Fort Worth Diagnostics

FWDX BioBlade
Use Cases

Version <2.0>

Revision History

Date	Version	Description	Author
<29/09/24>	<1.0>	<Creating initial use cases> Nicholas Tullbane: Cases 1-10 Blake Good: Cases 11-13 Michael Nguyen: Cases 14-16 Kyle Stagner: Cases 17-20 Harrison Leath, Carson Freeman: Removed or merged into other Use Cases.	<All members>
<16/01/24>	<1.1>	Updating Use Cases - Redistributed use cases	<All members>
<18/01/24>	<2.0>	Corrected use cases 1-10 (Admin and User Account management). Re-numbered use cases after deprecating. Linked use cases to page numbers. *DEVS NEED TO UPDATE TOC AFTER EDITING USE CASE*	<Nicholas Tullbane>

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Use Case 1: Admin creates technician accounts

UC ID and Name:	UC-1: Admin creates technician accounts		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Admin	Secondary Actors:	
Trigger:	Admin indicates to create a technician account for a new technician.		
Description:	The company produces various reagent tests. The Admin needs to create technician accounts for technicians to manage test requests and results in the system.		
Preconditions:	PRE-1. The Admin must be logged into the administrative portal. The new technician must have provided required details (e.g., name, contact information, role).		
Postcondition:	POST-1. The new technician account is stored in the system with a status of "Active".		
Main Success Scenario:	1. The Admin selects the option to create a new technician account for a technician. 2. The System displays a form to input user details (e.g., name, email, phone number, access level) 3. The Admin enters the details of the new technician and submits the form. 4. The System validates the input details (see "Validation rules" under Associated Information). 5. The System checks for any duplicate technician accounts based on the email or other identifiers. 6. The System saves the new technician account, marks it as "Active", and notifies the technician via email. 7. The System informs the Admin that the account has been successfully created. 8. Use case ends.		
Extensions:	**4a. Input validation rule violation:** 4a1. The System alerts the Admin about any input errors and prompts for corrections. 4a2. The Admin corrects the inputs and returns to step 4. **5a. Duplicate account detected:** 5a1. The System alerts the Admin that an account with similar details already exists. 5a2. The Admin either corrects the details or terminates the process.		
Priority:	Low		
Frequency of Use:	Approximately *** users accounts per month.		
Business Rules:	Security/access concerns: Only the Admin and IT Support have access to create new accounts.		

Associated Information: Details:

Property name	Data type	Editability	Validation rule	Effect of change	Reference to glossary
First name	String	Yes	Required		
Last name	String	Yes	Required		
Phone number	String	Yes	Required, (999) 999-9999 format		
Email	String	Yes	Required, valid email		
Access Level	String	Yes	Required, options: "Technician", "Admin"		

Duplication detection rules:

	● Identifiers: Email address, Phone number Notification: ● The System sends an email to the new technician confirming the account creation. ● The System sends a notification to the Admin for records. The Admin shall be able to cancel the use case at any time prior to submitting it.
Related Use Cases	
Assumptions:	
Open Issues:	

Use Case 2: Admin views technician accounts

UC ID and Name:	UC-2: Admin manages technician accounts		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Admin	Secondary Actors:	
Trigger:	The Admin indicates to view technician accounts.		
Description:	The Admin needs to manage existing technician accounts to ensure accurate access and system maintenance. Admin needs to be able to view technician accounts with accurate information.		
Preconditions:	PRE-1. The Admin must be logged into the administrative portal. PRE-2. There must be at least one existing user account in the system.		
Postcondition:	POST-1. The user account page is displayed to the admin.		
Main Success Scenario:	1. The Admin selects an user accounts page to manage from the system's user management interface. 2. The System displays the current details of the user accounts. 3. Use case ends.		
Extensions:			
Priority:	Low		
Frequency of Use:	Regular, as needed when technicians join or leave the company.		
Business Rules:	Security/access concerns: Only the Admin and IT Support have permission to manage user accounts.		

Associated Information: Details:

Property name	Data type	Editability	Validation rule	Effect of change	Warning	Reference to glossary
First name	String	Yes	Required	No change to the status of the request		
Last name	String	Yes	Required	No change to the status of the request		
Phone number	String	Yes	Required, (999) 999-9999 format	No change to the status of the request		
Email	String	Yes	Required , valid email	No change to the status of the request		
Access Level	String	Yes	Required, options: "Technician", "Admin"	Mark request as "Pending" and cancel curr	Changing access level requires Admin to change Access Level	
Status Needs attention	String	No	Active, Inactive, or Deleted		Account deactivation or deletion requires Admin access.	

	The Admin shall be able to cancel any account modification before submitting the changes for review.
Related Use Cases:	
Assumptions:	
Open Issues:	

Use Case 3: Admin deactivates technician accounts

UC ID and Name:	UC-2: Admin manages technician accounts		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Admin	Secondary Actors:	
Trigger:	The Admin indicates to deactivate a technician account.		
Description:	The Admin needs to manage existing technician accounts to ensure accurate access and system maintenance. This involves deactivating accounts when technicians leave the company, and deleting accounts that are no longer needed.		
Preconditions:	PRE-1. The Admin must be logged into the administrative portal. PRE-2. There must be at least one existing technician account in the system.		
Postconditions:	POST-1. The user account is deactivated in the system as specified. POST-2. The system logs the action for audit purposes.		
Main Success Scenario:	1. The Admin chooses the appropriate "Deactivate" button for the technician they would like to deactivate. 2. The System displays the current details of the technicians accounts. 3. The Admin confirms deactivation 4. If deactivating the account: 4.1. The Admin confirms the action. 4.2. The System deactivates the account and all associated data. 4.3. The System notifies the Admin that the account has been deactivated. 5. Use case ends.		
Extensions:	**4a. Input validation rule violation:** 4a1. The System alerts the Admin about any input errors during the update process. 4a2. The Admin corrects the inputs and returns to step 4. **5a. Account already inactive:** 5a1. The System alerts the Admin that the selected account is already inactive. **6a. Account deletion confirmation:** 6a1. The System prompts the Admin to confirm the deactivation action, warning that the action cannot be undone.		
Priority:	Low		
Frequency of Use:	Regular, as needed when technicians join or leave the company.		
Business Rules:	Security/access concerns: Only the Admin and IT Support have permission to manage user accounts.		
Associated Information:	Details:		

Property name	Data type	Editability	Validation rule	Effect of change	Warning	Reference to glossary
First name	String	Yes	Required	No change to the status of the request		
Last name	String	Yes	Required	No change to the status of the request		
Phone number	String	Yes	Required, (999) 999-9999 format	No change to the status of the request		
Email	String	Yes	Required , valid email	No change to the status of the request		

