Setting up sparQ Library Prep Kit in Illumina Experiment Manager

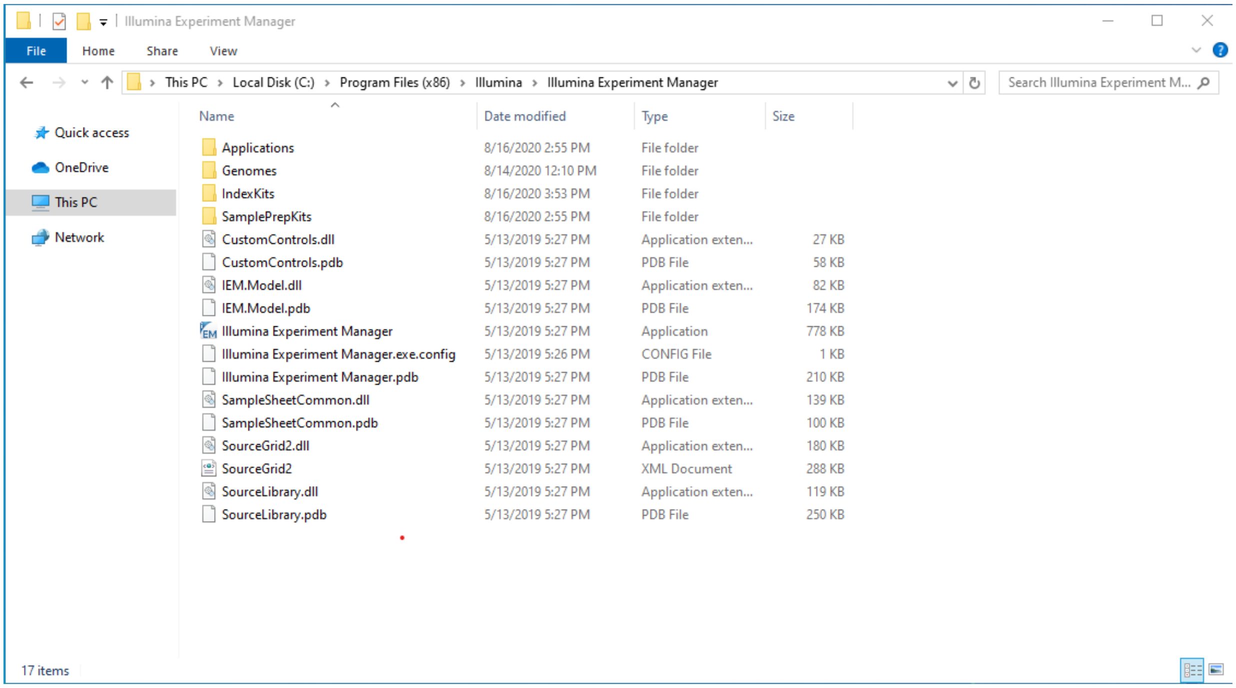
Illumina Experiment Manager (IEM) software is a useful tool for creating sample sheets for setup of Illumina® sequencing runs and data analysis.

IEM software can be downloaded for free on the Illumina homepage.

This protocol will guide you through how to add the sparQ UDI Adapters into the IEM for sample sheet setup.

1. Determine which version of the IEM software you have downloaded.
   The files' folder names will correspond to the IEM software version they are compatible with. You can locate the version of IEM software on top of the first screen.
2. Download the appropriate .txt files from the corresponding folder from the Quantabio website (https://www.quantabio.com/products/sparq-fraglibrary-prep or https://www.quantabio.com/products/sparq-library-prep).

Within program files find the Illumina folder, navigate to:
"Illumina\Illumina Experiment Manager\SamplePrepKits".



