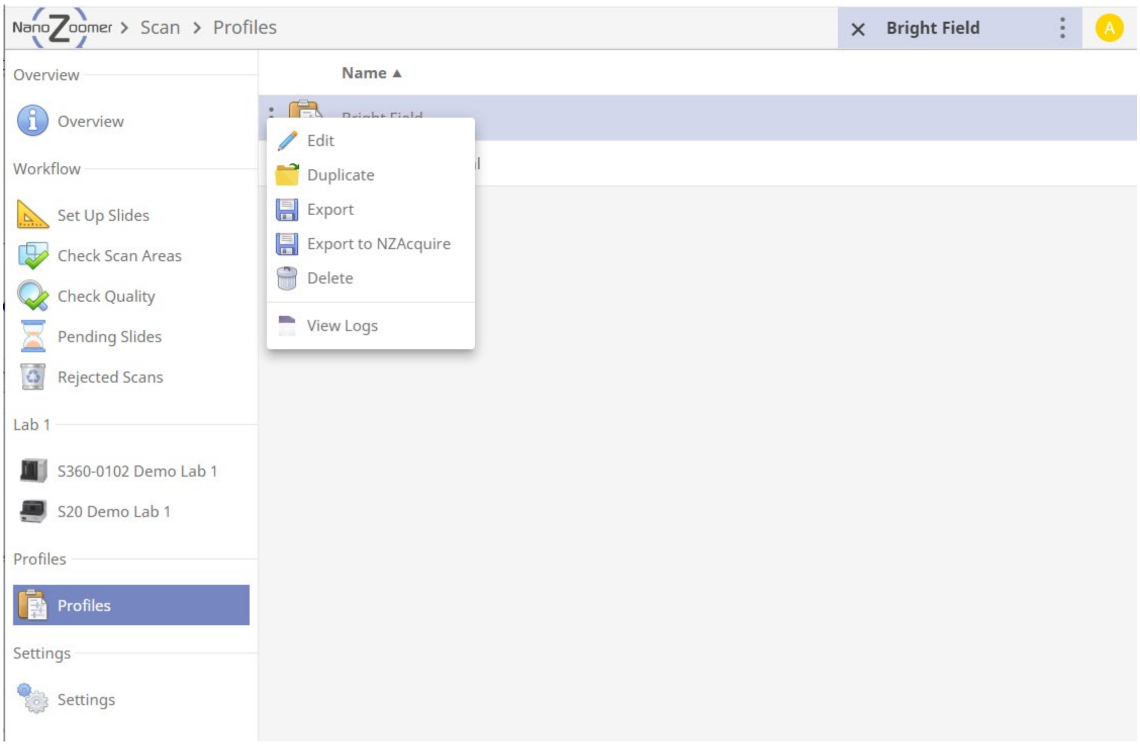


Image 11-20

If the user is an **Editor** of the profile, they will also have the following options available in the context menu for an individual profile:

- Edit
- Delete

If the user has the **View Logs** right they will also have option to view server logs involving the chosen profile.

Import/Export

The context menu for an individual profile will have the following options:

- Export
- Export to NZAcquireMD

These two options allow exporting an NZConnectMD Scan profile to a file so they can be imported to another place(e.g. another NZConnectMD installation or NZAcquireMD).

Currently only brightfield detection/scanning parameters can be imported and exported from/to the NZAcquireMD scanning profile format.

Profiles can be imported by a user with the **Create Profiles** permission, as mentioned above.

11-6-2 PROFILE CREATION

Learn what all the options in scanning profiles do to customise your scanning experience.

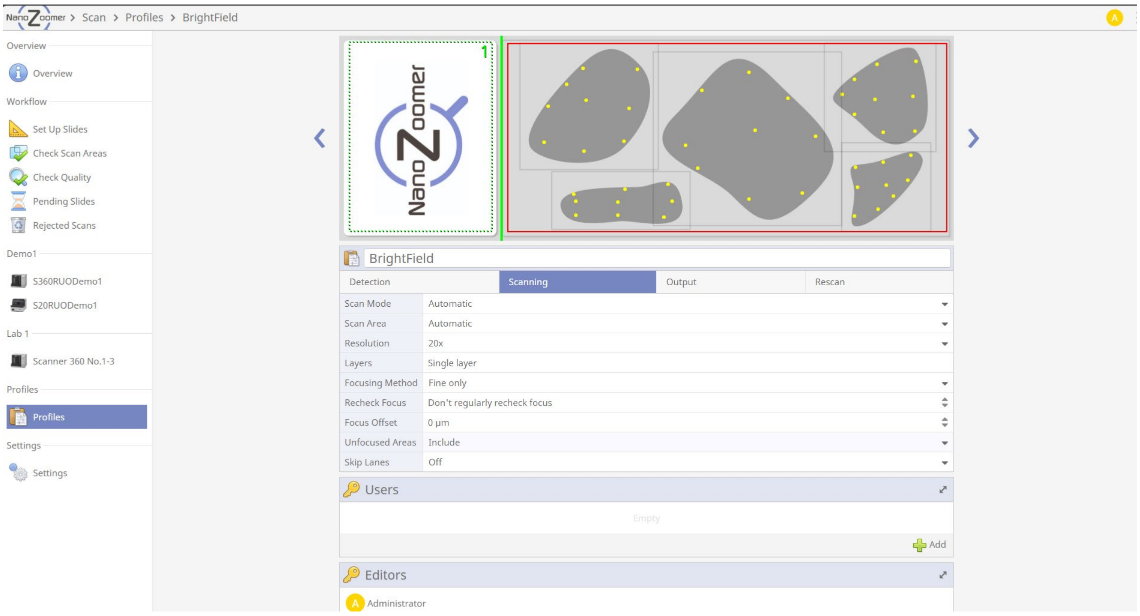


Image 11-21

Scan Areas (Slide Image Control)

Image 11-22

Multiple functions within this control involve creating boxes or points. Boxes and points can be moved by dragging them, and boxes can also be resized by dragging from edges. They can be removed by dragging them completely out of the control. Boxes can be created by dragging in some empty space.

Macro Images

A default macro image is provided to allow using this control without any available macro images, but once macro images have been taken and are available for the user to see (**Slide**

Owner profile permission on the profile used to scan the slide) arrows will become available allowing the user to switch between available macro images.

By using the left arrow, the built-in default macro image will be displayed (unless the user has used the right arrow). The arrows loop through available macros (including the default one).

Label

The location of the label can be controlled by dragging the green bar to the left or right.

Barcode

The location of the barcode can be set by drawing a box to the left of the label area bar. Up to 8 areas can be drawn, and will be numbered with the lowest available number (1-8) by default. The context menu for one of these areas will have the option to configure the barcode settings and delete the area. By default, the barcode area used here will default to the barcode areas in the profile mapping section of the main scan settings. These inherited areas cannot be modified, but can be replaced or removed if desired. To return to the default areas after making a change, the "Reset Barcodes" option can be chosen from the context menu when right-clicking on an empty space on the macro image.

If the user chooses to configure the barcode, a window will appear with options:

- Barcode number - changing this will change the barcode number (1-8) the area is assigned to, and if already taken by another area swap it instead
- 1D Barcodes - choose which 1D barcodes to look for within this area, and defaults to:
    - Code 39
    - Code 128
    - Code 25
    - Codabar
- 2D Barcodes - as above, but will only be present if any scanner supports them (all enabled by default)

Scan Area

Scan area boxes can be set by drawing a box to the right of the green bar.

Automatic

An automatic scan area box will appear red, and there can be only one. Dragging a new box will remove the old one.

Preset

Preset scan area boxes will appear blue (if only one) or yellow (if there are multiple). A blue box will appear around all the yellow boxes if there is more than one.

In the Preset Scan Mode, it is possible to (optionally) specify the focus points for each area. If they aren't set, they will be automatically calculated for each slide image.

Context Menu

Focus points, areas and blank space each have menu options available:

- Delete (focus point/scan area)
- Delete Focus Points Inside (scan area) – deletes all user-placed focus points within an area
- Delete All Focus Points (blank space) – deletes all user-placed focus points
- Delete All (blank space) – deletes all focus points and scan areas
- Reset (blank space) – returns to the values used before any changes were made
- Reset Barcodes (blank space) – returns to the barcode area values specified in the profile selection section of the main scan settings

Scan Settings

This section of the profile page contains the field to set the name of the profile, which must be unique for all profiles (even those not visible to the user). If both single size slides are supported and a new profile is being added, a dropdown to choose the type of profile will be next to the name.

Image 11-23

This section also allows configuring all the available scanning profile settings, which are split up into four tabs,which are detailed in further pages:

- Detection
- Scanning
- Output
- Rescan

Profile Permissions

Users

The users of a profile can use or duplicate/export (permission allowing) the profile.

Editors

The editors of a profile can do everything a user can do, as well as make changes to the profile or delete it entirely.

Slide Owners

Slide owners is an important permission, necessary for most of the scanning workflow. All scans are associated with a base scanning profile that they were scanned with (even if modified). The slide owners of this profile have the following abilities:

- See slide images and overview images of scans (e.g. on a cassette overview page)
- Seeing the cassette overview page (if all slides within are also owned by the user)
- Interacting with slides in the workflow pages or slide view window

11-6-3 DETECTION OPTIONS

The detection section has options to control the scanning process between macro (slide image) capture and the beginning of the scan. The actual scan area and focus points that will be used to scan with are determined by the settings in this section.

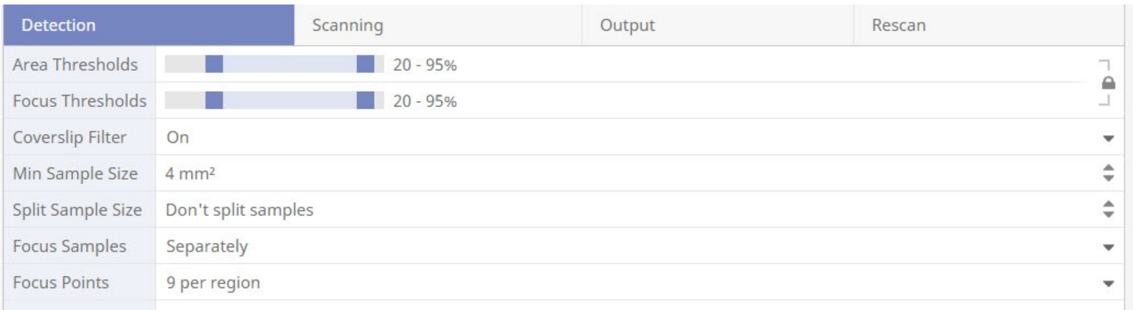


Image 11-24

Thresholds

There are two threshold fields (Area and Focus). The minimum and maximum value determines the sensitivity for sample detection (area) or focus points (focus). A higher maximum value will recognise fainter sample. A lower minimum value will recognise darker sample. If the maximum value is set all the way to the right then the value will be set automatically based on the peak intensities detected in the slide image. By default these two controls are locked to the same value; to control them independently they can be unlocked with .

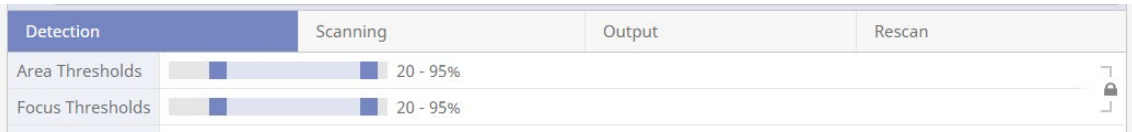


Image 11-25

1 Default: 20% – 95%
2 Limit: 0% – 100%
3 Step: 0.25%

Coverslip Filter

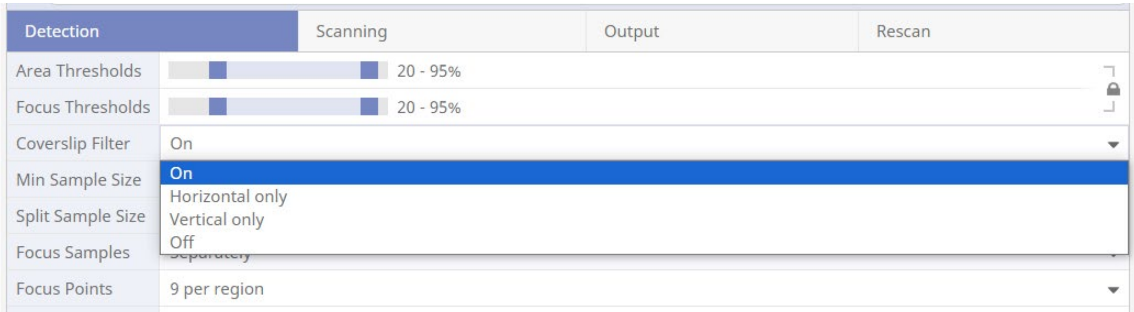


Image 11-26

This field is used to prevent the mistaken detection of a coverslip filter as a sample. It can be individually enabled or disabled for both the horizontal and vertical axis. This feature can cause issues detecting long and thin samples that are horizontal or vertical.

1 Default: On

Min Sample Size

This field is used to filter out dirt and dust by ignoring detected areas that are too small.

1 Default: 1 mm^2
2 Limit: 0 mm^2 - 100 mm^2
3 Step: 0.1 mm^2

Split Sample Size

This field is used to split detected samples into sub-areas, allowing the use of multiple focal planes. This is beneficial if there is a lot of variance in sample thickness. Multiple planes can approximate these variations, but a single plane will average them out leaving areas out of focus.