	<table><tr><td>Access Level</td><td>String</td><td>Yes</td><td>Required, options: “Technician”, “Admin”</td><td>Mark request as “Pending” and cancel curr</td><td>Changing access level requires Admin to change Access Level</td><td></td></tr><tr><td>Status</td><td>String</td><td>No</td><td>Active, Inactive, or Deleted</td><td></td><td>Account deactivation or deletion requires Admin access.</td><td></td></tr></table> Notification: ● The System sends an email to the Admin confirming the modified account details. ● The System sends notification to the Admin in case of deactivation of an account for record-keeping. Text: ● First name, Last name, Email, Phone number, Access Level: o Checks that the input is not empty (empty means trimmed input length is 0). o Email: Checks whether the specified string is a valid email address. o Phone number: Checks whether the specified string is a valid phone number in the format (999) 999-9999. o Access Level: Checks whether the specified string matches the provided options (e.g., “Technician,” “Admin”). Numeric Value: ● Status: o Validates if the status is set to one of the predefined values: "Active", "Inactive", or "Deleted". The Admin shall be able to cancel any account modification before submitting the changes for review.
Related Use Cases:	
Assumptions:	
Open Issues:	

Use Case 4: Admin updates technicians accounts

UC ID and Name:	UC-4: Admin updates technicians accounts		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Admin	Secondary Actors:	
Trigger:	The Admin indicates to update a technician's account.		
Description:	The Admin needs to manage existing technician accounts to ensure accurate access and system maintenance. This involves updating accounts when technicians need to change name, email, password, and access level.		
Preconditions:	PRE-1. The Admin must be logged into the administrative portal. PRE-2. There must be at least one existing technician account in the system.		
Postcondition:	POST-1. The technician account is updated in the system as specified. POST-2. The system logs the action for audit purposes.		
Main Success Scenario:	1. The Admin selects a technician accounts page to manage from the system's user management interface. 2. The System displays the current details of the user accounts. 3. The Admin chooses to update the account. 4. If updating the account: 4.1. The Admin confirms the action. 4.2. The System updates the associated data. 4.3. The System notifies the Admin that the account has been updated. 5. Use case ends.		
Extensions:	**4a. Input validation rule violation:** 4a1. The System alerts the Admin about any input errors during the update process. 4a2. The Admin corrects the inputs and returns to step 4. **5a. Account update confirmation:** 5a1. The System prompts the Admin to confirm the update action, warning that the action cannot be undone.		
Priority:	Low		
Frequency of Use:	Regular, as needed when technicians join or leave the company.		
Business Rules:	Security/access concerns: Only the Admin and IT Support have permission to manage user accounts.		

Associated Information: Details:

Property name	Data type	Editability	Validation rule	Effect of change	Warning	Reference to glossary
First name	String	Yes	Required	No change to the status of the request		
Last name	String	Yes	Required	No change to the status of the request		
Phone number	String	Yes	Required, (999) 999-9999 format	No change to the status of the request		
Email	String	Yes	Required , valid email	No change to the status of the request		
Access Level	String	Yes	Required, options: "Technician", "Admin"	Mark request as "Pending" and cancel curr	Changing access level requires	

						Admin to change Access Level	
	Status	String	No	Active, Inactive, or Deleted		Account deactivation or deletion requires Admin access.	

Text:

- First name, Last name, Email, Phone number, Access Level:
  - Checks that the input is not empty (empty means trimmed input length is 0).
  - Email: Checks whether the specified string is a valid email address.
  - Phone number: Checks whether the specified string is a valid phone number in the format (999) 999-9999.
  - Access Level: Checks whether the specified string matches the provided options (e.g., “Technician,” “Admin”).

Numeric Value:

- Status:
  - Validates if the status is set to one of the predefined values: "Active", "Inactive", or "Deleted".

The Admin shall be able to cancel any account modification before submitting the changes for review.

Related Use Cases:	
Assumptions:	
Open Issues:	

Use Case 5: Admin resets technician passwords

UC ID and Name:	UC-5: Admin resets technician passwords		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Admin	Secondary Actors:	
Trigger:	The Admin indicates to reset the password for a technician account.		
Description:	The Admin needs to manage existing technician accounts to ensure accurate access and system maintenance. This involves changing passwords that may have been compromised or forgotten by the Technician.		
Preconditions:	PRE-1. The Admin must be logged into the administrative portal. PRE-2. The Admin initiates password reset.		
Postcondition:	POST-1. The Technician receives an email to change their password. POST-2. The System updates the current password with a new password set by the technician. POST-2. The System logs the action for audit purposes.		
Main Success Scenario:	1. The Admin selects a technician accounts page to manage from the system's user management interface. 2. The System displays the current details of the user account. 3. If resetting the password: 3.1. The Admin confirms the action. 3.2. The System sends an email to Technician 3.3. The Technician opens link to reset password 3.4. The Technician submits a new password. 3.5. The System updates the current password with the new password. 4. Use case ends.		
Extensions:	**5a. Account already inactive/deleted:** 5a1. The System alerts the Admin that the selected account is already inactive/deleted. **6a. Reset password confirmation:** 6a1. The System prompts the Admin to confirm the reset action, warning that the action cannot be undone.		
Priority:	High		
Frequency of Use:	Regular, as needed when technicians register or forget passwords.		
Business Rules:	Security/access concerns: Only the Admin and IT Support have permission to manage user accounts.		
Associated Information:	Details: Notification: ● The System sends an email to the Technician informing them to change the password.		
Related Use Cases:			
Assumptions:			
Open Issues:			

Use Case 6: Technician updates account

UC ID and Name:	UC-6: Technician updates account		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Technician	Secondary Actors:	
Trigger:	Technician indicates to update account.		
Description:	Technicians may need to update their account details such as name, contact information, or email. These changes require admin approval to ensure data integrity and security compliance.		
Preconditions:	PRE-1. The Technician must be logged into the system. PRE-2. The Admin must have access to the administrative portal.		
Postcondition:	POST-1. The Technician account is updated in the system with correct and current information. POST-2. The Technician account maintains an "Active" status unless specified otherwise by an Admin.		
Main Success Scenario:	1. The Technician logs into the system and navigates to their account settings. 2. The Technician selects the option to update their account details. 3. The System displays a form with the current user details (e.g., name, email, phone number) which are editable. 4. The Technician updates the necessary fields and submits the form. 5. The System validates the updated details according to predefined rules (see "Validation rules" under Associated Information). 6. The System checks for any conflicts or duplication with existing user accounts. 7. Upon successful validation, the System saves the changes and marks the updates for admin review. 8. The Admin reviews the updates, approves, and finalizes the changes. 9. The System updates the account status to reflect any changes made and notifies the Technician via email that their account has been updated. 10. The System logs the action for audit purposes and informs the Admin that the account update was successful. 11. Use case ends.		
Extensions:	**5a. Input validation rule violation:** 5a1. The System alerts the Technician about any input errors. 5a2. The Technician corrects the inputs and resubmits the form. **6a. Conflict or duplicate account detected:** 6a1. The System alerts the Technician that the updated details conflict with another user's details. 6a2. The Technician adjusts the conflicting details or contacts Admin for further assistance.		
Priority:	Low		
Frequency of Use:	Approximately *** users accounts per month.		
Business Rules:	Security/access concerns: Only the Admin and IT Support have access to create new accounts.		
Associated Information:	Details:		

