

Short to long-term PBMC storage

This guidance document outlines the steps to transfer cells from short-term storage in a –70 C freezer to LN2 tanks if the lab is unable to ship to the bio-repository within the specified time frame.

Summary of steps:

1. Create storage template for LN2 racks
2. Add LN2 tank to storage
3. Move boxes to LN2 tank in LDMS
4. Generate reports for reference when moving physical containers

Introduction

The examples in this document use a tank with six (6) racks, each rack can hold ten (10) boxes. **Please be sure to use the size and capacity of the equipment in use at your laboratory.** Larger LN tanks are separated into sectors and this requires an additional level in your storage tree.

If you need assistance in setting up your equipment in the LDMS, do not hesitate to contact LDMS User Support. When calling please have your Lab ID ready and some preliminary information on storage unit you wish to add.

- How many racks in the tank?
- For larger tanks, is the tank separated into quadrants/sectors
 - How many racks/sectors
- How many boxes do the racks hold?

Create rack templates

Configuring a rack template [Web]

Review LDMS User Manual section **Storage--Storage templates--Creating storage item templates**



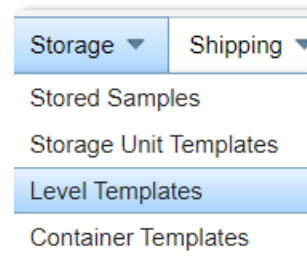
In this example we are building a template for a 1x10 stainless steel rack. *Before you start these steps determine how many boxes your racks can hold and substitute that number for 10.*

1. Select **Level Templates** from the Storage menu bar item.
2. **Configure** the rack specifications, indicating the following:

Name: 1 x 10 LN rack
Dimensions: Rows: 10 Columns: 1
Keep **Positions Only** checked
Fill Order: Bottom to Top, Left to Right

3. Click **Save Template**.

The newly-created rack template will be available in the Saved Templates listing.



Configuring a Rack [Windows]

Review LDMS User Manual section **Defining a storage system -- Defining Containers and Levels**

In this example we will use the same dimensions as the image above. *Before you start these steps determine how many boxes your racks can hold and substitute that number for 10.*

1. In the **Configuration** tab, click on the **Level** radio button.
2. Enter the following information:
 - a. **Label:** 1x10 LN rack
 - b. **Dimensions:** # of columns: 1 # of rows: 10
 - c. **Labeling Method:** Positions only
 - d. **Fill Order:** Bottom to Top, Left to Right
 - e. **Container for Level:** Leave Blank

Click the **Add**  button on the LDMS toolbar

Add LN tank

Adding a storage unit [Web]

Review LDMS User Manual section **Storage—Assigning storage locations—Adding a new storage unit**

In this example we are going to add a tank that holds 6 racks. The racks are labeled on the top 1-6. We need to flatten the circular shape of the tank into the 2-D tree structure of the storage module.

1. Select **Stored Samples** from the Storage menu bar item.
2. Select **Add Storage Unit** from the **Actions** box.
3. **Define** the following:

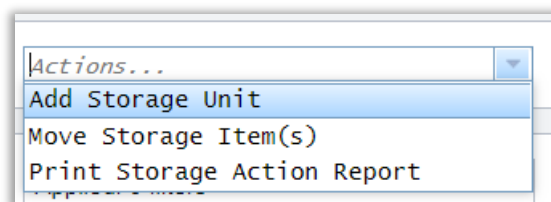
Storage Unit Name: This is the name that will appear in the storage tree

Type: Freezer

Temperature: Liquid Nitrogen

Dimensions: Rows: 1 Columns: 6

4. Click **Save**.

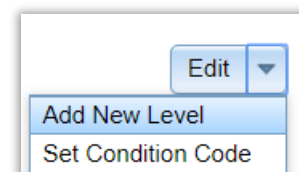


Adding racks to storage unit [Web]

Review LDMS User Manual section **Storage—Assigning storage locations—Adding a new level in a storage unit**

Next add the racks using the rack templates that were built in the previous section.