1 Default: Off (set to 0)
2 Limit: 0 mm – 100 mm
3 Step: 1 mm

Focus Samples

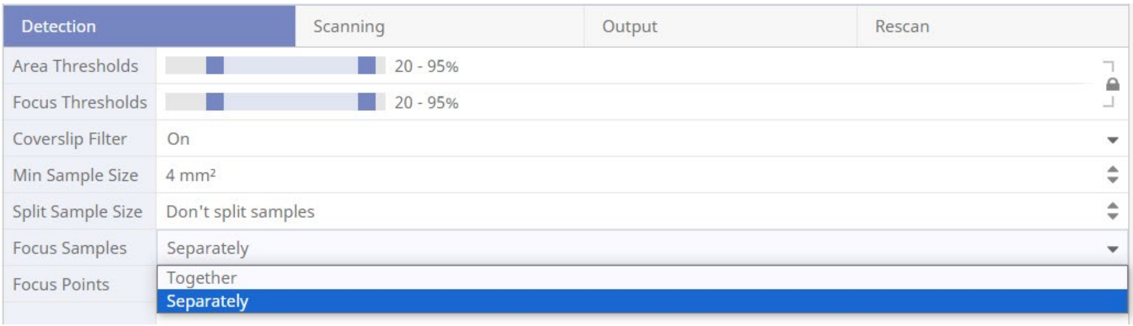


Image 11-27

This field allows different samples on the slide to be:

- Focused Separately – individual focus planes for each sample (default)
- Focused Together – one focus plane for all samples (suitable for tissue micro array or similar samples with little thickness variance)

Focus Points

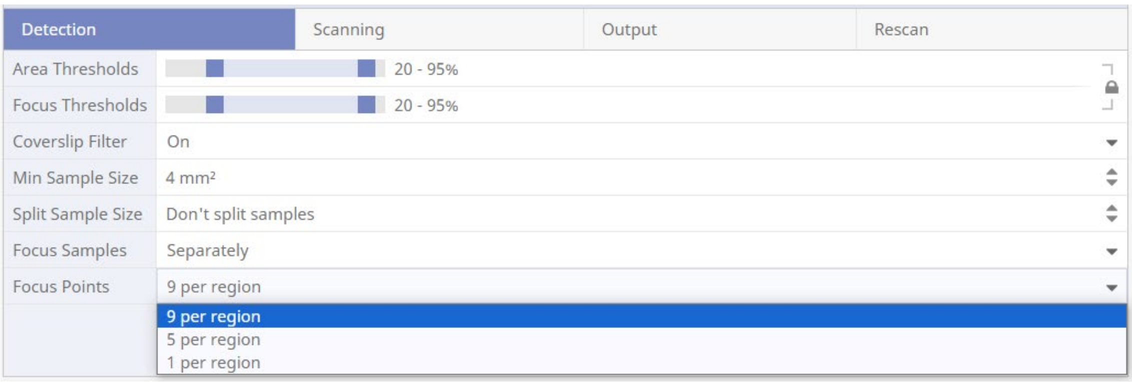


Image 11-28

This field determines the number of focus points that will be used to generate each focal plane:

- 9 per region (default)
- 5 per region
- 1 per region

11-6-4 SCANNING OPTIONS

Choose how the slide should be scanned; scan area, resolution, layers, focusing etc.

Image 11-29

HAMAMATSU
PHOTON IS OUR BUSINESS

Scan Mode

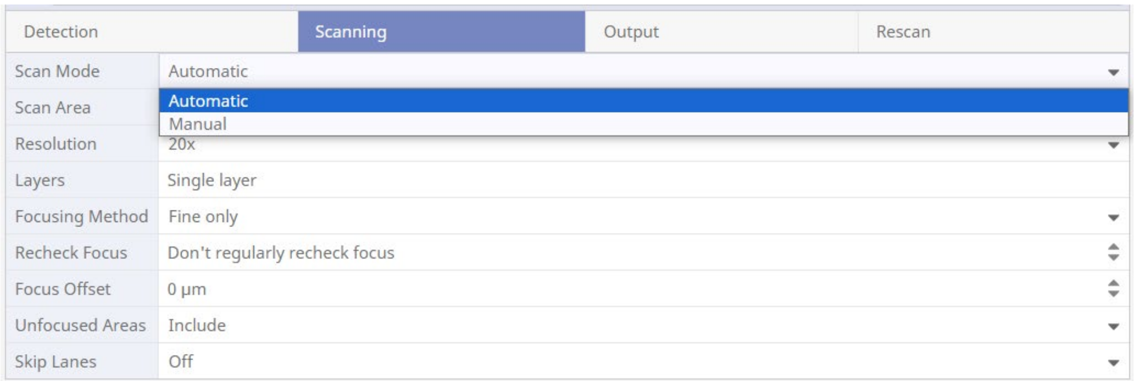


Image 11-30

This field determines whether the user has to confirm scanning settings after macro (slide image) capture.

- Automatic – slides will be automatically scanned after macro capture (default)
- Manual – users must confirm the scanning settings are all correct with the macro image using the **Set Up Slides** flow before the scanner can scan the slide

Scan Area

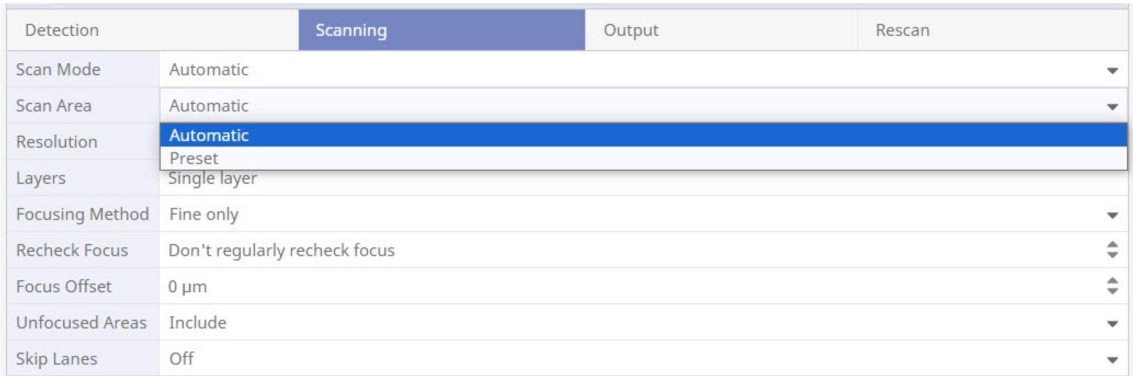


Image 11-31

This field determines what areas of the slide will be scanned:

- Automatic – scanning areas are automatically calculated from the detected samples within the specified area (default)
- Preset – the specified areas are always scanned in full, regardless of the presence of a sample

Resolution

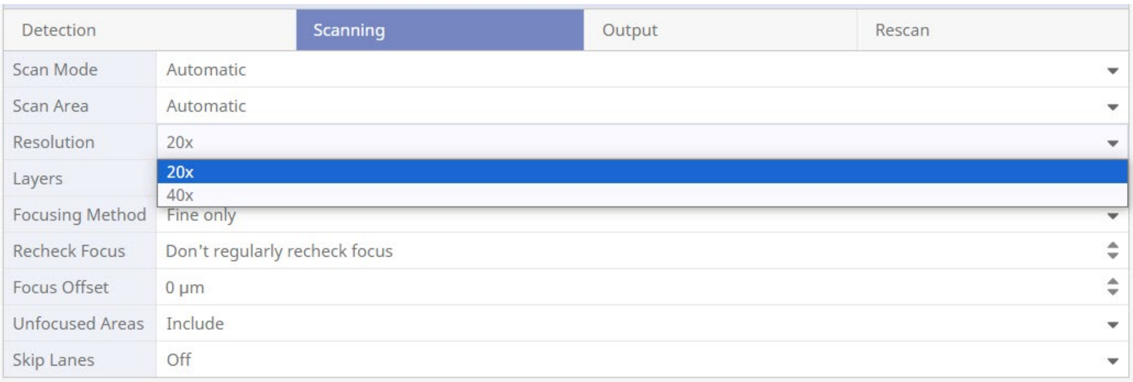


Image 11-32

This field determines the lens magnification used for scanning, and may have different options depending on the lens installed in a scanner:

- 20x / 0.46 µm (default)
- 40x / 0.23 µm

1 Default: 20x

Layers

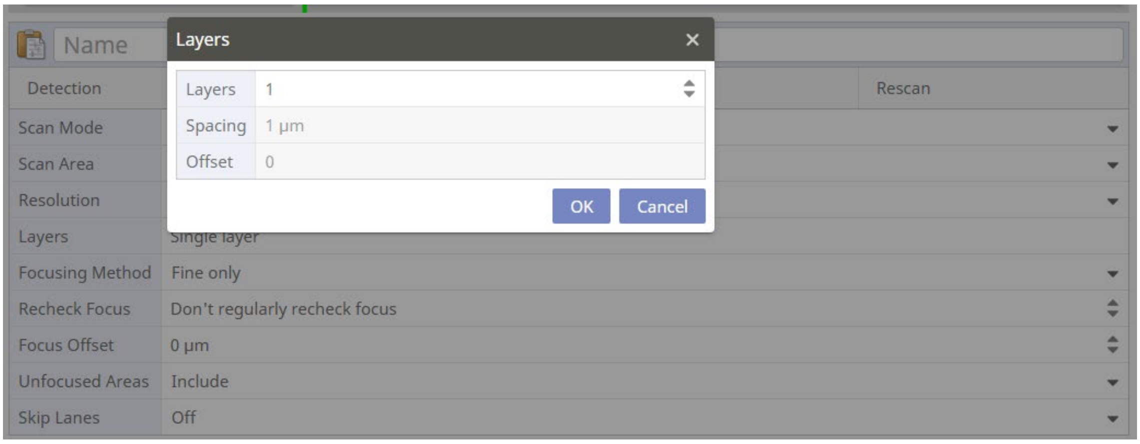


Image 11-33

Options to configure the number of layers and other associated values are controlled here.

Layers

This field determines the number of layers that will be scanned.

1 Default: 1
2 Limit: 1 – 101 (must be odd)

Spacing

This field is only available when the number of layers is more than 1 and determines the distance between each layer in µm.

1 Default: 1 µm
2 Limit: 0.1 µm – 5 µm
3 Step: 0.1 µm

Offset

This field is only available when the number of layers is more than 1 and will offset the location of the focal plane within the layer stack to capture more layers closer to the lens or further away (0 represents the middle of the layer stack).

1 Default: 0
2 Limit: -Layers ÷ 2 – Layers ÷ 2

Focusing Method

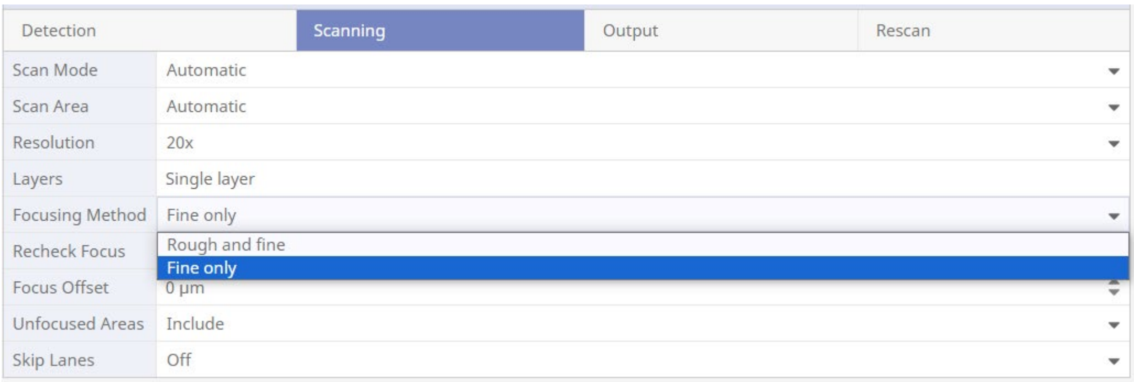


Image 11-34

This field determines the focusing method used at each focus point:

- Rough and Fine – rough focus and fine focus is done at every focus point (slower)
- Fine Only (default)
    - Rough and fine focus at the first focus point (per focal plane)
    - Fine focus at all subsequent focus points

Recheck Focus

Image 11-35

While scanning over a long period of time focus positions may change - use this option to periodically recheck focus points.

1 Default: Don’t regularly recheck focus
2 Limit: 0 - 60 minutes

Focus Offset

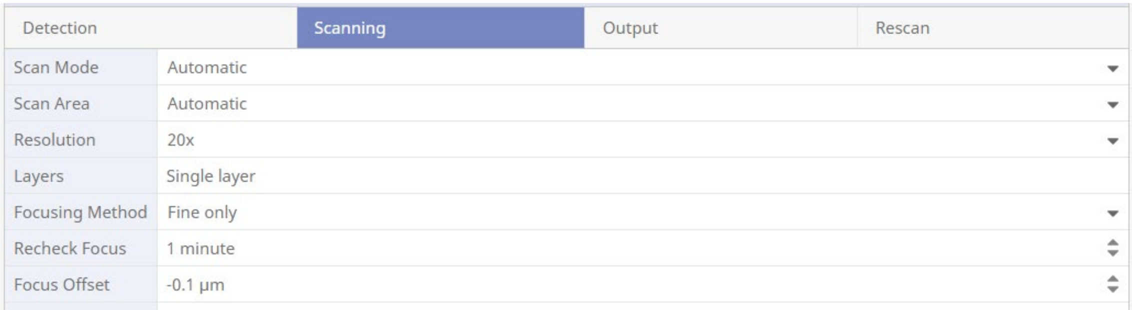


Image 11-36

Sets the offset if the plane created by autofocus is different from the scan plane

1 Default: 0 µm
2 Limit: -50 µm - 50 µm

HAMAMATSU
PHOTON IS OUR BUSINESS

Unfocused Areas

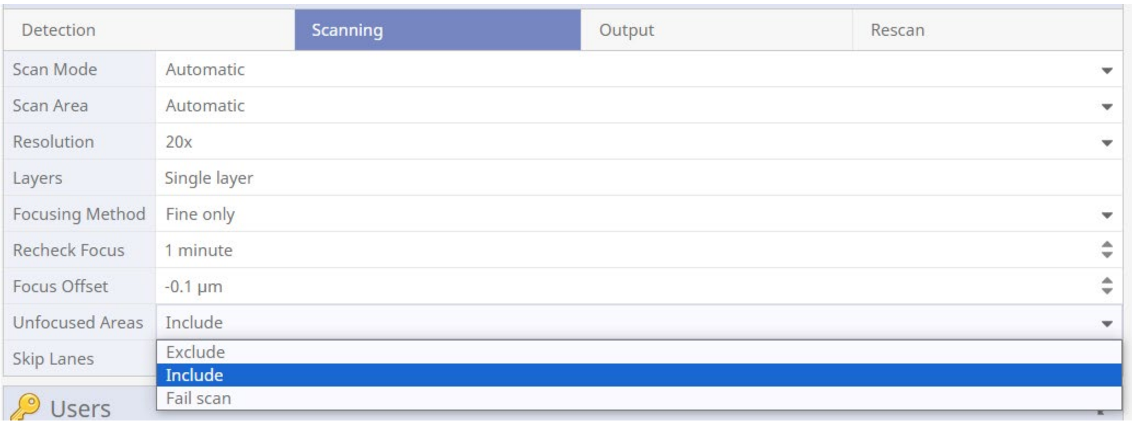


Image 11-37

If a focal plane can't be made for a sample (or sub-area of a sample) this field determines what to do:

- Include – scan the area anyway (default)
- Exclude – don't scan the area
- Fail Scan – the scan will fail and the user will have to make changes using the Set Up Slides flow

11-6-5 OUTPUT OPTIONS

Configure destinations for scans and customise the file format and options for rejection and QA.