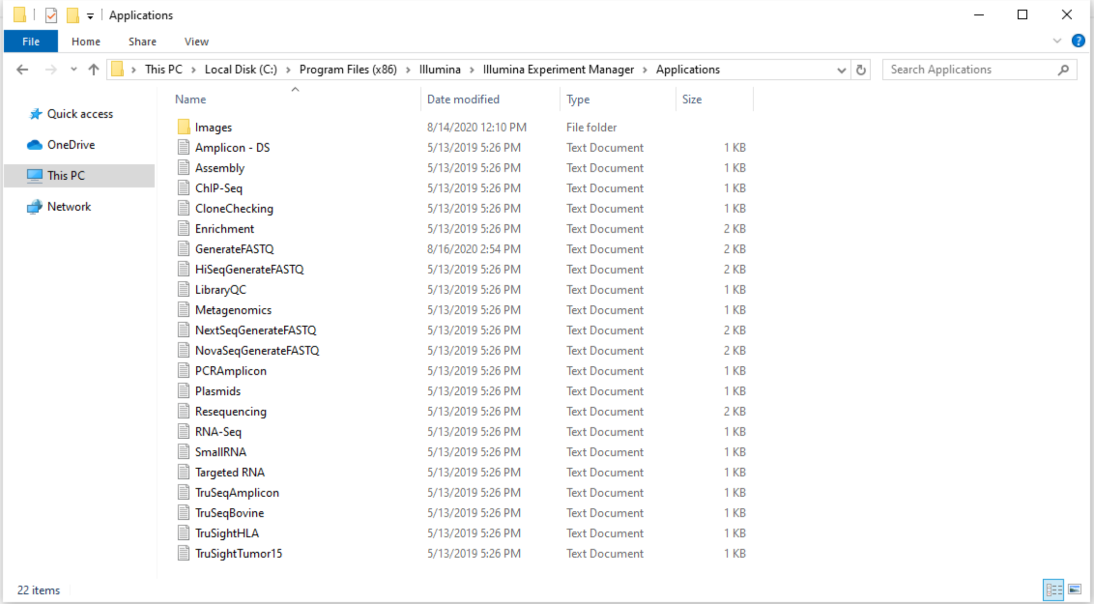
Name	Date modified	Type	Size
Applications	8/16/2020 2:55 PM	File folder	
Genomes	8/14/2020 12:10 PM	File folder	
IndexKits	8/16/2020 3:53 PM	File folder	
SamplePrepKits	8/16/2020 2:55 PM	File folder	
CustomControls.dll	5/13/2019 5:27 PM	Application exten...	27 KB
CustomControls.pdb	5/13/2019 5:27 PM	PDB File	58 KB
IEM.Model.dll	5/13/2019 5:27 PM	Application exten...	82 KB
IEM.Model.pdb	5/13/2019 5:27 PM	PDB File	174 KB
Illumina Experiment Manager	5/13/2019 5:27 PM	Application	778 KB
Illumina Experiment Manager.exe.config	5/13/2019 5:26 PM	CONFIG File	1 KB
Illumina Experiment Manager.pdb	5/13/2019 5:27 PM	PDB File	210 KB
SampleSheetCommon.dll	5/13/2019 5:27 PM	Application exten...	139 KB
SampleSheetCommon.pdb	5/13/2019 5:27 PM	PDB File	100 KB
SourceGrid2.dll	5/13/2019 5:27 PM	Application exten...	180 KB
SourceGrid2	5/13/2019 5:27 PM	XML Document	288 KB
SourceLibrary.dll	5/13/2019 5:27 PM	Application exten...	119 KB
SourceLibrary.pdb	5/13/2019 5:27 PM	PDB File	250 KB

3. Select the file "sparQ Library Prep Kit" and paste it into this folder.
4. Within program files find the Illumina folder, navigate to:
   "Illumina\Illumina Experiment Manager\IndexKits".
5. Select the file "sparQ Unique Dual Indices 96 Set A.txt" and paste it into this folder.

Quantabio products are intended for molecular biology applications.
The products are not intended for the diagnosis, prevention or treatment of a disease.

6. Add the kit to the applications you would like it to be present in.

7. In program files, navigate to:
   “Illumina\Illumina Experiment Manager\Applications”.



Name	Date modified	Type	Size
Images	8/14/2020 12:10 PM	File folder	
Amplicon - DS	5/13/2019 5:26 PM	Text Document	1 KB
Assembly	5/13/2019 5:26 PM	Text Document	1 KB
ChIP-Seq	5/13/2019 5:26 PM	Text Document	1 KB
CloneChecking	5/13/2019 5:26 PM	Text Document	1 KB
Enrichment	5/13/2019 5:26 PM	Text Document	2 KB
GenerateFASTQ	8/16/2020 2:54 PM	Text Document	2 KB
HiSeqGenerateFASTQ	5/13/2019 5:26 PM	Text Document	2 KB
LibraryQC	5/13/2019 5:26 PM	Text Document	1 KB
Metagenomics	5/13/2019 5:26 PM	Text Document	1 KB
NextSeqGenerateFASTQ	5/13/2019 5:26 PM	Text Document	2 KB
NovaSeqGenerateFASTQ	5/13/2019 5:26 PM	Text Document	2 KB
PCRAmplicon	5/13/2019 5:26 PM	Text Document	1 KB
Plasmids	5/13/2019 5:26 PM	Text Document	1 KB
Resequencing	5/13/2019 5:26 PM	Text Document	2 KB
RNA-Seq	5/13/2019 5:26 PM	Text Document	1 KB
SmallRNA	5/13/2019 5:26 PM	Text Document	1 KB
Targeted RNA	5/13/2019 5:26 PM	Text Document	1 KB
TruSeqAmplicon	5/13/2019 5:26 PM	Text Document	1 KB
TruSeqBovine	5/13/2019 5:26 PM	Text Document	1 KB
TruSightHLA	5/13/2019 5:26 PM	Text Document	1 KB
TruSightTumor15	5/13/2019 5:26 PM	Text Document	1 KB

