2022.1 Stack

- Summary
- What is new
  - Distribution Mechanism
  - Gentoo Prefix Middle Layer
  - Native Lua module files for LMod
- What this all means
  - Running software packages
    - CUDA GPU
    - MPI
  - Development
- Software list

Summary

The 2022.1 Argon Software Stack is quite a bit different on the backend from previous stacks. This leads to some differences in behavior when interacting with the stack and this will be discussed below. The goal is that using this stack should be familiar but hopefully a little better as well. Many packages have been updated and new packages have been added and more will be added over time. As always, please report any issues to research-computing@uiowa.edu.

What is new

Distribution Mechanism

Up until now all of the software stacks have been distributed to login and compute nodes via NFS (Network File System). Beginning with the 2022.1 stack the distribution mechanism will use the CernVM File System, also known as CVMFS. This is designed for software distribution over a wide network and it is felt that this will be an improvement in how software is delivered to the Argon login and compute nodes. Note that this does not apply to the older software stacks which will continue to be deployed via NFS. In addition, for technical reasons, the environment module files and links to binaries are still served via NFS. Finally, licensed software on Argon will continue to be distributed via NFS. This is to avoid violating license terms when the Argon stack is eventually made available to run on systems other than Argon.

Gentoo Prefix Middle Layer

A Gentoo Prefix layer is put on top of the OS layer and the software packages are linked to the libraries of this middle layer. This layer is exported via CVMFS along with the software packages. The goal of this is to make the packages as independent of the underlying OS as possible. The primary motivation for this is to make it possible to upgrade or change the underlying OS without breaking the ability of the software to run on the newer OS. This also lays the foundation for being able to run the Argon software stack on non-Argon systems, but that is further down the road. Finally, this can also play a role in software reproducibility. This is effectively a cross-compiled environment and there are some caveats that come with that, which will be discussed below. Note that there could be some issues due to using a middle layer, so please report if something seems odd or broken.

Native Lua module files for LMod

Argon uses Lmod for environment modules but previous software stacks used TCL based environment module files for historical and technical reasons. Those TCL files needed to be converted to Lua files on the fly, and while that is a pretty fast conversion it does add overhead. The Lmod Lua files should provide a performance boost for searching for and loading modules and also provides extra capabilities.

What this all means

Running software packages

In prior stacks the only purpose of the "stack" environment module was to manipulate the module path such that the respective packages of that stack were made available to load. With the middle layer, loading the "stack/2022.1" module will not only manipulate the module path but it will effectively load a new Linux environment. This will replace many of the OS commands. One of the issues that has been present is that loading an environment module can alter the environment such that system commands break. Good examples of that were editors like vim and emacs. That was alleviated by providing packages for vim and emacs to replace the system ones. The concept is the same here except that now the replacements will be in the stack module itself, with no need to load additional modules. In addition to many common system commands, below is a list of some important packages that are loaded in the environment by the stack/2022.1 module:

- GCC
- autotools utilities
- cmake
gmake
tar
meson
git
The caveat here is that since many commands are replaced, with newer versions than the system commands, there could be differences in behavior when switching between using the 2022.1 stack and other stacks.

Another change in behavior is with regard to environment module dependencies. Since the 2022.1 stack uses Lmod native Lua files now, module dependencies are handled in a more intelligent way. As always, when loading a module, modules for dependencies are also loaded. What is different now is the unloading behavior. Previously, unloading a module would only unload the specified module, leaving the rest of the stack in place, which is probably more modules than desired. With the 2022.1 stack, unloading a module will also unload the dependencies that were previously loaded. In addition, if an underlying dependency is unloaded a message will be printed so at least you know about the now missing dependency. Here is an example to illustrate.

```
module load stack/2022.1
module list

Currently Loaded Modules:
  1) stack/2022.1
```

Load a module with dependencies
module load py-tensorflow-estimator
module list

Currently Loaded Modules:

1) stack/2022.1
2) cuda/11.4.4_gcc-9.4.0
3) cudnn/8.2.4.15-11.4_gcc-9.4.0
4) python/3.9.9_gcc-9.4.0
5) flatbuffers/1.12.0_gcc-9.4.0
6) intel-oneapi-mkl/2022.0.2_gcc-9.4.0
7) rdma-core/39.0_gcc-9.4.0
8) nccl/2.11.4-l_gcc-9.4.0
9) libpcapaccess/0.16_gcc-9.4.0
10) libiconv/1.16_gcc-9.4.0
11) xz/5.2.5_gcc-9.4.0
12) zlib/1.2.11_gcc-9.4.0
13) libxml2/2.9.12_gcc-9.4.0
14) ncurses/6.2_gcc-9.4.0
15) hwloc/2.7.0_gcc-9.4.0
16) openssl/1.1.1m_gcc-9.4.0
17) libevent/2.1.12_gcc-9.4.0
18) numactl/2.0.14_gcc-9.4.0
19) openssl/1.1.1m_gcc-9.4.0
20) ucx/1.10.1_gcc-9.4.0
21) libfabric/1.14.0_gcc-9.4.0
22) opensh/8.8pl_gcc-9.4.0
23) openmpi/4.12_gcc-9.4.0
24) protobuf/3.17.3_gcc-9.4.0
25) py-six/1.16.0_gcc-9.4.0
26) py-absl-py/0.13.0_gcc-9.4.0
27) py-wheel/0.37.0_gcc-9.4.0
28) py-astunparse/1.6.3_gcc-9.4.0
29) py-gast/0.4.0_gcc-9.4.0
30) py-google-pasta/0.2.0_gcc-9.4.0
31) c-ares/1.15.0_gcc-9.4.0
32) re2/2021-06-01_gcc-9.4.0
33) py-grpcio/1.43.0_gcc-9.4.0
34) libaec/1.0.5_gcc-9.4.0
35) pkgconf/1.8.0_gcc-9.4.0
36) hdf5/1.12.1_gcc-9.4.0-mpi
37) py-mpi4py/3.1.2_gcc-9.4.0
38) py-setuptools/59.4.0_gcc-9.4.0
39) py-numpy/1.21.5_gcc-9.4.0
40) py-h5py/3.6.0_gcc-9.4.0-mpi
41) py-keras-preprocessing/1.1.2_gcc-9.4.0
42) py-libclang/11.1.0_gcc-9.4.0
43) py-opt-einsum/3.3.0_gcc-9.4.0
44) py-protobuf/3.17.3_gcc-9.4.0
45) py-cachetools/4.2.4_gcc-9.4.0
46) py-pyasn1/0.4.8_gcc-9.4.0
47) py-pyasn1-modules/0.2.8_gcc-9.4.0
48) py-rsa/4.7.2_gcc-9.4.0
49) py-google-auth/2.3.2_gcc-9.4.0
50) py-blinker/1.4_gcc-9.4.0
51) libffi/3.4.2_gcc-9.4.0
52) py-pycparser/2.20_gcc-9.4.0
53) py-cffi/1.15.0_gcc-9.4.0
54) py-semantic-version/2.0.0_gcc-9.4.0
55) py-tomli/0.10.2_gcc-9.4.0
56) rust/1.58.1_gcc-9.4.0
57) py-setuptools-rust/0.12.1_gcc-9.4.0
58) py-cryptography/36.0.1
59) py-pyjwt/2.1.0_gcc-9.4.0
60) py-oauthlib/3.1.0_gcc-9.4.0
61) py-certifi/2021.10.8
62) py-charset-normalizer/2.0.9_gcc-9.4.0
63) py-idna/3.3_gcc-9.4.0
64) py-urllib3/1.26.6_gcc-9.4.0
65) py-requests/2.26.0
66) py-requests-oauthlib/1.3.1_gcc-9.4.0
67) py-google-auth-oauthlib/0.4.6_gcc-9.4.0
68) py-markdown/3.3.4_gcc-9.4.0
69) py-tensorboard-data-writer/1.8.1_gcc-9.4.0
70) py-tensorboard-plugin-wit/1.8.1_gcc-9.4.0
71) py-werkzeug/2.0.2_gcc-9.4.0
72) py-tensorboard/2.7.0_gcc-9.4.0
73) py-termcolor/1.1.0_gcc-9.4.0
74) py-typing-extensions/3.0.0_gcc-9.4.0
75) py-wrapt/1.13.3_gcc-9.4.0
76) py-tensorflow/2.7.0_gcc-9.4.0
77) py-keras/2.7.0_gcc-9.4.0
78) py-tensorflow-estimator/2.7.0_gcc-9.4.0

Unload the same module.

module unload py-tensorflow-estimator
module list

Currently Loaded Modules:

1) stack/2022.1

Reload the module.

module load py-tensorflow-estimator
module list

Currently Loaded Modules:

1) stack/2022.1
module load py-tensorflow-estimator

Unload a dependency.

module unload py-tensorflow

---------------------------
The following dependent module(s) are not currently loaded: py-tensorflow/2.7.0_gcc-9.4.0 (required by: py-keras/2.7.0_gcc-9.4.0, py-tensorflow-estimator/2.7.0_gcc-9.4.0)

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CUDA GPU

Software that uses CUDA ultimately depends on a kernel module to access the hardware. The library interfaces to the kernel module must be part of the OS layer. In order to facilitate communication between the software packages and the kernel drivers, the libraries are linked in the middle layer. This is the same thing that is done with container images. What is important to note is that there can only be one driver at a time and it will likely change as OS updates happen. This is no different from the past stacks which would have a locked version of cuda, but would use whatever driver is installed in the OS. In other words, there is no Nvidia CUDA driver version that is part of the 2022.1 stack, or any stack, or any container. The only difference here is that there is now a set of links that are part of the stack, but what they point to is part of the OS. This may also become important if the Argon software stack is run on a non-Argon system.

MPI

Similar to CUDA, there are drivers at the OS layer that provide access to the high speed interconnect fabric. The abstracted fabric layers should be able to interface to the underlying drivers, but again, there is a dependency on the underlying OS, where things could change over time or vary across systems.

Development

While the primary purpose of the software stack is for running software the environment modules also provide variables needed for development. This may look a little different with the 2022.1 stack as it is a cross-compiled environment. It is possible that software developed using previous stacks will not run in this environment and would need to be recompiled. This would be due to the use of a different SYSROOT. If you are developing software that uses the 2022.1 stack you will need to make sure that you are not picking up any headers or libraries from the OS in your build system, i.e.,

- /lib
- /lib64
- /usr/lib
- /usr/lib64
- /usr/include

Instead, the above should be prefixed with ${EPREFIX}, which points to the SYSROOT used by the stack. In addition, use the gcc or oneapi compilers from this environment, which are already aware of the SYSROOT. Note that the NVHPC compiler is untested.

Software list

<table>
<thead>
<tr>
<th>Package</th>
<th>Versions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>gurobi</td>
<td>9.5.1</td>
<td>The Gurobi Optimizer was designed from the ground up to be the fastest, most powerful solver available for your LP, QP, QCP, and MIP (MILP, MIQP, and MIQCP) problems.</td>
</tr>
<tr>
<td>hwloc</td>
<td>2.7.0</td>
<td>The Hardware Locality (hwloc) software project.</td>
</tr>
<tr>
<td>intel-oneapi-mkl</td>
<td>2022.0.2</td>
<td>Intel oneAPI MKL.</td>
</tr>
<tr>
<td>libevent</td>
<td>2.1.12</td>
<td>The libevent API provides a mechanism to execute a callback function when a specific event occurs on a file descriptor or after a timeout has been reached. Furthermore, libevent also support callbacks due to signals or regular timeouts.</td>
</tr>
<tr>
<td>libfabric</td>
<td>1.14.0</td>
<td>The Open Fabrics Interfaces (OFI) is a framework focused on exporting fabric communication services to applications.</td>
</tr>
<tr>
<td>libiconv</td>
<td>1.16</td>
<td>GNU libiconv provides an implementation of the iconv() function and the iconv program for character set conversion.</td>
</tr>
<tr>
<td>libpciaccess</td>
<td>0.16</td>
<td>Generic PCI access library.</td>
</tr>
</tbody>
</table>
The popt library parses command line options. Tecplot 360 is a Computational Fluid Dynamics (CFD) and numerical simulation software package used in post-processing simulation results. It is also an open source utility that provides fast incremental file transfer. The Abaqus Unified FEA product suite offers powerful and complete solutions for both routine and sophisticated engineering problems covering a vast spectrum of industrial applications. In the automotive industry engineering work groups are able to consider full vehicle loads, dynamic vibration, multibody systems, impact/crash, nonlinear static, thermal coupling, and acoustic-structural coupling using a common model data structure and integrated solver technology. Best-in-class companies are taking advantage of Abaqus Unified FEA to consolidate their processes and tools, reduce costs and inefficiencies, and gain a competitive advantage.

Libxml2 is the XML C parser and toolkit developed for the Gnome project (but usable outside of the Gnome platform), it is free software available under the MIT License. LZ4 is lossless compression algorithm, providing compression speed at 400 MB/s per core, scalable with multi-cores CPU. It also features an extremely fast decoder, with speed in multiple GB/s per core, typically reaching RAM speed limits on multi-core systems. MATLAB (MATrix LABoratory) is a multi-paradigm numerical computing environment and fourth-generation programming language. A proprietary programming language developed by MathWorks, MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages, including C, C++, C#, Java, Fortran and Python.

The popt library parses command line options. Tecplot 360 is a Computational Fluid Dynamics (CFD) and numerical simulation software package used in post-processing simulation results. It is also an open source utility that provides fast incremental file transfer. The Abaqus Unified FEA product suite offers powerful and complete solutions for both routine and sophisticated engineering problems covering a vast spectrum of industrial applications. In the automotive industry engineering work groups are able to consider full vehicle loads, dynamic vibration, multibody systems, impact/crash, nonlinear static, thermal coupling, and acoustic-structural coupling using a common model data structure and integrated solver technology. Best-in-class companies are taking advantage of Abaqus Unified FEA to consolidate their processes and tools, reduce costs and inefficiencies, and gain a competitive advantage.