1. Click the **Edit button drop-down arrow** to the right of the freezer created in the previous exercise
2. Select **Add new level**.
3. In From Template, select the LN2 rack you have built



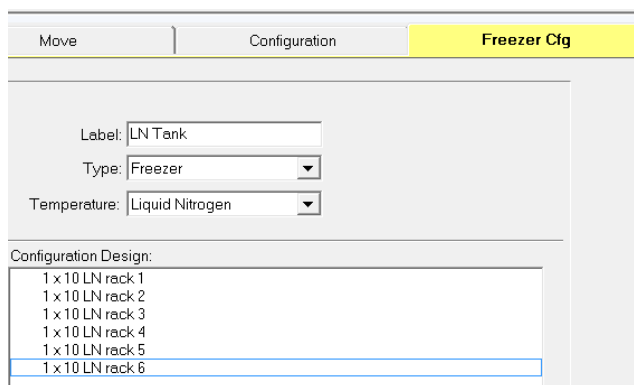
4. Click **Continue**.
5. [If Auto Assign is off] In the **position selection menu**, name the rack and assign position in tank.
6. Click **Save** and repeat as needed.

Freezer Configuration [Windows]

Review LDMS User Manual section **Defining a storage system -- Defining a Freezer Configuration**

In this example we are going to build a tank that holds 6 racks. We will need to use the rack template that was created in the previous section. If you have not performed that task do so now.

1. Click on the **Freezer Cfg** tab.
2. Enter the following information:
 - a. **Label:** LN2 Tank
 - b. **Type:** Freezer
 - c. **Temperature:** Liquid Nitrogen
3. Click and **drag** the **LN Rack** from the **Level Types** list to the **Configuration Design** list. The **Level** dialog box appears.
4. Enter **6** in the **Number** field and click **OK**.
5. Click the **Add**  button on the LDMS toolbar.



Move	Configuration	Freezer Cfg
Label: LN Tank Type: Freezer Temperature: Liquid Nitrogen		
Configuration Design: 1 x 10 LN rack 1 1 x 10 LN rack 2 1 x 10 LN rack 3 1 x 10 LN rack 4 1 x 10 LN rack 5 1 x 10 LN rack 6		

Adding a Freezer [Windows]

Review LDMS User Manual section **Creating a storage system -- Adding and removing Freezers**

We have two Frontier Science Upright Freezers at our laboratory. Add these into the Main View tab of Storage Management.

1. Click on the **Main View** tab.

2. Click the **Add**  button on the LDMS toolbar.
3. Click **Freezer**. The **Storage Add** dialog box appears.
4. Click to highlight the **LN Tank** template created in the above exercise and click **OK**.
5. Enter a unique name for the freezer in the **Name** field of the dialog box, and then click **OK**.
6. Click **OK** in the Success message.

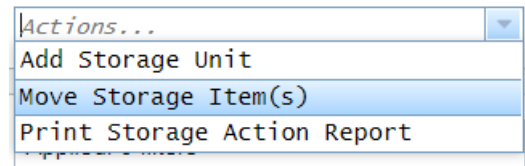
Moving Containers in LDMS

Transaction Log: *In both applications the user can generate an audit trail that will display the actions performed in the LDMS in addition to the User and Date and Time the action was performed. This report can be found in the **Admin** category of the **Reports** module*

Moving items in storage [Web]

Review LDMS User Manual section **Storage--Moving items in storage**

1. From the **Actions Box** select **Move Storage Item(s)**
2. **Select the boxes** to be moved using the checkboxes to the right.
3. Click **next** in the top right corner.
4. **Select the destination.** If containers are selected a rack or shelf must be the destination.
5. [If Auto Assign is off] Proceed through the position selection menu. **Assign a location** to the boxes on the LN rack.



Moving Specimens or Containers in Storage [Windows]

Review LDMS User Manual section **Maintaining Storage -- Moving and Re-arranging Stored**

Items

1. Click on the **Move** tab.
2. In the **Destination** window, expand the storage tree to the LN Rack
3. In the **Storage Structure** window, **expand** the storage tree
4. In the **Storage Structure** window, click on the **first box** to move. **Press and hold** the **Control** key and select the remaining boxes.
5. Click in the middle of the list of highlighted boxes.
6. **Drag** the boxes to the empty rack in the **Destination** window

7. [If Auto Assign is off] Proceed through the position selection menu. **Assign a location** to the boxes on the LN rack

Reports to assist transferring boxes

Storage Container Location Report [Web]