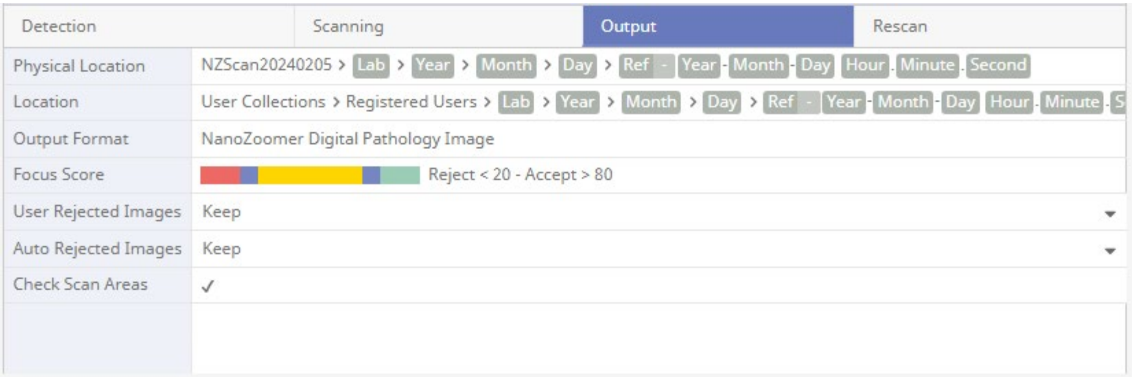


Image 11-38

Physical Location

This field determines the physical location finished scans will be placed. Scans are uploaded from the scanning PC to NZConnectMD, and are stored in the specified location within a repository.

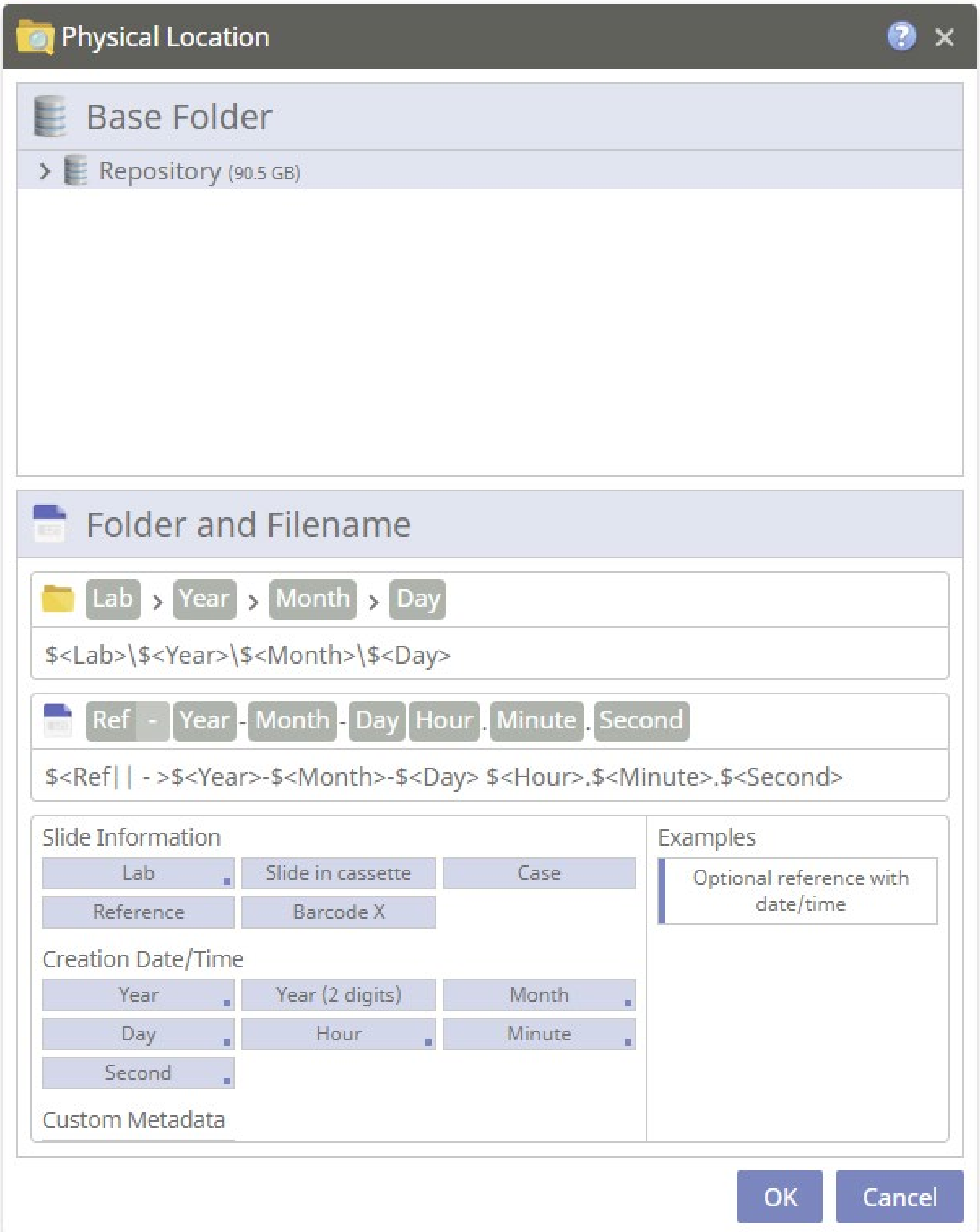


Image 11-39

The field allows the user to:

- Select a repository
- Browse to a suitable location in that repository
- Type further folder names and the filename, using a list of calculated placeholder values

- Slide Information
  - Lab
  - Slide in cassette
  - Case
  - Reference
  - Barcodes 1-8
- Dates/times
- Custom Metadata (generated from barcode rules)
- Scan Information
  - Lens
  - Scanner Make
  - Scanner Model
  - Scanner Serial
  - Size
  - Compression
  - Format
  - Focus Score

1 **Default**: $<Lab>¥$<Year>¥$<Month>¥$<Day>¥$<Ref|| - >$<Year>-$<Month>-$<Day> $<Hour>.$<Minute>.$<Second>

Location

This field determines the virtual location within the “View” application slides will be added to after they pass the quality check process. It uses a similar control to the above field, but browses the server instead of the repository.
This functionality can be turned off entirely with the checkbox at the top of the window if using a different process to publish images (or if not using NZConnectMD Serve).

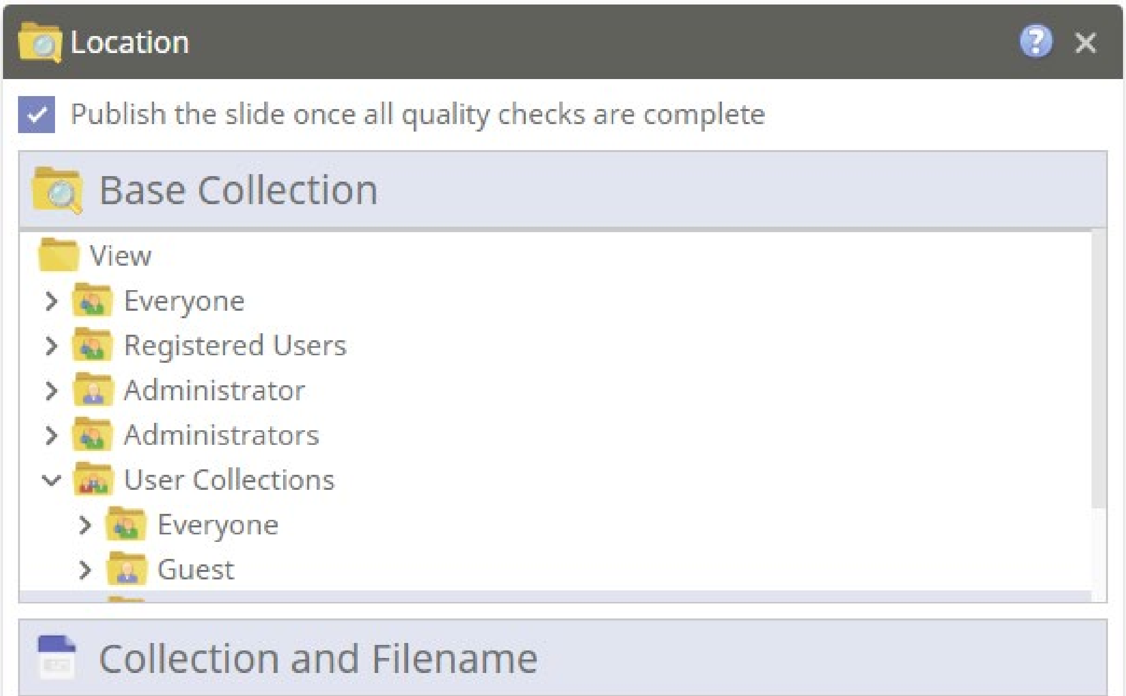


Image 11-40

1 **Default**: $<Lab>¥$<Year>¥$<Month>¥$<Day>¥$<Ref|| - >$<Year>-$<Month>-$<Day> $<Hour>.$<Minute>.$<Second>

Output Format

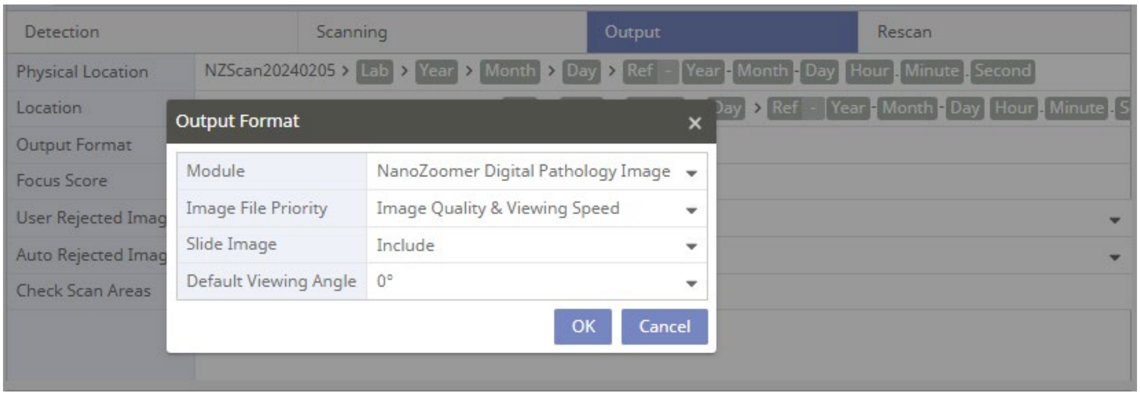


Image 11-41

This field determines the output file format of the scan. There are two options:

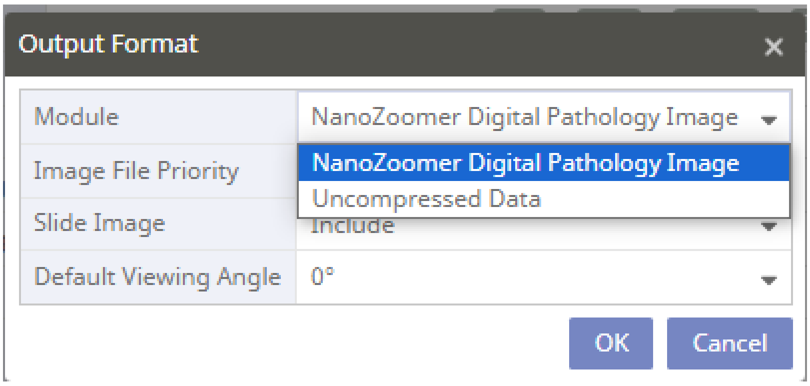


Image 11-42

- NanoZoomer Digital Pathology Image
- Uncompressed Data

NanoZoomer Digital Pathology Image

Image File Priority

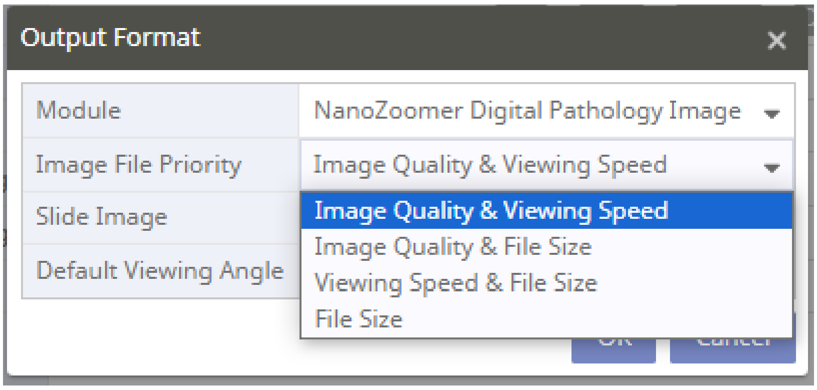


Image 11-43

This field provides a way to modify the way the image data is stored in the file to prioritise what is most important to you.

