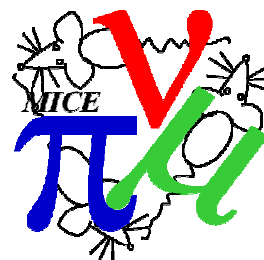


# Moving Files from the Online Buffer to micestore – User's Guide



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## 1 Introduction

- The Event Builder(s) will produce a series of ~250 MB files per run saved on the Online Buffer (currently either miceraid4 or miceraid5 at any one time).
- The files are named  $x.y$  where  $x$  is the run number and  $y$  starts at  $000$  and increments to  $001$ ,  $002$ , etc. The top level of organisation is a single directory per MICE step with a new subdirectory created every hundredth run; thus data from run 987 will be stored in `.../MICE/StepS/00900/00987.0nn`.
- The output from the Online applications are arranged in a hierarchy corresponding to the global namespace used for the data. The files are named `On<app>.00987.*`, e.g. `OnMon.00987.root`, `OnScalers.00987.txt` etc. for run 987. Henry should be notified when a new application is added - the applications currently handled are Monitoring and Reconstruction.
- Both the DAQ and Online data are initially stored in a variety of locations. Therefore, the datamover must rename and rearrange the files into the required hierarchies on the Buffer and the Online Reconstruction machines respectively.
- The DAQ data and Online applications output (if available) are all then combined into a single tarball per run, stored on a separate RAID system (*micestore*).
- Both the internal file moving and the tarball creation are done using a pre-prepared shell script – the `moveFiles` script – which must be run by hand at a suitable opportunity.
- The Grid Transfer Box NFS-mounts the relevant area on micestore and uploads the tarballs to the Grid automatically soon after their creation.
- The Online Buffer also NFS-mounts the relevant OnRec machine, in order to include the various Monitoring, etc. output into the tarballs.
- Thus, data availability outside the MLCR is dependent on the completion of a manual step – running the `moveFiles` script.

For more details, see MICE Notes 247, 252, 255 or 264, and eLog entries #821, #834 and #1498.

## 2 Installation/Cold Starting

The file `moveFiles-manual.sh` must exist in the “daq” user’s home directory on miceraid4 and miceraid5. As a shell script, it should have execute permissions set (755).

This script should have been automatically fetched from bazaar when the machine was configured.

In order for the script to access all required data, the Online Buffer (miceraid4 or miceraid5) must be able to see the relevant files systems on both micestore (output tarballs) and the Online PCs (OnRec01a or OnRec02a). This is implemented using NFS – see eLog entry #1498<sup>1</sup>. It is therefore necessary to check that the required NFS-mounts exist:

On the Event Builder in use (miceraid4 or miceraid5);

- Display the current list of mounted filesystems:

```
ls /storage/for/MICE
ls /storage/for/Online
mount
```

- Check that lines exist in the response starting with micestore/172.16.246.23 and miceonrec02/172.16.246.3.

If not, log on *as root* on the Event Builder and check that the *autofs* service is running:

```
service autofs restart
```

## 3 Preparation for shift

### 3.1 Warm Start

If any DAQ machines have been rebooted since the previous shift, check NFS mounts as above.

### 3.2 Function Test

Not really necessary – you could start and stop the DAQ to create a small data file, and run the script (as below) if expecting problems.

## 4 Running Instructions

To run the script:

1. Check which DAQ machine has the Event Builder (either miceraid4 or miceraid5). If unsure, consult the DAQ expert.
2. Log onto a terminal on the Event Builder (miceraid4 or 5)
  - Username: **daq**; Password: see hint in MLCR
3. Check that the Online Monitoring ROOT GUI has been restarted after the last run to be moved.

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<sup>1</sup> Noting that since then the Online Buffers have been moved from miceraid1 & 2 to miceraid4 & 5

- Note: this is necessary in order to produce the correct Online Monitoring output that is saved with the data.
4. Hit the “Start Processes” button on the DAQ control to close out the processes of the last run to be moved.
  5. Check the old directory to see which runs need to be moved:
    - `ls /data/mice`
  6. Run the script giving the number of the first and last runs in the set to be moved:
    - `moveFiles-manual.sh 1181 1185`
  7. You must give two numbers, but they can be the same (for a single run). There is some error checking, for simpler mistakes. The script will pause for 20 seconds while displaying

```
Moving files for runs 1181 to 1185 inclusive
```

```
Please make sure the Online Monitoring has been
restarted from run 1185
```

- During this time, quickly check that the run numbers are correct and that there isn't a typo of e.g. O for 0. Also make sure that the DAQ and the Online Monitoring ROOT GUI have been restarted.
  - If necessary or if you are unsure, it is safe to stop the script at this point with ^C.
8. The script will then display
 

```
Checking run 1181
```

    - During this time, it will checksum the files, move them to the required place and then validate they are correct.
    - You should see a series of 1181.000 OK messages.
    - Do not stop the script at this point. It should not permanently lose data, but may leave the run files in an inconsistent state with some in the new space and some in the old.
    - If the script has been stopped, re-run it starting from the run **after** where it stopped, and tidy up by hand anything left behind
  9. If the script encounters a problem it will stop showing any error messages from the command that failed

10. If the problem looks to be minor retry with the next run as above, else for serious or repeated errors do not use the script and contact MICE Data Manager ([micedataman@stfc.ac.uk](mailto:micedataman@stfc.ac.uk)).

11. Once the script has finished, it will return to the command prompt.

## 5 End of Shift

In principle you should watch to see that the script finishes without errors. In practice, there may not be enough time for it to run between shift end and departure so the output should be checked the next morning.

## 6 Shutdown

Not applicable – the script will stop on its own.

## 7 Emergency Shutdown

If something goes badly wrong or the Online Buffer urgently needs rebooting, you can stop the script with `^C` – there shouldn't be any data loss but the data files will be left in an inconsistent state. Contact the MICE Data Manager ([micedataman@stfc.ac.uk](mailto:micedataman@stfc.ac.uk)) to check things over before running the script again.

## 8 Troubleshooting

If the script encounters a problem, it will stop showing any error messages from the command that failed.

- If the problem appears minor, check the NFS mounts as per section 2. Then retry with the next run as above.
- For serious or repeated errors do NOT use the script. Contact the MICE Data Manager ([micedataman@stfc.ac.uk](mailto:micedataman@stfc.ac.uk)), currently Henry.

## 9 Documented Procedures

Not applicable.