Review LDMS User Manual section **Reports--Storage reports**

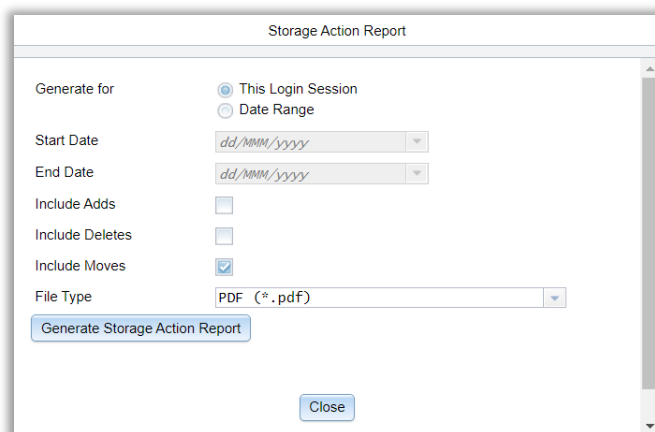
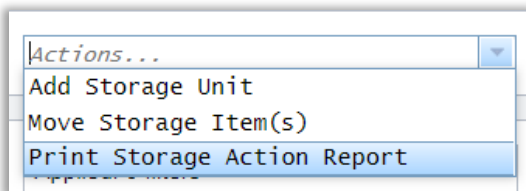
This report displays all the current location of containers in the storage tree.

1. On the LDMS menu bar, hover over **Reports** and click **Standard Reports**.
2. Select **Storage** in the Report Categories box.
3. Select **Storage Container Location** in the Report box.
4. Set **File Type** to PDF
5. Click **Generate Report**

Storage Action Report [Web]

This report displays all the actions performed within the Storage module for a specified timeframe.

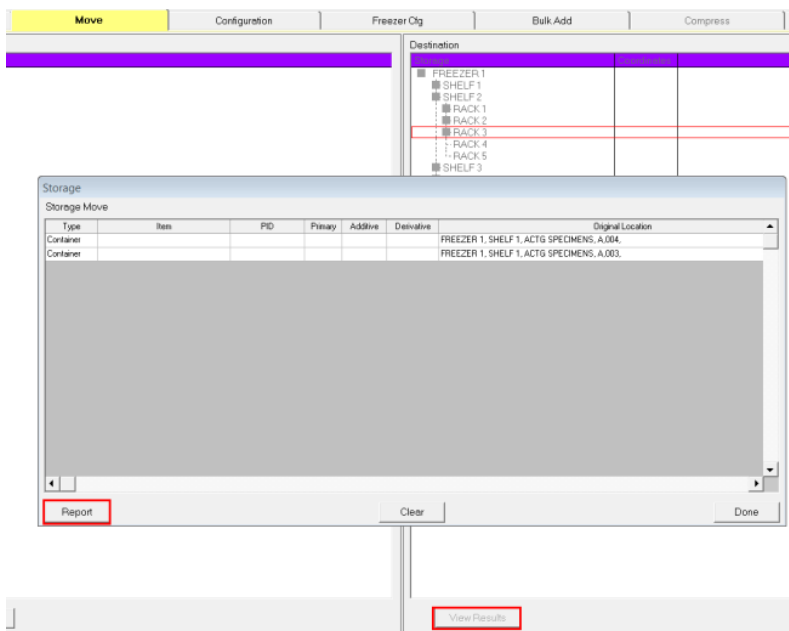
1. From the **Actions Box** select **Storage Action Report**
2. Select **This Login Session**
3. Keep all three actions (Adds, Deletes, and Moves) selected
4. Click **Generate Storage Action Report**



Move Report [Windows]

This report is available in the Move tab after and records all actions performed.

1. In the **Move** tab, move the containers to their new position using the steps above
2. Click **View Results** in the bottom of the **Destination** window
3. Click **Report**



Note: The results are cleared each time you log out of the Storage module, a report must be generated before you return to the main screen of the application.

Storage Container Location Report [Windows]

This report displays all the current location of containers in the storage tree.

1. Click the **Reports**  icon on the LDMS toolbar
2. Click on **Storage** in the Category grid at the top left of the Reports screen
3. Click on **Storage Container Location** in the Description
4. Click the **Execute**  button on the LDMS toolbar

Note: A warning is issued if no search criteria is entered, this is expected and you can proceed.