- Image Quality & Viewing Speed (default)
- Image Quality & File Size
- Viewing Speed & File Size
- File Size

Slide Image

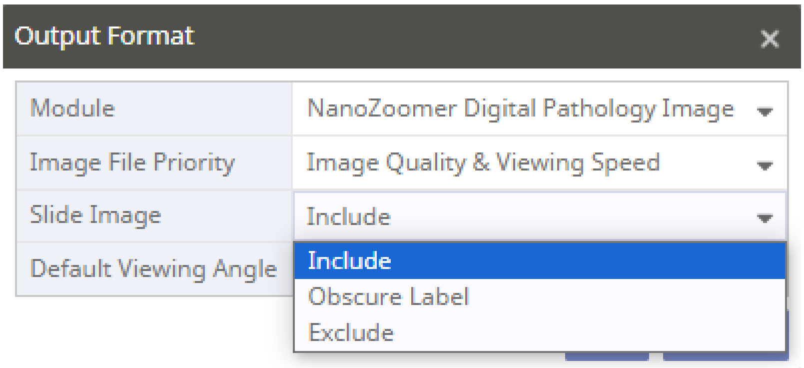


Image 11-44

This field specifies if the slide image should be saved and, if so, whether the label area should be included.

- Include – include the slide image in the file (default)
- Exclude – don't include the slide image in the file
- Obscure Label – include the slide image, but cover the label up

Default Viewing Angle

Store the desired viewing angle (in increments of 90°) inside the file to determine orientation of icons and the initial orientation of the image when opened in a viewer (depending on a user's settings).

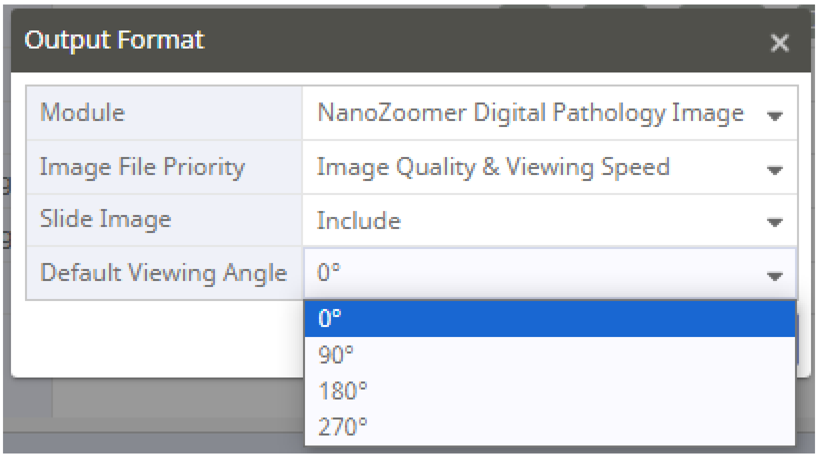


Image 11-45

Uncompressed Data

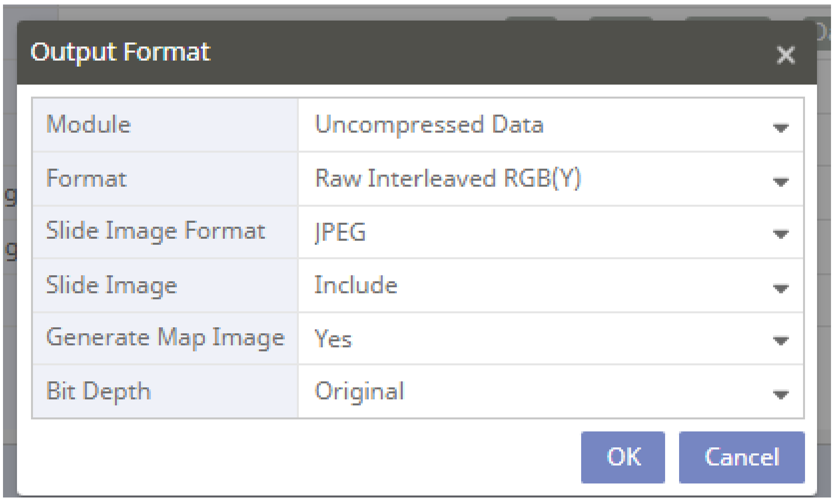


Image 11-46

HAMAMATSU
PHOTON IS OUR BUSINESS

- Format – pixel format of the main image

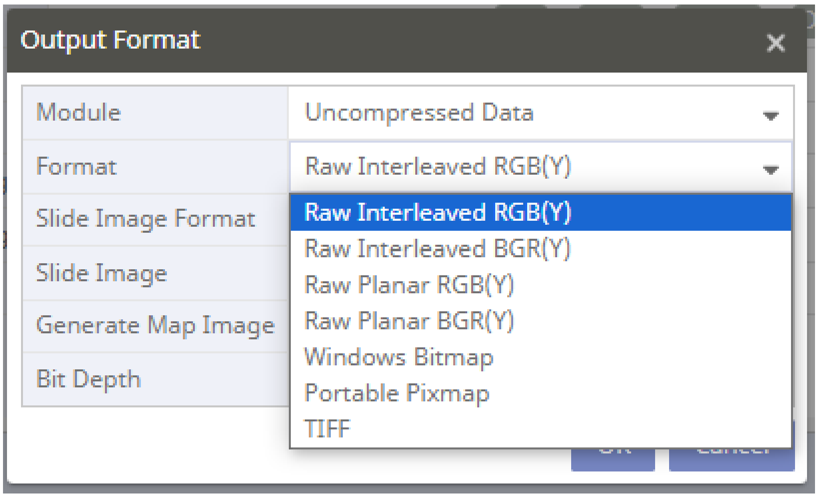


Image 11-47

- Slide Image Format – pixel format of the slide image

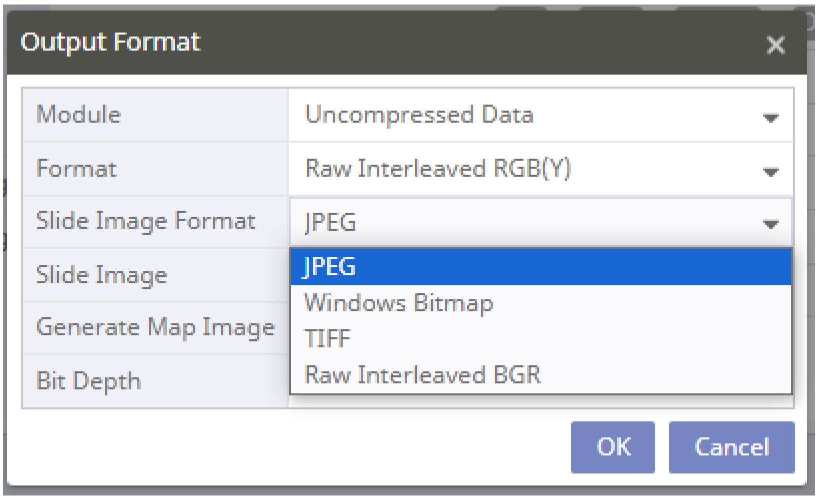


Image 11-48

- Slide Image – specifies if the slide image should be saved and, if so, whether the label area should be included

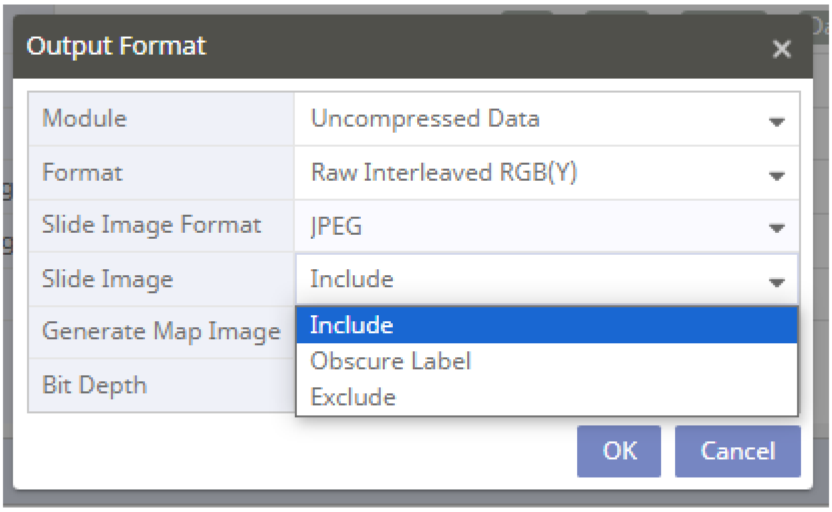


Image 11-49

➢ Include – include the slide image file (default)
➢ Exclude – don't include the slide image file
➢ Obscure Label – include the slide image, but cover the label up

- Generate Map Image – generate a smaller downsampled image

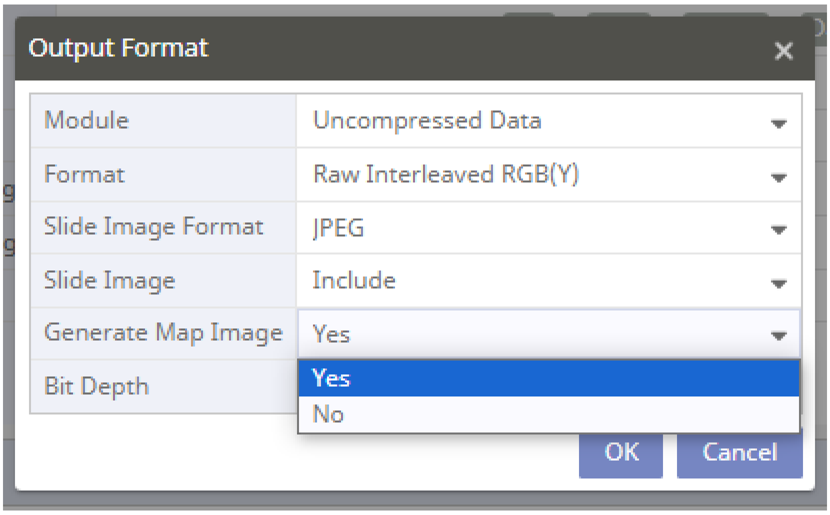


Image 11-50

- Bit Depth

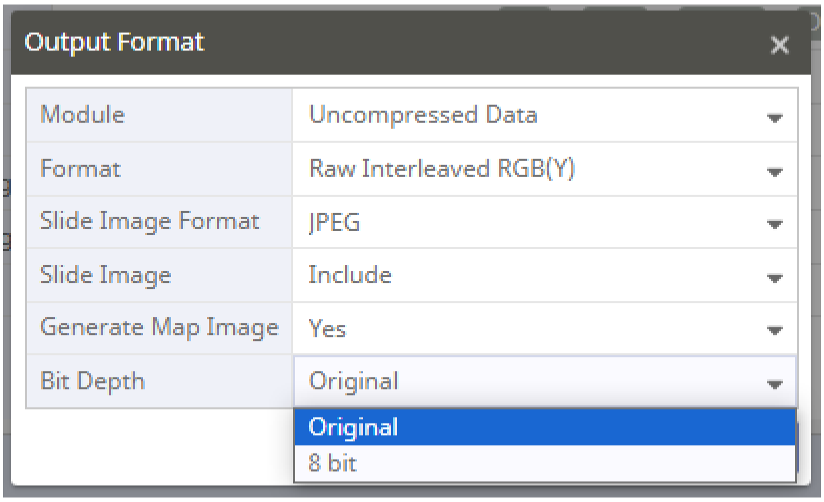


Image 11-51

Focus Score

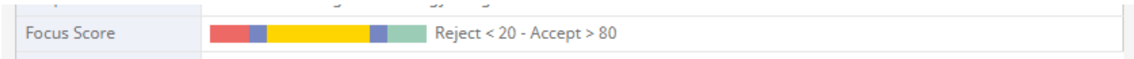


Image 11-52

This field determines what to do with a scan based on the focus score.

- Anything under the lower threshold will be automatically rejected
- Anything at or above the higher threshold will be automatically accepted
- Anything else will need a manual quality check

1 Default: 20 – 80
2 Limit: 0 – 100

User Rejected Images

This field determines what happens when a scan is rejected by a user.

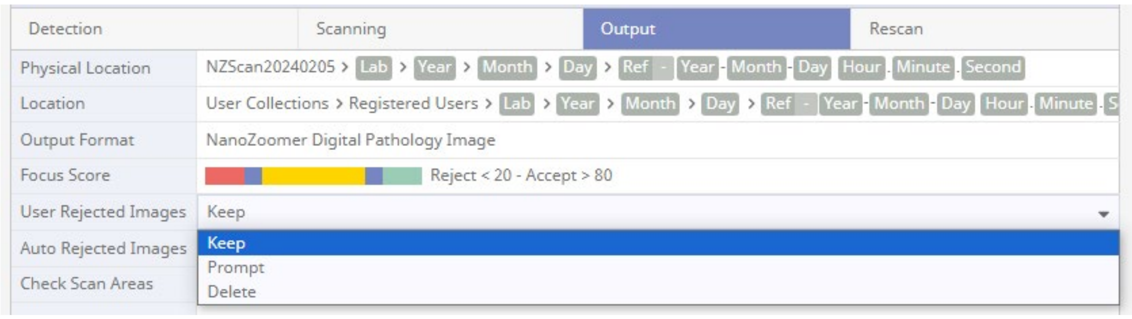


Image 11-53

- Keep – the file is kept, allowing users to manually accept it at a later time (default)
- Prompt – the user is asked whether the file should be deleted when it is rejected
- Delete – the file is deleted, requiring the slide to be sent back for rescanning or skipped with the “Set Up Slides” flow

Auto Rejected Images

This field determines what happens when a scan is automatically rejected by the focus score check.