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<table>
<thead>
<tr>
<th>Package</th>
<th>Version/Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>intel-oneapi-dal</td>
<td>2021.5.3</td>
<td>Intel oneAPI DAL.</td>
</tr>
<tr>
<td>intel-oneapi-dnn</td>
<td>2022.0.2</td>
<td>Intel oneAPI DNN.</td>
</tr>
<tr>
<td>intel-oneapi-ipp</td>
<td>2021.5.2</td>
<td>Intel oneAPI IPP.</td>
</tr>
<tr>
<td>intel-oneapi-ippcp</td>
<td>2021.5.1</td>
<td>Intel oneAPI IPP Crypto.</td>
</tr>
<tr>
<td>intel-oneapi-mkl</td>
<td>2022.0.2</td>
<td>Intel oneAPI MKL.</td>
</tr>
<tr>
<td>intel-oneapi-mpi</td>
<td>2021.5.1</td>
<td>Intel oneAPI MPI.</td>
</tr>
<tr>
<td>intel-oneapi-tbb</td>
<td>2021.5.1</td>
<td>Intel oneAPI TBB.</td>
</tr>
<tr>
<td>intel-oneapi-vpl</td>
<td>2022.0.0</td>
<td>Intel oneAPI VPL.</td>
</tr>
<tr>
<td>rdma-core</td>
<td>39.0</td>
<td>RDMA core userspace libraries and daemons</td>
</tr>
<tr>
<td>abinit</td>
<td>9.6.1_gcc-9.4.0</td>
<td>ABINIT is a package whose main program allows one to find the total energy,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>charge density and electronic structure of systems made of electrons and</td>
</tr>
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<td></td>
<td></td>
<td>nuclei (molecules and periodic solids) within Density Functional Theory (DFT),</td>
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<tr>
<td></td>
<td></td>
<td>using pseudopotentials and a planewave or wavelet basis.</td>
</tr>
<tr>
<td>adios</td>
<td>1.13.1_gcc-9.4.0</td>
<td>The Adaptable IO System (ADIOS) provides a simple, flexible way for scientists</td>
</tr>
<tr>
<td>adios2</td>
<td>2.1_gcc-9.4.0</td>
<td>The Adaptable Input Output System version 2, developed in the Exascale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Computing Program</td>
</tr>
<tr>
<td>alsa-lib</td>
<td>1.2.3.2_gcc-9.4.0</td>
<td>The Advanced Linux Sound Architecture (ALSA) provides audio and MIDI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>functionality to the Linux operating system. alsa-lib contains the user</td>
</tr>
<tr>
<td></td>
<td></td>
<td>space library that developers compile ALSA applications against.</td>
</tr>
<tr>
<td>antlr</td>
<td>1.10.7_gcc-9.4.0</td>
<td>Apache Ant is a Java library and command-line tool whose mission is to drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>processes described in build files as targets and extension points dependent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>upon each other</td>
</tr>
<tr>
<td>antlr-ng</td>
<td>2.7.7_gcc-9.4.0</td>
<td>ANTlr (ANother Tool for Language Recognition) is a powerful parser generator</td>
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<tr>
<td></td>
<td></td>
<td>for reading, processing, executing, or translating structured text or binary</td>
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<td></td>
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<td>files. It's widely used to build languages, tools, and frameworks. From a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>grammar,ANTLR generates a parser that can build and walk parse trees.</td>
</tr>
<tr>
<td>armadillo</td>
<td>10.5.0_gcc-9.4.0</td>
<td>Armadillo is a high quality linear algebra library (matrix maths) for the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C++ language, aiming towards a good balance between speed and ease of use.</td>
</tr>
<tr>
<td>arpack-ng</td>
<td>3.8.0_gcc-9.4.0</td>
<td>ARPACK-NG is a collection of Fortran77 subroutines designed to solve large</td>
</tr>
<tr>
<td></td>
<td></td>
<td>scale eigenvalue problems.</td>
</tr>
<tr>
<td>asciidoctor</td>
<td>9.1.0_gcc-9.4.0</td>
<td>A presentable text document format for writing articles, UNIX man pages and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>other small to medium sized documents.</td>
</tr>
<tr>
<td>assimp</td>
<td>5.2.2_gcc-9.4.0</td>
<td>Open Asset Import Library (Assimp) is a portable Open Source library to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>import various well-known 3D model formats in a uniform manner.</td>
</tr>
<tr>
<td>atk</td>
<td>2.36.0_gcc-9.4.0</td>
<td>ATK provides the set of accessibility interfaces that are implemented by</td>
</tr>
<tr>
<td></td>
<td></td>
<td>other toolkits and applications. Using the ATK interfaces, accessibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tools have full access to view and control running applications.</td>
</tr>
<tr>
<td>atompaw</td>
<td>4.1.10_gcc-9.4.0</td>
<td>A Projector Augmented Wave (PAW) code for generating atom-centered functions.</td>
</tr>
<tr>
<td>at-spi2-ati</td>
<td>2.38.0_gcc-9.4.0</td>
<td>The At-Spi2 Atil package contains a library that bridges ATK to At-Spi2 D-Bus</td>
</tr>
<tr>
<td>at-spi2-core</td>
<td>2.40.1_gcc-9.4.0</td>
<td>The At-Spi2 Core package provides a Service Provider Interface for the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assistive Technologies available on the GNOME platform and a library against</td>
</tr>
<tr>
<td></td>
<td></td>
<td>which applications can be linked.</td>
</tr>
<tr>
<td>augustus</td>
<td>3.4.0_gcc-9.4.0</td>
<td>AUGUSTUS is a program that predicts genes in eukaryotic genomic sequences</td>
</tr>
<tr>
<td>autoconf-archive</td>
<td>20190106_gcc-9.4.0</td>
<td>The GNU Autoconf Archive is a collection of more than 500 macros for GNU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Autoconf.</td>
</tr>
<tr>
<td>autodock-vina</td>
<td>1.1.2_gcc-9.4.0</td>
<td>AutoDock Vina is an open-source program for doing molecular docking</td>
</tr>
<tr>
<td>bamtools</td>
<td>2.5.1_gcc-9.4.0</td>
<td>C++ API &amp; command-line toolkit for working with BAM data.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>BART</td>
<td>0.7.0</td>
<td>Toolbox for Computational Magnetic Resonance Imaging</td>
</tr>
<tr>
<td>Bazel</td>
<td>4.0.0</td>
<td>An open-source build and test tool similar to Make, Maven, and Gradle. It uses a human-readable, high-level build language. Bazel supports projects in multiple languages and builds outputs for multiple platforms. Bazel supports large codebases across multiple repositories, and large numbers of users.</td>
</tr>
<tr>
<td>BCFTools</td>
<td>1.14.0</td>
<td>A set of utilities that manipulate variant calls in the Variant Call Format (VCF) and its binary counterpart BCF. All commands work transparently with both VCFs and BCFs, both uncompressed and BGZ-compressed.</td>
</tr>
<tr>
<td>bdftopcf</td>
<td>1.0.5</td>
<td>A font compiler for the X server and font server. Fonts in Portable Compiled Format can be read by any architecture, although the file is structured to allow one particular architecture to read them directly without reformatting. This allows fast reading on the appropriate machine, but the files are still portable (but read more slowly) on other machines.</td>
</tr>
<tr>
<td>bcftools</td>
<td>8.0.6</td>
<td>The Boehm-Demers-Weiser conservative garbage collector is a garbage collecting replacement for C malloc or C++ new.</td>
</tr>
<tr>
<td>Bazel</td>
<td>1.10.4</td>
<td>BEAST is a cross-platform program for Bayesian analysis of molecular sequences using MCMC.</td>
</tr>
<tr>
<td>Bedtools</td>
<td>2.30.0</td>
<td>Collectively, the bedtools utilities are a swiss-army knife of tools for a wide range of genomics analysis tasks. The most widely-used tools enable genome arithmetic: that is, set theory on the genome.</td>
</tr>
<tr>
<td>Berkeley DB</td>
<td>18.1.40</td>
<td>Oracle Berkeley DB</td>
</tr>
<tr>
<td>Binutils</td>
<td>2.37.0</td>
<td>GNU binutils, which contain the linker, assembler, objdump and others</td>
</tr>
<tr>
<td>Bismerite</td>
<td>0.23.0</td>
<td>A tool to map bisulfite converted sequence reads and determine cytosine methylation states</td>
</tr>
<tr>
<td>Blast-Plus</td>
<td>2.12.0</td>
<td>Basic Local Alignment Search Tool.</td>
</tr>
<tr>
<td>BLAT</td>
<td>35.0</td>
<td>BLAT (BLAST-like alignment tool) is a pairwise sequence alignment algorithm.</td>
</tr>
<tr>
<td>Boost</td>
<td>1.65.0</td>
<td>Boost provides free peer-reviewed portable C++ source libraries, emphasizing libraries that work well with the C++ Standard Library.</td>
</tr>
<tr>
<td>Bowtie</td>
<td>1.3.0</td>
<td>Bowtie is an ultrafast, memory-efficient short read aligner for short DNA sequences (reads) from next-gen sequencers.</td>
</tr>
<tr>
<td>Bowtie2</td>
<td>2.4.2</td>
<td>Bowtie 2 is an ultrafast and memory-efficient tool for aligning sequencing reads to long reference sequences</td>
</tr>
<tr>
<td>Braker</td>
<td>2.1.6</td>
<td>BRAKER is a pipeline for unsupervised RNA-Seq-based genome annotation that combines the advantages of GeneMark-ET and AUGUSTUS</td>
</tr>
<tr>
<td>BWA</td>
<td>0.7.17</td>
<td>Burrow-Wheeler Aligner for pairwise alignment between DNA sequences.</td>
</tr>
<tr>
<td>Bzip2</td>
<td>1.0.8</td>
<td>Bzip2 is a freely available, patent free high-quality data compressor. It typically compresses files to within 10% to 15% of the best available techniques (the PPM family of statistical compressors), whilst being around twice as fast at compression and six times faster at decompression.</td>
</tr>
<tr>
<td>Cairo</td>
<td>1.16.0</td>
<td>Cairo is a 2D graphics library with support for multiple output devices.</td>
</tr>
<tr>
<td>C-ares</td>
<td>1.15.0</td>
<td>c-ares: A C library for asynchronous DNS requests</td>
</tr>
<tr>
<td>C-blosc</td>
<td>12.1.1</td>
<td>Blsoc, an extremely fast, multi-threaded, meta-compressor library</td>
</tr>
<tr>
<td>CDO</td>
<td>2.0.4</td>
<td>CDO is a collection of command line Operators to manipulate and analyse Climate and NWP model Data.</td>
</tr>
<tr>
<td>CFITSIO</td>
<td>4.0.0</td>
<td>CFITSIO is a library of C and Fortran subroutines for reading and writing data files in FITS (Flexible Image Transport System) data format.</td>
</tr>
<tr>
<td>Name</td>
<td>Version</td>
<td>Compiler</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>cgal</td>
<td>5.0.3_gcc-9.4.0</td>
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</tr>
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<td>check</td>
<td>0.12.0_gcc-9.4.0</td>
<td>default</td>
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<td>cistem</td>
<td>1.0.0-beta_gcc-9.4.0</td>
<td>default</td>
</tr>
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<td>clhep</td>
<td>2.4.5.1_gcc-9.4.0</td>
<td>default</td>
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<td>cmake</td>
<td>5.3.1_gcc-9.4.0</td>
<td>default</td>
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<td>cmvnto</td>
<td>0.3.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>coreutils</td>
<td>8.32_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>cp2k</td>
<td>9.1_gcc-9.4.0</td>
<td>default</td>
</tr>
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<td>cpio</td>
<td>2.13_gcc-9.4.0</td>
<td>default</td>
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<td>cppzmq</td>
<td>4.7.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>ctffind</td>
<td>4.1.14_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>cub</td>
<td>1.12.0-no_roc_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>cuda</td>
<td>11.4.4_gcc-9.4.0</td>
<td>default</td>
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<td>cudnn</td>
<td>8.2.4-15.11.4_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>cufflinks</td>
<td>2.2.1_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>curl</td>
<td>7.78.0_gcc-9.4.0 7.81.0_gcc-9.4.0</td>
<td>default</td>
</tr>
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<td>czmq</td>
<td>4.1.1_gcc-9.4.0</td>
<td>default</td>
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<td>damageproto</td>
<td>1.2.1_gcc-9.4.0</td>
<td>default</td>
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<td>darshan-runtime</td>
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<td>default</td>
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<tr>
<td>darshan-util</td>
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<tr>
<td>davive</td>
<td>0.7.6_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>dbus</td>
<td>1.12.8_gcc-9.4.0</td>
<td>default</td>
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<td>dcm2niix</td>
<td>1.0.20210317_gcc-9.4.0</td>
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<td>Package</td>
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<td>dicom3tools</td>
<td>1.00.0</td>
<td>snapshot/20201030/0017_gcc-9.4.0</td>
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<td>docbook-xml</td>
<td>4.4_gcc-9.4.0</td>
<td>4.5_gcc-9.4.0</td>
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<td>docbook-xsl</td>
<td>1.79.2_gcc-9.4.0</td>
<td>1.79.2_gcc-9.4.0</td>
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<td>double-conversion</td>
<td>3.1.5_gcc-9.4.0</td>
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<td>doxygen</td>
<td>1.9.3_gcc-9.4.0</td>
<td>1.9.3_intel-2021.5.0</td>
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<td>2.2.5_gcc-9.4.0</td>
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<td>8.2.0_hdf5110</td>
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<td>fastx-toolkit</td>
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<td>3.3.10_intel-2021.5.0</td>
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<td>flex</td>
<td>1.3.7_gcc-9.4.0</td>
<td>default</td>
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<td>Package</td>
<td>Version</td>
<td>Description</td>
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<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>fontconfig</td>
<td>2.13.94 gcc-9.4.0 default</td>
<td>Fontconfig is a library for configuring/customizing font access</td>
</tr>
<tr>
<td>fontsproto</td>
<td>2.1.3 gcc-9.4.0 default</td>
<td>X Fonts Extension.</td>
</tr>
<tr>
<td>font-util</td>
<td>1.3.2 gcc-9.4.0 default</td>
<td>X.Org font package creation/installation utilities and fonts.</td>
</tr>
<tr>
<td>fox</td>
<td>1.6.57 gcc-9.4.0 default</td>
<td>FOX is a C++ based Toolkit for developing Graphical User Interfaces easily and effectively. It offers a wide, and growing, collection of Controls, and provides state of the art facilities such as drag and drop, selection, as well as OpenGL widgets for 3D graphical manipulation. FOX also implements icons, images, and user-convenience features such as status line help, and tooltips. Tooltips may even be used for 3D objects!</td>
</tr>
<tr>
<td>freeglut</td>
<td>3.2.2 gcc-9.4.0 default</td>
<td>FreeGLUT is a free-software/open-source alternative to the OpenGL Utility Toolkit (GLUT) library</td>
</tr>
<tr>
<td>freetype</td>
<td>2.11.1 gcc-9.4.0 default</td>
<td>FreeType is a freely available software library to render fonts. It is written in C, designed to be small, efficient, highly customizable, and portable while capable of producing high-quality output (glyph images) of most vector and bitmap font formats.</td>
</tr>
<tr>
<td>frxbd</td>
<td>1.0.5 gcc-9.4.0 default</td>
<td>GNU FrBidi: The Free Implementation of the Unicode Bidirectional Algorithm.</td>
</tr>
<tr>
<td>fpy</td>
<td>2.4.0 gcc-9.4.0 default</td>
<td>Library to use arbitrary fonts in OpenGL applications.</td>
</tr>
<tr>
<td>fxdiv</td>
<td>2020-04-17 gcc-9.4.0 default</td>
<td>Header-only library for division via fixed-point multiplication by inverse.</td>
</tr>
<tr>
<td>g4abla</td>
<td>3.1 gcc-9.4.0 default</td>
<td>Geant4 data for nuclear shell effects in INCL/ABLA hadronic mode</td>
</tr>
<tr>
<td>g4emlow</td>
<td>7.13 gcc-9.4.0 default</td>
<td>Geant4 data files for low energy electromagnetic processes.</td>
</tr>
<tr>
<td>g4enstdstate</td>
<td>2.3 gcc-9.4.0 default</td>
<td>Geant4 data for nuclides properties</td>
</tr>
<tr>
<td>g4incl</td>
<td>1.0 gcc-9.4.0 default</td>
<td>Geant4 data for evaluated particle cross-sections on natural composition of elements</td>
</tr>
<tr>
<td>g4ndk</td>
<td>4.6 gcc-9.4.0 default</td>
<td>Geant4 Neutron data files with thermal cross sections</td>
</tr>
<tr>
<td>g4particlexs</td>
<td>3.1.1 gcc-9.4.0 default</td>
<td>Geant4 data for evaluated particle cross-sections on natural composition of elements</td>
</tr>
<tr>
<td>g4photonova</td>
<td>5.7 gcc-9.4.0 default</td>
<td>Geant4 data for photon evaporation</td>
</tr>
<tr>
<td>g4pi</td>
<td>1.3 gcc-9.4.0 default</td>
<td>Geant4 data for shell ionisation cross-sections</td>
</tr>
<tr>
<td>g4radioactive decay</td>
<td>5.6 gcc-9.4.0 default</td>
<td>Geant4 data files for radio-active decay hadronic processes</td>
</tr>
<tr>
<td>g4realtransf</td>
<td>2.2 gcc-9.4.0 default</td>
<td>Geant4 data for measured optical surface reflectance</td>
</tr>
<tr>
<td>g4saiddata</td>
<td>2.0 gcc-9.4.0 default</td>
<td>Geant4 data from evaluated cross-sections in SAID data-base</td>
</tr>
<tr>
<td>gate</td>
<td>9.1 gcc-9.4.0 default</td>
<td>Simulations of Preclinical and Clinical Scans in Emission Tomography, Transmission Tomography and Radiation Therapy</td>
</tr>
<tr>
<td>gatepet2stir</td>
<td>1.3.2 gcc-9.4.0 default</td>
<td>A QT/C++ application to convert GATE geometries to STIR format.</td>
</tr>
<tr>
<td>gate tools</td>
<td>0.11.2 gcc-9.4.0 default</td>
<td>Python tools for GATE, see <a href="https://github.com/OpenGATE/Gate">https://github.com/OpenGATE/Gate</a></td>
</tr>
<tr>
<td>gatk</td>
<td>4.2.2.0 gcc-9.4.0 default</td>
<td>Genome Analysis Toolkit Variant Discovery in High-Throughput Sequencing Data</td>
</tr>
<tr>
<td>gdal</td>
<td>2.4.4 gcc-9.4.0</td>
<td>GDAL (Geospatial Data Abstraction Library) is a translator library for raster and vector geospatial data formats that is released under an X/MIT style Open Source license by the Open Source Geospatial Foundation. As a library, it presents a single raster abstract data model and vector abstract data model to the calling application for all supported formats. It also comes with a variety of useful command line utilities for data translation and processing.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Default</td>
</tr>
<tr>
<td>--------------------</td>
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<tr>
<td>gdk-pixbuf</td>
<td>2.42.6</td>
<td>gcc-9.4.0 default</td>
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<tr>
<td>geant4</td>
<td>10.7.3</td>
<td>gcc-9.4.0 default</td>
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<td>geant4-data</td>
<td>10.7.3</td>
<td>gcc-9.4.0 default</td>
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<td>genemark-et</td>
<td>4.65</td>
<td>gcc-9.4.0 default</td>
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<tr>
<td>gennrich</td>
<td>0.6</td>
<td>gcc-9.4.0 default</td>
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<td>geo</td>
<td>3.9.1</td>
<td>gcc-9.4.0 default</td>
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<td>gettext</td>
<td>0.21</td>
<td>gcc-9.4.0 default</td>
</tr>
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<td>gflags</td>
<td>2.2.2</td>
<td>gcc-9.4.0 default</td>
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<td>gcc-9.4.0 default</td>
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<td>8.11</td>
<td>gcc-9.4.0 default</td>
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<td>5.2.1</td>
<td>gcc-9.4.0 default</td>
</tr>
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<td>git</td>
<td>2.34.1</td>
<td>gcc-9.4.0 default</td>
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<tr>
<td>gl2ps</td>
<td>1.4.2</td>
<td>gcc-9.4.0 default</td>
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<td>glew</td>
<td>2.1.0</td>
<td>gcc-9.4.0 default</td>
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<td>glib</td>
<td>2.70.4</td>
<td>gcc-9.4.0 default</td>
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<td>glpk</td>
<td>4.65</td>
<td>gcc-9.4.0 default</td>
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<td>glproto</td>
<td>1.4.17</td>
<td>gcc-9.4.0 default</td>
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<td>gmp</td>
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<td>gcc-9.4.0 default</td>
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<td>gnu</td>
<td>6.2.0</td>
<td>gcc-9.4.0 default</td>
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<td>gnuplot</td>
<td>5.4.2</td>
<td>gcc-9.4.0 default</td>
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<td>gnutls</td>
<td>3.6.15</td>
<td>gcc-9.4.0 default</td>
</tr>
<tr>
<td>golang</td>
<td>1.15.13</td>
<td>gcc-9.4.0 default</td>
</tr>
<tr>
<td>gobject-introspection</td>
<td>1.56.1</td>
<td>gcc-9.4.0 default</td>
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<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>go-bootstrap</td>
<td>1.4</td>
<td>Old C-boosted go to bootstrap real go</td>
</tr>
<tr>
<td>googletest</td>
<td>1.10.0_gcc-9.4.0 default</td>
<td>Google test framework for C++. Also called gtest.</td>
</tr>
<tr>
<td>gperf</td>
<td>3.1_gcc-9.4.0 default</td>
<td>GNU gperf is a perfect hash function generator. For a given list of strings, it produces a hash function and hash table, in form of C or C++ code, for looking up a value depending on the input string. The hash function is perfect, which means that the hash table has no collisions, and the hash table lookup needs a single string comparison only.</td>
</tr>
<tr>
<td>gperftools</td>
<td>2.9.1_gcc-9.4.0 default</td>
<td>Google’s fast malloc/free implementation, especially for multi-threaded applications. Contains tcmalloc, heap-checker, heap-profiler, and cpu-profiler.</td>
</tr>
<tr>
<td>gpu-burn</td>
<td>1.1_gcc-9.4.0 default</td>
<td>Multi-GPU CUDA stress test.</td>
</tr>
<tr>
<td>graphicsmagick</td>
<td>1.3.34_gcc-9.4.0 default</td>
<td>GraphicsMagick is the Swiss army knife of image processing.</td>
</tr>
<tr>
<td>graphite2</td>
<td>1.3.13_gcc-9.4.0 default</td>
<td>Graphite is a system that can be used to create ‘smart fonts’ capable of displaying writing systems with various complex behaviors. A smart font contains not only letter shapes but also additional instructions indicating how to combine and position the letters in complex ways.</td>
</tr>
<tr>
<td>graphviz</td>
<td>2.49.0_gcc-9.4.0 default</td>
<td>Graph Visualization Software</td>
</tr>
<tr>
<td>gromacs</td>
<td>2021.5_gcc-9.4.0 default</td>
<td>GROMACS (GROningen MAchine for Chemical Simulations) is a molecular dynamics package primarily designed for simulations of proteins, lipids and nucleic acids. It was originally developed in the Biophysical Chemistry department of University of Groningen, and is now maintained by contributors in universities and research centers across the world.</td>
</tr>
<tr>
<td>gtest</td>
<td>2.7_gcc-9.4.0 default</td>
<td>The GNU Scientific Library (GSL) is a numerical library for C and C++ programmers. It is free software under the GNU General Public License. The library provides a wide range of mathematical routines such as random number generators, special functions and least-squares fitting. There are over 1000 functions in total with an extensive test suite.</td>
</tr>
<tr>
<td>gtkplus</td>
<td>3.24.29_gcc-9.4.0 default</td>
<td>The GTK+ package contains libraries used for creating graphical user interfaces for applications.</td>
</tr>
<tr>
<td>guile</td>
<td>2.2_gcc-9.4.0 default</td>
<td>Guile is the GNU Ubiquitous Intelligent Language for Extensions, the official extension language for the GNU operating system.</td>
</tr>
<tr>
<td>gzip</td>
<td>1.11_gcc-9.4.0 default</td>
<td>GNU Gzip is a popular data compression program originally written by Jean-loup Gailly for the GNU project.</td>
</tr>
<tr>
<td>harfbuzz</td>
<td>2.9.1_gcc-9.4.0 default</td>
<td>The Harfbuzz package contains an OpenType text shaping engine.</td>
</tr>
<tr>
<td>hdf</td>
<td>4.2.15_gcc-9.4.0 default</td>
<td>HDF4 (also known as HDF) is a library and multi-object file format for storing and managing data between machines.</td>
</tr>
<tr>
<td>hdf5</td>
<td>1.10.8_gcc-9.4.0-mpi 1.12.1_gcc-9.4.0-mpi 1.12.1_gcc-9.4.0-mpi default</td>
<td>HDF5 is a data model, library, and file format for storing and managing data. It supports an unlimited variety of datatypes, and is designed for flexible and efficient I/O and for high volume and complex data.</td>
</tr>
<tr>
<td>hdf-eos</td>
<td>2.20v1.00_gcc-9.4.0 default</td>
<td>HDF-EOS (Hierarchical Data Format - Earth Observing System) is a self-describing file format based upon HDF for standard data products that are derived from EOS missions. HDF-EOS2 is based upon HDF4.</td>
</tr>
<tr>
<td>hdf-eos5</td>
<td>5.1.16_gcc-9.4.0 default</td>
<td>HDF-EOS (Hierarchical Data Format - Earth Observing System) is a self-describing file format based upon HDF for standard data products that are derived from EOS missions. HDF-EOS5 is based upon HDF5.</td>
</tr>
<tr>
<td>heasoft</td>
<td>6.29_gcc-9.4.0 default</td>
<td>A Unified Release of the FTOOLS and XANADU Software Packages.</td>
</tr>
<tr>
<td>hepmc</td>
<td>2.06.11_gcc-9.4.0 default</td>
<td>The HepMC package is an object oriented, C++ event record for High Energy Physics Monte Carlo generators and simulation.</td>
</tr>
<tr>
<td>hepmc2</td>
<td>3.2.4_gcc-9.4.0 default</td>
<td>The HepMC package is an object oriented, C++ event record for High Energy Physics Monte Carlo generators and simulation.</td>
</tr>
<tr>
<td>hmmer</td>
<td>3.3.2_gcc-9.4.0 default</td>
<td>HMMER is used for searching sequence databases for sequence homologs, and for making sequence alignments. It implements methods using probabilistic models called profile hidden Markov models (profile HMMs).</td>
</tr>
<tr>
<td>hpl</td>
<td>2.3_gcc-9.4.0 default</td>
<td>HPL is a software package that solves a (random) dense linear system in double precision (64 bits) arithmetic on distributed-memory computers. It can thus be regarded as a portable as well as freely available implementation of the High Performance Computing Linpack Benchmark.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Notes</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>htslib</td>
<td>1.13_gcc-9.4.0 1.14_gcc-9.4.0</td>
<td>C library for high-throughput sequencing data formats.</td>
</tr>
<tr>
<td>hwloc</td>
<td>2.7.0_gcc-9.4.0 2.7.0_intel-2021.5.0</td>
<td>The Hardware Locality (hwloc) software project.</td>
</tr>
<tr>
<td>hypre</td>
<td>2.23.0_gcc-9.4.0 2.23.0_intel-2021.5.0 2.24.0_gcc-9.4.0 2.24.0_intel-2021.5.0</td>
<td>Hypre is a library of high performance preconditioners that features parallel multigrid methods for both structured and unstructured grid problems.</td>
</tr>
<tr>
<td>icu4c</td>
<td>67.1_gcc-9.4.0 default</td>
<td>ICU is a mature, widely used set of C/C++ and Java libraries providing Unicode and Globalization support for software applications. ICU4C is the C/C++ interface.</td>
</tr>
<tr>
<td>idl</td>
<td>3.8.3_gcc-9.4.0 default</td>
<td>Library for manipulating ID3v1 and ID3v2 tags</td>
</tr>
<tr>
<td>imbase</td>
<td>2.3.0_gcc-9.4.0 default</td>
<td>OpenEXR ILM Base libraries (high dynamic-range image file format)</td>
</tr>
<tr>
<td>imagemagick</td>
<td>7.0.8-7_gcc-9.4.0 default</td>
<td>ImageMagick is a software suite to create, edit, compose, or convert bitmap images.</td>
</tr>
<tr>
<td>imake</td>
<td>1.0.7_gcc-9.4.0 default</td>
<td>The imake build system.</td>
</tr>
<tr>
<td>infernal</td>
<td>1.1.2_gcc-9.4.0 default</td>
<td>Infernal (INFERence of RNA ALignment) is for searching DNA sequence databases for RNA structure and sequence similarities. It is an implementation of a special case of profile stochastic context-free grammars called covariance models (CMs).</td>
</tr>
<tr>
<td>inputproto</td>
<td>2.3.2_gcc-9.4.0 default</td>
<td>X Input Extension.</td>
</tr>
<tr>
<td>intel-oneapi-mkl</td>
<td>2022.0.2_gcc-9.4.0 2022.0.2_intel-2021.5.0 default</td>
<td>Intel oneAPI MKL.</td>
</tr>
<tr>
<td>intel-oneapi-tbb</td>
<td>2021.5.1_gcc-9.4.0 default</td>
<td>Intel oneAPI TBB.</td>
</tr>
<tr>
<td>intel-xed</td>
<td>12.0.1_gcc-9.4.0 default</td>
<td>The Intel X86 Encoder Decoder library for encoding and decoding x86 machine instructions (64- and 32-bit). Also includes libxed-ild, a lightweight library for decoding the length of an instruction.</td>
</tr>
<tr>
<td>interproscan</td>
<td>4.8_gcc-9.4.0 5.38-76.0_gcc-9.4.0 default</td>
<td>InterProScan is the software package that allows sequences (protein and nucleic) to be scanned against InterPro’s signatures. Signatures are predictive models, provided by several different databases, that make up the InterPro consortium.</td>
</tr>
<tr>
<td>intltool</td>
<td>0.51.0_gcc-9.4.0 default</td>
<td>intltool is a set of tools to centralize translation of many different file formats using GNU gettext-compatible PO files.</td>
</tr>
<tr>
<td>itk</td>
<td>5.2.1_gcc-9.4.0 default</td>
<td>The Insight Toolkit (ITK) is an open-source, cross-platform toolkit for N-dimensional scientific image processing, segmentation, and registration.</td>
</tr>
<tr>
<td>jags</td>
<td>4.3.0_gcc-9.4.0 default</td>
<td>JAGS is Just Another Gibbs Sampler. It is a program for analysis of Bayesian hierarchical models using Markov Chain Monte Carlo (MCMC) simulation not wholly unlike BUGS</td>
</tr>
<tr>
<td>jasper</td>
<td>2.0.32_gcc-9.4.0 default</td>
<td>Library for manipulating JPEG-2000 images</td>
</tr>
<tr>
<td>jellyfish</td>
<td>2.2.7_gcc-9.4.0 default</td>
<td>JELLYFISH is a tool for fast, memory-efficient counting of k-mers in DNA.</td>
</tr>
<tr>
<td>jq</td>
<td>1.6_gcc-9.4.0 default</td>
<td>jq is a lightweight and flexible command-line JSON processor.</td>
</tr>
<tr>
<td>json-c</td>
<td>0.15_gcc-9.4.0 default</td>
<td>A JSON implementation in C.</td>
</tr>
<tr>
<td>jsoncpp</td>
<td>1.9.4_gcc-9.4.0 default</td>
<td>JsonCpp is a C++ library that allows manipulating JSON values, including serialization and deserialization to and from strings. It can also preserve existing comment in serialization/serialization steps, making it a convenient format to store user input files.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Type</td>
</tr>
<tr>
<td>--------------</td>
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<td>---------------------------</td>
</tr>
<tr>
<td>julia</td>
<td>1.7.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>kbproto</td>
<td>1.0.7_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>krb5</td>
<td>1.19.2_gcc-9.4.0</td>
<td>1.19.2_intel-2021.5.0</td>
</tr>
<tr>
<td>laszio</td>
<td>3.4.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>lcms</td>
<td>2.9_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>leptonica</td>
<td>1.81.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libaec</td>
<td>1.0.5_gcc-9.4.0</td>
<td>1.0.5_intel-2021.5.0</td>
</tr>
<tr>
<td>libao</td>
<td>0.3.110_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libbsdio</td>
<td>1.2.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libarchive</td>
<td>3.5.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libatomic-ops</td>
<td>7.6.12_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libbeagle</td>
<td>3.1.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libblastrampo</td>
<td>3.1.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libbsd</td>
<td>0.11.5_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libcerf</td>
<td>1.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libcroco</td>
<td>0.6.13_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libdeflate</td>
<td>1.7_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libdrm</td>
<td>2.4.110_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libedit</td>
<td>3.1-202012016_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libepoxy</td>
<td>1.4.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libevent</td>
<td>2.1.12_gcc-9.4.0</td>
<td>2.1.12_intel-2021.5.0</td>
</tr>
<tr>
<td>libfabric</td>
<td>1.14.0_gcc-9.4.0</td>
<td>1.14.0_intel-2021.5.0</td>
</tr>
<tr>
<td>libffi</td>
<td>3.4.2_gcc-9.4.0</td>
<td>3.4.2_intel-2021.5.0</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
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<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>libfontenc</td>
<td>1.1.3_gcc-9.4.0</td>
<td>libfontenc - font encoding library.</td>
</tr>
<tr>
<td>libgcrypt</td>
<td>1.9.4_gcc-9.4.0</td>
<td>Cryptographic library based on the code from GnuPG.</td>
</tr>
<tr>
<td>libgd</td>
<td>2.2.4_gcc-9.4.0</td>
<td>GD is an open source code library for the dynamic creation of images by programmers. GD is written in C, and 'wrappers' are available for Perl, PHP and other languages. GD creates PNG, JPEG, GIF, WebP, XPM, BMP images, among other formats. GD is commonly used to generate charts, graphics, thumbnails, and most anything else, on the fly. While not restricted to use on the web, the most common applications of GD involve website development.</td>
</tr>
<tr>
<td>libgeotiff</td>
<td>1.4.3_gcc-9.4.0</td>
<td>GeoTIFF represents an effort by over 160 different remote sensing, GIS, cartographic, and surveying related companies and organizations to establish a TIFF based interchange format for georeferenced raster imagery.</td>
</tr>
<tr>
<td>libgit2</td>
<td>1.1.1_gcc-9.4.0</td>
<td>libgit2 is a portable, C implementation of the Git core methods provided as a re-entrant linkable library with a solid API, allowing you to write native speed custom Git applications in any language which supports C bindings.</td>
</tr>
<tr>
<td>libgpg-error</td>
<td>1.43_gcc-9.4.0</td>
<td>Common error values for all GnuPG components.</td>
</tr>
<tr>
<td>libgprop</td>
<td>0.7.6_gcc-9.4.0</td>
<td>Make a common GPU ndarray(n dimensions array) that can be reused by all projects that is as future proof as possible, while keeping it easy to use for simple need/quick test.</td>
</tr>
<tr>
<td>libgtextutils</td>
<td>0.7_gcc-9.4.0</td>
<td>Gordon's Text utils Library.</td>
</tr>
<tr>
<td>libicew</td>
<td>1.0.9_gcc-9.4.0</td>
<td>libicew - Inter-Client Exchange Library.</td>
</tr>
<tr>
<td>libiconv</td>
<td>1.16_gcc-9.4.0</td>
<td>GNU libiconv provides an implementation of the iconv() function and the iconv program for character set conversion.</td>
</tr>
<tr>
<td>libid3tag</td>
<td>0.15.1b_gcc-9.4.0</td>
<td>library for id3 tagging</td>
</tr>
<tr>
<td>libidn2</td>
<td>2.3.0_gcc-9.4.0</td>
<td>Libidn2 is a free software implementation of IDNA2008, Punycode and TR46. Its purpose is to encode and decode internationalized domain names.</td>
</tr>
<tr>
<td>libint</td>
<td>2.6.0_gcc-9.4.0</td>
<td>Libint is a high-performance library for computing Gaussian integrals in quantum mechanics.</td>
</tr>
<tr>
<td>libjpeg-turbo</td>
<td>2.1.0_gcc-9.4.0</td>
<td>libjpeg-turbo is a fork of the original IJG libjpeg which uses SIMD to accelerate baseline JPEG compression and decompression.</td>
</tr>
<tr>
<td>liblas</td>
<td>1.8.1_gcc-9.4.0</td>
<td>libLAS is a C/C++ library for reading and writing the very common LAS LiDAR format.</td>
</tr>
<tr>
<td>libmd</td>
<td>1.0.4_gcc-9.4.0</td>
<td>This library provides message digest functions found on BSD systems either on their libc (NetBSD, OpenBSD) or libmd (FreeBSD, DragonflyBSD, macOS, Solaris) libraries and lacking on others like GNU systems.</td>
</tr>
<tr>
<td>libmng</td>
<td>2.0.3_gcc-9.4.0</td>
<td>THE reference library for reading, displaying, writing and examining Multiple-Image Network Graphics. MNG is the animation extension to the popular PNG image format.</td>
</tr>
<tr>
<td>libogg</td>
<td>1.3.5_gcc-9.4.0</td>
<td>Ogg is a multimedia container format, and the native file and stream format for the Xiph.org multimedia codecs.</td>
</tr>
<tr>
<td>libpaper</td>
<td>1.128_gcc-9.4.0</td>
<td>The paper library and accompanying files are intended to provide a simple way for applications to take actions based on a system- or user-specified paper size.</td>
</tr>
<tr>
<td>libpciaccess</td>
<td>0.16_gcc-9.4.0</td>
<td>Generic PCI access library.</td>
</tr>
<tr>
<td>libpng</td>
<td>1.6.37_gcc-9.4.0</td>
<td>libpng is the official PNG reference library.</td>
</tr>
<tr>
<td>libpthread-stubs</td>
<td>0.4_gcc-9.4.0</td>
<td>The libpthread-stubs package provides weak aliases for pthread functions not provided in libc or otherwise available by default.</td>
</tr>
<tr>
<td>libsvg</td>
<td>2.51.0_gcc-9.4.0</td>
<td>Library to render SVG files using Cairo.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Architecture</td>
</tr>
<tr>
<td>-----------</td>
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</tr>
<tr>
<td>libsm</td>
<td>1.2.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libsndfile</td>
<td>1.0.28_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libsodium</td>
<td>1.0.18_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libssh2</td>
<td>1.10.0.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libtiff</td>
<td>4.3.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libtirpc</td>
<td>1.2.6_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libtool</td>
<td>2.4.6_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libunistring</td>
<td>0.9.10_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libunwind</td>
<td>1.5.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libvorbis</td>
<td>1.3.7_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libwebp</td>
<td>1.2.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libwhich</td>
<td>1.1.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libx11</td>
<td>1.7.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxau</td>
<td>1.0.8_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxaw</td>
<td>1.0.13_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxcb</td>
<td>1.5.7_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxcbx</td>
<td>1.1.4_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxcuror</td>
<td>1.1.14_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxdamage</td>
<td>1.1.4_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxdmcp</td>
<td>1.1.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxext</td>
<td>1.3.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxfixes</td>
<td>5.0.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libxfont</td>
<td>1.5.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libx1</td>
<td>2.3.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>libx</td>
<td>1.7.6_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>Library</td>
<td>Version</td>
<td>Notes</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>libXinerama</td>
<td>1.1.3</td>
<td>API for Xinerama extension to X11 Protocol.</td>
</tr>
<tr>
<td>libxcbcommon</td>
<td>0.8.2</td>
<td>xkbcommon is a library to handle keyboard descriptions, including loading them from disk, parsing them and handling their state. It's mainly meant for client toolkits, window systems, and other system applications.</td>
</tr>
<tr>
<td>libxkbfile</td>
<td>1.0.9</td>
<td>XKB file handling routines.</td>
</tr>
<tr>
<td>libxmu</td>
<td>2.9.12</td>
<td>LibXmu2 is the XML C parser and toolkit developed for the GNOME project (but usable outside of the GNOME platform), it is free software available under the MIT License.</td>
</tr>
<tr>
<td>libxpm</td>
<td>3.9.12</td>
<td>libXpm - X Pixmap (XPM) image file format library.</td>
</tr>
<tr>
<td>libxrandr</td>
<td>1.5.0</td>
<td>libXrandr - X Resize, Rotate and Reflection extension library.</td>
</tr>
<tr>
<td>libxrender</td>
<td>0.9.10</td>
<td>libXrender - library for the Render Extension to the X11 protocol.</td>
</tr>
<tr>
<td>libxcbmsaver</td>
<td>1.2.2</td>
<td>XScreensaver - X11 Screen Saver extension client library</td>
</tr>
<tr>
<td>libxslt</td>
<td>1.1.33</td>
<td>LibXslt is the XSLT C library developed for the GNOME project. XSLT itself is an XML language to define transformation for XML. LibXslt is based on libxml2 the XML C library developed for the GNOME project. It also implements most of the EXSLT set of processor-portable extensions functions and some of Saxon's evaluate and expressions extensions.</td>
</tr>
<tr>
<td>libxsmm</td>
<td>1.17</td>
<td>Library for specialized dense and sparse matrix operations, and deep learning primitives.</td>
</tr>
<tr>
<td>libx</td>
<td>1.1.5</td>
<td>libX - X Toolkit Intrinsics library.</td>
</tr>
<tr>
<td>libxslt</td>
<td>1.2.2</td>
<td>libXslt provides the Xlib-based client API for the XTEST &amp; RECORD extensions.</td>
</tr>
<tr>
<td>libxxf86vm</td>
<td>1.1.4</td>
<td>libXxf86vm - Extension library for the XFree86-VidMode X extension.</td>
</tr>
<tr>
<td>libyaml</td>
<td>0.2.5</td>
<td>A C library for parsing and emitting YAML.</td>
</tr>
<tr>
<td>libzmq</td>
<td>4.3.4</td>
<td>The ZMQ networking/concurrency library and core API</td>
</tr>
<tr>
<td>llvm</td>
<td>11.0.1</td>
<td>The LLVM Project is a collection of modular and reusable compiler and toolchain technologies. Despite its name, LLVM has little to do with traditional virtual machines, though it does provide helpful libraries that can be used to build them. The name 'LLVM' itself is not an acronym; it is the full name of the project.</td>
</tr>
<tr>
<td>lmdb</td>
<td>0.9.29</td>
<td>Symas LMDB is an extraordinarily fast, memory-efficient database we developed for the Symas OpenLDAP Project. With memory-mapped files, it has the read performance of a pure in-memory database while retaining the persistence of standard disk-based databases.</td>
</tr>
<tr>
<td>lp-solve</td>
<td>5.5.2.11</td>
<td>lp_solve is a Mixed Integer Linear Programming (MILP) solver.</td>
</tr>
<tr>
<td>lz4</td>
<td>1.9.3</td>
<td>LZF is a lossless compression algorithm, providing compression speed at 400 MB/s per core, scalable with multi-cores CPU. It also features an extremely fast decoder, with speed in multiple GB/s per core, typically reaching RAM speed limits on multi-core systems.</td>
</tr>
<tr>
<td>lz4</td>
<td>2.10</td>
<td>Real-time data compression library</td>
</tr>
<tr>
<td>mafft</td>
<td>7.481</td>
<td>MAFFT is a multiple sequence alignment program for unix-like operating systems. It offers a range of multiple alignment methods, L-INS-i (accurate; for alignment of &lt;~200 sequences), FFT-INS-2 (fast; for alignment of &lt;~30,000 sequences), etc.</td>
</tr>
<tr>
<td>magma</td>
<td>2.6.1</td>
<td>The MAGMA project aims to develop a dense linear algebra library similar to LAPACK but for heterogeneous/hybrid architectures, starting with current 'Multicore+GPU' systems.</td>
</tr>
<tr>
<td>makedepend</td>
<td>1.0.5</td>
<td>makedepend - create dependencies in makefiles.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td><strong>maker</strong></td>
<td>3.01.03_gcc-9.4.0 default</td>
<td>MAKER is a portable and easily configurable genome annotation pipeline. Its purpose is to allow smaller eukaryotic and prokaryotic genomics projects to independently annotate their genomes and to create genome databases. MAKER identifies repeats, aligns ESTs and proteins to a genome, produces ab-initio gene predictions and automatically synthesizes these data into gene annotations having evidence-based quality values. MAKER is also easily trainable: outputs of preliminary runs can be used to automatically retrain its gene prediction algorithm, producing higher quality gene-models on subsequent runs. MAKER’s inputs are minimal and its outputs can be directly loaded into a GMOD database. They can also be viewed in the Apollo genome browser; this feature of MAKER provides an easy means to annotate, view and edit individual contigs and BACs without the overhead of a database. MAKER should prove especially useful for emerging model organism projects with minimal bioinformatics expertise and computer resources.</td>
</tr>
<tr>
<td><strong>mariadb-c-client</strong></td>
<td>3.2.6_gcc-9.4.0 default</td>
<td>MariaDB turns data into structured information in a wide array of applications, ranging from banking to websites. It is an enhanced, drop-in replacement for MySQL. MariaDB is used because it is fast, scalable and robust, with a rich ecosystem of storage engines, plugins and many other tools that make it versatile for a wide variety of use cases. This package comprises only the standalone ‘C Connector’, which enables connections to MariaDB and MySQL servers.</td>
</tr>
<tr>
<td><strong>maven</strong></td>
<td>3.8.4_gcc-9.4.0 default</td>
<td>Apache Maven is a software project management and comprehension tool.</td>
</tr>
<tr>
<td><strong>mbedtls</strong></td>
<td>2.24.0_gcc-9.4.0 default</td>
<td>mbedtls makes it trivially easy for developers to include cryptographic and SSL/TLS capabilities in their (embedded) products, facilitating this functionality with a minimal coding footprint.</td>
</tr>
<tr>
<td><strong>mesa</strong></td>
<td>21.3.1_gcc-9.4.0 default</td>
<td>Mesa is an open-source implementation of the OpenGL specification - a system for rendering interactive 3D graphics.</td>
</tr>
<tr>
<td><strong>mesa-gl</strong></td>
<td>9.0.1_gcc-9.4.0 default</td>
<td>This package provides the Mesa OpenGL Utility library.</td>
</tr>
<tr>
<td><strong>mesquite</strong></td>
<td>2.99_gcc-9.4.0 default</td>
<td>Mesquite provides a robust and effective mesh improvement toolkit that allows both meshing researchers and application scientists to benefit from the latest developments in mesh quality control and improvement.</td>
</tr>
<tr>
<td><strong>metis</strong></td>
<td>5.1.0_gcc-9.4.0</td>
<td>METIS is a set of serial programs for partitioning graphs, partitioning finite element meshes, and producing fill reducing orderings for sparse matrices. The algorithms implemented in METIS are based on the multilevel recursive-bisection, multilevel k-way, and multi-constraint partitioning schemes.</td>
</tr>
<tr>
<td><strong>mfem</strong></td>
<td>4.3.0_gcc-9.4.0</td>
<td>Free, lightweight, scalable C++ library for finite element methods.</td>
</tr>
<tr>
<td><strong>mkfontdir</strong></td>
<td>1.0.7_gcc-9.4.0 default</td>
<td>mkfontdir creates the fonts.dir files needed by the legacy X server core font system. The current implementation is a simple wrapper script around the mkfontscale program, which must be built and installed first.</td>
</tr>
<tr>
<td><strong>mkfontscale</strong></td>
<td>1.1.2_gcc-9.4.0 default</td>
<td>mkfontscale creates the fonts.scale and fonts.dir index files used by the legacy X11 font system.</td>
</tr>
<tr>
<td><strong>mono</strong></td>
<td>6.12.0.122_gcc-9.4.0 default</td>
<td>Mono is a software platform designed to allow developers to easily create cross platform applications. It is an open source implementation of Microsoft’s .NET Framework based on the ECMA standards for C# and the Common Language Runtime.</td>
</tr>
<tr>
<td><strong>motioncor2</strong></td>
<td>1.4.7_gcc-9.4.0 default</td>
<td>MotionCor2 is a multi-GPU program that corrects beam-induced sample motion recorded on dose fractionated movie stacks. It implements a robust iterative alignment algorithm that delivers precise measurement and correction of both global and non-uniform local motions at single pixel level, suitable for both single-particle and tomographic images. MotionCor2 is sufficiently fast to keep up with automated data collection.</td>
</tr>
<tr>
<td><strong>mpc</strong></td>
<td>1.2.1_gcc-9.4.0 default</td>
<td>Gnu Mpc is a C library for the arithmetic of complex numbers with arbitrarily high precision and correct rounding of the result.</td>
</tr>
<tr>
<td><strong>mpfr</strong></td>
<td>4.1.0_gcc-9.4.0 default</td>
<td>The MPFR library is a C library for multiple-precision floating-point computations with correct rounding.</td>
</tr>
<tr>
<td><strong>mpirun</strong></td>
<td>3.0.0_gcc-9.4.0 default</td>
<td>GPU accelerated micromagnetic simulator.</td>
</tr>
<tr>
<td><strong>mpirun</strong></td>
<td>5.4.0_gcc-9.4.0</td>
<td>NURMS: a Multithreaded Massively Parallel direct Solver</td>
</tr>
<tr>
<td><strong>muparse</strong></td>
<td>2.2.6.1_gcc-9.4.0 default</td>
<td>C++ math expression parser library.</td>
</tr>
<tr>
<td><strong>mysql++</strong></td>
<td>3.2.5_gcc-9.4.0 default</td>
<td>MySQL++ is a C++ wrapper for MySQL and MariaDB C APIs. It is built on the same principles as the Standard C++ Library to make dealing with the database as easy as dealing with std containers. MySQL++ also provides facilities that let you avoid the most repetitive sorts of SQL within your own code, providing native C++ interfaces for these common tasks.</td>
</tr>
<tr>
<td><strong>nasm</strong></td>
<td>2.15.05_gcc-9.4.0</td>
<td>NASM (Netwide Assembler) is an 80x86 assembler designed for portability and modularity. It includes a disassembler as well.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Status</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>ncbi-remblastn</td>
<td>2.11.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>nccu</td>
<td>2.11.4-1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>ncl</td>
<td>6.6.2_gcc-9.4.0-hdf5110</td>
<td>default</td>
</tr>
<tr>
<td>ncview</td>
<td>2.1.8_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>netcdf</td>
<td>4.8.1_gcc-9.4.0-hdf5110</td>
<td>default</td>
</tr>
<tr>
<td>netcdf-cxx</td>
<td>4.3.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>netcdf-fortran</td>
<td>4.5.3_gcc-9.4.0-hdf5110</td>
<td>default</td>
</tr>
<tr>
<td>netlib-scalapack</td>
<td>2.1.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>nettle</td>
<td>3.4.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>nextflow</td>
<td>21.10.6_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>nghttp2</td>
<td>1.44.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>ngmerge</td>
<td>0.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>nlohmann-json</td>
<td>3.10.5_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>nlopt</td>
<td>2.7.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>numactl</td>
<td>2.0.14_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>ocaml</td>
<td>4.13.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>octave</td>
<td>6.4.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>octave-arduino</td>
<td>0.2.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>octave-control</td>
<td>3.2.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------------------</td>
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<td>------------------------------------</td>
</tr>
<tr>
<td>octave-gsl</td>
<td>2.1.1 gcc-9.4.0 default</td>
<td>Octave bindings to the GNU Scientific Library</td>
</tr>
<tr>
<td>octave-instrctl</td>
<td>0.3.1 gcc-9.4.0 default</td>
<td>Instrument-Control is a package for interfacing the outside world of hardware via Serial, i2c or Parallel interfaces.</td>
</tr>
<tr>
<td>octave-io</td>
<td>2.6.3 gcc-9.4.0 default</td>
<td>The IO package is part of the Octave Forge project and provides input/output from/in external formats.</td>
</tr>
<tr>
<td>octave-signal</td>
<td>1.4.1 gcc-9.4.0 default</td>
<td>Signal processing tools, including filtering, windowing and display functions.</td>
</tr>
<tr>
<td>octave-splines</td>
<td>1.3.3 gcc-9.4.0 default</td>
<td>Additional spline functions.</td>
</tr>
<tr>
<td>octave-statistics</td>
<td>1.4.2 gcc-9.4.0 default</td>
<td>Additional statistics functions for Octave.</td>
</tr>
<tr>
<td>octave-symbolic</td>
<td>2.9.0 gcc-9.4.0 default</td>
<td>Adds symbolic calculation features to GNU Octave. These include common Computer Algebra System tools such as algebraic operations, calculus, equation solving, Fourier and Laplace transforms, variable precision arithmetic and other features. Compatibility with other symbolic toolboxes is intended.</td>
</tr>
<tr>
<td>oniguruma</td>
<td>6.9.4 gcc-9.4.0 default</td>
<td>Regular expression library.</td>
</tr>
<tr>
<td>onp-psm2</td>
<td>11.2.206 gcc-9.4.0 default</td>
<td>Omni-Path Performance Scaled Messaging 2 (PSM2) library</td>
</tr>
<tr>
<td>openbabel</td>
<td>3.0.0 gcc-9.4.0 default</td>
<td>Open Babel is a chemical toolbox designed to speak the many languages of chemical data. It’s an open, collaborative project allowing anyone to search, convert, analyze, or store data from molecular modeling, chemistry, solid-state materials, biochemistry, or related areas.</td>
</tr>
<tr>
<td>openexr</td>
<td>4.5.4 gcc-9.4.0 default</td>
<td>OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library.</td>
</tr>
<tr>
<td>openexr</td>
<td>2.3.0 gcc-9.4.0 default</td>
<td>OpenEXR Graphics Tools (high dynamic-range image file format)</td>
</tr>
<tr>
<td>openfoam-org</td>
<td>8 gcc-9.4.0 default</td>
<td>OpenFOAM is a GPL-opensource C++ CFD-toolbox. The openfoam.org release is managed by the OpenFOAM Foundation Ltd as a licensee of the OPENFOAM trademark. This offering is not approved or endorsed by OpenCFD Ltd, producer and distributor of the OpenFOAM software via <a href="http://www.openfoam.com">www.openfoam.com</a>, and owner of the OPENFOAM trademark.</td>
</tr>
<tr>
<td>openj4</td>
<td>11.0.127 gcc-9.4.0 default</td>
<td>The free and opensource java implementation</td>
</tr>
<tr>
<td>opjjpeg</td>
<td>2.3.1 gcc-9.4.0 default</td>
<td>OpenJPEG is an open-source JPEG 2000 codec written in C language.</td>
</tr>
<tr>
<td>openlibm</td>
<td>0.7.5 gcc-9.4.0 default</td>
<td>OpenLibm is an effort to have a high quality, portable, standalone C mathematical library</td>
</tr>
<tr>
<td>openmp</td>
<td>4.1.2 gcc-9.4.0 default</td>
<td>An open source Message Passing Interface implementation.</td>
</tr>
<tr>
<td>openscenegraph</td>
<td>3.6.5 gcc-9.4.0 default</td>
<td>OpenSceneGraph is an open source, high-performance 3D graphics toolkit that’s used in a variety of visual simulation applications.</td>
</tr>
<tr>
<td>openssh</td>
<td>8.8p1 gcc-9.4.0 default</td>
<td>OpenSSH is the premier connectivity tool for remote login with the SSH protocol. It encrypts all traffic to eliminate eavesdropping, connection hijacking, and other attacks. In addition, OpenSSH provides a large suite of secure tunneling capabilities, several authentication methods, and sophisticated configuration options.</td>
</tr>
<tr>
<td>openssl</td>
<td>1.1.1m gcc-9.4.0 default</td>
<td>OpenSSL is an open source project that provides a robust, commercial-grade, and full-featured toolkit for the Transport Layer Security (TLS) and Secure Sockets Layer (SSL) protocols. It is also a general-purpose cryptography library.</td>
</tr>
<tr>
<td>opium</td>
<td>4.1 gcc-9.4.0 default</td>
<td>DFT pseudopotential generation project</td>
</tr>
<tr>
<td>opus</td>
<td>1.3.1 gcc-9.4.0 default</td>
<td>Opus is a totally open, royalty-free, highly versatile audio codec.</td>
</tr>
</tbody>
</table>
oracle-instancd-client
  21.1.0.0.0     gcc-9.4.0 default
  Oracle instant client