Property name	Data type	Editability	Validation rule	Effect of change	Reference to glossary
First name	String	Yes	Required		
Last name	String	Yes	Required		
Phone number	String	Yes	Required, (999) 999-9999 format		

	<table><tr><td>Email</td><td>String</td><td>No</td><td>Required, valid email</td><td></td><td></td></tr><tr><td>Access Level</td><td>String</td><td>No</td><td>Required, options: “Technician”, “Admin”</td><td></td><td></td></tr></table> Duplication detection rules: ● Identifiers: Email address, Phone number Notification: ● The System sends an email to the technician confirming the account creation. ● The System sends a notification to the Admin for records. The Technician shall be able to cancel the use case at any time prior to submitting it.
Related Use Cases	
Assumptions:	
Open Issues:	

Use Case 7: Technician views account

UC ID and Name:	UC-7: Technician views account		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Technician	Secondary Actors:	
Trigger:	Technician indicates a desire to view their technician account details.		
Description:	Technicians need to view the details of their own technician account to name and phone number to ensure they are correct and up-to-date.		
Preconditions:	PRE-1. The Technician is logged into the system. PRE-2. The Technician's account is already established and marked as "Active".		
Postcondition:	POST-1. The Technician successfully views their account details.		
Main Success Scenario:	1. The Technician logs into the system and navigates to their account settings. 2. The Technician selects the option to view account details. 3. The System displays the account details including name, email, phone number, access level, and any other relevant information. 4. The Technician reviews their personal and role-related information. 5. The Technician can navigate away from the page or log out once they have verified their details. 6. Use case ends.		
Extensions:	**3a. Account details are outdated or incorrect:** 3a1. The Technician submits a request or directly updates their information, depending on system permissions. 3a2. The System logs the request for Admin review or directly updates and saves the changes based on the Technician's input and permissions.		
Priority:	Low		
Frequency of Use:	Approximately *** users accounts per month.		
Business Rules:	Technicians have the ability to view but not necessarily edit all their details without Admin approval. All personal and professional information must be kept up-to-date and accurate for operational compliance and security reasons.		

Associated Information: Details:

Property name	Data type	Editability	Validation rule	Effect of change	Reference to glossary
First name	String	Yes	Required		
Last name	String	Yes	Required		
Phone number	String	Yes	Required, (999) 999-9999 format		
Email	String	No	Required, valid email		
Access Level	String	No	Required, options: "Technician", "Admin"		

Duplication detection rules:

- Not applicable to this use case as it involves viewing only.

Notification:

	● The System sends an email to the new Technician confirming the account creation. ● The System sends a notification to the Admin for records.
Related Use Cases	UC 6: Technician updates account
Assumptions:	The System is properly secured to ensure that only the logged-in Technician can view their own account details.
Open Issues:	

Use Case 8: Technician updates account password

UC ID and Name:	UC-8: Technician updates account password		
Created By:	Nicholas Tullbane	Date Created:	10/01/24
Primary Actor:	Admin, Technicians	Secondary Actors:	
Trigger:	The Technician indicates the need to change their account password.		
Description:	The Technician needs to update their account password to maintain security. This process involves verifying their identity, entering a new password, and confirming the change.		
Preconditions:	PRE-1. The Technician must be logged into the system or use the "Forgot Password" functionality to initiate the change. PRE-2. The Technician must have access to their current credentials or valid recovery information (e.g., email).		
Postconditions:	POST-1. The Technician's account password is successfully updated. POST-2. The System logs the password change action for security purposes.		
Main Success Scenario:	1. The Technician selects the option to change their password in the system's settings or during the login process via "Forgot Password". 2. The System initiates password recovery via email. 3. The Technician follows recovery instructions sent to their email. 4. The System validates the Technician's input (see validation rules below). 5. The System prompts the Technician to enter a new password and confirm it. 6. The Technician enters the new password and confirms it. 7. The system validates that the new password meets the security requirements (e.g., length, complexity) 8. The System updates the password and confirms to the Technician that the change was successful. 9. The System sends an email notification to the Technician informing them of the password change. 10. Use case ends.		
Extensions:	**4a. Incorrect current password or recovery failure:** 4a1. The System alerts the Technician recovery information was invalid. 4a2. The Technician retries or contacts admin if needed. **6a. New password validation failure:** 6a1. The System alerts the Technician that the new password does not meet the security requirements. 6a2. The Technician enters a valid password and returns to step 6.		
Priority:	High		
Frequency of Use:	As needed when Technicians need to update or reset their password.		
Business Rules:	• Security Concerns: Passwords must meet the organization's security policies, which include complexity and expiration requirements. • Access Control: Only the Technician can change their password, with admin available in case of recovery issues.		
Associated Information:	Notification: • The System notifies Admin of Technician's password change. Details:		

Property name	Data type	Editability	Validation rule	Effect of change	Warning	Reference to glossary
New Password	String	Yes	Required, 8-16 characters, alphanumeric, 1 symbol	Successful password change results in an update	Must meet the security requirements (length,	

						complexity)	
Confirm Password	String	Yes	Must match new password	No effect if passwords do not match	Passwords must match to proceed		

Warning:
- The System warns the Technician that making changes to their password will log them out of all sessions, and they will need to log in again using the new password.

Effect of Change: Password Change
- The System updates the Technician's password and invalidates any existing sessions, requiring the Technician to login again.

Notification:
- The System sends an email to the Technician confirming the successful password change.
- The System sends a notification to the Admin if the password change was initiated through recovery or in case of a security breach.

Text:
- Password:
  - New Password: Must be between 8-16 characters, contain at least one uppercase, one lowercase letter, one number, and one special symbol.
  - Confirm Password: Must match the new password exactly.

Additional Constraints:
- Password Expiration: Passwords may expire after a certain number of days, and Technicians will be prompted to change their password.

The Technician shall be able to cancel the password change process before submitting the new password.

Related Use Cases:	
Assumptions:	
Open Issues:	