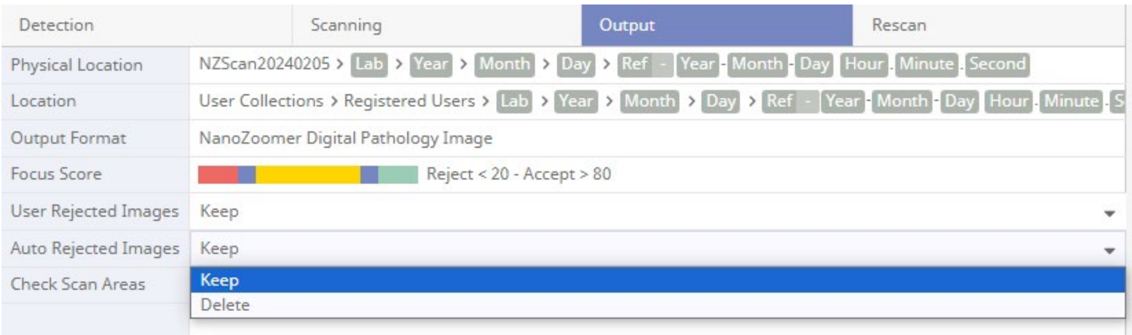


Image 11-54

- Keep – the file is kept, allowing users to manually accept it at a later time (default)
- Delete – the file is deleted, requiring the slide to be sent back for rescanning or skipped with the “Set Up Slides” flow

Check Scan Areas

When a slide is scanned with an automatic scan area, this option determines whether the scan should have the scan area checked before being available to quality check.

1 Default: On

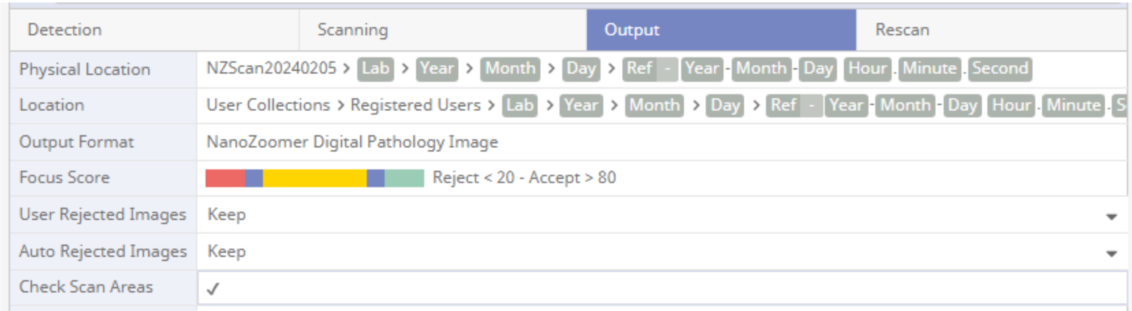


Image 11-55

11-6-6 RESCAN OPTIONS

Automatically rescan any slide that doesn't meet the desired focus score. Up to five automatic rescans can be enabled if scans do not meet the necessary focus score.

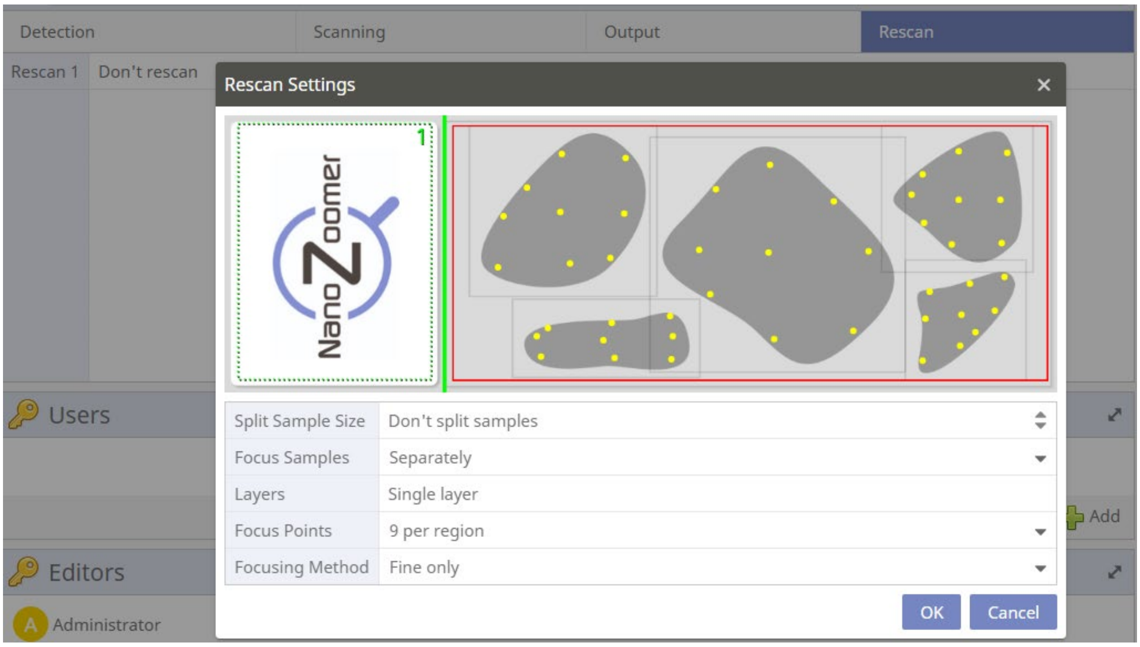


Image 11-56

The following options can be changed:

- Split Sample Size

Image 11-57

- Focus Samples

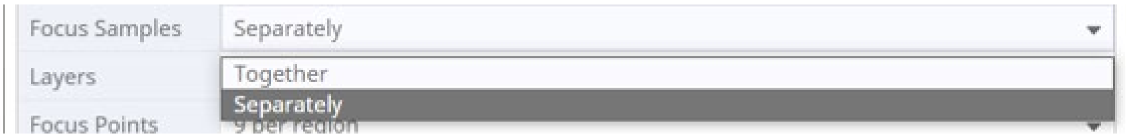


Image 11-58

- Layers

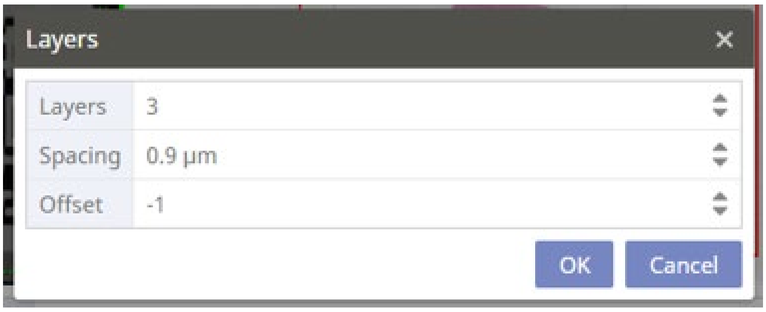


Image 11-59

- Focus Points (1/5/9)

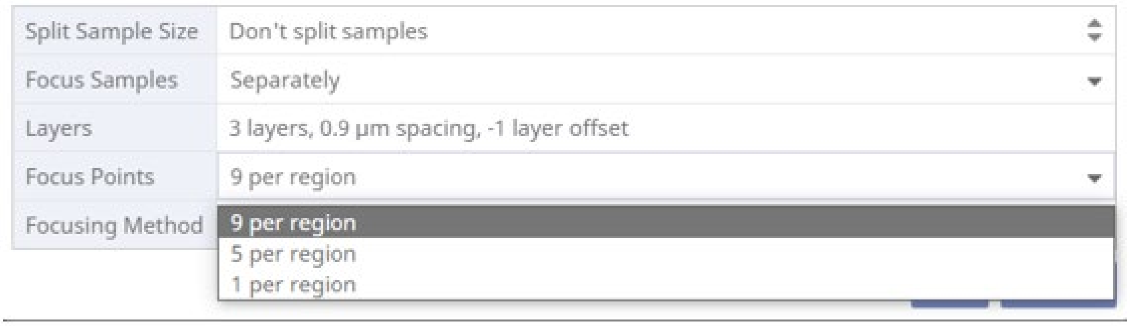


Image 11-60

- Focusing Method

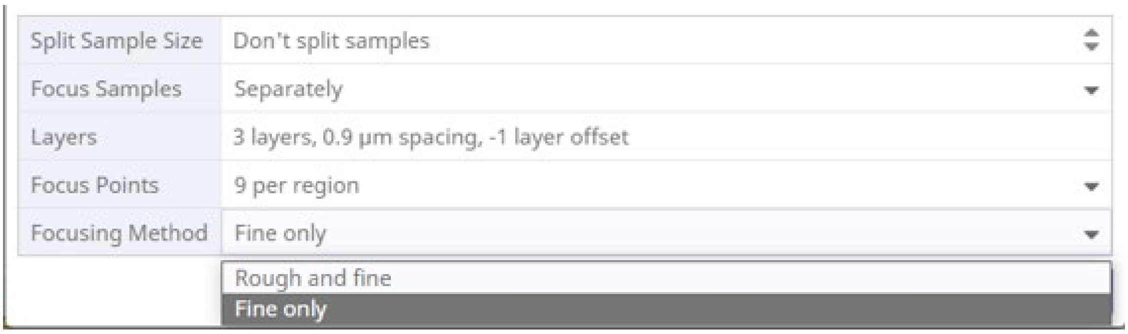


Image 11-61

11-7 CASSETTES AND SLIDES

Barcode Entry

The main sidebar on all scanning pages contains a text box the user can type in a slide barcode or reference.
Alternatively if a handheld barcode scanner is set up, scanning a slide's barcode will automatically fill and submit this field.

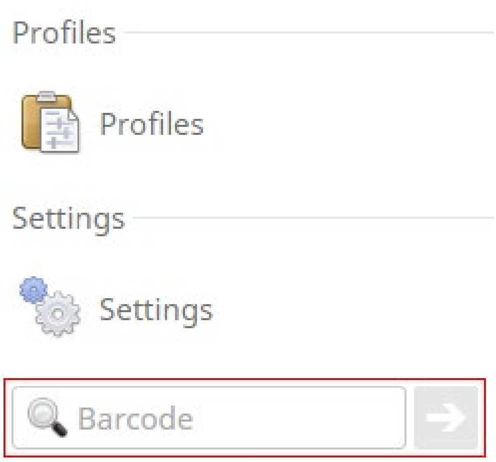


Image 11-62

If a slide with the entered barcode or reference already exists, the slide view window will open. If multiple slides match the entered barcode or reference a window will appear with each macro image on so the correct slide can be chosen.

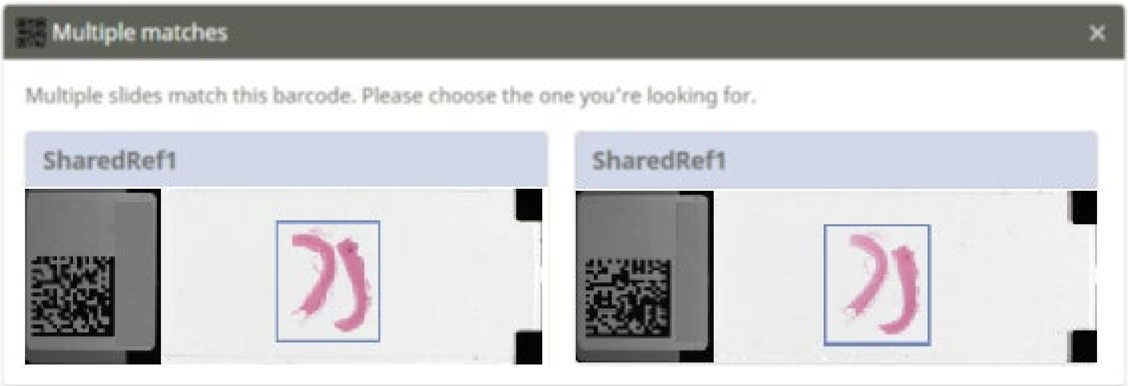


Image 11-63

If a slide with the entered barcode or reference does not exist, a registration window for pre-setting a scanning profile, reference or case will open with the following options:

- Profile – the profile to use to scan with
- Case
- Reference

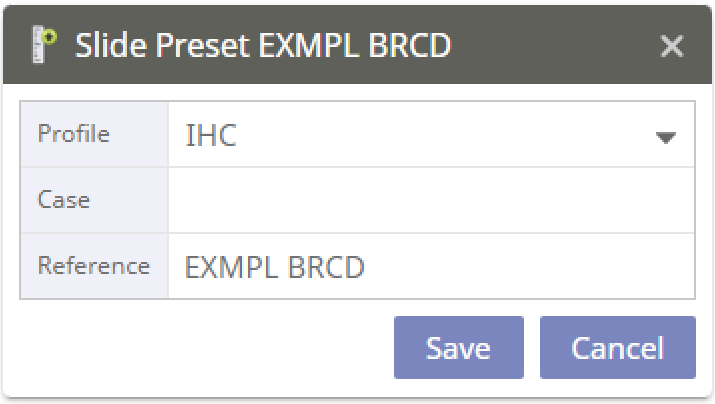

Slide Preset EXMPL BRCD
Profile
IHC
Case
Reference
EXMPL BRCD
Save
Cancel

Image 11-64

Cassette Overview

The cassette overview page can be accessed from two locations:

1 From the scanner status page by clicking on a cassette that is in the scanner
2 From the “History” tab of the slide view

To see the page without error, the user should be the slide owner of the profiles used to scan each slide in the cassette.