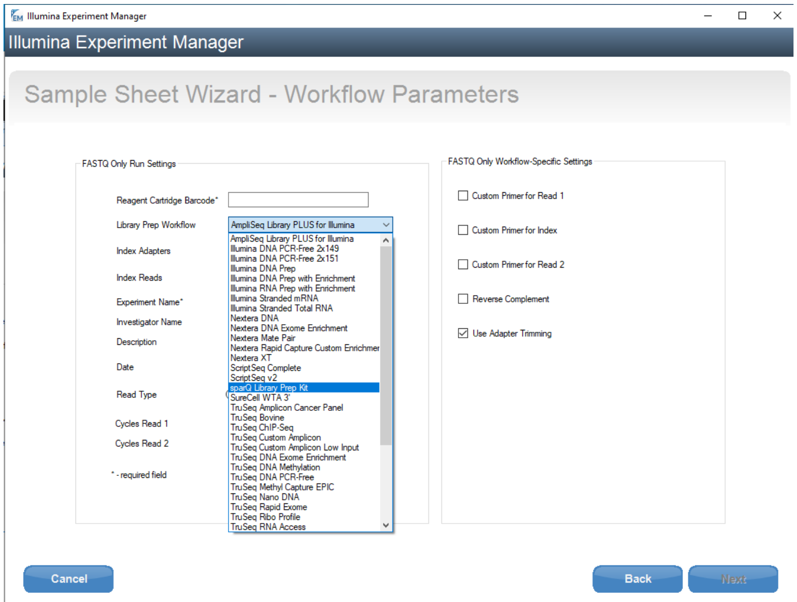
8. Select the correct application that you would like these indexes to populate in.

9. Open the file and locate the [Compatible Sample Prep Kits] section.
   a. Add the following text to this section:
      sparQ Library Prep Kit

```
[Version]
1
[Workflow Name]
GenerateFASTQ
[Display Name]
FASTQ Only
[Category]
Other

[Compatible Sample Prep Kits]
sparQ Library Prep Kit
TruSeq DNA PCR-Free
TruSeq Nano DNA
TruSeq Synthetic Long-Read DNA
TruSeq Bovine
Nextera DNA
Nextera DNA Flex
Nextera Mate Pair
Nextera Rapid Capture Custom Enrichment
TruSeq DNA Exome Enrichment
TruSeq Rapid Exome
TruSight Enrichment
Nextera XT
TruSeq Custom Amplicon
TruSeq Custom Amplicon Low Input
TruSeq Amplicon Cancer Panel
TruSight Tumor 26 genes
TruSight Tumor 15 genes
TruSight Myeloid
TruSeq ChIP-Seq
TruSeq DNA Methylation
TruSeq Methyl Capture EPIC
TruSeq RNA Access
TruSeq RNA v2
TruSeq Stranded mRNA
TruSeq Stranded Total RNA
TruSeq Targeted RNA Expression
TruSeq Small RNA
TruSeq Ribo Profile
ScriptSeq Complete
ScriptSeq v2
SureCell WTA 3'
TruSeq RNA Exome Enrichment
Nextera DNA Exome Enrichment
AmpliSeq Library PLUS for Illumina
Nextera Flex for Enrichment
[Workflow-Specific Parameters]
Label	Type	LabelInSampleSheet	TrueVal	FalseVal	DefaultVal	Required	DisplayAsCol
Reverse Complement	BOOL	ReverseComplement	1	0	FALSE	FALSE	FALSE
```

10. Save and close this file
    a. User account must have admin privileges to save files in this format.
    b. If user account does not have admin privileges save the .txt file in a separate location. Copy, paste and replace the file into the Illumina subfolders.
11. Close any open instance of IEM software.
    Opening a new instance of IEM software is required for the changes to take place.
12. Navigate through the IEM software screens until reaching the Sample Sheet Wizard.
    a. Find “sparQ Library prep kit” in the Library Prep Workflow pulldown menu.