Use Case 9: Technician generates reports

UC ID and Name:	UC-9: Technician generates reports		
Created By:	Blake Good	Date Created:	
Primary Actor:	Admin, Technicians	Secondary Actors:	FWDX Regulatory/Quality Control
Trigger:	A Technician indicates a need to generate a report for some reagent compared to genetic sequences for its associated target sequence		
Description:	A Technician wants to test the effectiveness of some product against recent samples of genetic sequences for the target sequence associated with the reagent. This is done to ensure that new deletions/mutations in the target sequence will not cause the reagent to be ineffective.		
Preconditions:	PRE-1. The FWDX employee is logged in to the system and has the proper permissions to generate a report.		
Postconditions:	POST-1. The request is stored in FWDX's database and is available to be viewed through the web application.		
Main Success Scenario:	1. A technician requests to generate a new report. 2. <TITLE INPUT> (Does it allow duplicate titles? // Naming convention?) 3. The system displays products that are available to be analyzed. 4. The technician selects the product to be tested. 5. The System displays target sequences that are available for the product to be tested against. 6. The technician selects the target sequence to test with the product. 7. The technician sets the frequency/schedule for when the report will run 8. The System validates the technician's inputs. 9. The System asks the technician to verify the target sequence/product pairing that will be analyzed. 10. The System gives the technician an option to receive a notification when the report has been generated (yes/no). 11. The technician either confirms that the selected pairing is correct (continue to step 9) or chooses to modify the pairing (returns to step 3). 12. The System queries associated databases for new samples of the selected target sequence. 13. The System locates and marks any deletions or mutations found in the new genetic sequences that may impact the effectiveness of the associated reagent according to the "Mismatch finding algorithm" defined in the associated information of this use case. 14. The System saves the report in FWDX's own database, so it can be viewed at any point in the future by employees with the proper permissions. 15. The System notifies the creator about the successful creation of the report. See "Notification" defined in the associated information of this section. 16. Use case ends.		
Extensions:	**3a. The desired reagent doesn't exist in the system:** 3a1. The System gives the technician an option to add a new reagent to be used in report generation. **5a. Desired target sequence doesn't exist in the system:** 5a1. The System gives the technician an option to add a new target sequence to be used in report generation. **10a. The user does not have an email or phone number associated with their account.** 10a1. If the technician would like to receive a notification, but they do not have an email or phone number associated with their account, the System shall alert the technician and provide the option to add an email or phone number.		
Priority:	High		
Frequency of Use:	1 user, average of 1 usage per week.		

Business Rules:	Security/access concerns. Role Based Permissions
Associated Information:	Associated Databases: ● Consists of all the databases holding genetic sequences that have been included in the system. Notification: ● The System sends the creator of the report a notification via email or text when the report is ready to be viewed. ● The System sends either a text or email notification to the technician at the phone number or email address associated with the technician's account. Mismatch finding algorithm ● This will find mismatches between the genetic sequences (primer, probe, etc.) associated with the selected reagent, and sample sequences gathered from an external database (real-world samples of the target sequence) ● These two sets of genetic sequences are passed to a string-matching algorithm provided by the BioPython package. Specifically, this is done using the Smith-Waterman algorithm. ● The Smith-Waterman algorithm then returns the results of comparing all sequences associated with the reagent to all real-world samples available. ● The results include metadata about the samples (target sequence name, reagent sequence name (primer, probe, etc.), collection date, and more), the two sequences included in the comparison, and a string identifying where matches and mismatches occur. Cancel Report Generation ● The technician shall be able to cancel the generation of a report at any point in time. This includes cancelling during the steps defined in this use case or during the generation of the report.
Related Use Cases	UC-11
Assumptions:	
Open Issues:	

Use Case 10: Technician views a report

UC ID and Name:	UC-10: Technician views an individual report		
Created By:	Blake Good	Date Created:	
Primary Actor:	Admin, Technicians	Secondary Actors:	
Trigger:	The Technician indicates a need to view the details of an individual report.		
Description:	The Technician wants to view the details of an individual report, so that they can get more details from the report		
Preconditions:	PRE-1. The Technician is logged into the System.		
Postconditions:	POST-1. The details of the specified report are displayed to the Technician.		
Main Success Scenario:	1. The Technician indicates a need to view the details of an individual report that has been generated by the system. 2. The Technician finds a list of reports. 3. The Technician views the list and chooses to view the details of one specific report. (see UC-11) 4. The System retrieves and displays details of this report according to the "Details" defined in the Associated Information and the "Security/access concerns" defined in the Business Rules of this use case. 5. The Technician views the details of this report. 6. Use case ends.		
Extensions:			
Priority:	High		
Frequency of Use:	Approximately 3 users, average of 6 usages per week.		
Business Rules:	Security/access concerns ● The Technician can access all the information of an individual report. ● The Technician can view proprietary information about the product included in this report. ● The Technician may view proprietary genetic sequences belonging exclusively to FWDX that were included in the report		
Associated Information:	Missing Details ● The report shall contain all information necessary in order for a Technician to accurately assess the performance of their products against all real-world samples contained in the report. This information is listed in the following bullet points. ● The report title shall be clearly displayed to the Technician ● Quick facts about the report shall be displayed near the top. These include the creation date, target sequence name, product name, and total number of mismatches found ● All comparisons between real-world samples and genetic sequences included with the associated product will be displayed in a table. These comparisons are grouped by each reagent sequence (primer, probe, etc). Once a comparison is selected, the results shall be displayed. ● When a comparison is selected, the matches and mismatches found in the comparison will be displayed to the technician, along with the start and end indexes of the sequence included in the comparison. When displayed, a "|" shall indicate a match between the real-world sample and reagent sequence, and a "X" shall indicate a mismatch.		
Related Use Cases:	UC-13: User finds reports		
Assumptions:			

Open Issues:	

Use Case 11: Technician finds reports

UC ID and Name:	UC-11: Technician finds reports		
Created By:	Blake Good	Date Created:	
Primary Actor:	Admin, Technicians	Secondary Actors:	
Trigger:	The Technician visits the page to browse reports generated by the System.		
Description:	A Technician wants to view reports generated by the system. The Technician will view a list of all reports generated by the System, optionally filtered based on criteria defined by the Technician.		
Preconditions:	PRE-1. The Technician is logged into the System. PRE-2. There exists at least one completed report in the system. PRE-3. The Technician's account has the proper permissions to view reports.		
Postconditions:	POST-1. A list of reports matching the search criteria provided by the Technician is displayed		
Main Success Scenario:	1. The Technician indicates a need to browse generated reports. 2. The Technician may filter reports based on a number of different criteria. (see "Search criteria" in the Associated Information of this use case) 3. The Technician may sort reports based on attributes related to each report. (see "Sort criteria" in the Associated Information of this use case). 4. The Technician is shown a list of all reports in the system, matching filter criteria if necessary. Reports will be sorted by the default attribute, or the attribute specified by the Technician. 5. The Technician may select a report to view from those displayed. (see UC-10) 6. Use case ends.		
Extensions:	**4a. No reports match the criteria specified by the user:** 4a1. The System shall display a message stating that no reports matching the specified criteria were found.		
Priority:	High		
Frequency of Use:	Approximately *** Technician, average of *** usages per week.		
Business Rules:	Security/access concerns.		
Associated Information:	Search criteria (aka search fields, search attributes/properties, search details, searchable qualities):		

Search property name	Data type	Required	Validation rule
Report title	String	No	
Report creation date or date range	Date	No	
target sequence associated with report	String	No	
Product associated with the report	String	No	
Number of mismatches found during analysis (range or threshold)	Integer	No	

Search results display strategy (specify which properties to display for each matching an appearance request):

- Report title
- Report creation date
- Associated target sequence
- Associated product
- Number of mismatches found
-

Sort criteria:

- By creation date (default)
- By report title

	• By reagent name • By product name • By number of mismatches found
Related Use Cases:	UC-10: User views a report
Assumptions:	
Open Issues:	