Slide List

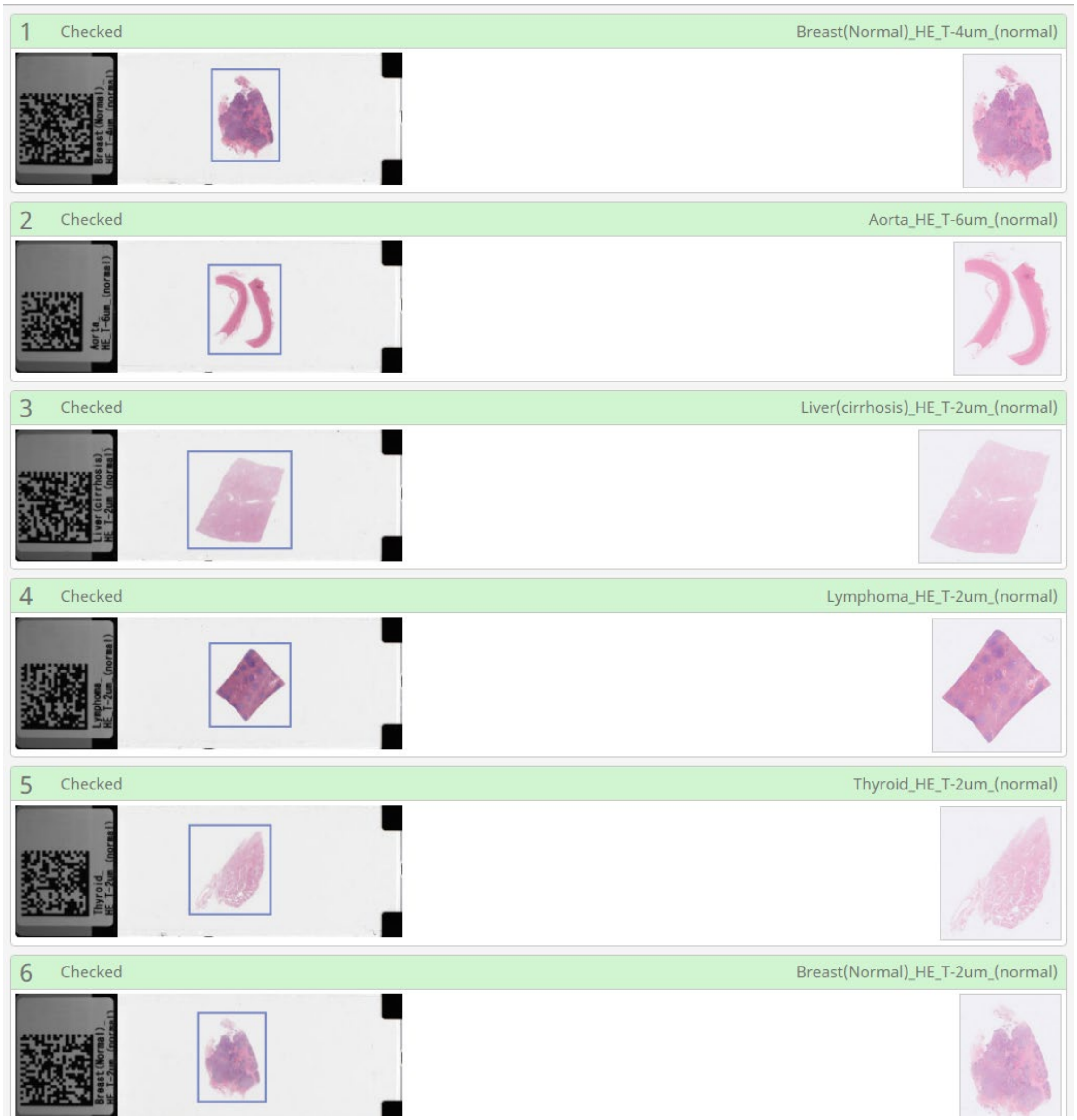


Image 11-65

This page has a section dedicated to displaying the details of each slide in the cassette. An example of what each slide entry looks like on this page is shown below.

Image 11-66

1 Slide Number – the position this slide was/is in the cassette
2 Slide State – the current state of the slide
3 Case – if a case is set, it will appear here
4 Reference – if a reference is set, it will appear here
5 Macro Image – the slide macro image
6 Scan Thumbnail – a preview of the scanned image (if available), which can be clicked to go directly to the latest scan in the slide view window

Clicking anywhere other than on the scan thumbnail will take the user to the Set Up tab of the slide view window.

Context Menu

The context menu for this page includes the following options:

- Priority – if the cassette is currently in the scanner, this option will be available and allows the importance of the cassette to be set so the slides within can be scanned sooner (or later)
- Set Up Slides – launches the slide view inline flow on the Set Up tab at the first slide that needs setting up - automatically moving to the next appropriate slide until there are no more left
- Check Quality – launches the slide view inline flow to the latest scan tab at the first slide that needs quality check - automatically moving to the next appropriate slide until there are no more left

11-8 STATUS

The Status page shows information about the chosen scanner.

Scanners

The scanner status is split into two parts:

- What is in the scanner - a list of cassettes on the left side
- What the scanner is doing - information about the current job or state

Cassettes in the Scanner

The cassettes in the scanner are displayed with the following information:

- Priority
- Name of the scanner slot (e.g. A3, or 2)
- Cassette State (coloured)
  - Orange (waiting for user)
  - Green (complete)

- State of each slide (coloured, title)

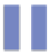
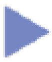
Image 11-67

Individual slides can be clicked on to launch the slide view window.

Cassettes can be clicked on to be taken to the cassette overview page.

Scanner State

This section is headed with the name of the scanner and controls to start/stop the scanner (with Control Scanner permission).

Symbol	Function	Description
	Abort job	Stop the current job as soon as possible, then allow changing cassettes
	Wait for job	Wait for the current job to finish, then allow changing cassettes
	Skip current slide	Skip the current slide and move on to the next one (the slide will be in the cancelled state)
	Resume	Check for any new cassettes and resume scanning procedures
	Set references and resume	As above, but allows setting some more information before resuming scanning procedures

Following this will be the current state of the scanner:

State	Description
Idle	The scanner has nothing to do
Starting	The scanner is starting
Stopping	The scanner is in the process of stopping and unlocking the door
Stopped	The scanner is stopped and the door is unlocked
Waiting for State	Waiting for the scanner to send information about the cassettes currently inside
Waiting for Startup Info	Waiting for the scanner to send detailed scanner information, such as available output modules, supported barcode types and slide sizes
Loading Slide	The slide is being loaded to take a macro image
Scanning	The slide is being scanned

In the scanning state, the macro image will be displayed. Focus points will change from yellow as they are checked and will turn green (success) or red (failed). A progress bar will then keep track of the scan progress.

State	Description
Unloading Slides	All slides are being unloaded from the scanner arms

In the scanning state, the macro image will be displayed. Focus points will change from yellow as they are checked and will turn green (success) or red (failed). A progress bar will then keep track of the scan progress.

Image 11-68

Breakdown of Slide States

Each slide in a cassette has a colour coded state. By hovering over the specific slide, you can see what that state is and sometimes some more information.

State	Description
Duplicate Barcode	This slide has the same barcode as a slide that is already in the scanner
Has Slide	A slide is in this slot, but there is no macro available yet
Cancelled	A user manually skipped this slide, so it wont be scanned
Failed	An error occurred trying to scan the slide
Rejected	The scanned image was rejected either manually (area check, quality check) or automatically (focus score)
Unknown	The presence of a slide in this location hasn't yet been confirmed
Ready to Get Macro	A user has requested a new macro image, due to the existing one being missing
Macro Captured	A slide using a manual scan mode has had the macro captured and is ready for scan areas and parameters to be confirmed
Ready to Scan	This slide will be scanned at some point
In Progress	The scanner is currently working on this slide
Scanned	The slide has been scanned, and is in the process of being uploaded to the core server
Uploaded	The slide has been uploaded, and is ready for area/quality checking
Checked	The slide has been checked either automatically or manually, and has been published to the main View application
Failed Publish	NZConnectMD tried to publish the slide, but an error occurred - it can be retried from the slide view

System Check

The interval for system checks can be configured in the scanner's settings window. If the interval is disabled then they will only run at the user's request.

The interactions described below require the user to have the control scanner permission on the lab.

If a system check is due, a warning will be displayed to the user. If a check is due within the next two hours, the warning will include a countdown. If the user has the control scanner permission then the warning can be clicked to request a system check.

If a system check cannot be started (due to it not being requested or not being within the auto check window) then the scanner will continue to scan new cassettes.

When a system check is requested, no slides will be scanned until the system check has been completed (successfully or unsuccessfully).

If the scanner does not have dedicated system check slide slots, a correction cassette needs to be identified. A warning will be displayed at the top of the page asking the user to insert a cassette with the two slides necessary for the system check. Once a cassette with two slides in the first two slots is detected by the scanner then a button will be available on the cassette diagram allowing the user to identify the cassette as a correction cassette. Once this is done, the system check can begin.

To manually request a system check, the button on the correction cassette can be pressed. There is also and option to perform the system check on the main menu for this page, which allows a system check to be requested for scanners with dedicated system check slide slots or before the correction cassette has been inserted into the scanner.

System Check Process

In normal circumstances the system check will:

- Load each slide
- Perform checks
- Unload each slide

If the checks deviate from expected values, some other steps occur.

In the case of the blank slide in the first slot, if the checks fail the user will be asked to confirm the slide is blank and free from dust. If it is not, it will be unloaded so the user can clean it. For either slide if the checks fail the user will be shown which check failed and asked if they want to continue.
Once the system check is complete, the scanner will reinitialise and be available for use again.

Install/Retrieve Dedicated Correction Slides

On scanners that have a built in place for correction slides, an option to install/retrieve these slides will be available on the main menu. From there, the instructions can be followed to install the two slides or move them into a cassette to remove them from the scanner.

11-9 WORKFLOW

The workflow pages and windows are for the user to interact with their scans in an efficient and simple manner.

11-9-1 WORKFLOW MANAGEMENT

A set of pages designed to help the user efficiently process slides that need scanning or have been scanned.

The workflow pages are designed to provide a seamless experience as users work their way through slides and cassettes that they are an owner of, performing three key tasks.

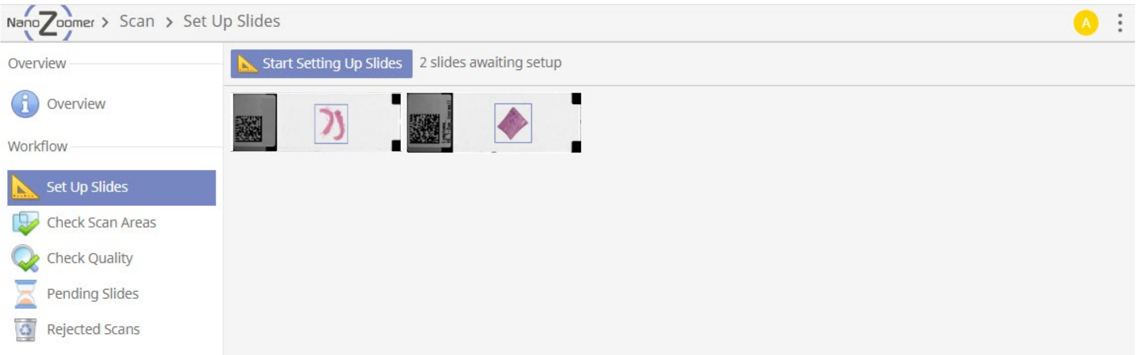


Image 11-69

Set Up Slides

This page allows the user to set up scanning parameters for the slides that need them. That includes:

- Slides using a **Manual** scan mode
- Slides that have had unsuccessful scans (quality rejection or scanning errors)

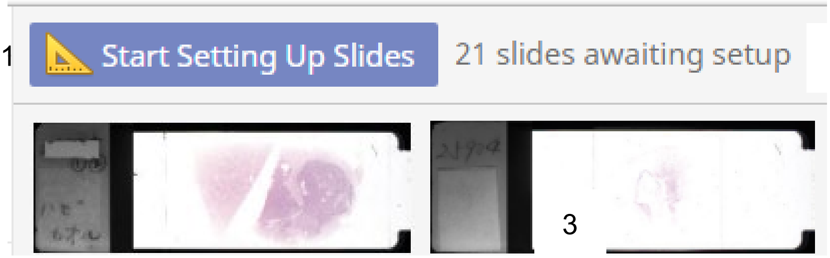


Image 11-70

1 Start button to begin setting up slides
2 Summary of available slides to set up
3 List of slides that need setting up – clicking on a specific slide will temporarily skip the slides before it

Starting (via button or slide image) will take the user to an inline slide view defaulting to the Set Up tab.

Check Scan Areas

This page is designed to allow the user to rapidly verify or reject a scan by showing multiple slide macro images overlaid with the area that was scanned. The user can see if the scan area covers the tissue, and if it doesn't they can reject the scan by clicking it before using "Accept X slides" or "Reject X slides". The rejected scan will then be found in the **Set Up Slides** flow to be fixed, and another set of macro images will appear for checking.

Image 11-71

At the top of this page a brief summary of the number of slides awaiting their area check will be shown.
Underneath this will be as many macro images as can reasonably fit on the screen.