p7zip
  16.02_gcc-9.4.0 default
  A Unix port of the 7z file archiver

pandoc
  2.14.0.3_gcc-9.4.0 default
  If you need to convert files from one markup format into another, pandoc is your Swiss-army knife.

pango
  1.42.0_gcc-9.4.0 default
  Pango is a library for laying out and rendering of text, with an emphasis on internationalization. It can be used anywhere that text layout is needed, though most of the work on Pango so far has been done in the context of the GTK+ widget toolkit.

papi
  6.0.0.1_gcc-9.4.0 default
  PAPI provides the tool designer and application engineer with a consistent interface and methodology for use of the performance counter hardware found in most major microprocessors. PAPI enables software engineers to see, in near real time, the relation between software performance and processor events. In addition Component PAPI provides access to a collection of components that expose performance measurement opportunities across the hardware and software stack.

parallel-netcdf
  1.12.2_gcc-9.4.0
  Parallel netCDF is a high-performance parallel I/O library for accessing files in format compatibility with Unidata’s NetCDF, specifically the formats of CDF-1, 2, and 5.

parmetis
  4.0.3_gcc-9.4.0
  ParMETIS is an MPI-based parallel library that implements a variety of algorithms for partitioning unstructured graphs, meshes, and for computing fill-reducing orderings of sparse matrices.

patchelf
  0.14.1_gcc-9.4.0 default
  PatchELF is a small utility to modify the dynamic linker and RPATH of ELF executables.

pcre
  8.45_gcc-9.4.0 default
  The PCRE package contains Perl Compatible Regular Expression libraries. These are useful for implementing regular expression pattern matching using the same syntax and semantics as Perl 5.

pcre2
  10.39_gcc-9.4.0 default
  The PCRE2 package contains Perl Compatible Regular Expression libraries. These are useful for implementing regular expression pattern matching using the same syntax and semantics as Perl 5.

perl
  5.34_gcc-9.4.0 default
  Perl 5 is a highly capable, feature-rich programming language with over 27 years of development.

perl-acme-damn
  0.08_gcc-9.4.0 default
  Acme::Damn provides a single routine, damn(), which takes a blessed reference (a Perl object), and unblesses it, to return the original reference.

perl-algorithm-diff
  1.1903_gcc-9.4.0 default
  Compute ‘intelligent’ differences between two files / lists

perl-alien-build
  1.86_gcc-9.4.0 default
  This module provides tools for building external (non-CPAN) dependencies for CPAN. It is mainly designed to be used at install time of a CPAN client, and work closely with Alien::Base which is used at runtime.

perl-alien-libxml2
  0.10.01_gcc-9.4.0 default
  This module provides libxml2 for other modules to use.

perl-bioperl
  1.7.6_gcc-9.4.0 default
  BioPerl is the product of a community effort to produce Perl code which is useful in biology. Examples include Sequence objects, Alignment objects and database searching objects. These objects not only do what they are advertised to do in the documentation, but they also interact - Alignment objects are made from the Sequence objects, Sequence objects have access to Annotation and SeqFeature objects and databases, Blast objects can be converted to Alignment objects, and so on. This means that the objects provide a coordinated and extensible framework to do computational biology.