Use Case 12: Technician adds new oligo

UC ID and Name:	UC-12: Technician adds new oligo		
Created By:	Michael Nguyen	Date Created:	10/1/2024
Primary Actor:	Technician	Secondary Actors:	
Trigger:	The technician indicates that they want to add a new oligo		
Description:	The technician adds a new oligo to the system. This includes the oligo name, adding and verifying the oligo string against system checks, and specifying whether the oligos belong to the positive or negative genomic strand.		
Preconditions:	PRE-1: The Technician is logged into the system. PRE-2: The Technician has sufficient permissions to add new oligos. PRE-3: The system is connected to the proprietary database.		
Postconditions:	POST-1: The new oligo is successfully added to the system. POST-2: The oligo is made available for use.		
Main Success Scenario:	1. The technician navigates to the oligo home page 2. The technician indicates they want to add a new oligo 3. The system prompts the technician to provide necessary information related to the new oligo. 4. The technician supplies required details, including: ● Oligo name ● Oligo DNA Sequence ● Whether oligo belongs to a positive or negative DNA strand 5. The system validates the provided information to ensure all necessary data is correct and in the proper format. 6. Upon successful validation, the system stores the oligo in its database, making it available for future use. 7. The system confirms that the new oligo has been added and is now ready to be tested against genetic sequences. 8. Use case ends.		
Extensions:	**3b**. If the technician cancels the operation before submitting the details: 3b1. The System shall discard the entered data and return the user to the previous screen without saving any information. **4a**. If data validations fail: 4a1. The System shall display a message to the user indicating what information needs to be corrected. **5a**. If the storage fails due to a system error: 5a1. The System shall display a message informing the user that the oligo could not be added and suggest retrying or contacting support.		
Priority:	High		
Frequency of Use:	Regular, especially when new oligos are developed or need to be tested against sequences.		
Business Rules:	Only technicians can add new oligo. The new oligo must adhere to data format and validation rules before being stored in the system.		
Associated Information:	Notification: ● The system informs the user when the oligo is successfully added or if an error occurs. Details:		

	Oligo Entity: **Property name** / **Data type** / **Editability** / **Validation rule** / **Additional Information** Oligo Name / String / Yes / Required / Name of the oligo Dna Strand Positive / Boolean / Yes / Not Required / Whether the oligo belongs to a negative or positive dna strand Sequence / String / Yes / Required / DNA sequence of the oligo
Related Use Cases:	UC-13: Technician archives an oligo. UC-14: Technician views an oligo
Assumptions:	The system has sufficient capacity to store new oligos. Technician have the necessary permissions to add oligos.
Open Issues:	

Use Case 13: Technician archives an oligo

UC ID and Name:	UC-13: Technician archives an oligo		
Created By:	Michael Nguyen	Date Created:	10/1/2024
Primary Actor:	Technician	Secondary Actors:	
Trigger:	The technician indicates that they want to archives an oligo		
Description:	The technician archives an oligo in the system, making it unable to be used for future comparisons.		
Preconditions:	PRE-1: The Technician is logged into the system. PRE-2: The Technician has sufficient permissions to archive oligos. PRE-3: The system is connected to the proprietary database.		
Postconditions:	POST-1: The oligo is successfully archived in the system. POST-2: The oligo is unable to be used for future comparisons.		
Main Success Scenario:	1. The technician navigates to the oligo home page 2. The technician indicates they want to archive an existing oligo 3. The system prompts the technician to confirm that they want to archive this oligo. 4. Upon successful validation, the system archives the oligo in its database, making it unavailable to be added to another product. 5. The system confirms that the new oligo has been archived and is now cannot be added to a new product. 6. Use case ends.		
Extensions:	**3b**. If the technician cancels the operation.: 3b1. The System shall return the user to the previous screen. **5a**. If the oligo cannot be archived fails due to a system error: 5a1. The System shall display a message informing the user that the oligo could not be archived and suggest retrying or contacting support.		
Priority:	High		
Frequency of Use:	Regular, especially when old oligos need to be retired and archived.		
Business Rules:	Only technicians can archive oligo. The new oligo must adhere to data format and validation rules before being stored in the system.		
Associated Information:	Notification: ● The system informs the user when the oligo is successfully archived or if an error occurs.		
Related Use Cases:	UC-12: Technician adds new oligo. UC-14: Technician views an oligo		
Assumptions:	Technicians have the necessary permissions to archive oligos.		
Open Issues:			

Use Case 14: Technician views an oligo

UC ID and Name:	UC-14: Technician views an oligo		
Created By:	Michael Nguyen	Date Created:	10/1/2024
Primary Actor:	Technician	Secondary Actors:	
Trigger:	The technician indicates that they want to views an oligo		
Description:	The technician views details of an oligo in the system.		
Preconditions:	PRE-1: The Technician is logged into the system. PRE-2: The Technician has sufficient permissions to views oligos. PRE-3: The system is connected to the proprietary database.		
Postconditions:	POST-1: The user is able to view all relevant information about the oligo. POST-2: The system does not modify any data while the oligo details are being viewed		
Main Success Scenario:	1. The user navigates to the oligo home page. . 2. The user selects an oligo from the list to view. 3. The system retrieves the details of the selected oligo. 4. The system displays the oligo's information to the technician. 5. The technician reviews the details of the oligo. 6. Use case ends.		
Extensions:	**3a**. If the system cannot find the product in the database: 3a1. The system shall display a message indicating that the product could not be found. **3b**. If the system encounters a technical issue while retrieving the product data: 3b1. The system shall display an error message and suggest that the user retry or contact support.		
Priority:	High		
Frequency of Use:	Regular.		
Business Rules:	Only technicians can view oligos.		
Associated Information:			
Related Use Cases:	UC-12: Technician adds new oligo. UC-13: Technician archives an oligo		
Assumptions:	Technician have the necessary permissions to view oligos.		
Open Issues:			

Use Case 15: Technician adds new product to be tested against sequences

UC ID and Name:	UC-15: Technician adds new product to be tested against sequences		
Created By:	Michael Nguyen	Date Created:	10/1/2024
Primary Actor:	Technician	Secondary Actors:	
Trigger:	The technician indicates that they want to add a new product		
Description:	The technician adds a new product to the system for testing against genetic sequences. This includes verifying the product against system checks, allowing multiple genetic sequences (oligos) to be added to the product, and specifying whether the oligos belong to the positive or negative genomic strand.		
Preconditions:	PRE-1: The Technician is logged into the system. PRE-2: The Technician has sufficient permissions to add new products. PRE-3: The system is connected to the proprietary database.		
Postconditions:	POST-1: The new product is successfully added to the system. POST-2: The product is made available for future comparisons against genetic sequences .		
Main Success Scenario:	1. The technician navigates to the product home page 2. The technician indicates they want to add a new product 3. The system prompts the technician to provide necessary information related to the new product. 4. The technician supplies required details, including: ● Product name ● List of genetic sequences (oligos) that belongs to the product. 5. The system validates the provided information to ensure all necessary data is correct and in the proper format. 6. Upon successful validation, the system stores the product in its database, making it available for future use. 7. The system confirms that the new product has been added and is now ready to be tested against genetic sequences. 8. Use case ends.		
Extensions:	**3b**. If the technician cancels the operation before submitting the details: 3b1. The System shall discard the entered data and return the user to the previous screen without saving any information. **4a**. If data validations fail: 4a1. The System shall display a message to the user indicating what information needs to be corrected. **5a**. If the storage fails due to a system error: 5a1. The System shall display a message informing the user that the reagent could not be added and suggest retrying or contacting support.		
Priority:	High		
Frequency of Use:	Regular, especially when new products are developed or need to be tested against sequences.		
Business Rules:	Only users can add new products. The new product must adhere to data format and validation rules before being stored in the system.		
Associated Information:	Notification: ● The system informs the user when the product is successfully added or if an error occurs. Details:		