Each macro image has a context menu with the following options:

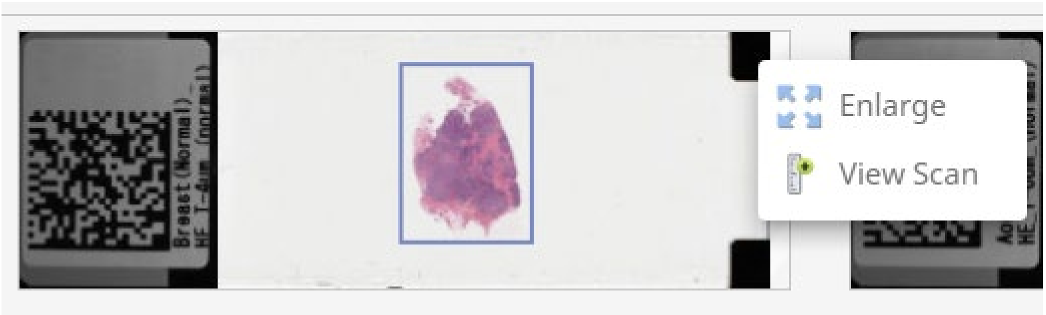


Image 11-72

- Enlarge – shows a much larger macro image
- View Scan – opens the slide view window to the relevant scan

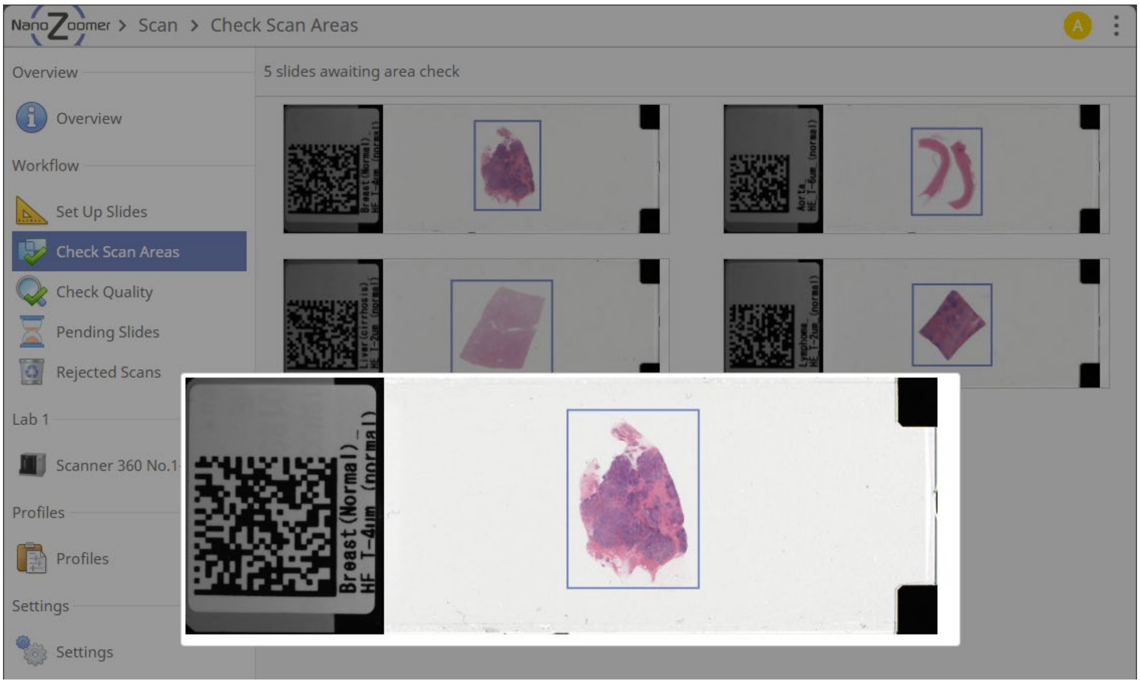


Image 11-73 Enlarge

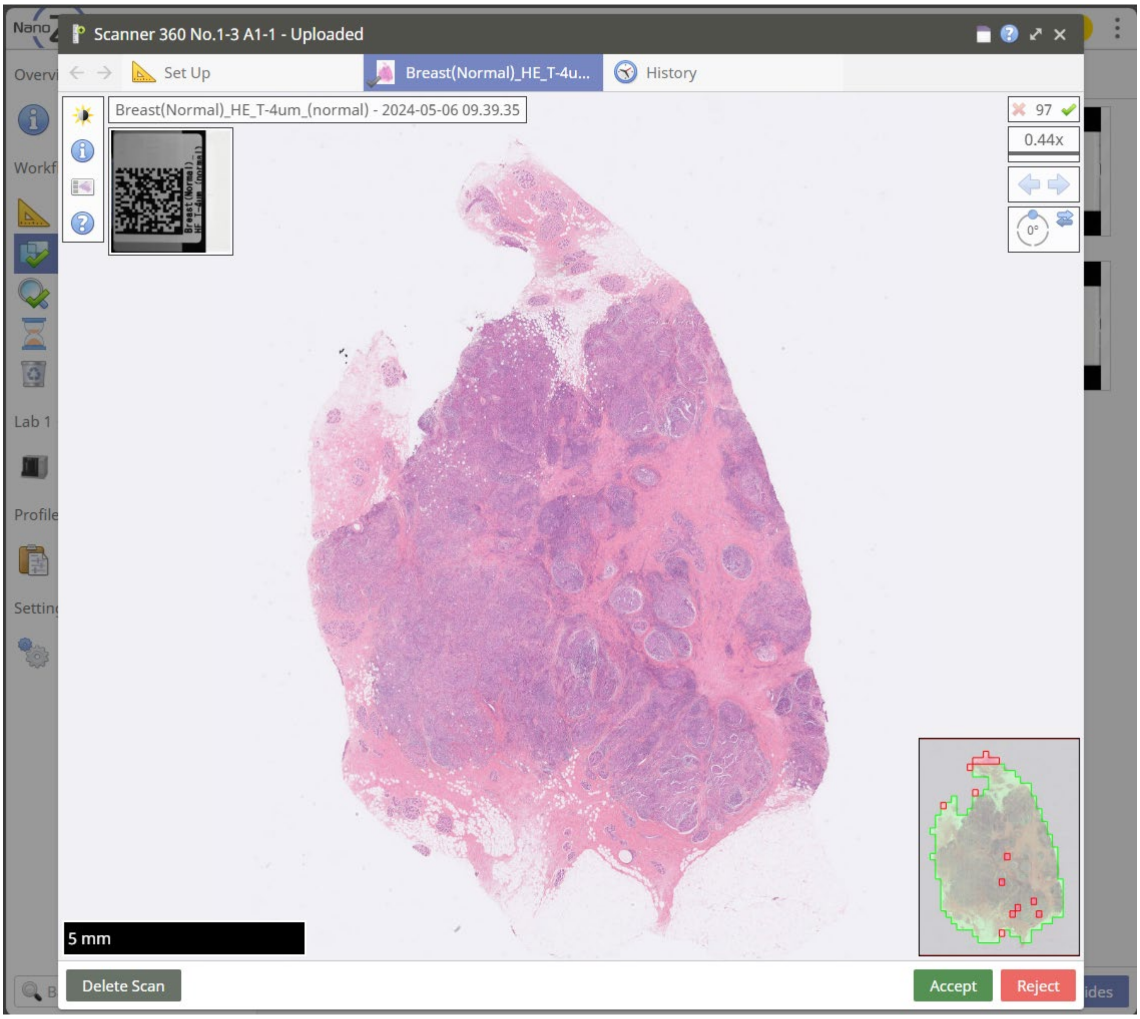


Image 11-74 View Scan

If the user interacts with a slide in the slide view window then the macro image will be covered with a message saying the slide no longer needs area checking – using the save button will not affect the slide.

The main context menu on this page has orientation options allowing the macro images to be displayed whichever way the user prefers.

Check Quality

This page is very similar to the **Set Up Slides** flow. The only difference being the initial tab launched in the inline slide view will be the latest scan.

Image 11-75

Note

- If the scan area is set to "Automatic", the system may not be able to detect all desired tissue areas (for example, if the contrast is too low). For this reason, be sure to verify the scan area after scanning.

Pending Slides

At the top of this page a brief summary of the number of slides needing to be returned to the scanner will be shown.

This page can be used to determine what slides need returning to the scanner. Clicking on a specific slide will launch the slide view window on the Set Up tab for the user to use if they need more information to locate the slide.

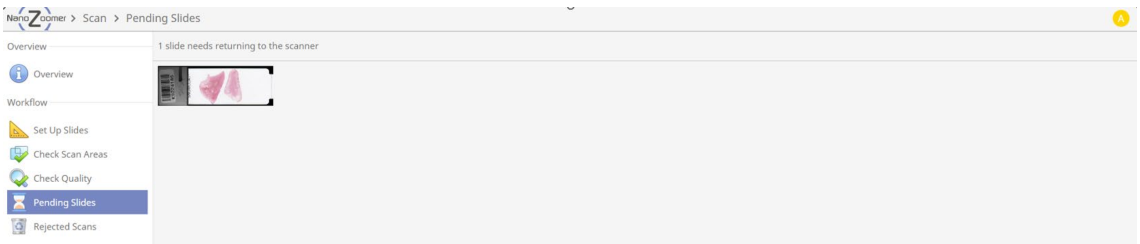


Image 11-76

HAMAMATSU
PHOTON IS OUR BUSINESS

Rejected Scans

Temporary scans that have been rejected but not deleted will appear in a details view here where they can be either approved or deleted. Multiple scans can be selected at once to accept/delete in bulk. If a scan is double clicked the scan can be previewed in the windowed web viewer; the options to delete or accept the scan will be at the bottom of the window.

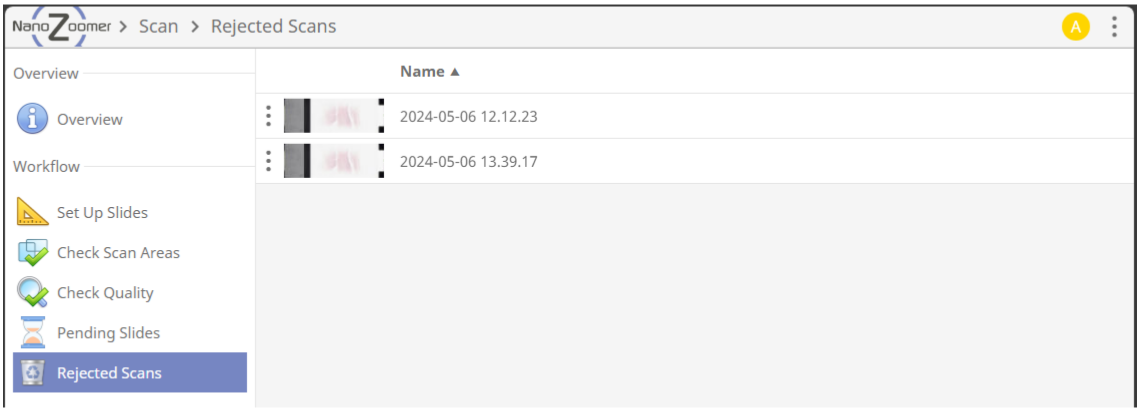


Image 11-77

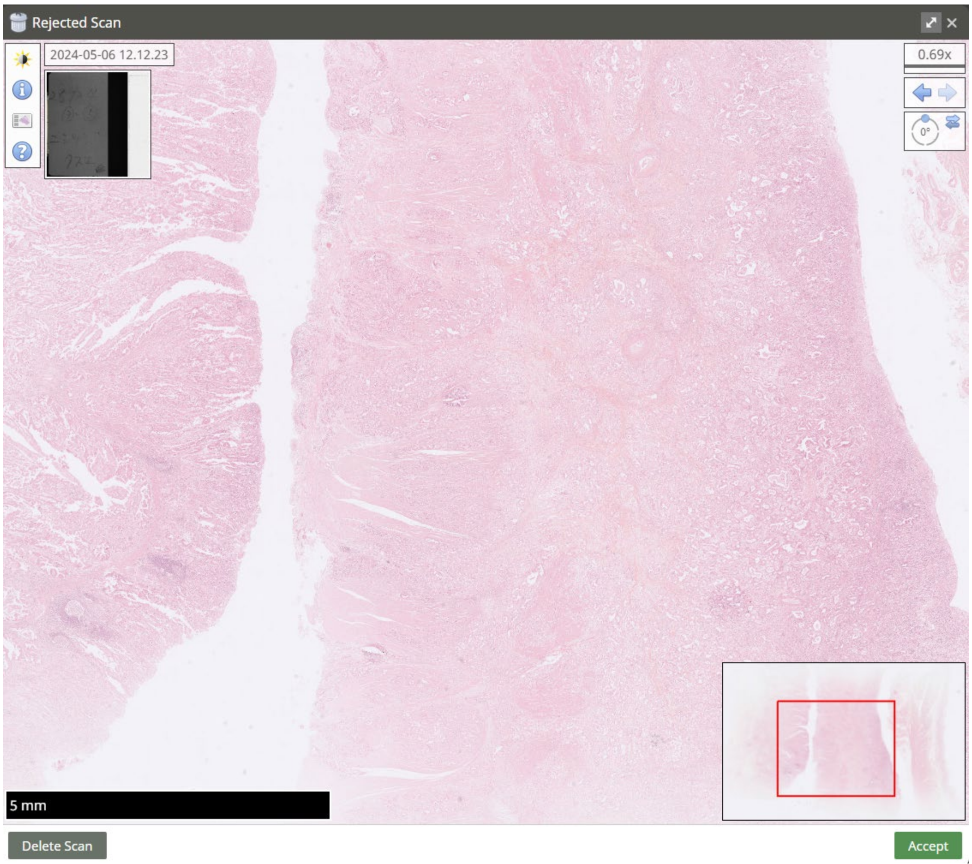


Image 11-78

11-9-2 SLIDE VIEW

When dealing with an individual slide or all the slides that need processing, the slide view is used for almost all slide interactions.

The slide view is used to confirm scanning parameters for a slide, skip a slide, accept a scan or reject a scan.