perl-bit-vector
  7.4_gcc-9.4.0 default
  Efficient bit vector, set of integers and ‘big int’ math library

perl-capture-thing
  0.46_gcc-9.4.0 default
  Capture STDOUT and STDERR from Perl, XS or external programs

perl-carp-clan
  6.06_gcc-9.4.0 default
  Report errors from perspective of caller of a ‘clan’ of modules

perl-cgi
  4.53_gcc-9.4.0 default
  CGI - Handle Common Gateway Interface requests and responses

perl-class-inheritable
  0.08_gcc-9.4.0 default
  For creating accessor/mutators to class data.

perl-clone-choose
  0.010_gcc-9.4.0 default
  Checks several different modules which provides a clone() function and selects an appropriate one.

perl-data-dumper
  2.173_gcc-9.4.0 default
  Stringified perl data structures, suitable for both printing and eval
<table>
<thead>
<tr>
<th>Package</th>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>perl-data-cfg</td>
<td>0.14 gcc-9.4.0</td>
<td>Structured Tags datastructures</td>
</tr>
<tr>
<td>perl-dbd-mysql</td>
<td>4.043 gcc-9.4.0</td>
<td>MySQL driver for the Perl5 Database Interface (DBI)</td>
</tr>
<tr>
<td>perl-dbd-pg</td>
<td>3.10.0 gcc-9.4.0</td>
<td>DBD::Pg is a Perl module that works with the DBI module to provide access to PostgreSQL databases.</td>
</tr>
<tr>
<td>perl-dbd-sqlite</td>
<td>1.59_01 gcc-9.4.0</td>
<td>DBD::SQLite - Self-contained RDBMS in a DBI Driver</td>
</tr>
<tr>
<td>perl-db-file</td>
<td>1.840 gcc-9.4.0</td>
<td>DB_File is a module which allows Perl programs to make use of the facilities provided by Berkeley DB version 1.x (if you have a newer version of DB, see 'Using DB_File with Berkeley DB version 2 or greater!). It is assumed that you have a copy of the Berkeley DB manual pages at hand when reading this documentation. The interface defined here mirrors the Berkeley DB interface closely.</td>
</tr>
<tr>
<td>perl-dbi</td>
<td>1.636 gcc-9.4.0</td>
<td>The DBI is the standard database interface module for Perl. It defines a set of methods, variables and conventions that provide a consistent database interface independent of the actual database being used.</td>
</tr>
<tr>
<td>perl-devel-stacktrace</td>
<td>2.02 gcc-9.4.0</td>
<td>An object representing a stack trace.</td>
</tr>
<tr>
<td>perl-devel-symdump</td>
<td>2.0604 gcc-9.4.0</td>
<td>Devel::Symdump - dump symbol names or the symbol table</td>
</tr>
<tr>
<td>perl-encode-locale</td>
<td>1.05 gcc-9.4.0</td>
<td>Determine the locale encoding</td>
</tr>
<tr>
<td>perl-error</td>
<td>0.1708 gcc-9.4.0</td>
<td>The Error package provides two interfaces. Firstly Error provides a procedural interface to exception handling. Secondly Error is a base class for errors /exceptions that can either be thrown, for subsequent catch, or can simply be recorded.</td>
</tr>
<tr>
<td>perl-exception-class</td>
<td>1.43 gcc-9.4.0</td>
<td>A module that allows you to declare real exception classes in Perl</td>
</tr>
<tr>
<td>perl-exporter-tiny</td>
<td>1.000000 gcc-9.4.0</td>
<td>An exporter with the features of Sub::Exporter but only core dependencies</td>
</tr>
<tr>
<td>perl-extutils-config</td>
<td>0.008 gcc-9.4.0</td>
<td>ExtUtils::Config - A wrapper for perl's configuration</td>
</tr>
<tr>
<td>perl-extutils-help</td>
<td>0.026 gcc-9.4.0</td>
<td>ExtUtils::Help - Various portability utilities for module builders</td>
</tr>
<tr>
<td>perl-extutils-installpaths</td>
<td>0.012 gcc-9.4.0</td>
<td>ExtUtils::InstallPaths - Build.PL install path logic made easy</td>
</tr>
<tr>
<td>perl-extutils-makemaker</td>
<td>7.24 gcc-9.4.0</td>
<td>ExtUtils::MakeMaker - Create a module Makefile for an extension module from a Makefile.PL. It is based on the Makefile.SH model provided by Andy Dougherty and the perl5-porters.</td>
</tr>
<tr>
<td>perl-fli-checklib</td>
<td>0.25 gcc-9.4.0</td>
<td>This module checks whether a particular dynamic library is available for FFI to use. It is modeled heavily on Devel::CheckLib, but will find dynamic libraries even when development packages are not installed. It also provides a find_lib function that will return the full path to the found dynamic library, which can be feed directly into FFI::Platypus or another FFI system.</td>
</tr>
<tr>
<td>perl-file-chdir</td>
<td>0.1011 gcc-9.4.0</td>
<td>Perl's chdir() has the unfortunate problem of being very, very, very global. If any part of your program calls chdir() or if any library you use calls chdir(), it changes the current working directory for the whole program.</td>
</tr>
<tr>
<td>perl-file-copy-recursively</td>
<td>0.40 gcc-9.4.0</td>
<td>Perl extension for recursively copying files and directories</td>
</tr>
<tr>
<td>perl-file-homedir</td>
<td>1.004 gcc-9.4.0</td>
<td>Find your home and other directories on any platform</td>
</tr>
<tr>
<td>perl-file-listing</td>
<td>6.04 gcc-9.4.0</td>
<td>Parse directory listing</td>
</tr>
<tr>
<td>perl-file-shared-dir-install</td>
<td>0.11 gcc-9.4.0</td>
<td>Install shared files</td>
</tr>
<tr>
<td>perl-file-which</td>
<td>1.22 gcc-9.4.0</td>
<td>Perl implementation of the which utility as an API</td>
</tr>
<tr>
<td>perl-fork</td>
<td>0.36 gcc-9.4.0</td>
<td>The 'forks' pragma allows a developer to use threads without having to have a threaded perl, or to even run 5.8.0 or higher.</td>
</tr>
<tr>
<td>perl-graph</td>
<td>0.9704 gcc-9.4.0</td>
<td>Graph data structures and algorithms</td>
</tr>
<tr>
<td>Module</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
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<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hash::Merge</td>
<td>0.300_gcc-9.4.0</td>
<td>Hash::Merge merges two arbitrarily deep hashes into a single hash.</td>
</tr>
<tr>
<td>HTML parser</td>
<td>3.72_gcc-9.4.0</td>
<td>HTML parser class</td>
</tr>
<tr>
<td>HTML tags</td>
<td>3.20_gcc-9.4.0</td>
<td>Data tables useful in parsing HTML</td>
</tr>
<tr>
<td>HTTP cookie</td>
<td>6.04_gcc-9.4.0</td>
<td>HTTP cookie jars</td>
</tr>
<tr>
<td>HTTP daemon</td>
<td>6.01_gcc-9.4.0</td>
<td>A simple http server class</td>
</tr>
<tr>
<td>HTTP date</td>
<td>6.02_gcc-9.4.0</td>
<td>Date conversion routines</td>
</tr>
<tr>
<td>HTTP message</td>
<td>6.13_gcc-9.4.0</td>
<td>HTTP style routines</td>
</tr>
<tr>
<td>Choose a variant to serve</td>
<td>6.01_gcc-9.4.0</td>
<td>Choose a variant to serve</td>
</tr>
<tr>
<td>Write Perl Subroutines In Other Programming Languages</td>
<td>0.80_gcc-9.4.0</td>
<td>Write Perl Subroutines In Other Programming Languages</td>
</tr>
<tr>
<td>C Language Support for Inline</td>
<td>0.79_gcc-9.4.0</td>
<td>C Language Support for Inline</td>
</tr>
<tr>
<td>IO::All combines all of the best Perl IO modules into a single nifty object oriented interface to greatly simplify your everyday Perl IO idioms. It exports a single function called io, which returns a new IO::All object. And that object can do it all!</td>
<td>0.87_gcc-9.4.0</td>
<td>IO::All combines all of the best Perl IO modules into a single nifty object oriented interface to greatly simplify your everyday Perl IO idioms. It exports a single function called io, which returns a new IO::All object. And that object can do it all!</td>
</tr>
<tr>
<td>Open an HTML file with automatic charset detection.</td>
<td>1.001_gcc-9.4.0</td>
<td>Open an HTML file with automatic charset detection.</td>
</tr>
<tr>
<td>By default, this module exports a single function prompt. It prompts the user to enter some input, and returns an object that represents the user input.</td>
<td>0.997004_gcc-9.4.0</td>
<td>By default, this module exports a single function prompt. It prompts the user to enter some input, and returns an object that represents the user input.</td>
</tr>
<tr>
<td>Emulate file interface for in-core strings</td>
<td>1.08_gcc-9.4.0</td>
<td>Emulate file interface for in-core strings</td>
</tr>
<tr>
<td>This toolkit primarily provides modules for performing both traditional and object-oriented i/o on things other than normal filehandles; in particular, IO::Scalar, IO::ScalarArray, and IO::Lines.</td>
<td>2.111_gcc-9.4.0</td>
<td>This toolkit primarily provides modules for performing both traditional and object-oriented i/o on things other than normal filehandles; in particular, IO::Scalar, IO::ScalarArray, and IO::Lines.</td>
</tr>
<tr>
<td>IO::Tty is used internally by IO::Pty to create a pseudo-tty. You wouldn’t want to use it directly except to import constants, use IO::Pty. For a list of importable constants, see IO::Tty::Constant.</td>
<td>1.13_01_gcc-9.4.0</td>
<td>IO::Tty is used internally by IO::Pty to create a pseudo-tty. You wouldn’t want to use it directly except to import constants, use IO::Pty. For a list of importable constants, see IO::Tty::Constant.</td>
</tr>
<tr>
<td>IPC::Run allows you to run and interact with child processes using files, pipes, and pseudo-ttys. Both system()-style and scripted usages are supported and may be mixed. Likewise, functional and OO API styles are both supported and may be mixed.</td>
<td>20180523.0_gcc-9.4.0</td>
<td>IPC::Run allows you to run and interact with child processes using files, pipes, and pseudo-ttys. Both system()-style and scripted usages are supported and may be mixed. Likewise, functional and OO API styles are both supported and may be mixed.</td>
</tr>
<tr>
<td>The Libwww-perl collection is a set of Perl modules which provides a simple and consistent application programming interface to the World-Wide Web. The main focus of the library is to provide classes and functions that allow you to write WWW clients.</td>
<td>6.33_gcc-9.4.0</td>
<td>The Libwww-perl collection is a set of Perl modules which provides a simple and consistent application programming interface to the World-Wide Web. The main focus of the library is to provide classes and functions that allow you to write WWW clients.</td>
</tr>
<tr>
<td>Libxml-perl is a collection of smaller Perl modules, scripts, and documents for working with XML in Perl. Libxml-perl software works in combination with XML::Parser, PerlSAX, XML::DOM, XML::Grove and others.</td>
<td>0.08_gcc-9.4.0</td>
<td>Libxml-perl is a collection of smaller Perl modules, scripts, and documents for working with XML in Perl. Libxml-perl software works in combination with XML::Parser, PerlSAX, XML::DOM, XML::Grove and others.</td>
</tr>
<tr>
<td>Provide the stuff missing in List::Util</td>
<td>0.428_gcc-9.4.0</td>
<td>Provide the stuff missing in List::Util</td>
</tr>
<tr>
<td>List::MoreUtils::XS is a backend for List::MoreUtils. Even if it’s possible (because of user wishes) to have it practically independent from List::MoreUtils, it technically depend on List::MoreUtils. Since it’s only a backend, the API is not public and can change without any warning.</td>
<td>0.428_gcc-9.4.0</td>
<td>List::MoreUtils::XS is a backend for List::MoreUtils. Even if it’s possible (because of user wishes) to have it practically independent from List::MoreUtils, it technically depend on List::MoreUtils. Since it’s only a backend, the API is not public and can change without any warning.</td>
</tr>
<tr>
<td>Implementation of the Simran-Log-Log and Simran-Error-Error modules</td>
<td>2.0_gcc-9.4.0</td>
<td>Implementation of the Simran-Log-Log and Simran-Error-Error modules</td>
</tr>
<tr>
<td>Guess media type for a file or a URL</td>
<td>6.02_gcc-9.4.0</td>
<td>Guess media type for a file or a URL</td>
</tr>
<tr>
<td>Perl module for handling mail</td>
<td>2.21_gcc-9.4.0</td>
<td>Perl module for handling mail</td>
</tr>
<tr>
<td>MCE - Many-Core Engine for Perl providing parallel processing capabilities.</td>
<td>1.874_gcc-9.4.0</td>
<td>MCE - Many-Core Engine for Perl providing parallel processing capabilities.</td>
</tr>
<tr>
<td>Module</td>
<td>Version</td>
<td>Default</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Module::Build</td>
<td>0.4224</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Module::Build::Tiny</td>
<td>0.039</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::HTTP</td>
<td>6.17</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Object::InsideOut</td>
<td>4.05</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Parallel::ForkManager</td>
<td>1.19</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Parser::RecDescent</td>
<td>1.96015</td>
<td></td>
</tr>
<tr>
<td>Perl::Path::Tiny</td>
<td>0.108</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::PEGEX</td>
<td>0.64</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Perl::Unsafe::Signal</td>
<td>0.03</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::ReadOnly</td>
<td>2.05</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Scalar::List::Util</td>
<td>1.50</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Scalar::Util::Numeric</td>
<td>0.40</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Set::Scalar</td>
<td>1.29</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Sub::Uplevel</td>
<td>0.28000</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Sys::Sigaction</td>
<td>0.23</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Term::ReadKey</td>
<td>2.38</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Deep</td>
<td>1.127</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Differences</td>
<td>0.64</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Exception</td>
<td>0.43</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Moose</td>
<td>0.35</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Needs</td>
<td>0.002005</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::RequiresInterNet</td>
<td>0.05</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Warn</td>
<td>0.30</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Perl::Test::Diff</td>
<td>1.45</td>
<td>gcc-9.4.0</td>
</tr>
<tr>
<td>Module</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Perl::Text::Soundex</td>
<td>3.05_gcc-9.4.0</td>
<td>Soundex is a phonetic algorithm for indexing names by sound, as pronounced in English. The goal is for names with the same pronunciation to be encoded to the same representation so that they can be matched despite minor differences in spelling.</td>
</tr>
<tr>
<td>Perl::Thread::Queue</td>
<td>3.13_gcc-9.4.0</td>
<td>Thread::Queue - Thread-safe queues.</td>
</tr>
<tr>
<td>Perl::Threads</td>
<td>2.21_gcc-9.4.0</td>
<td>threads - Perl interpreter-based threads.</td>
</tr>
<tr>
<td>Perl::Time::Date</td>
<td>2.30_gcc-9.4.0</td>
<td>The parser contained here will only parse absolute dates, if you want a date parser that can parse relative dates then take a look at the Time modules by David Muir on CPAN.</td>
</tr>
<tr>
<td>Perl::Try::Tiny</td>
<td>0.28_gcc-9.4.0</td>
<td>Minimal try/catch with proper preservation of $@</td>
</tr>
<tr>
<td>Perl::UUID</td>
<td>1.72_gcc-9.4.0</td>
<td>Uniform Resource Identifiers (absolute and relative)</td>
</tr>
<tr>
<td>Perl::Wanturn</td>
<td>0.29_gcc-9.4.0</td>
<td>A generalisation of warray.</td>
</tr>
<tr>
<td>Perl::WWW::Robot::Rules</td>
<td>6.02_gcc-9.4.0</td>
<td>Database of robots.txt-derived permissions.</td>
</tr>
<tr>
<td>XML::DOM</td>
<td>1.46_gcc-9.4.0</td>
<td>This module extends the XML::Parser module by Clark Cooper. The XML::Parser module is built on top of XML::Parser::Expat, which is a lower level interface to James Clark’s expat library.</td>
</tr>
<tr>
<td>XML::DOM::XPath</td>
<td>0.14_gcc-9.4.0</td>
<td>XML::DOM/XPath allows you to use XML::XPath methods to query a DOM. This is often much easier than relying only on getElementsByTagName.</td>
</tr>
<tr>
<td>XML::Filter::BufferText</td>
<td>1.01_gcc-9.4.0</td>
<td>This is a very simple filter. One common cause of grief (and programmer error) is that XML parsers aren’t required to provide character events in one chunk. They can, but are not forced to, and most don’t. This filter does the trivial but oft-repeated task of putting all characters into a single event.</td>
</tr>
<tr>
<td>XML::LibXML</td>
<td>2.0201_gcc-9.4.0</td>
<td>This module is an interface to libxml2, providing XML and HTML parsers with DOM, SAX and XMLReader interfaces, a large subset of DOM Layer 3 interface and a XML::XPath-like interface to XPath API of libxml2. The module is split into several packages which are not described in this section; unless stated otherwise, you only need to use XML::LibXML in your programs.</td>
</tr>
<tr>
<td>XML::Namespaces::Upper</td>
<td>1.12_9_gcc-9.4.0</td>
<td>This module offers a simple to process namespaced XML names (unames) from within any application that may need them. It also helps maintain a prefix to namespace URI map, and provides a number of basic checks.</td>
</tr>
<tr>
<td>XML::Parser</td>
<td>2.44_gcc-9.4.0</td>
<td>XML::Parser - A perl module for parsing XML documents</td>
</tr>
<tr>
<td>XML::Quote</td>
<td>1.02_gcc-9.4.0</td>
<td>This package provides functions to quote/dequote strings in 'xml'-way.</td>
</tr>
<tr>
<td>XML::Regexp</td>
<td>0.04_gcc-9.4.0</td>
<td>This package contains regular expressions for the following XML tokens: BaseChar, Ideographic, Letter, Digit, Extender, CombiningChar, NameChar, EntityRef, CharRef, Reference, Name, NmToken, and AttValue.</td>
</tr>
<tr>
<td>XML::SAX</td>
<td>1.02_gcc-9.4.0</td>
<td>XML::SAX is a SAX parser access API for Perl. It includes classes and APIs required for implementing SAX drivers, along with a factory class for returning any SAX parser installed on the user’s system.</td>
</tr>
<tr>
<td>XML::SAX::Base</td>
<td>1.09_gcc-9.4.0</td>
<td>This module has a very simple task - to be a base class for PerlSAX drivers and filters. If the default behaviour is to pass the input directly to the output unchanged. It can be useful to use this module as a base class so you don’t have to, for example, implement the characters() callback.</td>
</tr>
<tr>
<td>XML::SAX::Writer</td>
<td>0.57_gcc-9.4.0</td>
<td>A new XML Writer was needed to match the SAX2 effort because quite naturally no existing writer understood SAX2. My first intention had been to start patching XML::Handler::YAWriter as it had previously been my favourite writer in the SAX1 world.</td>
</tr>
<tr>
<td>XML::Twig</td>
<td>3.52_gcc-9.4.0</td>
<td>This module provides a way to process XML documents. It is build on top of XML::Parser.</td>
</tr>
<tr>
<td>XML::Write</td>
<td>6.265_gcc-9.4.0</td>
<td>XML::Write is a helper module for Perl programs that write an XML document. The module handles all escaping for attribute values and character data and constructs different types of markup, such as tags, comments, and processing instructions.</td>
</tr>
<tr>
<td>XML::XPathEngine</td>
<td>0.14_gcc-9.4.0</td>
<td>This module provides an XPath engine, that can be re-used by other module/classes that implement trees.</td>
</tr>
<tr>
<td>Perl::YAML</td>
<td>1.27_gcc-9.4.0</td>
<td>This module has been released to CPAN as YAML::Old, and soon YAML.pm will be changed to just be a frontend interface module for all the various Perl YAML implementation modules, including YAML::Old.</td>
</tr>
<tr>
<td>Perl::YAML::Library</td>
<td>0.67_gcc-9.4.0</td>
<td>Perl YAML Serialization using XS and libyaml</td>
</tr>
<tr>
<td>PETSc</td>
<td>3.16.4_gcc-9.4.0</td>
<td>PETSc is a suite of data structures and routines for the scalable (parallel) solution of scientific applications modeled by partial differential equations.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>License</td>
</tr>
<tr>
<td>-------------</td>
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</tr>
<tr>
<td>pixman</td>
<td>0.40.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>pkgconf</td>
<td>1.8.0_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>plumed</td>
<td>2.6.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>poppler</td>
<td>0.79.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>poppler-data</td>
<td>0.4.9_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>pop</td>
<td>1.16_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>postgresql</td>
<td>12.2_gcc-9.4.0, 14.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>proj</td>
<td>5.2.0_gcc-9.4.0, 8.1.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>protobuf</td>
<td>3.17.3_gcc-9.4.0, 3.18.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>psimd</td>
<td>2020-05-17_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>pthreadpool</td>
<td>2021-04-13_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-absl-py</td>
<td>0.13.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-agate</td>
<td>1.6.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-agate-dbf</td>
<td>0.2.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-agate-excel</td>
<td>0.2.3_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>py-agate-sql</td>
<td>0.5.4_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-alabaster</td>
<td>0.7.12_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-anyio</td>
<td>3.5.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-appдин</td>
<td>1.4.4_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>py-argon2-cffi</td>
<td>21.3.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-argon2-cffi-bindings</td>
<td>21.2.0_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>py-avn2</td>
<td>0.6.1_gcc-9.4.0</td>
<td>default</td>
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<tr>
<td>py-ase</td>
<td>3.21.1_gcc-9.4.0</td>
<td>default</td>
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<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
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<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-asttokens</td>
<td>2.0.5</td>
<td>Annotate AST trees with source code positions.</td>
</tr>
<tr>
<td>py-astunparse</td>
<td>1.6.3</td>
<td>An AST unpaser for Python.</td>
</tr>
<tr>
<td>pyattrs</td>
<td>21.4.0</td>
<td>Classes Without Boilerplate</td>
</tr>
<tr>
<td>py-audiodread</td>
<td>2.1.8</td>
<td>cross-library (GStreamer + Core Audio + MAD + FFmpeg) audio decoding for Python.</td>
</tr>
<tr>
<td>py-automata</td>
<td>20.2.0</td>
<td>Self-service finite-state machines for the programmer on the go.</td>
</tr>
<tr>
<td>py-auxlib</td>
<td>0.0.43</td>
<td>Auxlib is an auxiliary library to the python standard library.</td>
</tr>
<tr>
<td>py-awkward0</td>
<td>0.15.5</td>
<td>Manipulate arrays of complex data structures as easily as Numpy.</td>
</tr>
<tr>
<td>py-babel</td>
<td>2.9.1</td>
<td>Babel is an integrated collection of utilities that assist in internationalizing and localizing Python applications, with an emphasis on web-based applications.</td>
</tr>
<tr>
<td>py-backcall</td>
<td>0.2.0</td>
<td>Specifications for callback functions passed in to an API</td>
</tr>
<tr>
<td>py-backports-entry-points-selectable</td>
<td>1.1.1</td>
<td>Compatibility shim providing selectable entry points for older implementations</td>
</tr>
<tr>
<td>py-backports-weakref</td>
<td>1.0. post1_gcc-9.4.0</td>
<td>Backports of new features in Python’s weakref module</td>
</tr>
<tr>
<td>py-beautifulsoup</td>
<td>4.10.0</td>
<td>Beautiful Soup is a Python library for pulling data out of HTML and XML files. It works with your favorite parser to provide idiomatic ways of navigating, searching, and modifying the parse tree.</td>
</tr>
<tr>
<td>py-beniget</td>
<td>0.4.1</td>
<td>Extract semantic information about static Python code.</td>
</tr>
<tr>
<td>py-biopython</td>
<td>1.78_gcc-9.4.0</td>
<td>A distributed collaborative effort to develop Python libraries and applications which address the needs of current and future work in bioinformatics.</td>
</tr>
<tr>
<td>py-bitarray</td>
<td>0.8.1</td>
<td>Efficient array of booleans - C extension</td>
</tr>
<tr>
<td>py-black</td>
<td>22.1.0_gcc-9.4.0</td>
<td>Black is the uncompromising Python code formatter. By using it, you agree to cede control over minutiae of hand-formatting. In return, Black gives you speed, determinism, and freedom from pycodestyle nagging about formatting.</td>
</tr>
<tr>
<td>py-bleach</td>
<td>4.1.0</td>
<td>An easy allowlist-based HTML-sanitizing tool.</td>
</tr>
<tr>
<td>py-blinker</td>
<td>1.4_gcc-9.4.0</td>
<td>Fast, simple object-to-object and broadcast signaling</td>
</tr>
<tr>
<td>py-boto</td>
<td>1.18.12_gcc-9.4.0</td>
<td>The AWS SDK for Python.</td>
</tr>
<tr>
<td>py-boto3</td>
<td>1.21.12_gcc-9.4.0</td>
<td>Low-level, data-driven core of boto 3.</td>
</tr>
<tr>
<td>py-bottleneck</td>
<td>1.3.2_gcc-9.4.0</td>
<td>A collection of fast NumPy array functions written in Cython.</td>
</tr>
<tr>
<td>py-bpython</td>
<td>0.8.8_gcc-9.4.0</td>
<td>The bx-python project is a python library and associated set of scripts to allow for rapid implementation of genome scale analyses.</td>
</tr>
<tr>
<td>py-cachetools</td>
<td>4.2.4_gcc-9.4.0</td>
<td>This module provides various memoizing collections and decorators, including variants of the Python 3 Standard Library @lru_cache function decorator.</td>
</tr>
<tr>
<td>py-certifi</td>
<td>2021.10.8_gcc-9.4.0</td>
<td>Certifi: A carefully curated collection of Root Certificates for validating the trustworthiness of SSL certificates while verifying the identity of TLS hosts.</td>
</tr>
<tr>
<td>py-cffi</td>
<td>1.15.0_gcc-9.4.0</td>
<td>Foreign Function Interface for Python calling C code.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Dependencies</td>
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<td>py-time</td>
<td>1.0.3.4</td>
<td>gcc-9.4.0</td>
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<td>py-charset-normalize</td>
<td>2.0.12</td>
<td>gcc-9.4.0</td>
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<td>py-click</td>
<td>8.0.3</td>
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<td>py-colorama</td>
<td>0.4.4</td>
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<td>py-configparser</td>
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<td>py-connectionpool</td>
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<td>15.1.0</td>
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<td>py-cppp</td>
<td>1.1.0</td>
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<td>py-cryptography</td>
<td>36.0.1.0</td>
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<td>py-csvkit</td>
<td>1.0.4</td>
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<td>py-cutadapt</td>
<td>2.10</td>
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<td>py-cycler</td>
<td>0.11.0</td>
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<td>py-cython</td>
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<td>py-datrie</td>
<td>0.8.2</td>
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<td>py-debugpy</td>
<td>1.5.1</td>
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<td>gcc-9.4.0</td>
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<td>0.1.9</td>
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<td>py-flask</td>
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<td>3.6.0</td>
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<td>py-flit-core</td>
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<td>4.29.1</td>
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<td>0.18.2</td>
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<td>py-greenlet</td>
<td>21.12.0</td>