Product Entity:

Property name	Data type	Editability	Validation rule	Additional Information
Product Name	String	Yes	Required	Name of the product
Active version	Int	Yes	Required	Active Version of the product
Versions	Array	Yes	Required	Store all versions of the product. Each version will have a correspondent list of oligos
Description	String	Yes	Not Required	Store the description of the product.

Related Use Cases:	UC-16: User edits product to be tested against sequences UC-17: User views a product
Assumptions:	The system has sufficient capacity to store new product. Users have the necessary permissions to add product.
Open Issues:	

Use Case 16: Technician edits products to be tested against sequences

UC ID and Name:	UC-16: Technician edits reagent to be tested against sequences		
Created By:	Michael Nguyen	Date Created:	10/1/2024
Primary Actor:	Technician	Secondary Actors:	None
Trigger:	The technician selects a product and initiates the edit process.		
Description:	A user with the appropriate permissions can modify the details of an existing product that is stored in the system. This includes updating the product's properties such as name, description, list of genetic sequences (oligos) belong to the product.		
Preconditions:	PRE-1: The user is logged into the system. PRE-2: The user has the required permissions to edit a product. PRE-3: The product to be edited already exists in the system. \		
Postconditions:	POST-1: The product's details are updated in the system. POST-2: The updated product is available for future sequence comparisons.		
Main Success Scenario:	1. The user navigates to the product home page and selects a product to edit. 2. The system displays the current details of the selected product for editing. 3. The user modifies the necessary fields and/or update the list of oligos belong to the product.. 4. The system saves the updated product details. 5. The system confirms that the updated product is now available for future sequence comparisons. 6. Use case ends.		
Extensions:	**4a**. If the System fails to save the updated product details due to a system error: 4a1. The System shall display an error message and suggest retrying or contacting support. **4b**. If the user cancels the operation before submitting the updates: 4b1. The System shall discard any changes and return the user to the previous screen without saving any modifications.		
Priority:	High		
Frequency of Use:	Occasional, when a product needs to be updated with new information.		
Business Rules:	Only authorized users with the necessary permissions can edit products. All reagent details must adhere to validation rules before the edits are saved.		
Associated Information:	Notification: ● The system informs the user when the reagent has been successfully updated or if an error occurs. ● The action is logged for auditing and traceability. Details:		

Product Entity:

Property name	Data type	Editability	Validation rule	Effect of change	Additional Information
Product Name	String	Yes	Required	Change the name of reagent	Name of the reagent product
Active version	Int	Yes	Required	The reagent's active version will be changed to this number	Active Version of the reagent product
Versions	Array	Yes	Required	A new version of the reagent is added.	Store all versions of the reagent product. Each

	<table><tr><td></td><td></td><td></td><td></td><td></td><td>version will have a correspondent list of oligos</td></tr><tr><td>Description</td><td>String</td><td>Yes</td><td>Not Required</td><td>Change the description of reagent</td><td>Store the description of the reagent product.</td></tr></table>
Related Use Cases:	UC-15: User adds new product to be tested against sequences UC-17: User views a product
Assumptions:	The system has sufficient capacity to store updates to existing products. Users have the necessary permissions to modify product data.
Open Issues:	

Use Case 17: Technician views a product

UC ID and Name:	UC-17: Technician views a product		
Created By:	Michael Nguyen	Date Created:	10/1/2024
Primary Actor:	Technician	Secondary Actors:	None
Trigger:	The technician an selects a product from the list to view its details.		
Description:	A technician with appropriate permissions can view the details of a product stored in the system. This allows the technician to check important information about the product, such as its name, description, all associated sequences (oligos), version number, and other relevant metadata.		
Preconditions:	PRE-1: The technician is logged into the system. PRE-2: The technician has the necessary permissions to view product details. PRE-3: The product to be viewed exists in the system.		
Postconditions:	POST-1: The user is able to view all relevant information about the product. POST-2: The system does not modify any data while the product details are being viewed.		
Main Success Scenario:	1. The user navigates to the product home page. . 2. The user selects a product from the list to view. 3. The system retrieves the details of the selected product. 4. The system displays the product's information to the technician. 5. The technician reviews the details of the product. 6. Use case ends.		
Extensions:	**3a**. If the system cannot find the product in the database: 3a1. The system shall display a message indicating that the product could not be found. **3b**. If the system encounters a technical issue while retrieving the product data: 3b1. The system shall display an error message and suggest that the user retry or contact support.		
Priority:	Medium		
Frequency of Use:	Occasional, when users need to review the details of a product.		
Business Rules:	Only authorized users can view reagent details.		
Associated Information:	Notification: ● The system does not generate notifications for viewing products.		
Related Use Cases:	UC-16: Technician edits product to be tested against sequences UC-15: Technician adds new product to be tested against sequence		
Assumptions:	The system has sufficient capacity to store and retrieve product data. Technicians have the necessary permissions to view product details.		
Open Issues:			