The slide view can either be displayed inline or in a popup window – this depends on where the request originated.
The following locations will open the slide view in inline mode:

- Set Up Slides (workflow page)
- Check Quality (workflow page)
- Cassette Overview context menu options (Set Up Slides/Check Quality)

There are a few note worthy differences with the interface between these two different modes:

Number	Function	Inline	Windowed
1	Slide view title	In the breadcrumb bar	In the window title bar
2	Go back one slide	Browser back button	Left button to the left of the tabs
3	Go forward one slide	Next button next to the other action buttons	Right button to the left of the tabs
4	Close the slide view	Close button to the right of tabs	Window close button
5	View server logs/help	In the main context menu	In the window title bar button section

1 5 4

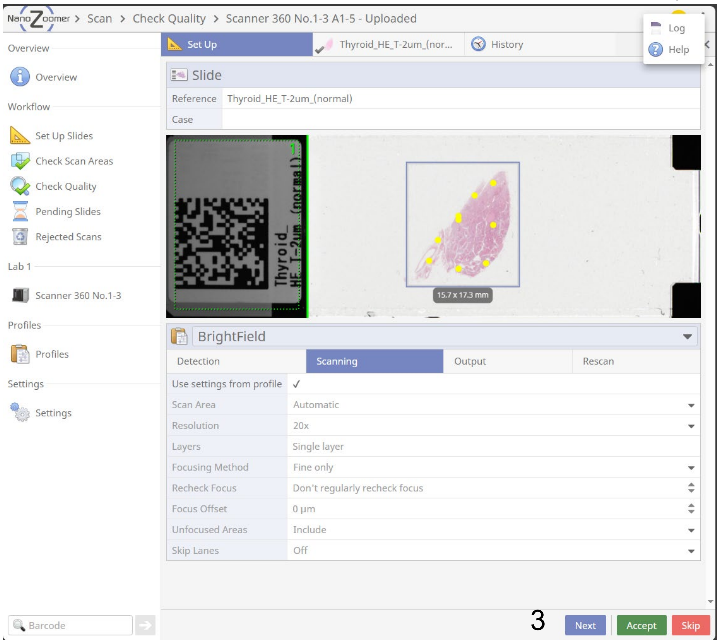


Image 11-79

1 5 4

2, 3

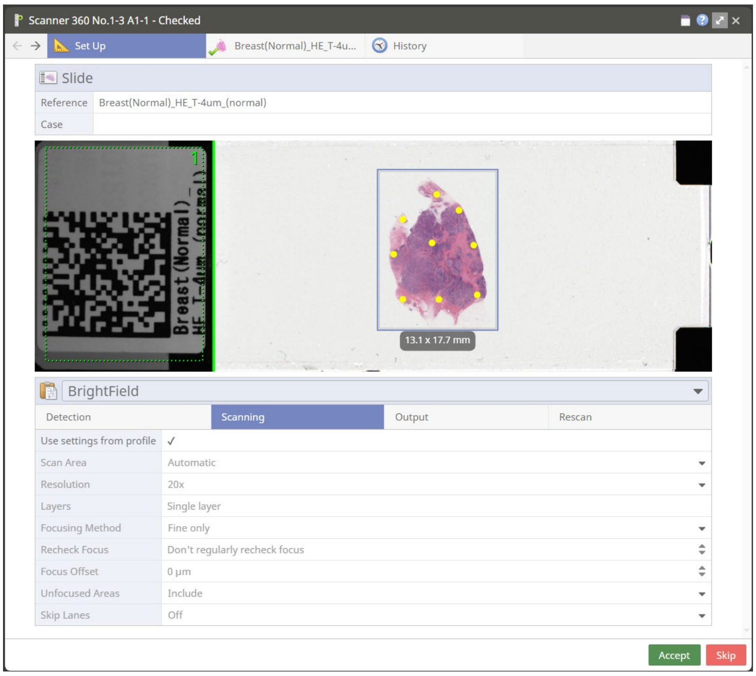


Image 11-80

In inline mode performing an action (Accept/Skip/Reject) will automatically progress to the next suitable slide, if available.
The slide view title will display information about the slide:

- Scanner name, cassette slot and slide number (if inside scanner)
- Slide State

Tab Bar

The tab bar is at the top of the slide view.

Back/Forward Buttons

At the left of the tab bar are back/forward navigation buttons which typically move between slides in a cassette.
These are only available when in a window. Some exceptions to this navigating a cassette behaviour are:

- On the Pending Slides flow page the arrows will move between pending slides
- The window launched from the context menu on the Check Scan Areas flow page will have both buttons disabled

If the slide view is not in a window then alternatively there will be “Next” by the other main action buttons, which will move to the next slide in the flow without applying any actions.

Tabs

Set Up

This is always the first tab and allows the user to confirm scanning parameters or cancel and skip the slide.

Quality Check

If the slide has any scans that have not been deleted, they will each have their own tab ordered from newest to oldest. These tabs can be used to accept or reject a slide. The focus score of the scan will be displayed in the QA widget within the web viewer.

History

This tab lets the user see information about where this slide has been and when.

Set Up

At the top of the window there may be some messages visible, depending on the state of the slide:

- If the slide’s scan failed, an explanation of what went wrong
- If another user is accessing the same slide, a warning message will be shown saying how long ago it was accessed

The reference and case of the slide can be set at the top of the window (after any messages).
Following this is a series of controls to tweak the profile that is used.
There are some notable differences from the normal profile interface:

- There is an option to choose a profile, which will change the values in the rest of the form
- Each tab of the profile will have an option to revert to the profile’s default values
- Scan Mode is not available
- The Scan Area option will have the choice between Automatic/Manual or Preset/Manual depending on the profile’s value

- Focus points can be placed on the Scan Areas (Slide Image Control)
- Making a change on the Slide Image Control will automatically change the Scan Area setting to Manual
- Changing the Scan Area option from Manual back to the original value will reset the Slide Image Control

Accepting the slide will save these values and it will then be ready to scan. Alternatively the slide can be skipped, meaning there is no intention to ever scan the slide.

Quality Check

The window contains a viewer, allowing the scan to be viewed. At the bottom of the window are up to three buttons:

- **Delete Scan** – this option allows the user to delete the scan from disk
- **Accept** – accept the scan and publish it to the location specified in the profile
- **Reject** – reject the scan and then depending on the profile settings, do one of the following:
    - Delete the scan
    - Ask the user if they want to delete the scan
    - Do nothing

When rejecting or deleting a scan a reason may be required or requested from the user. This can be enabled in the settings.

History

On this tab the entire history of the slide's appearances in scanners is displayed:

- each date it was seen
- which slide position it was in

Clicking on the cassette in this mode will take the user to the "Cassette Overview", giving a view of all the slides in this historical cassette.

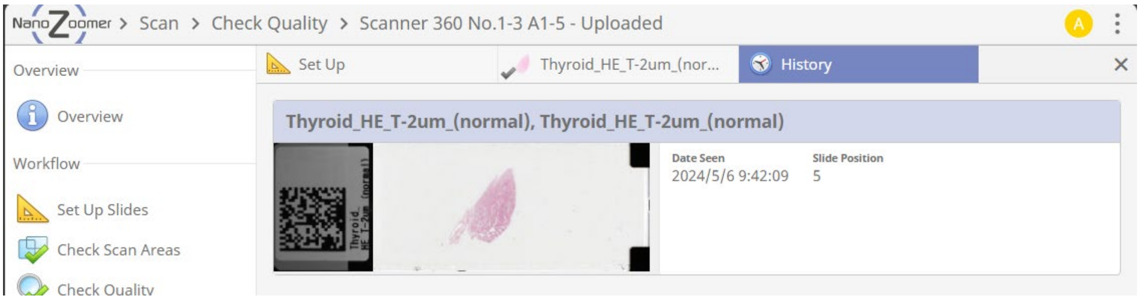


Image 11-81

12. MAINTENANCE

This chapter contains the recommended maintenance schedule and procedures for maintaining the NanoZoomer S540MD Slide scanner system, the NanoZoomer S360MD Slide scanner system and the NanoZoomer S20MD Slide scanner system.

Note

> For details on maintenance methods, refer to the instruction manual for your scanner system.
> - User maintenance manual, checklist (for users)
> - Maintenance manuals and checklist (for maintenance engineers)

12-1 MAINTENANCE SCHEDULE AND PROCEDURES

Perform each maintenance procedure at the specified frequency according to the precautions and procedures given in the corresponding chapter and section.

Frequency	Procedure	Maintenance by
Daily	Restarting the scanner (recommended)	User
	Cleaning the scanner exterior	
	Cleaning the slide cassette	
Whenever dust begins to appear in macro images	Cleaning the intake fan filter	
Every six months	Replacing the intake fan filter	Engineers
Whenever the scanner has not been used in over a year	System check and Maintenance	

12-2 MAINTENANCE BY USERS

Maintenance procedures intended to be performed by ordinary users are described in the User Maintenance Manual and Checklist. Please see that manual for instructions.

12-3 MAINTENANCE BY CERTIFIED MAINTENANCE ENGINEERS

We recommend that you periodically have the system inspected by our certified maintenance engineers to ensure safe use. To schedule a maintenance visit, contact a Hamamatsu subsidiary or your local distributor.

Frequency	Procedure
Every six months	Have the system checked and maintained by Hamamatsu-certified maintenance engineers
Whenever the scanner has not been used in over a year	

- If the system will not be used for a long period of time, unplug the power supply cord from the outlet to avoid damaging the cord and causing electric shock or fire. Cover the scanner with a large cloth to protect it from dust and store it in a suitable location.

13. SOFTWARE USER AGREEMENT

In order to use the software included in this product (if the product is a software product, means the whole part of the product. Hereafter referred to as "this software"), the user must agree to the following terms and conditions. Before using this product, carefully read the following terms and conditions.

13-1 COPYRIGHTS

All ownership rights, intellectual property rights and all other rights relating to this software and instruction manual are the property of Hamamatsu Photonics K. K. (hereafter called "Hamamatsu"). Except for those items expressly permitted in this user agreement, Hamamatsu does not assign or grant any rights to the user, and Hamamatsu retains all rights relating to this software and instruction manual.

13-2 SCOPE OF USER RIGHTS

Hamamatsu grants the user non-exclusive rights to use of this software subject to the following conditions.

(1) User may install and use this software on a single computer.
(2) User may copy this software only for the purpose of making a backup.
(3) User may not analyze, change or modify this software.
(4) User may transfer this software to a third party provided that all of the following conditions are fulfilled.
  - User transfers all software products including this software and related materials and copies of this software, and retains absolutely none of the materials or copies of this software.
  - The third party who will receive this software agrees to the terms in this software user agreement.

13-3 SCOPE OF WARRANTY LIMITED WARRANTY

(1) If the storage media containing this software is defective during the warranty period, the software will be replaced. A placement or a substitute product will be given to the user free of charge.
(2) Hamamatsu accepts absolutely no liability in any case whatsoever, for direct, indirect or incidental damages or losses from using this software.
(3) If an error (bug) is discovered in this software and is corrected, then the corrected software or software for making the correction (hereafter the "correction software") or information relating to making the correction will be provided. However, the necessity, the time, and the period for providing the correction software or information relating to the correction will be decided at the discretion of Hamamatsu.

13-4 DISCLAIMER OF LIABILITY FOR DAMAGES

The legal liability of Hamamatsu including warranty against defects relating to this software and its usage is limited to the contents of this software user agreement. Hamamatsu shall not be liable to provide compensation for any damage or loss resulting from the use of this software, including direct, indirect or incidental damages or losses to the user. This holds true even if Hamamatsu or its suppliers have been advised of the possibility of such damages or losses.

13-5 GOVERNING LAW

This software user agreement shall be governed by the laws of Japan.

13-6 OTHERS

If a conflict or doubt should arise regarding this software user agreement or items not established within this software user agreement, then that matter shall be resolved by mutual consultation carried out in good faith by both parties. In the event a lawsuit should arise, it shall be resolved by a court of law having jurisdiction in the area where the head office of Hamamatsu Photonics is then located.

14. CONTACT INFORMATION

Manufacturer:

Hamamatsu Photonics K. K., Systems Division
Joko Factory
812 Joko-cho, Chuo-ku, Hamamatsu City, Shizuoka Pref. 431-3196, Japan
Telephone (81) 53-431-0124, Fax: (81) 53-435-1574
E-mail: export@sys.hpk.co.jp

Authorised Representatives:

EC REP **Hamamatsu Photonics Deutschland GmbH**	Arzbergerstr.10, 82211 Herrsching am Ammersee, Germany E-mail: pms-med@hamamatsu.eu
UK REP **Hamamatsu Photonics UK Limited**	2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK E-mail: pms-med@hamamatsu.co.uk
CH REP **Hamamatsu Photonics France S.A.R.L. Swiss Office**	Dornacherplatz 7, 4500 Solothurn, Switzerland E-mail: swiss@hamamatsu.ch

Importers:

Hamamatsu Photonics Deutschland GmbH	Arzbergerstr. 10, 82211 Herrsching am Ammersee, Germany
Hamamatsu Photonics France S.A.R.L.	19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France
Hamamatsu Photonics Norden AB	Torshamnsgatan 35, 16440 Kista, Sweden
Hamamatsu Photonics Italia S.R.L.	Strada della Moia, 1 int. 6 20044 Arese (Milano), Italy
Hamamatsu Photonics UK Limited	2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK
Hamamatsu Photonics France S.A.R.L. Swiss Office	Dornacherplatz 7, 4500 Solothurn, Switzerland

Local contact information worldwide can be found at: www.hamamatsu.com

- The contents of this manual are subject to change without notice.
- The unauthorised duplication or distribution of all or part of this manual is strictly prohibited.
- If you experience any of the following problems with this manual, please contact Hamamatsu (refer to your local contact information):
  - Any content is illegible, incorrect, or missing.
  - Any pages are missing or in the wrong order.
  - The manual is lost or soiled.