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<td>py-gitdb</td>
<td>4.0.9</td>
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<td>py-google-auth</td>
<td>2.3.2</td>
<td>gcc-9.4.0</td>
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<td>py-google-auth-oauthlib</td>
<td>0.4.6</td>
<td>gcc-9.4.0</td>
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<td>py-goolge-driveownloader</td>
<td>0.4.0</td>
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<td>py-google-paste</td>
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<td>py-graphviz</td>
<td>0.13.2</td>
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<td>py-imageio-ffmpeg</td>
<td>0.4.5_gcc-9.4.0</td>
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<td>py-importlib-metadata</td>
<td>4.11.1_gcc-9.4.0</td>
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<td>py-incremental</td>
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<td>1.1.1_gcc-9.4.0</td>
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<td>py-ipypackage</td>
<td>6.9.1_gcc-9.4.0</td>
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<td>py-ipython</td>
<td>8.0.1_gcc-9.4.0</td>
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<td>py-ipython-genutils</td>
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<td>7.6.5_gcc-9.4.0</td>
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<td>py-isodate</td>
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<td>py-ikit</td>
<td>5.1.2_cc39_gcc-9.4.0</td>
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<td>py-itsdangerous</td>
<td>2.0.1_gcc-9.4.0</td>
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<td>py-jdca</td>
<td>1.3_gcc-9.4.0</td>
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<td>py-jedi</td>
<td>0.18.1_gcc-9.4.0</td>
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<td>py-jinja2</td>
<td>3.0.3_gcc-9.4.0</td>
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<td>py-jmespath</td>
<td>0.10.0_gcc-9.4.0</td>
<td>default</td>
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<td>py-joblib</td>
<td>1.1.0_gcc-9.4.0</td>
<td>default</td>
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<td>py-json5</td>
<td>0.9.6_gcc-9.4.0</td>
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<td>py-jsonschema</td>
<td>4.4.0_gcc-9.4.0</td>
<td>default</td>
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<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><code>py-jupyter</code></td>
<td>1.0.0_gcc-9.4.0 default</td>
<td>Jupyter metapackage. Install all the Jupyter components in one go.</td>
</tr>
<tr>
<td><code>py-jupyter-client</code></td>
<td>7.1.2_gcc-9.4.0 default</td>
<td>Jupyter protocol client APIs</td>
</tr>
<tr>
<td><code>py-jupyter-console</code></td>
<td>6.4.0_gcc-9.4.0 default</td>
<td>Jupyter Terminal Console</td>
</tr>
<tr>
<td><code>py-jupyter-core</code></td>
<td>4.9.2_gcc-9.4.0 default</td>
<td>Core Jupyter functionality</td>
</tr>
<tr>
<td><code>py-jupyterlab</code></td>
<td>3.2.9_gcc-9.4.0 default</td>
<td>JupyterLab is the next-generation web-based user interface for Project Jupyter.</td>
</tr>
<tr>
<td><code>py-jupyterlab-pygments</code></td>
<td>0.1.2_gcc-9.4.0 default</td>
<td>Pygments theme using JupyterLab CSS variables.</td>
</tr>
<tr>
<td><code>py-jupyterlab-server</code></td>
<td>2.10.3_gcc-9.4.0 default</td>
<td>A set of server components for JupyterLab and JupyterLab like applications</td>
</tr>
<tr>
<td><code>py-jupyterlab-widgets</code></td>
<td>1.0.2_gcc-9.4.0 default</td>
<td>A JupyterLab extension.</td>
</tr>
<tr>
<td><code>py-jupyter-packaging11</code></td>
<td>0.11.1_gcc-9.4.0 default</td>
<td>Jupyter Packaging Utilities, version 11.</td>
</tr>
<tr>
<td><code>py-jupyter-packaging7</code></td>
<td>0.7.12_gcc-9.4.0 default</td>
<td>Jupyter Packaging Utilities, version 7.</td>
</tr>
<tr>
<td><code>py-jupyter-server</code></td>
<td>1.13.5_gcc-9.4.0 default</td>
<td>The Jupyter Server provides the backend (i.e. the core services, APIs, and REST endpoints) for Jupyter web applications like Jupyter notebook, JupyterLab, and Voila.</td>
</tr>
<tr>
<td><code>py-keras</code></td>
<td>2.7.0_gcc-9.4.0 default</td>
<td>Deep Learning library for Python. Convnets, recurrent neural networks, and more. Runs on Theano or TensorFlow.</td>
</tr>
<tr>
<td><code>py-keras-preprocessing</code></td>
<td>1.1.2_gcc-9.4.0 default</td>
<td>Utilities for working with image data, text data, and sequence data.</td>
</tr>
<tr>
<td><code>py-kiwisolver</code></td>
<td>1.3.2_gcc-9.4.0 default</td>
<td>A fast implementation of the Cassowary constraint solver</td>
</tr>
<tr>
<td><code>py-leather</code></td>
<td>0.3.3_gcc-9.4.0 default</td>
<td>Leather is the Python charting library for those who need charts now and don’t care if they’re perfect.</td>
</tr>
<tr>
<td><code>py-libclang</code></td>
<td>11.1.0_gcc-9.4.0 default</td>
<td>The repository contains code that taken from the LLVM project, to make it easier to install clang’s python bindings.</td>
</tr>
<tr>
<td><code>py-librosa</code></td>
<td>0.7.2_gcc-9.4.0 default</td>
<td>A python package for music and audio analysis.</td>
</tr>
<tr>
<td><code>py-livewire</code></td>
<td>0.38.0_gcc-9.4.0 default</td>
<td>A lightweight LLVM python binding for writing JIT compilers</td>
</tr>
<tr>
<td><code>py-lz4</code></td>
<td>3.1.3_gcc-9.4.0 default</td>
<td>lz4 (compression library) bindings for Python</td>
</tr>
<tr>
<td><code>py-m2r</code></td>
<td>0.2.1_gcc-9.4.0 default</td>
<td>M2R converts a markdown file including reStructuredText (rst) markups to a valid rst format.</td>
</tr>
<tr>
<td><code>py-mako</code></td>
<td>1.1.6_gcc-9.4.0 default</td>
<td>A super-fast templating language that borrows the best ideas from the existing templating languages.</td>
</tr>
<tr>
<td><code>py-markdown</code></td>
<td>3.3.4_gcc-9.4.0 default</td>
<td>This is a Python implementation of John Gruber's Markdown. It is almost completely compliant with the reference implementation, though there are a few very minor differences. See John’s Syntax Documentation for the syntax rules.</td>
</tr>
<tr>
<td><code>py-markupsafe</code></td>
<td>0.2.1_gcc-9.4.0 default</td>
<td>MarkupSafe is a library for Python that implements a unicode string that is aware of HTML escaping rules and can be used to implement automatic string escaping. It is used by Jinja 2, the Mako templating engine, the Pylons web framework and many more.</td>
</tr>
<tr>
<td><code>py-matplotlib</code></td>
<td>3.5.1_gcc-9.4.0 default</td>
<td>Matplotlib is a comprehensive library for creating static, animated, and interactive visualizations in Python.</td>
</tr>
<tr>
<td><code>py-matplotlib-inline</code></td>
<td>0.4.3_gcc-9.4.0 default</td>
<td>Inline Matplotlib backend for Jupyter.</td>
</tr>
<tr>
<td><code>py-misopy</code></td>
<td>0.5.4_gcc-9.4.0 default</td>
<td>MISO (Mixture of Isoforms) is a probabilistic framework that quantitates the expression level of alternatively spliced genes from RNA-Seq data, and identifies differentially regulated isoforms or exons across samples.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Notes</td>
</tr>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-mistune</td>
<td>0.8.4</td>
<td>A sane Markdown parser with useful plugins and renderers.</td>
</tr>
<tr>
<td>py-mock</td>
<td>4.0.3</td>
<td>mock is a library for testing in Python. It allows you to replace parts of your system under test with mock objects and make assertions about how they have been used.</td>
</tr>
<tr>
<td>py-moviepy</td>
<td>1.0.3</td>
<td>MoviePy is a Python module for video editing, which can be used for basic operations (like cuts, concatenations, title insertions), video compositing (a.k.a. non-linear editing), video processing, or to create advanced effects. It can read and write the most common video formats, including GIF.</td>
</tr>
<tr>
<td>py-mpi4py</td>
<td>3.1.2</td>
<td>This package provides Python bindings for the Message Passing Interface (MPI) standard. It is implemented on top of the MPI-1/MPI-2 specification and exposes an API which works on the standard MPI-2 C++ bindings.</td>
</tr>
<tr>
<td>py-mpmath</td>
<td>1.2.1</td>
<td>A Python library for arbitrary-precision floating-point arithmetic.</td>
</tr>
<tr>
<td>py-mypy-extensions</td>
<td>0.4.3</td>
<td>Experimental type system extensions for programs checked with the mypy typechecker.</td>
</tr>
<tr>
<td>py-nbclassic</td>
<td>0.3.5</td>
<td>Jupyter Notebook as a Jupyter Server Extension.</td>
</tr>
<tr>
<td>py-nbclient</td>
<td>0.5.5</td>
<td>A client library for executing notebooks.</td>
</tr>
<tr>
<td>py-nbconvert</td>
<td>6.4.2</td>
<td>Jupyter Notebook Conversion</td>
</tr>
<tr>
<td>py-nbformat</td>
<td>5.1.3</td>
<td>The Jupyter Notebook format</td>
</tr>
<tr>
<td>py-netcdf</td>
<td>1.5.4</td>
<td>Patch asyncio to allow nested event loops.</td>
</tr>
<tr>
<td>py-netCDF</td>
<td>1.5.3</td>
<td>Python interface to the netCDF Library.</td>
</tr>
<tr>
<td>py-networkx</td>
<td>2.6.3</td>
<td>NetworkX is a Python package for the creation, manipulation, and study of the structure, dynamics, and functions of complex networks.</td>
</tr>
<tr>
<td>py-notebook</td>
<td>6.4.5</td>
<td>Jupyter Interactive Notebook</td>
</tr>
<tr>
<td>py-numpy</td>
<td>0.55.1</td>
<td>NumPy aware dynamic Python compiler using LLVM</td>
</tr>
<tr>
<td>py-numexpr</td>
<td>2.7.3</td>
<td>Fast numerical expression evaluator for NumPy</td>
</tr>
<tr>
<td>py-numpy</td>
<td>1.21.5</td>
<td>NumPy is the fundamental package for scientific computing with Python. It contains among other things: a powerful N-dimensional array object, sophisticated (broadcasting) functions, tools for integrating C/C++ and Fortran code, and useful linear algebra, Fourier transform, and random number capabilities.</td>
</tr>
<tr>
<td>py-numpydoc</td>
<td>1.1.0</td>
<td>numpydoc - Numpy's Sphinx extensions</td>
</tr>
<tr>
<td>py-oauthlib</td>
<td>3.1.0</td>
<td>A generic, spec-compliant, thorough implementation of the OAuth request-signing logic</td>
</tr>
<tr>
<td>py-openpyxl</td>
<td>3.0.3</td>
<td>A Python library to read/write Excel 2010 xlsx/xlsm files</td>
</tr>
<tr>
<td>py-opt-einsum</td>
<td>3.3.0</td>
<td>Optimized Einsum: A tensor contraction order optimizer.</td>
</tr>
<tr>
<td>py-ordereddict</td>
<td>1.1.0</td>
<td>A drop-in substitute for Py2.7's new collections. OrderedDict that works in Python 2.4-2.6.</td>
</tr>
<tr>
<td>py-packaging</td>
<td>21.3</td>
<td>Core utilities for Python packages.</td>
</tr>
<tr>
<td>py-pandas</td>
<td>1.4.1</td>
<td>pandas is a fast, powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python programming language.</td>
</tr>
<tr>
<td>py-pandocfilters</td>
<td>1.5.0</td>
<td>A python module for writing pandoc filters</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Notes</td>
</tr>
<tr>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-parseddtime</td>
<td>2.5_gcc-9.4.0 default</td>
<td>Parse human-readable date/time strings.</td>
</tr>
<tr>
<td>py-parsesa</td>
<td>0.8.2_gcc-9.4.0 default</td>
<td>Parso is a Python parser that supports error recovery and round-trip parsing for different Python versions (in multiple Python versions). Parso is also able to list multiple syntax errors in your python file.</td>
</tr>
<tr>
<td>py-pathspec</td>
<td>0.9.0_gcc-9.4.0 default</td>
<td>pathspec extends the test loading and running features of unittest, making it easier to write, find and run tests.</td>
</tr>
<tr>
<td>py-patsy</td>
<td>0.5.1_gcc-9.4.0 default</td>
<td>A Python package for describing statistical models and for building design matrices.</td>
</tr>
<tr>
<td>py-pexepro</td>
<td>4.8.0_gcc-9.4.0 default</td>
<td>Pexepro allows easy control of interactive console applications.</td>
</tr>
<tr>
<td>py-pickleshare</td>
<td>0.7.5_gcc-9.4.0 default</td>
<td>Tiny 'shelf'-like database with concurrency support</td>
</tr>
<tr>
<td>py-pillow</td>
<td>9.0.0_gcc-9.4.0 default</td>
<td>Pillow is a fork of the Python Imaging Library (PIL). It adds image processing capabilities to your Python interpreter. This library supports many file formats, and provides powerful image processing and graphics capabilities.</td>
</tr>
<tr>
<td>py-pip</td>
<td>21.3.1_gcc-9.4.0 default</td>
<td>The PyPA recommended tool for installing Python packages.</td>
</tr>
<tr>
<td>py-pkgconfig</td>
<td>1.5.5_gcc-9.4.0 default</td>
<td>Interface Python with pkg-config.</td>
</tr>
<tr>
<td>py-platformdirs</td>
<td>2.4.0_gcc-9.4.0 default</td>
<td>A small Python module for determining appropriate platform-specific dirs, e.g. a 'user data dir'</td>
</tr>
<tr>
<td>py-pluggy</td>
<td>1.0.0_gcc-9.4.0 default</td>
<td>Plugin and hook calling mechanisms for python.</td>
</tr>
<tr>
<td>py-ply</td>
<td>3.11_gcc-9.4.0 default</td>
<td>Python Lex &amp; Yacc.</td>
</tr>
<tr>
<td>py-poetry-config</td>
<td>1.0.7_gcc-9.4.0 default</td>
<td>Poetry PEP 517 Build Backend.</td>
</tr>
<tr>
<td>py-proglog</td>
<td>0.1.9_gcc-9.4.0 default</td>
<td>Prolog is a progress logging system for Python. It allows to build complex libraries while giving the user control on the management of logs, callbacks and progress bars.</td>
</tr>
<tr>
<td>py-prometheus-client</td>
<td>0.12.0_gcc-9.4.0 default</td>
<td>Prometheus instrumentation library for Python applications.</td>
</tr>
<tr>
<td>py-prompt-toolkit</td>
<td>3.0.24_gcc-9.4.0 default</td>
<td>Library for building powerful interactive command lines in Python</td>
</tr>
<tr>
<td>py-protobuf</td>
<td>3.17.3_gcc-9.4.0 default</td>
<td>Protocol buffers are Google's language-neutral, platform-neutral, extensible mechanism for serializing structured data - think XML, but smaller, faster, and simpler. You define how you want your data to be structured once, then you can use special generated source code to easily write and read your structured data to and from a variety of data streams and using a variety of languages.</td>
</tr>
<tr>
<td>py-psutil</td>
<td>5.8.0_gcc-9.4.0 default</td>
<td>psutil is a cross-platform library for retrieving information on running processes and system utilization (CPU, memory, disks, network) in Python.</td>
</tr>
<tr>
<td>py-psycopg2</td>
<td>2.9.1_gcc-9.4.0 default</td>
<td>Python interface to PostgreSQL databases</td>
</tr>
<tr>
<td>py-pyprocess</td>
<td>0.7.0_gcc-9.4.0 default</td>
<td>Run a subprocess in a pseudo terminal</td>
</tr>
<tr>
<td>py-pytest</td>
<td>2.6.0_gcc-9.4.0 default</td>
<td>PuLP is an LP modeler written in Python. PuLP can generate MPS or LP files and call GLPK, COIN-OR CLP/CBC, CPLEX, GUROBI, MOSEK, XPRESS, CHOCO, MIPCL, SCIP to solve linear problems.</td>
</tr>
<tr>
<td>py-pure-eval</td>
<td>0.2.2_gcc-9.4.0 default</td>
<td>Safely evaluate AST nodes without side effects.</td>
</tr>
<tr>
<td>py-pye</td>
<td>1.11.0_gcc-9.4.0 default</td>
<td>Library with cross-python path, ini-parsing, io, code, log facilities</td>
</tr>
<tr>
<td>py-pysasn1-modules</td>
<td>0.4.8_gcc-9.4.0 default</td>
<td>Pure-Python implementation of ASN.1 types and DER/BER/CER codecs (X.208).</td>
</tr>
<tr>
<td>py-pysasn1</td>
<td>0.2.8_gcc-9.4.0 default</td>
<td>A collection of ASN.1 modules expressed in form of pysasn1 classes. Includes protocols PDU's definition (SNMP, LDAP etc.) and various data structures (X.509, PKCS etc.).</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-bigwig</td>
<td>0.3.12_gcc-9.4.0 default</td>
<td>A package for accessing bigWig files using libBigWig.</td>
</tr>
<tr>
<td>pybind11</td>
<td>2.6.2_gcc-9.4.0 default</td>
<td>pybind11 – Seamless operability between C++11 and Python.</td>
</tr>
<tr>
<td>py-cifrw</td>
<td>4.4.1_gcc-9.4.0 default</td>
<td>Python library for interacting with Crystallographic Information Framework (CIF) files.</td>
</tr>
<tr>
<td>py-cparser</td>
<td>2.20_gcc-9.4.0 default</td>
<td>A complete parser of the C language, written in pure python.</td>
</tr>
<tr>
<td>py-dicom</td>
<td>2.1.2_gcc-9.4.0 default</td>
<td>Pure python package for DICOM medical file reading and writing.</td>
</tr>
<tr>
<td>py-doo</td>
<td>1.4.2_gcc-9.4.0 default</td>
<td>Python interface to Graphviz's Dot language</td>
</tr>
<tr>
<td>py-gnumpy</td>
<td>2.10.0_gcc-9.4.0 default</td>
<td>Pygments is a syntax highlighting package written in Python.</td>
</tr>
<tr>
<td>py-gjson</td>
<td>0.7.6_gcc-9.4.0 default</td>
<td>pyjson package for the libgmparray C library.</td>
</tr>
<tr>
<td>py-jwt</td>
<td>2.1.0_gcc-9.4.0 default</td>
<td>JSON Web Token implementation in Python</td>
</tr>
<tr>
<td>py-mc3</td>
<td>3.8_gcc-9.4.0 default</td>
<td>PyMC3 is a Python package for Bayesian statistical modeling and Probabilistic Machine Learning focusing on advanced Markov chain Monte Carlo (MCMC) and variational inference (VI) algorithms. Its flexibility and extensibility make it applicable to a large suite of problems.</td>
</tr>
<tr>
<td>py-mysql</td>
<td>0.9.2_gcc-9.4.0 default</td>
<td>Pure-Python MySQL client library</td>
</tr>
<tr>
<td>py-parsing</td>
<td>3.0.6_gcc-9.4.0 default</td>
<td>A Python Parsing Module.</td>
</tr>
<tr>
<td>py-qt</td>
<td>5.13.1_gcc-9.4.0 default</td>
<td>PyQt is a set of Python v2 and v3 bindings for The Qt Company’s Qt application framework and runs on all platforms supported by Qt including Windows, OS X, Linux, iOS and Android. PyQt5 supports Qt v5.</td>
</tr>
<tr>
<td>py-persistent</td>
<td>0.18.0_gcc-9.4.0 default</td>
<td>PyPersistent is a number of persistent collections (by some referred to as functional data structures). Persistent in the sense that they are immutable.</td>
</tr>
<tr>
<td>py-sam</td>
<td>0.18.0_gcc-9.4.0 default</td>
<td>A python module for reading, manipulating and writing genomic data sets.</td>
</tr>
<tr>
<td>py-test</td>
<td>6.2.5_gcc-9.4.0 default</td>
<td>pytest: simple powerful testing with Python.</td>
</tr>
<tr>
<td>py-test-runner</td>
<td>5.3.1_gcc-9.4.0 default</td>
<td>Invoke py.test as distutils command with dependency resolution.</td>
</tr>
<tr>
<td>py-python-box</td>
<td>5.3.0_gcc-9.4.0 default</td>
<td>Advanced Python dictionaries with dot notation access</td>
</tr>
<tr>
<td>py-python-dateutil</td>
<td>2.8.2_gcc-9.4.0 default</td>
<td>Extensions to the standard Python datetime module.</td>
</tr>
<tr>
<td>py-python-louvain</td>
<td>0.15_gcc-9.4.0 default</td>
<td>This module implements community detection. It uses the Louvain method described in Fast unfolding of communities in large networks, Vincent D Blondel, Jean-Loup Guillaume, Renaud Lambiotte, Renaud Lefebvre, Journal of Statistical Mechanics: Theory and Experiment 2008(10), P10008 (12pp)</td>
</tr>
<tr>
<td>py-python-slugify</td>
<td>4.0.0_gcc-9.4.0 default</td>
<td>A Python Slugify application that handles Unicode</td>
</tr>
<tr>
<td>py-time</td>
<td>0.10.0_gcc-9.4.0 default</td>
<td>Ahead of Time compiler for numeric kernels.</td>
</tr>
<tr>
<td>py-timeparse</td>
<td>1.1.8_gcc-9.4.0 default</td>
<td>A small Python library to parse various kinds of time expressions.</td>
</tr>
<tr>
<td>py-torch-gradual-warmup-lr</td>
<td>0.3.2_gcc-9.4.0 default</td>
<td>Gradually warm-up (increasing) learning rate for pytorch’s optimizer.</td>
</tr>
<tr>
<td>py-tz</td>
<td>2021.3_gcc-9.4.0 default</td>
<td>World timezone definitions, modern and historical.</td>
</tr>
<tr>
<td>py-vcf</td>
<td>0.6.8_gcc-9.4.0 default</td>
<td>A Variant Call Format reader for Python</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Dependencies</td>
</tr>
<tr>
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</tr>
<tr>
<td>py-pywavelets</td>
<td>1.1.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-pyyaml</td>
<td>6.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-pyzmq</td>
<td>22.3.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-qtconsole</td>
<td>5.2.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-qtpy</td>
<td>1.11.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-ratelimiter</td>
<td>1.2.0.post0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-rdflib</td>
<td>6.0.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-renden</td>
<td>3.5.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-reportlab</td>
<td>3.4.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-requests</td>
<td>2.26.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-requests-oauthlib</td>
<td>1.3.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-resampy</td>
<td>0.2.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-rpy2</td>
<td>3.0.4_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-rsa</td>
<td>4.7.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-rseqc</td>
<td>3.0.1_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-rst2pdf</td>
<td>0.99_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-nuamel-yaml</td>
<td>0.17.16_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-s3transfer</td>
<td>0.5.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-sckit-build</td>
<td>0.12.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-sckit-image</td>
<td>0.18.3_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-sckit-learn</td>
<td>1.0.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-sckit-learn-extra</td>
<td>0.2.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-sckit-optimize</td>
<td>0.5.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-scipy</td>
<td>1.8.0_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>py-semantic-version</td>
<td>2.8.2_gcc-9.4.0</td>
<td>default</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-send2trash</td>
<td>1.8.0_gcc-9.4.0</td>
<td>Python library to send files to Trash/Recycle on all platforms.</td>
</tr>
<tr>
<td>py-sentencepiece</td>
<td>0.1.91_gcc-9.4.0</td>
<td>Unsupervised text tokenizer for Neural Network-based text generation.</td>
</tr>
<tr>
<td>py-setuptools</td>
<td>57.4.0_gcc-9.4.0</td>
<td>A Python utility that aids in the process of downloading, building, upgrading, installing, and uninstalling Python packages.</td>
</tr>
<tr>
<td>py-setuptools-rust</td>
<td>0.12.1_gcc-9.4.0</td>
<td>Setup tools rust extension plugin.</td>
</tr>
<tr>
<td>py-setuptools-scm</td>
<td>6.3.2_gcc-9.4.0</td>
<td>The blessed package to manage your versions by scm tags.</td>
</tr>
<tr>
<td>py-setuptools-scm-git-archive</td>
<td>1.1_gcc-9.4.0</td>
<td>This is a setuptools_scm plugin that adds support for git archives (for example the ones GitHub automatically generates).</td>
</tr>
<tr>
<td>py-simplegeneric</td>
<td>0.8.1_gcc-9.4.0</td>
<td>Simple generic functions (similar to Python's own len(), pickle.dump(), etc.)</td>
</tr>
<tr>
<td>py-sip</td>
<td>4.19.21_gcc-9.4.0-qf5</td>
<td>A Python bindings generator for C/C++ libraries.</td>
</tr>
<tr>
<td>py-six</td>
<td>1.16.0_gcc-9.4.0</td>
<td>Python 2 and 3 compatibility utilities.</td>
</tr>
<tr>
<td>py-smart-open</td>
<td>5.2.1_gcc-9.4.0</td>
<td>smart_open is a Python 2 &amp; Python 3 library for efficient streaming of very large files from/to S3, HDFS, WebHDFS, HTTP, or local storage. It supports transparent, on-the-fly (de-)compression for a variety of different formats.</td>
</tr>
<tr>
<td>py-smartypants</td>
<td>2.0.1_gcc-9.4.0</td>
<td>smartypants is a Python fork of SmartyPants.</td>
</tr>
<tr>
<td>py-smmap</td>
<td>3.0.4_gcc-9.4.0</td>
<td>A pure Python implementation of a sliding window memory map manager</td>
</tr>
<tr>
<td>py-sniffio</td>
<td>1.2.0_gcc-9.4.0</td>
<td>This is a tiny package whose only purpose is to let you detect which async library your code is running under.</td>
</tr>
<tr>
<td>py-snowballstemmer</td>
<td>2.0.0_gcc-9.4.0</td>
<td>This package provides 16 stemmer algorithms (15 + Poerter English stemmer) generated from Snowball algorithms.</td>
</tr>
<tr>
<td>py-sortedcontainers</td>
<td>2.1.0_gcc-9.4.0</td>
<td>Sorted Containers is an Apache2 licensed sorted collections library, written in pure-Python, and fast as C-extensions.</td>
</tr>
<tr>
<td>py-soundfile</td>
<td>0.10.3_post1_gcc-9.4.0</td>
<td>SoundFile is an audio library based on libsndfile, CFFI and NumPy.</td>
</tr>
<tr>
<td>py-soupsieve</td>
<td>2.2.1_gcc-9.4.0</td>
<td>A modern CSS selector implementation for Beautiful Soup.</td>
</tr>
<tr>
<td>py-sphinx</td>
<td>4.4.0_gcc-9.4.0</td>
<td>Sphinx Documentation Generator.</td>
</tr>
<tr>
<td>py-sphinxcontrib-applehelp</td>
<td>1.0.1_gcc-9.4.0</td>
<td>sphinxcontrib-applehelp is a sphinx extension which outputs Apple help books.</td>
</tr>
<tr>
<td>py-sphinxcontrib-devhelp</td>
<td>1.0.1_gcc-9.4.0</td>
<td>sphinxcontrib-devhelp is a sphinx extension which outputs Devhelp document.</td>
</tr>
<tr>
<td>py-sphinxcontrib-htmlhelp</td>
<td>2.0.0_gcc-9.4.0</td>
<td>sphinxcontrib-htmlhelp is a sphinx extension which outputs Htmlhelp document.</td>
</tr>
<tr>
<td>py-sphinxcontrib-jsmath</td>
<td>1.0.1_gcc-9.4.0</td>
<td>A sphinx extension which renders display math in HTML via JavaScript.</td>
</tr>
<tr>
<td>py-sphinxcontrib-qthelp</td>
<td>1.0.2_gcc-9.4.0</td>
<td>sphinxcontrib-qthelp is a sphinx extension which outputs QHHelp document.</td>
</tr>
<tr>
<td>py-sphinxcontrib - serializinghtml</td>
<td>1.1.5_gcc-9.4.0</td>
<td>sphinxcontrib-serializinghtml is a sphinx extension which outputs ‘serialized’ HTML files (json and pickle).</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
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<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-cymysql</td>
<td>1.4.20_gcc-9.4.0</td>
<td>The Python SQL Toolkit and Object Relational Mapper</td>
</tr>
<tr>
<td>py-stack-data</td>
<td>0.2.0_gcc-9.4.0</td>
<td>Extract data from python stack frames and tracebacks for informative displays.</td>
</tr>
<tr>
<td>py-stopit</td>
<td>1.1.2_gcc-9.4.0</td>
<td>Raise asynchronous exceptions in other threads, control the timeout of blocks or callables with two context managers and two decorators.</td>
</tr>
<tr>
<td>py-sympy</td>
<td>1.8_gcc-9.4.0</td>
<td>SymPy is a Python library for symbolic mathematics.</td>
</tr>
<tr>
<td>py-tables</td>
<td>3.6.1_gcc-9.4.0</td>
<td>PyTables is a package for managing hierarchical datasets and designed to efficiently and easily cope with extremely large amounts of data.</td>
</tr>
<tr>
<td>py-tabulate</td>
<td>0.8.9_gcc-9.4.0</td>
<td>Pretty-print tabular data</td>
</tr>
<tr>
<td>py-tensorboard</td>
<td>2.7.0_gcc-9.4.0</td>
<td>TensorBoard is a suite of web applications for inspecting and understanding your TensorFlow runs and graphs.</td>
</tr>
<tr>
<td>py-tensorboard-data-server</td>
<td>0.6.1_gcc-9.4.0</td>
<td>Fast data loading for TensorFlow</td>
</tr>
<tr>
<td>py-tensorboard-plugin-wit</td>
<td>1.8.1_gcc-9.4.0</td>
<td>The What-If Tool makes it easy to efficiently and intuitively explore up to two models' performance on a dataset. Investigate model performances for a range of features in your dataset, optimization strategies and even manipulations to individual datapoint values. All this and more, in a visual way that requires minimal code.</td>
</tr>
<tr>
<td>py-tensorflow</td>
<td>2.7.0_gcc-9.4.0</td>
<td>TensorFlow is an Open Source Software Library for Machine Intelligence</td>
</tr>
<tr>
<td>py-tensorflow-estimator</td>
<td>2.7.0_gcc-9.4.0</td>
<td>TensorFlow Estimator is a high-level TensorFlow API that greatly simplifies machine learning programming.</td>