Use Case 18: Technician modifies interval of database queries/report generation

UC ID and Name:	UC-15: Technician modifies interval of database queries/report generation		
Created By:	Kyle Stagner	Date Created:	2024/10/04
Primary Actor:	Technician	Secondary Actors:	None
Trigger:	The Technician wants to define or modify the interval at which each report is automatically checked and ran against its associated target sequence dataset.		
Description:	The Technician needs to set or adjust the validation intervals for a product to control how frequently each product is validated against its associated target sequence dataset. This allows for granular control over resource usage and ensures that critical products are checked more frequently if necessary.		
Preconditions:	PRE-1. The Technician is authenticated and authorized to manage report intervals. PRE-2. target sequences to be configured exist in the system. PRE-3. Products to be configured exist in the system.		
Postconditions:	POST-1. The validation interval for the selected product is updated in the system. POST-2. Future automatic validation tasks will occur based on the new intervals.		
Main Success Scenario:	1. The Technician indicates the desire to set or modify the validation interval for a report. 2. The System displays a list of reports and their current schedule. 3. The Technician selects a report to modify. 4. The System prompts the Technician to enter new interval details. 5. The Technician enters the interval details and confirms. 6. The System validates the input according to the validation rules defined in the Associated Information. 7. The System checks for conflicts with existing schedules or system limitations. 8. The System displays the new configuration and asks the Technician to confirm the changes. 9. The Technician confirms the changes. 10. The System updates the validation intervals and adjusts scheduled tasks accordingly. 11. The System informs the Technician of the successful update. 12. The System logs the action and notifies relevant actors according to the "Notification" defined in the Associated Information. 13. Use case ends.		
Extensions:	**6a. Input validation rule violation:** 6a1. The System alerts the Technician that an input validation rule is violated and displays the nature of the error. 6a2. The Technician corrects the input and returns to step 6 of the normal flow. **7a. Conflict detected with system limitations:** 7a1. The System informs the Technician that the requested intervals conflict with system limitations (e.g., too frequent checks). 7a2. The Technician adjusts the interval details and returns to step 5 of the normal flow.		
Priority:	Medium		
Frequency of Use:	Variable; may occur when operational requirements change, or when optimizing system performance.		
Business Rules:	BR-1: Only Technicians can set or modify report intervals. BR-2: Validation intervals must comply with system capabilities and resource constraints. BR-3: The system may enforce minimum and maximum allowable intervals.		
Associated Information:			

Property Name	Data Type	Mutable	Validation Rule	Effect of Change
Product	String	Yes	Must Exist and	Identifies the

				be active	substring being configured
	taxonomic ID	String	No	Must Exist	Sets target sequence genomic sequence to validate
	Report Interval	Integer	Yes	Must be within allowed range	Sets how often the substring is checked
	Effective Data	Calendar Date	Yes	Must be today or a future date	Specifies when the new interval takes effect

Validation Rules:
- Interval Validity: Checking interval must be within system-defined minimum and maximum limits.
- Time Validity: If time of day is specified, it must be a valid time.
- Date Validity: Effective date must not be in the past.
- Authorization: The Privileged User must have permission to modify the Reagents.

Notification:
- The System logs the interval change for auditing purposes.
- The System sends a confirmation message to the Technician.
- The System may notify administrators if significant changes are made

Related Use Cases:	UC-?: Schedule Automatic Reagent Matching. UC-?: Add Reagent to Reagent Database. UC-?: View and Manage Scheduled Tasks. UC-?: User generates reports
Assumptions:	● Technician understands the impact of setting very frequent or infrequent validation intervals. ● The interface provides guidance on acceptable interval values.
Open Issues:	● Should the system allow bulk updates of checking intervals for multiple products? ● Is there a need for default intervals? ● How are users notified if the system adjusts intervals due to resource constraints?
Notes:	● The Technician can cancel the configuration operation at any time before confirmation. ● All interval changes are logged with timestamps and user information for auditing purposes. ● The system should provide feedback if intervals are adjusted due to system policies.

Use Case 19: Technician creates a new target sequence

UC ID and Name:	UC-16: Technician creates a new target sequence		
Created By:	Kyle Stagner	Date Created:	2024/10/01
Primary Actor:	Technician	Secondary Actors:	None
Trigger:	The Technician wants to add a new target sequence to the database		
Description:	The Technician needs to add an entry for a new target sequence.		
Preconditions:	PRE-1: The technician is logged into the system. PRE-2: The technician has the necessary permissions to view target sequence details. PRE-3. The system is operational and has available resources to create a new dataset.		
Postconditions:	POST-1. A new target sequence is created and available in the system.		
Main Success Scenario:	1. The Technician indicates the desire to create a new target sequence. 2. The System prompts the Technician to enter details for the new target sequence. 3. The Technician provides the unique target sequence ID and any relevant metadata. 4. The System validates the input according to the validation rules defined in the Associated Information. 5. The System checks for a duplicate target sequence ID. 6. The System displays the details of the new target sequence and asks the Technician to confirm the creation. 7. The Technician confirms the creation of the new target sequence. 8. The System creates the new target sequence and informs the Technician of the successful creation. 9. The System logs the creation and notifies relevant actors according to the "Notification" defined in the Associated Information. 10. Use case ends.		
Extensions:	**3a. target sequence metadata import:** 3a1. The technician selects a third-party database from a predefined system list and inputs a unique sequence ID associated with that database. **4a. Input validation rule violation:** 4a1. The System alerts the Technician that an input validation rule is violated and displays the nature of the error. 4a2. The Technician corrects the input and returns to step 4 of the normal flow. **5a. Duplicate dataset name detected:** 5a1. The System informs the Technician that a target sequence with the same ID already exists. 5a2. The Technician chooses a different ID and returns to step 3 of the normal flow.		
Priority:	High		
Frequency of Use:	Frequent		
Business Rules:	BR-1: Only Technicians can create new target sequences. BR-2: Target sequence IDs must be unique within the system. BR-3: Target sequences must have a valid ID and may include optional metadata.		
Associated Information:	Details:		

Property Name	Data Type	Mutable	Validation Rule	Effect
accessionID	String	No	• Required • Must be unique • Allowed characters: alphanumeric, hyphen, underscores	Identifies subset in system

				• Length between 1 and 255 characters	
	taxonomicID	String	No	Optional	Provides additional information
	Description	String	Yes		Metadata
	genomic_sequence	String	No	Valid String	
	sequence_length	String	No	Optional	Metadata
	common_name	String	Yes	Optional	Metadata
	collection_date	String	No	Required	Metadata
	import_date	String	No	Required	Metadata
	organism	String	Yes	Optional	Metadata
	mol_type	String	Yes	Optional	Metadata
	isolate	String	Yes	Optional	Metadata
	geo_loc_name	String	Yes	Optional	Metadata

Duplication Detection Rules:

- The System checks if a target sequence with the same ID already exists.

Notification:

- The System logs the creation for auditing purposes.
- The System may notify system administrators of the creation of a new target sequence.

Validation Rules:

- Not Empty: The target sequence ID must not be empty.
- Unique: The target sequence ID must be unique within the system.
- Format: The name must match the allowed pattern (e.g., alphanumeric and underscores).
- Length: The name must be between 1 and 100 characters long.
- Metadata Validation: Keys and values must be valid strings without special characters.

Related Use Cases:	• UC-17: Technician views a target sequence
Assumptions:	• The Technician has the necessary permissions to create a target sequence. • The system has sufficient resources to handle the creation of new target sequence(s). • The user interface provides an intuitive way to input target sequence details.
Open Issues:	• Should there be a limit on the number of target sequences that can be created? • Do we need to implement a review or approval process before the dataset becomes active? • What permissions are required for other users to access or modify this dataset? • Should there be default metadata fields that must be filled out?