Illumina Experiment Manager

Sample Sheet Wizard - Workflow Parameters

FASTQ Only Run Settings

Reagent Cartridge Barcode*:

Library Prep Workflow: AmpliSeq Library PLUS for Illumina

Index Adapters

Index Reads

Experiment Name*

Investigator Name

Description

Date

Read Type

Cycles Read 1

Cycles Read 2

* - required field

FASTQ Only Workflow-Specific Settings

☐ Custom Primer for Read 1

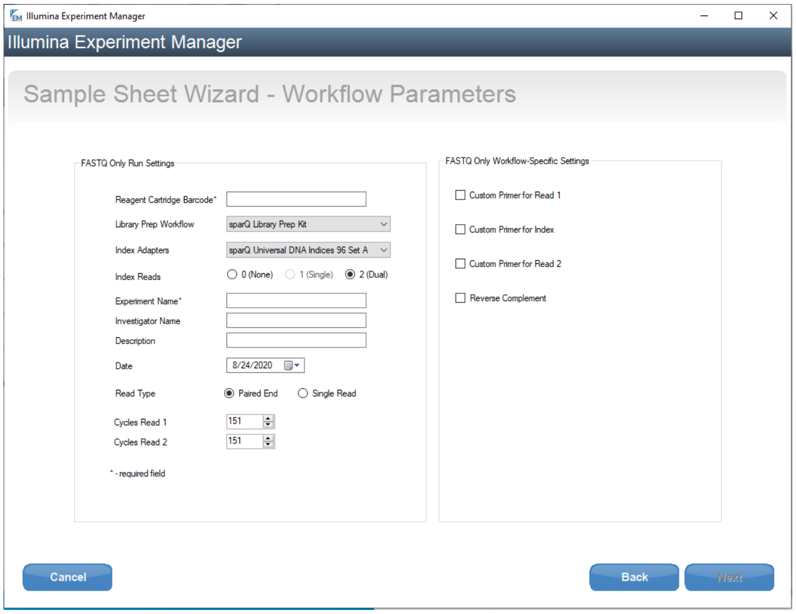
☐ Custom Primer for Index

☐ Custom Primer for Read 2

☐ Reverse Complement

☑ Use Adapter Trimming

    b. Find “sparQ Unique Dual Indices 96 Set A” from Index Adapters pulldown menu.



Illumina Experiment Manager

Sample Sheet Wizard - Workflow Parameters

FASTQ Only Run Settings

Reagent Cartridge Barcode*:

Library Prep Workflow: sparQ Library Prep Kit

Index Adapters: sparQ Universal DNA Indices 96 Set A

Index Reads: ○ 0 (None) ○ 1 (Single) ● 2 (Dual)

Experiment Name*:

Investigator Name:

Description:

Date: 8/24/2020

Read Type: ● Paired End ○ Single Read

Cycles Read 1: 151

Cycles Read 2: 151

* - required field

FASTQ Only Workflow-Specific Settings

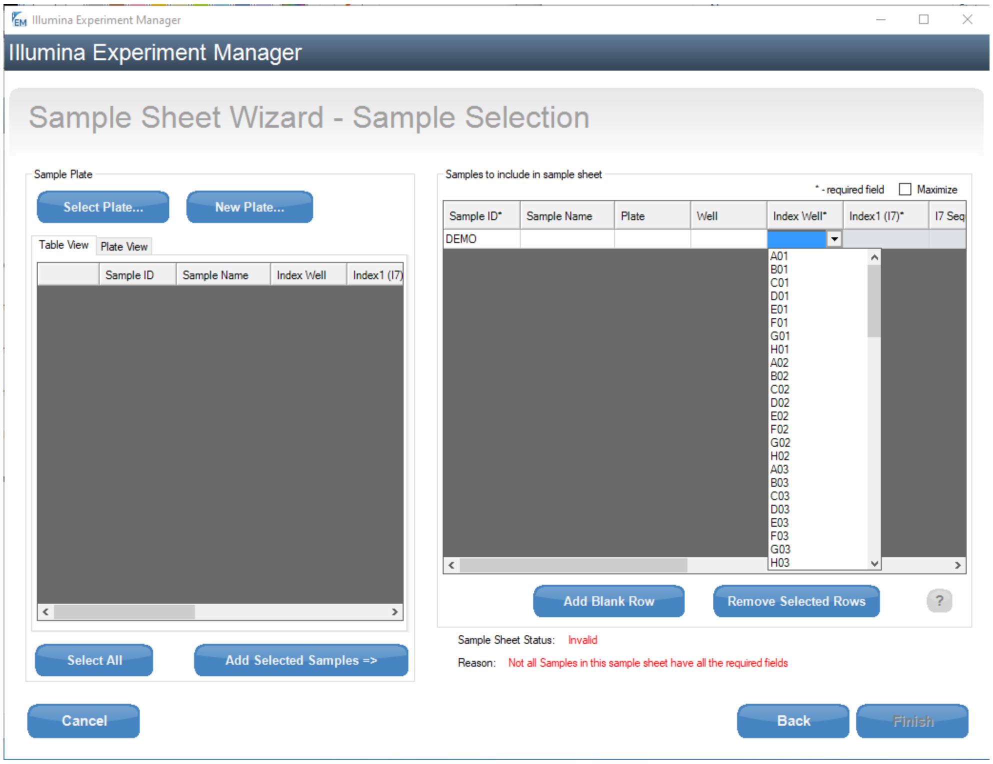
☐ Custom Primer for Read 1

☐ Custom Primer for Index

☐ Custom Primer for Read 2

☐ Reverse Complement

13. After selection each barcode index will auto generate for the selected index adapter.

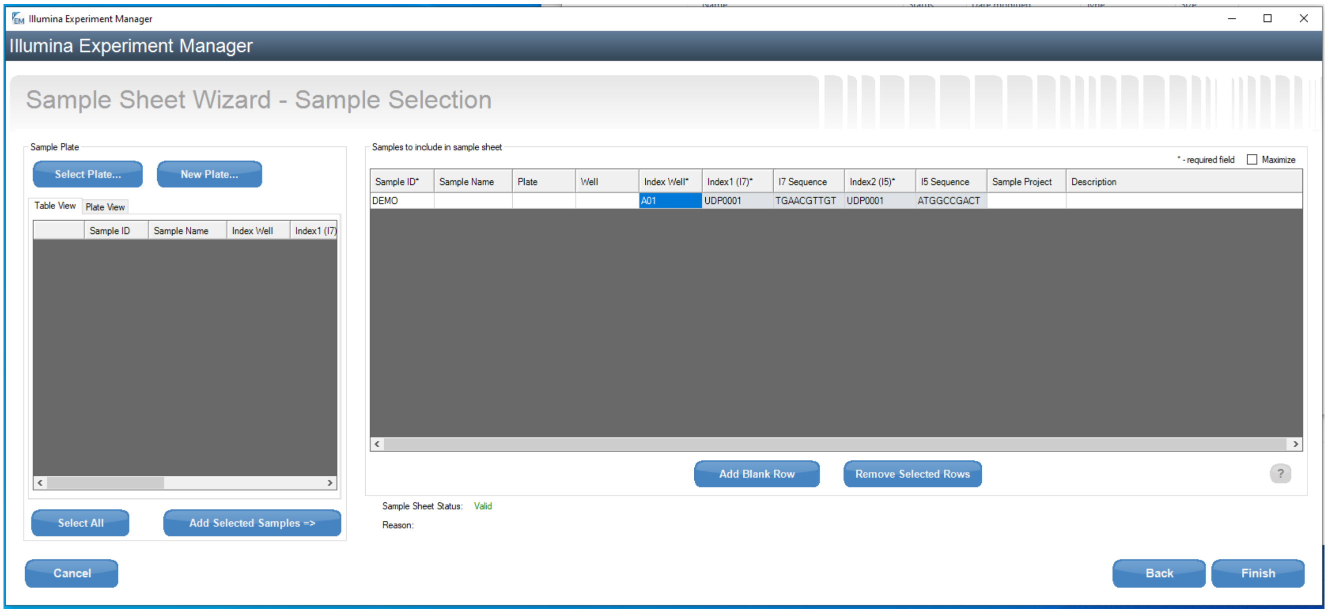


Sample ID*	Sample Name	Plate	Well	Index Well*	Index1 (I7)*	I7 Seq
DEMO						

Sample Sheet Status: Invalid

Reason: Not all Samples in this sample sheet have all the required fields

14. The sample sheet setup should be identical now to setting up any other library prep kit. Indexes will auto populate after selecting the well location of each index.



Sample ID*	Sample Name	Plate	Well	Index Well*	Index1 (I7)*	I7 Sequence	Index2 (I5)*	I5 Sequence	Sample Project	Description
DEMO				A01	UDP0001	TGAACGTTGT	UDP0001	ATGGCCGACT		

Sample Sheet Status: Valid

Reason:

15. The sample sheet can now be populated per sample. Auto conversion to the correct barcode for analysis will be done by the IEM software for the Nextseq, HiSeqX, HiSeq3000 and HiSeq4000 platforms. Adapter trimming will also be accurate during fastQ generation.

Trademarks: Illumina is a registered trademark of Illumina Inc.