</tr>
<tr>
<td>py-termcolor</td>
<td>1.1.0_gcc-9.4.0</td>
<td>ANSI Color formatting for output in terminal.</td>
</tr>
<tr>
<td>py-terminado</td>
<td>0.12.1_gcc-9.4.0</td>
<td>Terminals served to term.js using Tornado websockets</td>
</tr>
<tr>
<td>py-testpath</td>
<td>0.5.0_gcc-9.4.0</td>
<td>Testpath is a collection of utilities for Python code working with files and commands.</td>
</tr>
<tr>
<td>py-text-unidecode</td>
<td>1.3_gcc-9.4.0</td>
<td>Text-unidecode is the most basic port of the Text::Unidecode Perl library.</td>
</tr>
<tr>
<td>py-theano</td>
<td>1.0.5_gcc-9.4.0</td>
<td>Optimizing compiler for evaluating mathematical expressions on CPUs and GPUs.</td>
</tr>
<tr>
<td>pythia</td>
<td>8.306_gcc-9.4.0</td>
<td>The Pythia program is a standard tool for the generation of events in high-energy collisions, comprising a coherent set of physics models for the evolution from a few-body hard process to a complex multiparticle final state.</td>
</tr>
<tr>
<td>python</td>
<td>3.9.9_gcc-9.4.0</td>
<td>The Python programming language.</td>
</tr>
<tr>
<td>py-threadpoolctl</td>
<td>3.0.0_gcc-9.4.0</td>
<td>Python helpers to limit the number of threads used in the threadpool-backed of common native libraries used for scientific computing and data science (e.g. BLAS and OpenMP).</td>
</tr>
<tr>
<td>py-tifffile</td>
<td>2021.11.2_gcc-9.4.0</td>
<td>Read and write image data from and to TIFF files.</td>
</tr>
<tr>
<td>py-toml</td>
<td>0.10.2_gcc-9.4.0</td>
<td>A Python library for parsing and creating TOML configuration files. For more information on the TOML standard, see <a href="https://github.com/toml-lang/toml.git">https://github.com/toml-lang/toml.git</a></td>
</tr>
<tr>
<td>py-tomli</td>
<td>1.2.2_gcc-9.4.0</td>
<td>Tomli is a Python library for parsing TOML.</td>
</tr>
<tr>
<td>py-tomli-writer</td>
<td>1.0.0_gcc-9.4.0</td>
<td>A lil' TOML writer.</td>
</tr>
<tr>
<td>py-tomlikit</td>
<td>0.7.2_gcc-9.4.0</td>
<td>Style preserving TOML library</td>
</tr>
<tr>
<td>py-toposort</td>
<td>1.6_gcc-9.4.0</td>
<td>Implements a topological sort algorithm.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>py-torch</td>
<td>1.10.2_gcc-9.4.0</td>
<td>Tensors and Dynamic neural networks in Python with strong GPU acceleration.</td>
</tr>
<tr>
<td>py-torchaudio</td>
<td>0.4.0_gcc-9.4.0</td>
<td>The aim of torchaudio is to apply PyTorch to the audio domain. By supporting PyTorch, torchaudio follows the same philosophy of providing strong GPU acceleration, having a focus on trainable features through the autograd system, and having consistent style (tensor names and dimension names). Therefore, it is primarily a machine learning library and not a general signal processing library. The benefits of Pytorch are be seen in torchaudio through having all the computations be through Pytorch operations which makes it easy to use and feel like a natural extension.</td>
</tr>
<tr>
<td>py-torch-cluster</td>
<td>1.5.8_gcc-9.4.0</td>
<td>This package consists of a small extension library of highly optimized graph cluster algorithms for the use in PyTorch.</td>
</tr>
<tr>
<td>py-torchlib</td>
<td>0.1.0_gcc-9.4.0</td>
<td>Mostly direct port of the torch? Lua and C serialization implementation to Python, depending only on numpy (and the standard library: array and struct). Sharing of objects including torch.Tensors is preserved.</td>
</tr>
<tr>
<td>py-torch-geometric</td>
<td>1.6.3_gcc-9.4.0</td>
<td>PyTorch Geometric (PyG) is a geometric deep learning extension library for PyTorch. It consists of various methods for deep learning on graphs and other irregular structures, also known as geometric deep learning, from a variety of published papers. In addition, it consists of an easy-to-use mini-batch loader for many small and single giant graphs, multi-gpu support, a large number of common benchmark datasets (based on simple interfaces to create your own), and helpful transforms, both for learning on arbitrary graphs as well as on 3D meshes or point clouds.</td>
</tr>
<tr>
<td>py-torch-scatter</td>
<td>2.0.5_gcc-9.4.0</td>
<td>This package consists of a small extension library of highly optimized sparse update (scatter and segment) operations for the use in PyTorch, which are missing in the main package.</td>
</tr>
<tr>
<td>py-torch-sparset</td>
<td>0.6.8_gcc-9.4.0</td>
<td>This package consists of a small extension library of optimized sparse matrix operations with autograd support.</td>
</tr>
<tr>
<td>py-torch-spline-conv</td>
<td>1.2.0_gcc-9.4.0</td>
<td>This is a PyTorch implementation of the spline-based convolution operator of SplineCNN.</td>
</tr>
<tr>
<td>py-torchsummary</td>
<td>1.5.1_gcc-9.4.0</td>
<td>Keras has a neat API to view the visualization of the model which is very helpful while debugging your network. Here is a barebone code to try and mimic the same in PyTorch. The aim is to provide information complementary to, what is not provided by print(your_model) in PyTorch.</td>
</tr>
<tr>
<td>py-torchtext</td>
<td>0.5.0_gcc-9.4.0</td>
<td>Text utilities and datasets for PyTorch.</td>
</tr>
<tr>
<td>py-torchvision</td>
<td>0.11.3_gcc-9.4.0</td>
<td>The torchvision package consists of popular datasets, model architectures, and common image transformations for computer vision.</td>
</tr>
<tr>
<td>py-tornado</td>
<td>6.1_gcc-9.4.0</td>
<td>Tornado is a Python web framework and asynchronous networking library.</td>
</tr>
<tr>
<td>py-tqdm</td>
<td>4.62.3_gcc-9.4.0</td>
<td>A Fast, Extensible Progress Meter</td>
</tr>
<tr>
<td>py-traitlets</td>
<td>5.1.1_gcc-9.4.0</td>
<td>Traitlets Python config system</td>
</tr>
<tr>
<td>py-twisted</td>
<td>21.7.0_gcc-9.4.0</td>
<td>An asynchronous networking framework written in Python</td>
</tr>
<tr>
<td>py-typing-extension</td>
<td>3.10.0.2_gcc-9.4.0</td>
<td>The typing_extensions module contains both backports of these changes as well as experimental types that will eventually be added to the typing module, such as Protocol (see PEP 544 for details about protocols and static duck typing).</td>
</tr>
<tr>
<td>py-uproot</td>
<td>3.14.4_gcc-9.4.0</td>
<td>ROOT I/O in pure Python and Numpy.</td>
</tr>
<tr>
<td>py-uproot3-methods</td>
<td>0.10.1_gcc-9.4.0</td>
<td>Pythonic mix-ins for ROOT classes.</td>
</tr>
<tr>
<td>py-urllib</td>
<td>1.26.6_gcc-9.4.0</td>
<td>HTTP library with thread-safe connection pooling, file post, and more.</td>
</tr>
<tr>
<td>py-virtualenv</td>
<td>20.10.0_gcc-9.4.0</td>
<td>virtualenv is a tool to create isolated Python environments.</td>
</tr>
<tr>
<td>py-wcwidth</td>
<td>0.2.5_gcc-9.4.0</td>
<td>Measures number of Terminal column cells of wide-character codes</td>
</tr>
<tr>
<td>py-webencodings</td>
<td>0.5.1_gcc-9.4.0</td>
<td>This is a Python implementation of the WHATWG Encoding standard.</td>
</tr>
<tr>
<td>py-websocket-client</td>
<td>1.2.1_gcc-9.4.0</td>
<td>WebSocket client for Python. hybi13 is supported.</td>
</tr>
<tr>
<td>py-werkzeug</td>
<td>2.0.2_gcc-9.4.0</td>
<td>The Swiss Army knife of Python web development</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Status</td>
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<td>3.2, gcc-9.4.0</td>
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<td>py-wheel</td>
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<td>1.1-11, gcc-9.4.0</td>
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<td>r-adespatial</td>
<td>0.3-14, gcc-9.4.0</td>
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<td>r-adolfs</td>
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<td>Version</td>
<td>Description</td>
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<td>r-affy</td>
<td>1.72.0_gcc-9.4.0</td>
<td>Methods for Affymetrix Oligonucleotide Arrays.</td>
</tr>
<tr>
<td>r-affyio</td>
<td>1.64.0_gcc-9.4.0</td>
<td>Tools for parsing Affymetrix data files.</td>
</tr>
<tr>
<td>randrproto</td>
<td>1.5.0_gcc-9.4.0</td>
<td>X Resize and Rotate Extension (RandR).</td>
</tr>
<tr>
<td>r-annotate</td>
<td>1.72.0_gcc-9.4.0</td>
<td>Annotation for microarrays.</td>
</tr>
<tr>
<td>r-annotationdbi</td>
<td>1.56.2_gcc-9.4.0</td>
<td>Manipulation of SQLite-based annotations in Bioconductor.</td>
</tr>
<tr>
<td>r-annotationfilter</td>
<td>1.18.0_gcc-9.4.0</td>
<td>Facilities for Filtering Bioconductor Annotation Resources.</td>
</tr>
<tr>
<td>r-annotationhub</td>
<td>3.2.1_gcc-9.4.0</td>
<td>Client to access AnnotationHub resources.</td>
</tr>
<tr>
<td>r-aod</td>
<td>1.3.1_gcc-9.4.0</td>
<td>Analysis of Overdispersed Data.</td>
</tr>
<tr>
<td>r-ape</td>
<td>5.6.1_gcc-9.4.0</td>
<td>Analyses of Phylogenetics and Evolution.</td>
</tr>
<tr>
<td>rapidjson</td>
<td>1.2.0-2021-08-13</td>
<td>A fast JSON parser/generator for C++ with both SAX/DOM style API</td>
</tr>
<tr>
<td>r-aroma-light</td>
<td>3.24.0_gcc-9.4.0</td>
<td>Light-Weight Methods for Normalization and Visualization of Microarray Data using Only Basic R Data Types.</td>
</tr>
<tr>
<td>r-aslpass</td>
<td>1.1_gcc-9.4.0</td>
<td>Safe Password Entry for R, Git, and SSH.</td>
</tr>
<tr>
<td>r-asserthub</td>
<td>0.2.1_gcc-9.4.0</td>
<td>Easy Pre and Post Assertions.</td>
</tr>
<tr>
<td>r-backports</td>
<td>1.4.1_gcc-9.4.0</td>
<td>Reimplementations of Functions Introduced Since R-3.0.0.</td>
</tr>
<tr>
<td>r-base64</td>
<td>2.0_gcc-9.4.0</td>
<td>Base64 Encoder and Decoder.</td>
</tr>
<tr>
<td>r-base64enc</td>
<td>0.1-3_gcc-9.4.0</td>
<td>Tools for base64 encoding.</td>
</tr>
<tr>
<td>r-bayesplot</td>
<td>1.8.1_gcc-9.4.0</td>
<td>Plotting for Bayesian Models.</td>
</tr>
<tr>
<td>r-beachmat</td>
<td>2.10.0_gcc-9.4.0</td>
<td>Compiling Bioconductor to Handle Each Matrix Type.</td>
</tr>
<tr>
<td>r-beanplot</td>
<td>1.2_gcc-9.4.0</td>
<td>Visualization via Beanplots (like Boxplot/Stripchart/Violin Plot).</td>
</tr>
<tr>
<td>r-biasedurn</td>
<td>1.78.0-0_gcc-9.4.0</td>
<td>Boost C++ Header Files.</td>
</tr>
<tr>
<td>r-biasedurn</td>
<td>1.07_gcc-9.4.0</td>
<td>Biased Urn Model Distributions.</td>
</tr>
<tr>
<td>r-biobase</td>
<td>2.54.0_gcc-9.4.0</td>
<td>Biobase: Base functions for Bioconductor.</td>
</tr>
<tr>
<td>r-biocifcache</td>
<td>2.2.1_gcc-9.4.0</td>
<td>Manage Files Across Sessions.</td>
</tr>
<tr>
<td>r-biocifcache</td>
<td>0.40.0_gcc-9.4.0</td>
<td>S4 generic functions used in Bioconductor.</td>
</tr>
<tr>
<td>r-biocifcache</td>
<td>1.4.0_gcc-9.4.0</td>
<td>Standard Input and Output for Bioconductor Packages.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
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<td>r-biocmanager</td>
<td>1.30.16_gcc-9.4.0</td>
<td>Access the Bioconductor Project Package Repository.</td>
</tr>
<tr>
<td>r-biocparallel</td>
<td>1.28.3_gcc-9.4.0</td>
<td>Bioconductor facilities for parallel evaluation.</td>
</tr>
<tr>
<td>r-bioversion</td>
<td>3.14.0_gcc-9.4.0</td>
<td>Set the appropriate version of Bioconductor packages.</td>
</tr>
<tr>
<td>r-biomart</td>
<td>2.50.3_gcc-9.4.0</td>
<td>Interface to BioMart databases (i.e. Ensembl).</td>
</tr>
<tr>
<td>r-biomaRNA</td>
<td>0.9.2_gcc-9.4.0</td>
<td>Genomic Data Retrieval.</td>
</tr>
<tr>
<td>r-biostats</td>
<td>2.62.0_gcc-9.4.0</td>
<td>Efficient manipulation of biological strings.</td>
</tr>
<tr>
<td>r-biovizbase</td>
<td>1.42.0_gcc-9.4.0</td>
<td>Basic graphic utilities for visualization of genomic data.</td>
</tr>
<tr>
<td>r-bit</td>
<td>4.0.4_gcc-9.4.0</td>
<td>Classes and Methods for Fast Memory-Efficient Boolean Selections.</td>
</tr>
<tr>
<td>r-bit64</td>
<td>4.0.5_gcc-9.4.0</td>
<td>A S3 Class for Vectors of 64bit Integers.</td>
</tr>
<tr>
<td>r-bitops</td>
<td>1.0.7_gcc-9.4.0</td>
<td>Bitwise Operations.</td>
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<tr>
<td>r-blavaan</td>
<td>0.4-1_gcc-9.4.0</td>
<td>Bayesian Latent Variable Analysis.</td>
</tr>
<tr>
<td>r-blob</td>
<td>1.2.2_gcc-9.4.0</td>
<td>A Simple S3 Class for Representing Vectors of Binary Data (‘BLOBS’).</td>
</tr>
<tr>
<td>r-bmp</td>
<td>0.3_gcc-9.4.0</td>
<td>Read Windows Bitmap (BMP) Images.</td>
</tr>
<tr>
<td>r-boost</td>
<td>1.3-28_gcc-9.4.0</td>
<td>Bootstrap Functions (Originally by Angelo Canty for S).</td>
</tr>
<tr>
<td>r-brew</td>
<td>1.0-6_gcc-9.4.0</td>
<td>Templating Framework for Report Generation.</td>
</tr>
<tr>
<td>r-bridgesampling</td>
<td>1.1-2_gcc-9.4.0</td>
<td>Bridge Sampling for Marginal Likelihoods and Bayes Factors.</td>
</tr>
<tr>
<td>r-brick</td>
<td>1.1.3_gcc-9.4.0</td>
<td>Basic R Input Output.</td>
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<tr>
<td>r-brms</td>
<td>2.16.3_gcc-9.4.0</td>
<td>Bayesian Regression Models using ‘Stari’.</td>
</tr>
<tr>
<td>r-brobdingnag</td>
<td>1.2.7_gcc-9.4.0</td>
<td>Very Large Numbers in R.</td>
</tr>
<tr>
<td>r-bisgenome</td>
<td>1.62.0_gcc-9.4.0</td>
<td>Software infrastructure for efficient representation of full genomes and their SNPs.</td>
</tr>
<tr>
<td>r-bisgenome hsapiens-ucsc-hg19</td>
<td>1.4.3_gcc-9.4.0</td>
<td>Full genome sequences for Homo sapiens (UCSC version hg19, based on GRCh37.p13).</td>
</tr>
<tr>
<td>r-bslib</td>
<td>0.3.1_gcc-9.4.0</td>
<td>Custom ‘Bootstrap’ ‘Sass’ Themes for ‘shiny’ and ‘rmarkdown’.</td>
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<td>r-bsspss</td>
<td>1.30.0_gcc-9.4.0</td>
<td>Analyze, manage and store bisulfite sequencing data.</td>
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<tr>
<td>r-bumphunter</td>
<td>1.36.0_gcc-9.4.0</td>
<td>Bump Hunter.</td>
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<td>r-cache</td>
<td>1.0.6_gcc-9.4.0</td>
<td>Cache R Objects with Automatic Pruning.</td>
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<td>r-callr</td>
<td>3.7.0_gcc-9.4.0</td>
<td>Call R from R.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Default</td>
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<td>-----------------</td>
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<td>r-dt</td>
<td>0.20 gcc-9.4.0 default</td>
<td>A Wrapper of the JavaScript Library 'DataTables'.</td>
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<td>r-dygraphs</td>
<td>1.1.1.6 gcc-9.4.0 default</td>
<td>Interface to 'Dygraphs' Interactive Time Series Charting Library.</td>
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<td>r-e1071</td>
<td>1.7.9 gcc-9.4.0 default</td>
<td>Misc Functions of the Department of Statistics, Probability Theory Group (Formerly: E1071), TU Wien.</td>
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<td>readline</td>
<td>8.1 gcc-9.4.0 default</td>
<td>The GNU Readline library provides a set of functions for use by applications as they are typed in. Both Emacs and vi editing modes are available. The Readline library includes additional functions to maintain a list of previously-entered command lines, to recall perhaps reedit those lines, and perform csh-like history expansion on previous commands.</td>
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<td>recordproto</td>
<td>1.14.2 gcc-9.4.0 default</td>
<td>X Record Extension.</td>
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<td>r-edge</td>
<td>3.36.0 gcc-9.4.0 default</td>
<td>Empirical Analysis of Digital Gene Expression Data in R.</td>
</tr>
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<td>reditools</td>
<td>1.3_2020-08-03 gcc-9.4.0 default</td>
<td>REDitools: python scripts for RNA editing detection by RNA-Seq data.</td>
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<tr>
<td>r-effects</td>
<td>4.2-1 gcc-9.4.0 default</td>
<td>Effect Displays for Linear, Generalized Linear, and Other Models.</td>
</tr>
<tr>
<td>relion</td>
<td>3.1.3 gcc-9.4.0 4.0-beta gcc-9.4.0 default</td>
<td>RELION (for REgularised Likelihood Optimisation, pronounce rely-on) is a stand-alone computer program that employs an empirical Bayesian approach to refinement of (multiple) 3D reconstructions or 2D class averages in electron cryo-microscopy (cryo-EM).</td>
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<td>r-ellipsis</td>
<td>0.3.2 gcc-9.4.0 default</td>
<td>Tools for Working with ...</td>
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<td>r-farver</td>
<td>2.18.3 gcc-9.4.0 default</td>
<td>Utilities to create and use Ensembl-based annotation databases.</td>
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<td>repeatmasker</td>
<td>4.1.0-gcc-9.4.0 default</td>
<td>RepeatMasker is a program that screens DNA sequences for interspersed repeats and low complexity DNA sequences.</td>
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<td>r-estimability</td>
<td>1.3 gcc-9.4.0 default</td>
<td>Tools for Assessing Estimability of Linear Predictions.</td>
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<td>r-evaluate</td>
<td>0.14 gcc-9.4.0 default</td>
<td>Parsing and Evaluation Tools that Provide More Details than the Default.</td>
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<td>r-exomecopy</td>
<td>1.40.0 gcc-9.4.0 default</td>
<td>Copy number variant detection from exome sequencing read depth.</td>
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<tr>
<td>r-exomedepth</td>
<td>1.1.15 gcc-9.4.0 default</td>
<td>Calls Copy Number Variants from Targeted Sequence Data.</td>
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<td>r-experimenthub</td>
<td>2.2.1 gcc-9.4.0 default</td>
<td>Client to access ExperimentHub resources.</td>
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<td>r-fans</td>
<td>1.0.2 gcc-9.4.0 default</td>
<td>ANSI Control Sequence Aware String Functions.</td>
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<td>r-farver</td>
<td>2.1.0 gcc-9.4.0 default</td>
<td>High Performance Colour Space Manipulation.</td>
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<td>r-fastcluster</td>
<td>1.2.3 gcc-9.4.0 default</td>
<td>Fast Hierarchical Clustering Routines for R and 'Python'.</td>
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<td>r-fastica</td>
<td>1.2-3 gcc-9.4.0 default</td>
<td>FastICA Algorithms to Perform ICA and Projection Pursuit.</td>
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<td>r-fastmap</td>
<td>1.1.0 gcc-9.4.0 default</td>
<td>Fast Implementation of a Key-Value Store.</td>
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<td>r-fdb-</td>
<td>2.2.0 gcc-9.4.0 default</td>
<td>Annotation package for Illumina Infinium DNA methylation probes.</td>
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<td>r-fdb-infiniummethylation-hg19</td>
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<td>Annotation package for Illumina Infinium DNA methylation probes.</td>
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<td>r-filelock</td>
<td>1.0.2</td>
<td>Portable File Locking.</td>
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<td>0.2.2</td>
<td>Easily Work with 'Font Awesome' icons.</td>
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<td>0.5.1</td>
<td>Tools for Working with Categorical Variables (Factors).</td>
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<td>r-foreach</td>
<td>1.5.2</td>
<td>Provides Foreach Looping Construct.</td>
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<td>r-foreign</td>
<td>0.8-82</td>
<td>Read Data Stored by 'Minitab', 'S', 'SAS', 'SPSS', 'Stata', 'Systat', 'Weka', 'dBase', ...</td>
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<td>r-formatr</td>
<td>1.11</td>
<td>Format R Code Automatically.</td>
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<td>r-formula</td>
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<td>Extended Model Formulas.</td>
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<td>Cross-Platform File System Operations Based on 'libuv'.</td>
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<td>r-futile-logger</td>
<td>1.4.3</td>
<td>A Logging Utility for R.</td>
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<td>Futile Options Management.</td>
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<td>r-future</td>
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<td>Unified Parallel and Distributed Processing in R for Everyone.</td>
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<td>r-future-apply</td>
<td>1.8.1</td>
<td>Apply Function to Elements in Parallel using Futures.</td>
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<td>Various R Programming Tools for Data Manipulation.</td>
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<td>Methods for filtering genes from high-throughput experiments.</td>
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<td>r-geneplotter</td>
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<td>Lengths of mRNA transcripts for a number of genomes.</td>
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<td>Graphics related functions for Bioconductor.</td>
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<td>0.1.1</td>
<td>Common S3 Generics not Provided by Base R Methods Related to Model Fitting.</td>
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<td>1.30.1</td>
<td>Utilities for manipulating chromosome names, including modifying them to follow a particular naming style.</td>
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<td>1.2.7</td>
<td>for mapping between NCBI taxonomy ID and species. Used by functions in the GenomeInfoDb package.</td>
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<td>Representation and manipulation of short genomic alignments.</td>
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<td>r-genomicfeaturerel</td>
<td>1.46.4</td>
<td>Conveniently import and query gene models.</td>
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<td>r-genomicranges</td>
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<td>Representation and manipulation of genomic intervals.</td>
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<td>Get data from NCBI Gene Expression Omnibus (GEO).</td>
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<td>0.16.0_gcc-9.4.0 default</td>
<td>Easy Access to Model Information for Various Model Objects.</td>
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<td>r-interactiveidis</td>
<td>1.32.0_gcc-9.4.0 default</td>
<td>Base package for enabling powerful shiny web displays of Bioconductor objects.</td>
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<td>r-ipred</td>
<td>0.9-12_gcc-9.4.0 default</td>
<td>Improved Predictors.</td>
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<td>r-ranged</td>
<td>2.28.0_gcc-9.4.0 default</td>
<td>Foundation of integer range manipulation in Bioconductor.</td>
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<td>r-isoband</td>
<td>0.2.5_gcc-9.4.0 default</td>
<td>Generate Isolines and Isobands from Regularly Spaced Elevation Grids.</td>
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<td>r-isva</td>
<td>1.9_gcc-9.4.0 default</td>
<td>Independent Surrogate Variable Analysis.</td>
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<td>r-iterator</td>
<td>1.0.13_gcc-9.4.0 default</td>
<td>Provides Iterator Construct.</td>
</tr>
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<td>r-jade</td>
<td>2.0-3_gcc-9.4.0 default</td>
<td>Blind Source Separation Methods Based on Joint Diagonalization and Some BSS Performance Criteria.</td>
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<td>r-jpeg</td>
<td>0.1-9_gcc-9.4.0 default</td>
<td>Read and write JPEG images.</td>
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<td>r-jquerylib</td>
<td>0.1.4_gcc-9.4.0 default</td>
<td>Obtain 'jQuery' as an HTML Dependency Object.</td>
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<td>r-jsonlite</td>
<td>1.8.0_gcc-9.4.0 default</td>
<td>A Simple and Robust JSON Parser and Generator for R.</td>
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<td>r-keggrest</td>
<td>1.34.0_gcc-9.4.0 default</td>
<td>Client-side REST access to KEGG.</td>
</tr>
<tr>
<td>r-kernlab</td>
<td>0.9-29_gcc-9.4.0 default</td>
<td>Kernel-Based Machine Learning Lab.</td>
</tr>
<tr>
<td>r-knitr</td>
<td>1.37_gcc-9.4.0 default</td>
<td>A General-Purpose Package for Dynamic Report Generation in R.</td>
</tr>
<tr>
<td>r-kpm</td>
<td>0.1.0_gcc-9.4.0 default</td>
<td>Known Population Median Test.</td>
</tr>
<tr>
<td>r-labeling</td>
<td>0.4.2_gcc-9.4.0 default</td>
<td>Axis Labeling.</td>
</tr>
<tr>
<td>r-lambda</td>
<td>1.2.4_gcc-9.4.0 default</td>
<td>Modeling Data with Functional Programming.</td>
</tr>
<tr>
<td>r-late</td>
<td>1.3.0_gcc-9.4.0 default</td>
<td>Utilities for Scheduling Functions to Execute Later with Event Loops.</td>
</tr>
<tr>
<td>r-lattice</td>
<td>0.20-45_gcc-9.4.0 default</td>
<td>Trellis Graphics for R.</td>
</tr>
<tr>
<td>r-latticeextra</td>
<td>0.6-29_gcc-9.4.0 default</td>
<td>Extra Graphical Utilities Based on Lattice.</td>
</tr>
<tr>
<td>r-lava</td>
<td>1.6.10_gcc-9.4.0 default</td>
<td>Latent Variable Models.</td>
</tr>
<tr>
<td>r-lavaan</td>
<td>0.6-10_gcc-9.4.0 default</td>
<td>Latent Variable Analysis.</td>
</tr>
<tr>
<td>r-lazyevia</td>
<td>0.2.2_gcc-9.4.0 default</td>
<td>Lazy (Non-Standard) Evaluation.</td>
</tr>
<tr>
<td>r-leaflet</td>
<td>2.0.4.1_gcc-9.4.0 default</td>
<td>Create Interactive Web Maps with the JavaScript 'Leaflet' Library.</td>
</tr>
<tr>
<td>r-leaflet-providers</td>
<td>1.9.0_gcc-9.4.0 default</td>
<td>Leaflet Providers.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>r-leap</td>
<td>3.1_gcc-9.4.0 default</td>
<td>Regression Subset Selection.</td>
</tr>
<tr>
<td>r-lifecycle</td>
<td>1.0.1_gcc-9.4.0 default</td>
<td>Manage the Life Cycle of your Package Functions.</td>
</tr>
<tr>
<td>r-limma</td>
<td>3.50.0_gcc-9.4.0 default</td>
<td>Linear Models for Microarray Data.</td>
</tr>
<tr>
<td>r-listen</td>
<td>0.8.0_gcc-9.4.0 default</td>
<td>Environments Behaving (Almost) as Lists.</td>
</tr>
<tr>
<td>r-lme4</td>
<td>1.27.1_gcc-9.4.0 default</td>
<td>Linear Mixed-Effects Models using 'Eigen' and S4.</td>
</tr>
<tr>
<td>r-lmeres</td>
<td>3.1-3_gcc-9.4.0 default</td>
<td>Tests in Linear Mixed Effects Models.</td>
</tr>
<tr>
<td>r-lmeres</td>
<td>0.9.39_gcc-9.4.0 default</td>
<td>Testing Linear Regression Models.</td>
</tr>
<tr>
<td>r-loo</td>
<td>1.5.9-4_gcc-9.4.0 default</td>
<td>Local regression, likelihood and density estimation.</td>
</tr>
<tr>
<td>r-lnc</td>
<td>2.4.1_gcc-9.4.0 default</td>
<td>Efficient Leave-One-Out Cross-Validation and WAIC for Bayesian Models.</td>
</tr>
<tr>
<td>r-lubridate</td>
<td>1.8.0_gcc-9.4.0 default</td>
<td>Make Dealing with Dates a Little Easier.</td>
</tr>
<tr>
<td>r-lumi</td>
<td>2.46.0_gcc-9.4.0 default</td>
<td>BeadArray Specific Methods for Illumina Methylation and Expression Microarrays.</td>
</tr>
<tr>
<td>r-magrit</td>
<td>2.0.2_gcc-9.4.0 default</td>
<td>A Forward-Pipe Operator for R.</td>
</tr>
<tr>
<td>r-map</td>
<td>3.4.0_gcc-9.4.0 default</td>
<td>Draw Geographical Maps.</td>
</tr>
<tr>
<td>r-maptool</td>
<td>1.1-2_gcc-9.4.0 default</td>
<td>Tools for Handling Spatial Objects.</td>
</tr>
<tr>
<td>r-markdown</td>
<td>1.1_gcc-9.4.0 default</td>
<td>Render Markdown with the C Library 'Sundown'.</td>
</tr>
<tr>
<td>r-marray</td>
<td>1.72.0_gcc-9.4.0 default</td>
<td>Exploratory analysis for two-color spotted microarray data.</td>