Use Case 20: Technician views a target sequence

UC ID and Name:	UC-17: Technician views a target sequence		
Created By:	Kyle Stagner	Date Created:	2024/10/01
Primary Actor:	Technician	Secondary Actors:	None
Trigger:	The user selects a target sequence from the list to view its details.		
Description:	This allows the technician to check important information about the target sequence, such as its name, accessionID, taxonomicID, common_name, description, and other relevant metadata.		
Preconditions:	PRE-1: The technician is logged into the system. PRE-2: The technician has the necessary permissions to view target sequence details. PRE-3: The target sequence to be viewed exists in the system.		
Postconditions:	POST-1: The technician is able to view all relevant information about the target sequence. POST-2: The system does not modify any data while the target sequence details are being viewed.		
Main Success Scenario:	1. The technician navigates to the Targets tab. 2. The technician selects a taxonomic group of target sequences from the list to view. 3. The system retrieves the details of the selected target sequences. 4. The system displays the relevant target sequences to the technician. 5. The technician reviews the details of the target sequences. 6. Use case ends.		
Extensions:	**3a**. If the system cannot find the target sequence in the database: 3a1. The system shall display a message indicating that the target sequence could not be found. 3a2. The system shall provide options to proceed to adding target sequence to database (UC-18). **3b**. If the system encounters a technical issue while retrieving the target sequence data: 3b1. The system shall display an error message and suggest that the user retry or contact support. **5a**. If the user wants to take further actions (e.g., edit or delete the target sequence): ● 5a1. The system shall provide options to proceed with those actions, leading to the appropriate use cases (UC-10: Edit Reagent, UC-12: Delete Reagent).		
Priority:	High		
Frequency of Use:	Occasional, when users need to review the details of a target sequence.		
Business Rules:	Only authorized users can view reagent details.		
Associated Information:	Notification: ● The system does not generate notifications for viewing target sequences. The Spirit Director shall be able to cancel the process at any time prior to submitting it.		
Related Use Cases:	UC-16: User creates a new target sequence		
Assumptions:	The system has sufficient capacity to store and retrieve target sequence data.		
Open Issues:			

Use Case 21: View and manage scheduled reports

UC ID and Name:	UC-18: View and manage scheduled reports		
Created By:	Kyle Stagner	Date Created:	2024/10/03
Primary Actor:	Technician	Secondary Actors:	None
Trigger:	The Technician wants to view existing scheduled reports and manage their configurations.		
Description:	The Technician needs to access and manage the scheduling details of existing reports, including modifying the schedule, viewing report status, and canceling schedules. This ensures that scheduled reports are properly maintained and adjusted based on changing requirements.		
Preconditions:	PRE-1: The Technician is authenticated and authorized to manage scheduled reports. PRE-2: There are existing scheduled reports in the system.		
Postconditions:	POST-1: The system displays the list of scheduled reports along with relevant details. POST-2: Any modifications or cancellations to scheduled reports are successfully applied and logged in the system.		
Main Success Scenario:	1. The Technician indicates a desire to view and manage scheduled reports. 2. The System displays a list of all existing scheduled reports, including their titles, associated reagents, target sequences, and scheduling details. 3. The Technician selects a specific scheduled report to view or manage. 4. The System displays detailed scheduling information and relevant data for the selected report. 5. The Technician may choose to modify the schedule 6. The System logs all changes and notifies relevant stakeholders if configured. 7. Use case ends.		
Extensions:	**2a. No scheduled reports exist:** 2a1. The System informs the Technician that no scheduled reports are currently available. **5a. Technician choses to modify schedule:** 5a1. The System validates the new inputs and updates the schedule. **5b. Technician choses to cancel the schedule:** 5b1. The System confirms the cancellation and removes the schedule from active tasks. **5c. Pause/Resume the schedule:** 5c1. The System updates the schedule status accordingly. **5d. Validation errors during schedule modification:** 5d1. The System alerts the Technician about the specific validation error (e.g., invalid date or missing reagents). 5d2. The Technician corrects the input and resubmits. **5e. Attempt to cancel a report that is currently being processed:** 5e1. The System prevents cancellation and informs the Technician that the report is in progress.		
Priority:	High		
Frequency of Use:	Moderate; scheduling may occur whenever new reagents or target sequence datasets are added, or when schedules need adjustment.		
Business Rules:	BR-1: Only Technicians can set up or modify schedules. BR-2: Reagents and target sequence datasets must be active (not deleted) to be included in scheduling. BR-3: Changes to schedules must be validated before being saved. BR-4: Schedules in progress cannot be canceled. BR-5: Scheduling must comply with system limitations and maintenance windows. BR-6: The system must prevent overlapping schedules that could cause performance issues.		

<table>
<tr><td></td><td></td></tr>
<tr><td>Associated Information:</td><td>
<table>
<tr><th>Property Name</th><th>Data Type</th><th>Mutable</th><th>Validation Rule</th><th>Effect of Change</th></tr>
<tr><td>Product</td><td>List of Strings</td><td>Yes</td><td>Must exist and be active</td><td>Defines which sub strings are included in the schedule</td></tr>
<tr><td>Target sequence Datasets</td><td>List of Collections</td><td>No</td><td>Must exist and be active</td><td>Defines which datasets are included in the schedule</td></tr>
<tr><td>Frequency</td><td>Enum (e.g., Daily, Weekly)</td><td>Yes</td><td>Must be a valid frequency option</td><td>Sets how often the matching occurs</td></tr>
<tr><td>Start Date and Time</td><td>DateTime</td><td>Yes</td><td>Must be a valid future date and time</td><td>Specifies when the schedule begins</td></tr>
<tr><td>End Date and Time</td><td>DateTime</td><td>Yes</td><td>Must be a valid future date and time</td><td>Specifies when the schedule begins</td></tr>
</table>

Validation Rules:
● Existence: Selected products and target sequence datasets must exist and not be deleted.
● Authorization: The Technician must have permission to access selected products and target sequence datasets.
● Date Validity: Start date and time must be in the future; end date must be after start date if provided.
● Frequency Validity: Frequency must be one of the allowed options.
Notification:
● The System logs the scheduling action for auditing purposes.
● The System sends a confirmation message to the Privileged User.
● The System may notify administrators or other stakeholders as configured.
</td></tr>
<tr><td>Related Use Cases:</td><td>Use Case 11: User generates reports
Use Case 12: User views a report
Use Case 15: User edits reagents to be tested against sequences
Use Case 17: User modifies interval of database queries/report generation
Use Case 18: User creates a new target sequence
Use Case 19: User views a target sequence</td></tr>
<tr><td>Assumptions:</td><td>● The system has adequate resources to handle scheduled matching tasks without impacting performance.
● The scheduling interface allows for intuitive selection and configuration.
● Users understand the implications of scheduling tasks and potential system load.</td></tr>
<tr><td>Open Issues:</td><td>● Should the system provide alerts if scheduled tasks fail or encounter errors?
● Is there a need for reporting on the results of scheduled matching tasks?
● How are conflicts resolved if multiple schedules overlap?
● How do we prevent scheduled tasks from being reset by changes to the scheduler?</td></tr>
</table>

Notes:	● The Technician can cancel the scheduling operation at any time before confirmation. ● All scheduling actions are logged with timestamps and user information for auditing purposes. ● The system should handle exceptions gracefully and provide informative feedback.

Business Rules

BR-1: Proper Permissions (see UC 9)
BR-2: