

Altair - Breeze Trace-Only Release Notes

Version 2025.2.0



Release 2025.2.0

- Breeze now measures the following additional libc functions: `splice` and `ustat`.
- Improved start up performance of Breeze.
- Attempting to read or write with a closed file descriptor is treated as I/O on an invalid mount point. #5813
- Fix bug when following binaries launched with GridEngine `qsub`. #6028
- Fix bug when following child jobs on GridEngine queues with `shell_start_mode` set to `posix-compatible`.
- `sendfile` now counts as a seek followed by a read and write. #5975
- Don't count `fdopen` and `fdopendir` as open calls if the open of the file descriptor has already been counted. #2349
- Reports failed I/O to invalid file descriptors. #5813
- Don't treat `fdopen` and `fdopendir` calls as failed just because they set `errno`. (#6052)

Release 2025.1.0

Highlights:

- **DEPRECATION NOTICE:** Support for RHEL 5/CentOS 5 is planned to be removed in the next version of Breeze. Please contact support if this will cause you any problems.

Other Changes:

- Added RPM and Debian packages for aarch64 architecture.
- Added documentation surrounding Singularity/Apptainer mounting of /tmp and/or /var/tmp.
- Fixed bug in monitor causing it to wrongly output an error when dealing with bind mounts.
- Fixed a problem where a multithreaded program could deadlock if the main thread exits without waiting for the other threads to complete.
- Breeze now measures the following additional libc functions: execveat, _Exit, fctnl64, fstatfs, fs-tatfs64, fstatvfs, fstatvfs64, futimens, preadv, preadv2, preadv64, preadv64v2, pwritev, pwritev2, pwritev64, pwritev64v2, quick_exit, statfs, statfs64, statvfs, statvfs64, utimensat and copy_file_range.
- Record I/O done by glob calls.
- Report the most appropriate mount point when a "bind mount" has been used to mount a device at more than one location.
- Documentation is now available in HTML format as well as PDF #6000.

Release 2024.1.1

- Now also intercepts `close_range` when made as an indirect syscall.

Release 2024.1.0

Highlights:

- Completely reworked directory heirarchy to be more in-line with the FHS /usr heirarchy recommendations.
- Created new RPM and debian packages of breeze, breeze-trace-only, mistral-healthcheck and mistral.

Other Changes:

- Add support for Apptainer. Renamed BREEZE_SINGULARITY_BIND_PATH to BREEZE_CONTAINER_BIND_PATH.
- No longer hides monitor PID in logging messages.
- Changed pwrite to no longer count as a seek when writing to a file that was opened in append mode to match Linux kernel behaviour.
- Fixed bug where hiding may not work as intended.
- Many binary names have been changed to include {breeze} to make them more identifiable.
- The monitor doesn't take so long to exit at the end of a job.
- Fixed the default path used by some exec functions to match that found in the running version of glibc.
- Correct the handling of zero length monitor status files.
- Fixed a problem where the monitor could be killed during startup. This resulted in directories being left that would normally have been removed when the monitor exits.
- Fix a problem where a multi-threaded application which runs qrsh could modify the environment in an unsafe way.

Release 2023.1.2

Release 2023.1.1

- Renamed ELLEXUS_DO_NOT_BACKTRACE to ELLEXUS_BACKTRACE and inverted related logic.
- Made backtrace output less confusing, removing libbreeze.so backtrace handler.
- Fixed usage messages from C shell scripts having wrong file extension when referring to self.

Release 2023.1.0

Highlights:

- Renamed shared object library from “libdryrun.so” to “libbreeze.so”. “libdryrun.so” is now a sym-link to “libbreeze.so”.

Other Changes:

- Now lazily loads libc functions.
- Reduced the amount of stack space used in programs being traced or metered.
- Changed handling of `–child` argument, now defaults to all on and command that launch child jobs can be removed from the list with - e.g. `–child=qrsh,-qsub`.
- Fix problem where a process within Singularity could send information to the wrong monitor process.
- Fixes `–relocate` option archiving all traces, not just the most recent.
- Sending `SIGUSR1` to the monitor process will now cause it to send status output to the error log.
- Removed the MPI implementation specific versions of `libdryrun.so`.
- Now supports `pbsdsh` and `pbs_tmrsh` jobs.
- Added wrappers for `sendmmsg` and `recvmmsg` Linux system calls.
- Add `singularity-bind` program to simplify setting the `SINGULARITY_BIND` environment variable.
- `Mistral_start_reference.sh` now describes the additional steps needed when Singularity is run directly, rather than as part of a script.
- Ensure shell builtins, e.g. `echo` are traced correctly if they are top level commands.
- Fixed bug when tracing `csch` commands on remote hosts.
- Fixed bug where top level-command could be interpreted by a shell.
- Fixed bug where user names could be truncated in trace directory names.
- Fixed bug for `system(3)` and `popen(3)` that could crash some applications which make use of RDMA devices.
- Fixed bug for `closedir(2)` that caused a segfault when passed `NULL`.
- Added wrapper for `statx(2)` Linux system call.
- Fixed bug where `stderr` was unintentionally open in the monitor, which could alter the behaviour of the Python subprocess module.
- Fixed problem where signal masking within `libbreeze.so` could fail if a signal handler had been installed before `libbreeze.so` was active.
- Fixed bug when tracing `sudo` that could cause a binary in the current working directory to be run.
- Fixed bug when tracing `sudo` that could prevent a shell from being used to interpret shebang scripts.

Release 2022.2.1

- Reduced the amount of stack space used in programs being traced or metered.
- Fix bug setting strace output directory with remote traces.

Release 2022.2.0

- The latency of I/O on unix domain sockets is no longer counted as file system latency.
- Fix problems seen on Fedora 35 and glibc 2.34.
- The error log command line option has been changed from `-log` to `-errlog`.
- Fix a problem which caused I/O on a pipe, or a file descriptor which is not associated with an inode, to be counted as I/O to a file in the current working directory.
- The start-monitor utility can now be run without setting `LD_PRELOAD`.
- Fix problem if Breeze is run with the path name of a command which creates a child job.
- Make the `-child-job` option work correctly when Breeze is used with Singularity.
- Fix problem when Breeze is used with an MPI job running on Altair Grid Engine.
- Fix problem where child jobs over-wrote user child job (`ELLEXUS_CHILD`) setting.
- Correctly identify mount points when running in a Singularity container.
- Fix problems shown by compiling with gcc version 12.1.
- Fix bug in path resolution triggered by flush in some circumstances.
- Fix bug where strace option wasn't preserved in child jobs.
- `ELLEXUS_OUTPUT_DIRECTORY` renamed `BREEZE_OUTPUT_DIRECTORY` and is no longer changed whilst being used.
- Fix problem where a program calls `close_range` or `closefrom`.
- Add documentation of the integration with Altair Grid Engine 2022.2.

Release 2022.1.3

- Fixed bug in path resolution triggered by flush in some circumstances.
- Fixed bug in argmangling where ELLEXUS_CHILD was not respected in child jobs.
- Fix problem when Breeze is used with an MPI job running on Altair Grid Engine.