</tr>
<tr>
<td>r-mass</td>
<td>7.3-55_gcc-9.4.0 default</td>
<td>Support Functions and Datasets for Venables and Ripley's MASS.</td>
</tr>
<tr>
<td>r-matrix</td>
<td>1.4-0_gcc-9.4.0 default</td>
<td>Sparse and Dense Matrix Classes and Methods.</td>
</tr>
<tr>
<td>r-matrixgenerics</td>
<td>1.6.0_gcc-9.4.0 default</td>
<td>S4 Generic Summary Statistic Functions that Operate on Matrix-Like Objects.</td>
</tr>
<tr>
<td>r-matrixmodels</td>
<td>0.5-0_gcc-9.4.0 default</td>
<td>Modelling with Sparse and Dense Matrices.</td>
</tr>
<tr>
<td>r-matrixstats</td>
<td>0.61.0_gcc-9.4.0 default</td>
<td>Functions that Apply to Rows and Columns of Matrices (and to Vectors).</td>
</tr>
<tr>
<td>r-mdclus</td>
<td>5.4.9_gcc-9.4.0 default</td>
<td>Gaussian Mixture Modelling for Model-Based Clustering, Classification, and Density Estimation.</td>
</tr>
<tr>
<td>r-mcmc</td>
<td>0.9-7_gcc-9.4.0 default</td>
<td>Markov Chain Monte Carlo.</td>
</tr>
<tr>
<td>r-mcmcpack</td>
<td>1.6-0_gcc-9.4.0 default</td>
<td>Markov Chain Monte Carlo (MCMC) Package.</td>
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<tr>
<td>r-memoise</td>
<td>0.20.1_gcc-9.4.0 default</td>
<td>'Memoisation' of Functions.</td>
</tr>
<tr>
<td>r-methylumi</td>
<td>2.40.1_gcc-9.4.0 default</td>
<td>Handle Illumina methylation data.</td>
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<tr>
<td>Package</td>
<td>Version</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
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<td>r-mgcv</td>
<td>1.8-38</td>
<td>Mixed GAM Computation Vehicle with Automatic Smoothness Estimation.</td>
</tr>
<tr>
<td>r-mime</td>
<td>0.12</td>
<td>Map Filenames to MIME Types.</td>
</tr>
<tr>
<td>r-mint</td>
<td>1.40.0</td>
<td>Analyze Illumina Infinium DNA methylation arrays.</td>
</tr>
<tr>
<td>r-minui</td>
<td>0.1.1.1</td>
<td>Shiny UI Widgets for Small Screens.</td>
</tr>
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<td>r-minqa</td>
<td>1.2.4</td>
<td>Derivative-free optimization algorithms by quadratic approximation.</td>
</tr>
<tr>
<td>r-missmethyl</td>
<td>1.28.0</td>
<td>Analysing Illumina HumanMethylation BeadChip Data.</td>
</tr>
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<td>r-mitooll</td>
<td>2.4.0</td>
<td>Tools for Multiple Imputation of Missing Data.</td>
</tr>
<tr>
<td>r-mixtools</td>
<td>1.2.0</td>
<td>Tools for Analyzing Finite Mixture Models.</td>
</tr>
<tr>
<td>r-mnorm</td>
<td>2.0.2</td>
<td>The Multivariate Normal and t Distributions, and Their Truncated Versions.</td>
</tr>
<tr>
<td>r-modelmetrics</td>
<td>1.2.2.2</td>
<td>Rapid Calculation of Model Metrics.</td>
</tr>
<tr>
<td>r-multcomp</td>
<td>1.4-18</td>
<td>Simultaneous Inference in General Parametric Models.</td>
</tr>
<tr>
<td>r-multtest</td>
<td>2.50.0</td>
<td>Resampling-based multiple hypothesis testing.</td>
</tr>
<tr>
<td>r-munsell</td>
<td>0.5.0</td>
<td>Utilities for Using Munsell Colours.</td>
</tr>
<tr>
<td>r-mvnorm</td>
<td>1.1-3</td>
<td>Multivariate Normal and t Distributions.</td>
</tr>
<tr>
<td>r-ncdf4</td>
<td>1.19</td>
<td>Interface to Unidata netCDF (Version 4 or Earlier) Format Data Files.</td>
</tr>
<tr>
<td>r-networkd3</td>
<td>0.4</td>
<td>D3 JavaScript Network Graphs from R.</td>
</tr>
<tr>
<td>r-mstream</td>
<td>1.0.1</td>
<td>Multiple independent streams of pseudo-random numbers.</td>
</tr>
<tr>
<td>r-rootps</td>
<td>3.3.2</td>
<td>Solve Systems of Nonlinear Equations.</td>
</tr>
<tr>
<td>r-nlopt</td>
<td>2.0.0</td>
<td>R Interface to NLopt.</td>
</tr>
<tr>
<td>r-nnet</td>
<td>7.3-17</td>
<td>Feed-Forward Neural Networks and Multinomial Log-Linear Models.</td>
</tr>
<tr>
<td>r-nnonest</td>
<td>0.5-5</td>
<td>Tests of Non-Nested Models.</td>
</tr>
<tr>
<td>r-nor1mix</td>
<td>1.3-0</td>
<td>Normal aka Gaussian (1-d) Mixture Models (S3 Classes and Methods).</td>
</tr>
<tr>
<td>r-np</td>
<td>0.60-11</td>
<td>Nonparametric Kernel Smoothing Methods for Mixed Data Types.</td>
</tr>
<tr>
<td>r-numderiv</td>
<td>2016.8-1</td>
<td>Accurate Numerical Derivatives.</td>
</tr>
<tr>
<td>rocksdb</td>
<td>6.20.3</td>
<td>RocksDB: A Persistent Key-Value Store for Flash and RAM Storage</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
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</tr>
<tr>
<td>root</td>
<td>6.24.06_gcc-9.4.0 default</td>
<td>ROOT is a data analysis framework.</td>
</tr>
<tr>
<td>r-openssl</td>
<td>1.4.6_gcc-9.4.0 default</td>
<td>Toolkit for Encryption, Signatures and Certificates Based on OpenSSL.</td>
</tr>
<tr>
<td>r-org-qs-eg-db</td>
<td>3.14.0_gcc-9.4.0 default</td>
<td>Genome wide annotation for Human.</td>
</tr>
<tr>
<td>r-packrat</td>
<td>0.7.0_gcc-9.4.0 default</td>
<td>A Dependency Management System for Projects and their R Package Dependencies.</td>
</tr>
<tr>
<td>r-parallely</td>
<td>1.30.0_gcc-9.4.0 default</td>
<td>Enhancing the ‘parallel’ Package.</td>
</tr>
<tr>
<td>r-pbivnorm</td>
<td>0.6.0_gcc-9.4.0 default</td>
<td>Vectorized Bivariate Normal CDF.</td>
</tr>
<tr>
<td>r-pbkrtest</td>
<td>0.4-7_gcc-9.4.0 default</td>
<td>Parametric Bootstrap, Kenward-Roger and Satterthwaite Based Methods for Test in Mixed Models.</td>
</tr>
<tr>
<td>r-pcapp</td>
<td>1.9.74_gcc-9.4.0 default</td>
<td>Provides functions for robust PCA by projection pursuit.</td>
</tr>
<tr>
<td>r-permutes</td>
<td>0.9-7_gcc-9.4.0 default</td>
<td>Functions for Generating Restricted Permutations of Data.</td>
</tr>
<tr>
<td>r-philentropy</td>
<td>0.6.0_gcc-9.4.0 default</td>
<td>Similarity and Distance Quantification Between Probability Functions.</td>
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<tr>
<td>r-phylbase</td>
<td>0.8.10_gcc-9.4.0 default</td>
<td>Base Package for Phylogenetic Structures and Comparative Data.</td>
</tr>
<tr>
<td>r-pillar</td>
<td>1.7.0_gcc-9.4.0 default</td>
<td>Coloured Formatting for Columns.</td>
</tr>
<tr>
<td>r-pixmap</td>
<td>0.4-12_gcc-9.4.0 default</td>
<td>Bitmap Images (‘Pixel Maps’).</td>
</tr>
<tr>
<td>r-pkgbuild</td>
<td>1.3.1_gcc-9.4.0 default</td>
<td>Find Tools Needed to Build R Packages.</td>
</tr>
<tr>
<td>r-pkgconfig</td>
<td>2.0.3_gcc-9.4.0 default</td>
<td>Private Configuration for ‘R’ Packages.</td>
</tr>
<tr>
<td>r-pkgload</td>
<td>1.2.4_gcc-9.4.0 default</td>
<td>Simulate Package Installation and Attach.</td>
</tr>
<tr>
<td>r-plog</td>
<td>0.2.0_gcc-9.4.0 default</td>
<td>The ‘plog’ C++ Logging Library.</td>
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<tr>
<td>r-plotly</td>
<td>4.10.0_gcc-9.4.0 default</td>
<td>Create Interactive Web Graphics via ‘plotly.js’.</td>
</tr>
<tr>
<td>r-plotrix</td>
<td>3.8-2_gcc-9.4.0 default</td>
<td>Various Plotting Functions.</td>
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<tr>
<td>r-plyr</td>
<td>1.8.6_gcc-9.4.0 default</td>
<td>Tools for Splitting, Applying and Combining Data.</td>
</tr>
<tr>
<td>r-png</td>
<td>0.1-7_gcc-9.4.0 default</td>
<td>Read and write PNG images.</td>
</tr>
<tr>
<td>r-poorman</td>
<td>0.2.5_gcc-9.4.0 default</td>
<td>A Poor Man’s Dependency Free Recreation of ‘plyr’.</td>
</tr>
<tr>
<td>r-posterior</td>
<td>1.2.0_gcc-9.4.0 default</td>
<td>Tools for Working with Posterior Distributions.</td>
</tr>
<tr>
<td>r-praise</td>
<td>1.0.0_gcc-9.4.0 default</td>
<td>Praise Users.</td>
</tr>
<tr>
<td>r-preprocessing</td>
<td>1.0.0_gcc-9.4.0 default</td>
<td>A collection of pre-processing functions.</td>
</tr>
<tr>
<td>r-prettyscript</td>
<td>0.4.1_gcc-9.4.0 default</td>
<td>Creating Pretty Documents from R Markdown.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>prettyunits</td>
<td>1.1.1_gcc-9.4.0</td>
<td>Pretty, Human Readable Formatting of Quantities.</td>
</tr>
<tr>
<td>proc</td>
<td>1.18.0_gcc-9.4.0</td>
<td>Display and Analyze ROC Curves.</td>
</tr>
<tr>
<td>processx</td>
<td>3.5.2_gcc-9.4.0</td>
<td>Execute and Control System Processes.</td>
</tr>
<tr>
<td>prodlim</td>
<td>2019.11.13_gcc-9.4.0</td>
<td>Product-Limit Estimation for Censored Event History Analysis.</td>
</tr>
<tr>
<td>progress</td>
<td>1.2.2_gcc-9.4.0</td>
<td>Terminal Progress Bars.</td>
</tr>
<tr>
<td>progressr</td>
<td>0.10.0_gcc-9.4.0</td>
<td>An Inclusive, Unifying API for Progress Updates.</td>
</tr>
<tr>
<td>promises</td>
<td>1.2.0.1_gcc-9.4.0</td>
<td>Abstractions for Promise-Based Asynchronous Programming.</td>
</tr>
<tr>
<td>protgenerics</td>
<td>1.26.0_gcc-9.4.0</td>
<td>S4 generic functions for Bioconductor proteomics infrastructure.</td>
</tr>
<tr>
<td>prox</td>
<td>0.4-26_gcc-9.4.0</td>
<td>Distance and Similarity Measures.</td>
</tr>
<tr>
<td>ps</td>
<td>1.6.0_gcc-9.4.0</td>
<td>List, Query, Manipulate System Processes.</td>
</tr>
<tr>
<td>psbcb</td>
<td>0.66.0_gcc-9.4.0</td>
<td>Analysis of Parent-Specific DNA Copy Numbers.</td>
</tr>
<tr>
<td>pspline</td>
<td>1.0-18_gcc-9.4.0</td>
<td>Penalized Smoothing Splines.</td>
</tr>
<tr>
<td>purrr</td>
<td>0.3.4_gcc-9.4.0</td>
<td>Functional Programming Tools.</td>
</tr>
<tr>
<td>quadprog</td>
<td>1.5-8_gcc-9.4.0</td>
<td>Functions to Solve Quadratic Programming Problems.</td>
</tr>
<tr>
<td>quantmod</td>
<td>0.4.18_gcc-9.4.0</td>
<td>Quantitative Financial Modelling Framework.</td>
</tr>
<tr>
<td>quantreg</td>
<td>5.88_gcc-9.4.0</td>
<td>Quantile Regression.</td>
</tr>
<tr>
<td>qvalue</td>
<td>2.26.0_gcc-9.4.0</td>
<td>Q-value estimation for false discovery rate control.</td>
</tr>
<tr>
<td>r</td>
<td>2.5.1_gcc-9.4.0</td>
<td>Encapsulated Classes with Reference Semantics.</td>
</tr>
<tr>
<td>randomforest</td>
<td>4.6-14_gcc-9.4.0</td>
<td>Breiman and Cutler's Random Forests for Classification and Regression.</td>
</tr>
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<td>rappdirs</td>
<td>0.3.3_gcc-9.4.0</td>
<td>Application Directories: Determine Where to Save Data, Caches, and Logs.</td>
</tr>
<tr>
<td>raster</td>
<td>3.5-15_gcc-9.4.0</td>
<td>Geographic Data Analysis and Modeling.</td>
</tr>
<tr>
<td>rcache</td>
<td>0.15.0_gcc-9.4.0</td>
<td>Fast and Light-Weight Caching (Memoization) of Objects and Results to Speed Up Computations.</td>
</tr>
<tr>
<td>rcmdcheck</td>
<td>1.4.0_gcc-9.4.0</td>
<td>Run ‘R CMD check’ from ‘R’ and Capture Results.</td>
</tr>
<tr>
<td>colorbrewer</td>
<td>1.1.2_gcc-9.4.0</td>
<td>ColorBrewer Palettes.</td>
</tr>
<tr>
<td>rcpp</td>
<td>1.0.8_gcc-9.4.0</td>
<td>Seamless R and C++ Integration.</td>
</tr>
<tr>
<td>rcpparmadillo</td>
<td>0.10.8.1.0_gcc-9.4.0</td>
<td>‘Rcpp’ Integration for the ‘Armadillo’ Templated Linear Algebra Library.</td>
</tr>
<tr>
<td>Package</td>
<td>Version</td>
<td>Dependencies</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------</td>
<td>--------------------</td>
</tr>
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<td>RcppEigen</td>
<td>0.3.3.9.1</td>
<td>gcc-9.4.0 default</td>
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<td>RcppParallel</td>
<td>5.1.5</td>
<td>gcc-9.4.0 default</td>
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<tr>
<td>Rcurl</td>
<td>1.98-1.6</td>
<td>gcc-9.4.0 default</td>
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<td>Rreadbitmap</td>
<td>0.1.5</td>
<td>gcc-9.4.0 default</td>
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<td>0.2.0</td>
<td>gcc-9.4.0 default</td>
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<td>Rrematch</td>
<td>2.1.2</td>
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<td>0.8.8</td>
<td>gcc-9.4.0 default</td>
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<td>1.4.4</td>
<td>gcc-9.4.0 default</td>
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<td>Restful</td>
<td>0.0.13</td>
<td>gcc-9.4.0 default</td>
</tr>
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<td>1.2.1</td>
<td>gcc-9.4.0 default</td>
</tr>
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<td>Rrgeos</td>
<td>1.5-28</td>
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<td>0.5-9</td>
<td>gcc-9.4.0 default</td>
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<td>1.4.5-3</td>
<td>gcc-9.4.0 default</td>
</tr>
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<td>2.38-0</td>
<td>gcc-9.4.0 default</td>
</tr>
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<td>Rhdf5filters</td>
<td>1.6.0</td>
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<td>r-s2</td>
<td>1.0.7_gcc-9.4.0</td>
<td>Spherical Geometry Operators Using the S2 Geometry Library.</td>
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<td>r-s4vectors</td>
<td>0.32.3_gcc-9.4.0</td>
<td>Foundation of vector-like and list-like containers in Bioconductor.</td>
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<td>r-sandwich</td>
<td>3.0-1_gcc-9.4.0</td>
<td>Robust Covariance Matrix Estimators.</td>
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<td>r-sass</td>
<td>0.4.0_gcc-9.4.0</td>
<td>Syntactically Awesome Style Sheets ('Sass').</td>
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<td>r-scales</td>
<td>1.1.1_gcc-9.4.0</td>
<td>Scale Functions for Visualization.</td>
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<tr>
<td>r-scrime</td>
<td>1.3.5_gcc-9.4.0</td>
<td>Analysis of High-Dimensional Categorical Data Such as SNP Data.</td>
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<td>r-segmented</td>
<td>1.4-0_gcc-9.4.0</td>
<td>Regression Models with Break-Points / Change-Points Estimation.</td>
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<tr>
<td>r-semi</td>
<td>1.3.1_gcc-9.4.0</td>
<td>RSEM is a software package for estimating gene and isoform expression levels from RNA-Seq data.</td>
</tr>
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<td>r-seqinr</td>
<td>4.2-8_gcc-9.4.0</td>
<td>Biological Sequences Retrieval and Analysis.</td>
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<td>r-sessioninfo</td>
<td>1.2.2_gcc-9.4.0</td>
<td>R Session Information.</td>
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<td>r-shape</td>
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<td>Functions for Plotting Graphical Shapes, Colors.</td>
</tr>
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<td>r-shiny</td>
<td>1.7.1_gcc-9.4.0</td>
<td>Web Application Framework for R.</td>
</tr>
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<td>r-shinyjs</td>
<td>2.1.0_gcc-9.4.0</td>
<td>Easily Improve the User Experience of Your Shiny Apps in Seconds.</td>
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<td>r-shinystan</td>
<td>2.5.0_gcc-9.4.0</td>
<td>Interactive Visual and Numerical Diagnostics and Posterior Analysis for Bayesian Models.</td>
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<td>r-shinythemes</td>
<td>1.2.0_gcc-9.4.0</td>
<td>Themes for Shiny.</td>
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<td>r-siggenes</td>
<td>1.68.0_gcc-9.4.0</td>
<td>Multiple Testing using SAM and Efron's Empirical Bayes Approaches.</td>
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<td>r-snow</td>
<td>0.4-4_gcc-9.4.0</td>
<td>Simple Network of Workstations.</td>
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<td>r-source tools</td>
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<td>Tools for Reading, Tokenizing and Parsing R Code.</td>
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<td>r-sp</td>
<td>1.4-6_gcc-9.4.0</td>
<td>Classes and Methods for Spatial Data.</td>
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<td>r-sparsem</td>
<td>1.81_gcc-9.4.0</td>
<td>Sparse Linear Algebra.</td>
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<td>r-sparsematrix</td>
<td>1.6.0_gcc-9.4.0</td>
<td>Summary Statistics for Rows and Columns of Sparse Matrices.</td>
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<td>r-spdata</td>
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<td>Datasets for Spatial Analysis.</td>
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<td>r-sponder</td>
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<td>Spatial Dependence: Weighting Schemes, Statistics.</td>
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<td>r-stabledist</td>
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<td>Stable Distribution Functions.</td>
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<td>C++ Header Files for Stan.</td>
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<td>r-string</td>
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<td>Simple, Consistent Wrappers for Common String Operations.</td>
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<td>r-survey</td>
<td>4.1-1_gcc-9.4.0</td>
<td>Analysis of Complex Survey Samples.</td>
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<td>r-survival</td>
<td>3.2-13_gcc-9.4.0</td>
<td>Survival Analysis.</td>
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<td>3.42.0_gcc-9.4.0</td>
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<td>r-sync</td>
<td>3.2.3_gcc-9.4.0</td>
<td>An open source utility that provides fast incremental file transfer.</td>
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<tr>
<td>r-sys</td>
<td>3.4_gcc-9.4.0</td>
<td>Powerful and Reliable Tools for Running System Commands in R.</td>
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<td>r-tarif</td>
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<td>Collection of Utility and Convenience Functions.</td>
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<td>r-tensora</td>
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<td>Advanced Tensor Arithmetic with Named Indices.</td>
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<td>Spatial Data Analysis.</td>
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<td>TH's Data Archive.</td>
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<td>Select from a Set of Strings.</td>
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<td>0.1-11_gcc-9.4.0</td>
<td>Read and write TIFF images.</td>
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<td>2043.102_gcc-9.4.0</td>
<td>Rmetrics - Chronological and Calendar Objects.</td>
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<td>Helper Functions to Install and Maintain TeX Live, and Compile LaTeX Documents.</td>
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<td>r-vsls</td>
<td>0.6.5_gcc-9.4.0</td>
<td>Read, Write, Format Excel 2007 and Excel 97/2000/XP/2003 Files.</td>
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<td>r-vslspar</td>
<td>0.6.1_gcc-9.4.0</td>
<td>Package required POI jars for the xlsx package.</td>
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<td>r-vxml</td>
<td>3.99-0.8_gcc-9.4.0</td>
<td>Tools for Parsing and Generating XML Within R and S-Plus.</td>
</tr>
<tr>
<td>r-vxml2</td>
<td>1.3.3_gcc-9.4.0</td>
<td>Package required POI jars for the xlsx package.</td>
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<td>r-xpem</td>
<td>1.0.0_gcc-9.4.0</td>
<td>Open System Files, ‘URLs’, Anything.</td>
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<tr>
<td>r-xtable</td>
<td>1.8-4_gcc-9.4.0</td>
<td>Export Tables to LaTeX or HTML.</td>
</tr>
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<td>r-xts</td>
<td>0.12.1_gcc-9.4.0</td>
<td>eXtensible Time Series.</td>
</tr>
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<td>r-xml</td>
<td>0.34.0_gcc-9.4.0</td>
<td>Foundation of external vector representation and manipulation in Bioconductor.</td>
</tr>
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<td>r-yaml</td>
<td>2.3.5_gcc-9.4.0</td>
<td>Methods to Convert R Data to YAML and Back.</td>
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<td>r-zip</td>
<td>2.2.0_gcc-9.4.0</td>
<td>Cross-Platform ‘zip’ Compression.</td>
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<td>r-zlibbio</td>
<td>1.40.0_gcc-9.4.0</td>
<td>An R packaged zlib-1.2.5.</td>
</tr>
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<td>r-zoo</td>
<td>1.8-9_gcc-9.4.0</td>
<td>S3 Infrastructure for Regular and Irregular Time Series (Z’s Ordered Observations).</td>
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<td>samtools</td>
<td>1.13_gcc-9.4.0</td>
<td>SAM Tools provide various utilities for manipulating alignments in the SAM format, including sorting, merging, indexing and generating alignments in a per-position format</td>
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<tr>
<td>scotch</td>
<td>6.1.1_gcc-9.4.0</td>
<td>Scotch is a software package for graph and mesh/hypergraph partitioning, graph clustering, and sparse matrix ordering.</td>
</tr>
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<td>ncurses</td>
<td>1.2.2_gcc-9.4.0</td>
<td>MIT Screen Saver Extension.</td>
</tr>
<tr>
<td>sox</td>
<td>4.2.2_gcc-9.4.0</td>
<td>GNU implementation of the famous stream editor.</td>
</tr>
<tr>
<td>sentencepiece</td>
<td>0.1.91_gcc-9.4.0</td>
<td>Unsupervised text tokenizer for Neural Network-based text generation.</td>
</tr>
<tr>
<td>seqrep</td>
<td>1.3.2_gcc-9.4.0</td>
<td>SeqPrep is a program to merge paired end Illumina reads that are overlapping into a single longer read.</td>
</tr>
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<td>shared-mime-info</td>
<td>1.9_gcc-9.4.0</td>
<td>Database of common MIME types.</td>
</tr>
<tr>
<td>snakemake</td>
<td>6.15.1_gcc-9.4.0</td>
<td>Snakemake is an MIT-licensed workflow management system.</td>
</tr>
<tr>
<td>snap-korf</td>
<td>2021-11-04_gcc-9.4.0</td>
<td>SNAP is a general purpose gene finding program suitable for both eukaryotic and prokaryotic genomes.</td>
</tr>
<tr>
<td>snappy</td>
<td>1.1.8_gcc-9.4.0</td>
<td>A fast compressor/decompressor: <a href="https://code.google.com/p/snappy">https://code.google.com/p/snappy</a></td>
</tr>
<tr>
<td>sox</td>
<td>14.4.2_gcc-9.4.0</td>
<td>SoX, the Swiss Army knife of sound processing programs.</td>
</tr>
<tr>
<td>sqlite</td>
<td>3.37.2_gcc-9.4.0</td>
<td>SQLite is a C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine.</td>
</tr>
<tr>
<td>Software</td>
<td>Version</td>
<td>Description</td>
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<td>sratoolkit</td>
<td>2.10.9_gcc-9.4.0 default</td>
<td>The NCBI SRA Toolkit enables reading (‘dumping’) of sequencing files from the SRA database and writing (‘loading’) files into the .sra format.</td>
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<td>star</td>
<td>2.7.6a_gcc-9.4.0 default</td>
<td>STAR is an ultrafast universal RNA-seq aligner.</td>
</tr>
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<td>subread</td>
<td>2.0.2_gcc-9.4.0 default</td>
<td>The Subread software package is a tool kit for processing next-gen sequencing data.</td>
</tr>
<tr>
<td>subversion</td>
<td>1.14.1_gcc-9.4.0 default</td>
<td>Apache Subversion - an open source version control system.</td>
</tr>
<tr>
<td>suite-sparse</td>
<td>5.10.1_gcc-9.4.0 default</td>
<td>SuiteSparse is a suite of sparse matrix algorithms</td>
</tr>
<tr>
<td>sumo</td>
<td>1.5.0_gcc-9.4.0 default</td>
<td>Eclipse SUMO is an open source, highly portable, microscopic and continuous road traffic simulation package designed to handle large road networks. It allows for intermodal simulation including pedestrians and comes with a large set of tools for scenario creation.</td>
</tr>
<tr>
<td>superlu</td>
<td>5.3.0_gcc-9.4.0 5.3.0_intel-2021.5.0 default</td>
<td>SuperLU is a general purpose library for the direct solution of large, sparse, nonsymmetric systems of linear equations on high performance machines. SuperLU is designed for sequential machines.</td>
</tr>
<tr>
<td>superlu-dist</td>
<td>7.2.0_gcc-9.4.0 7.2.0_intel-2021.5.0 default</td>
<td>A general purpose library for the direct solution of large, sparse, nonsymmetric systems of linear equations on high performance machines.</td>
</tr>
<tr>
<td>swig</td>
<td>4.0.2_gcc-9.4.0 default</td>
<td>SWIG is an interface compiler that connects programs written in C and C++ with scripting languages such as Perl, Python, Ruby, and Tcl. It works by taking the declarations found in C/C++ header files and using them to generate the wrapper code that scripting languages need to access the underlying C/C++ code. In addition, SWIG provides a variety of customization features that let you tailor the wrapping process to suit your application.</td>
</tr>
<tr>
<td>tabix</td>
<td>2013-12-16_gcc-9.4.0 default</td>
<td>Generic indexer for TAB-delimited genome position files</td>
</tr>
<tr>
<td>tar</td>
<td>1.34_gcc-9.4.0 default</td>
<td>GNU Tar provides the ability to create tar archives, as well as various other kinds of manipulation.</td>
</tr>
<tr>
<td>tc</td>
<td>8.6.11_gcc-9.4.0 default</td>
<td>Tcl (Tool Command Language) is a very powerful but easy to learn dynamic programming language, suitable for a very wide range of uses, including web and desktop applications, networking, administration, testing and many more. Open source and business-friendly, Tcl is a mature yet evolving language that is truly cross platform, easily deployed and highly extensible.</td>
</tr>
<tr>
<td>tclish</td>
<td>6.22_02_gcc-9.4.0 default</td>
<td>Tcsh is an enhanced but completely compatible version of csh, the C shell. Tcsh is a command language interpreter which can be used both as an interactive login shell and as a shell script command processor. Tcsh includes a command line editor, programmable word completion, spelling correction, a history mechanism, job control and a C language like syntax.</td>
</tr>
<tr>
<td>teckit</td>
<td>2.5.9_gcc-9.4.0 default</td>
<td>TECkit is a low-level toolkit intended to be used by applications for conversions between text encodings. For example, it can be used when importing legacy text into a Unicode-based application.</td>
</tr>
<tr>
<td>tesseract</td>
<td>4.1.1_gcc-9.4.0 default</td>
<td>Tesseract Open Source OCR Engine.</td>
</tr>
<tr>
<td>texlive</td>
<td>20210325_gcc-9.4.0 default</td>
<td>TeX Live is an easy (we hope) way to get up and running with the TeX document production system. It provides a comprehensive TeX system with binaries for most flavors of Unix, including GNU/Linux, macOS, and also Windows. It includes all the major TeX-related programs, macro packages, and fonts that are free software, including support for many languages around the world.</td>
</tr>
<tr>
<td>tk</td>
<td>8.6.11_gcc-9.4.0 default</td>
<td>Tk is a graphical user interface toolkit that takes developing desktop applications to a higher level than conventional approaches. Tk is the standard GUI not only for Tcl, but for many other dynamic languages, and can produce rich, native applications that run unchanged across Windows, Mac OS X, Linux and more.</td>
</tr>
<tr>
<td>tr</td>
<td>4.0.9.1_gcc-9.4.0 default</td>
<td>Tandem Repeats Finder is a program to locate and display tandem repeats in DNA sequences.</td>
</tr>
<tr>
<td>trimgalore</td>
<td>0.6.6_gcc-9.4.0 default</td>
<td>Trim Galore is a wrapper around Cutadapt and FastQC to consistently apply adapter and quality trimming to FastQ files, with extra functionality for RRBS data.</td>
</tr>
<tr>
<td>ucx</td>
<td>1.10.1_gcc-9.4.0 default</td>
<td>A communication library implementing high-performance messaging for MPI/PGAS frameworks</td>
</tr>
</tbody>
</table>
2.2.28_gcc-1.14.1_gcc-1.8.1_gcc-3.0.2_gcc-0.4.0_gcc-3.2.3_gcc-1.2.1_gcc-7.3.0_gcc-0.4.3_gcc-

2.3.4_gcc-9.4.0 default

ODBC is an open specification for providing application developers with a predictable API with which to access Data Sources. Data Sources include SQL Servers and any Data Source with an ODBC Driver.

1.8.1_gcc-9.4.0 default

Universal Non-Uniform Random number generator.

2.6.1_gcc-9.4.0 default

A clean C library for processing UTF-8 Unicode data: normalization, case-folding, graphemes, and more

2.37.4_gcc-9.4.0 default

Util-linux is a suite of essential utilities for any Linux system.

1.19.3_gcc-9.4.0 1.19.3 intel-2021.5.0 default

This is a set of autoconf macros used by the configure.ac scripts in other Xorg modular packages, and is needed to generate new versions of their configure scripts with autoconf.

3.18.1_gcc-9.4.0 default

An instrumentation framework for building dynamic analysis.

0.1.14_gcc-9.4.0 default

VCFtools is a program package designed for working with VCF files, such as those generated by the 1000 Genomes Project. The aim of VCFtools is to provide easily accessible methods for working with complex genetic variation data in the form of VCF files.

0.4.3_gcc-9.4.0 default

Vectorised math. A collection of fast and inline implementations of mathematical functions.

3.1.0_gcc-9.4.0 default

Wannier90 calculates maximally-localised Wannier functions (MLWFs).

3.0.2_gcc-9.4.0 3.1.0_gcc-9.4.0 default

wxWidgets is a C++ library that lets developers create applications for Windows, Mac OS X, Linux and other platforms with a single code base. It has popular language bindings for Python, Perl, Ruby and many other languages, and unlike other cross-platform toolkits, wxWidgets gives applications a truly native look and feel because it uses the platform’s native API rather than emulating the GUI. It’s also extensive, free, open-source and mature.

1.14.1_gcc-9.4.0 default

xcb-proto provides the XML-XCB protocol descriptions that libxcb uses to generate the majority of its code and API.

0.4.0_gcc-9.4.0 default

The XCB util modules provides a number of libraries which sit on top of libxcb, the core X protocol library, and some of the extension libraries. These experimental libraries provide convenience functions and interfaces which make the raw X protocol more usable. Some of the libraries also provide client-side code which is not strictly part of the X protocol but which have traditionally been provided by Xlib.

0.4.0_gcc-9.4.0 default

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0.13_gcc-9.4.0 default

xclip is a command line utility that is designed to run on any system with an X11 implementation. It provides an interface to X selections (the clipboard) from the command line. It can read data from standard in or a file and place it in an X selection for pasting into other X applications. xclip can also print an X selection to standard out, which can then be redirected to a file or another program.

3.2.3_gcc-9.4.0 default

Xerces-C++ is a validating XML parser written in a portable subset of C++. Xerces-C++ makes it easy to give your application the ability to read and write XML data. A shared library is provided for parsing, generating, manipulating, and validating XML documents using the DOM, SAX, and SAX2 APIs.

7.3.0_gcc-9.4.0 default

X Protocol Extensions.

2.3.1_gcc-9.4.0 default

XFree86 Video Mode Extension.

1.5.2_gcc-9.4.0 default

XGBoost is an optimized distributed gradient boosting library designed to be highly efficient, flexible and portable. It implements machine learning algorithms under the Gradient Boosting framework. XGBoost provides a parallel tree boosting (also known as GBDT, GBM) that solve many data science problems in a fast and accurate way. The same code runs on major distributed environment (Hadoop, SGE, MPI) and can solve problems beyond billions of examples.

1.2.1_gcc-9.4.0 default

X Xinerama Extension.
The X Keyboard (XKB) Extension essentially replaces the core protocol definition of a keyboard. The extension makes it possible to specify clearly and explicitly most aspects of keyboard behaviour on a per-key basis, and to track more closely the logical and physical state of a keyboard. It also includes a number of keyboard controls designed to make keyboards more accessible to people with physical impairments.

The XKB data files for the various keyboard models, layouts, and locales.

The xorg-cf-files package contains the data files for the imake utility, defining the known settings for a wide variety of platforms (many of which have not been verified or tested in over a decade), and for many of the libraries formerly delivered in the X.Org monolithic releases.

xKB Window System Core Protocol.

xrandr - primitive command line interface to X11 Resize, Rotate, and Reflect (RandR) extension.

The XROOTD project aims at giving high performance, scalable fault tolerant access to data repositories of many kinds.

xtrans is a library of code that is shared among various X packages to handle network protocol transport in a modular fashion, allowing a single place to add new transport types. It is used by the X server, libX11, libICE, the X font server, and related components.

xvHash is an Extremely fast Hash algorithm, running at RAM speed limits. It successfully completes the SMHasher test suite which evaluates collision, dispersion and randomness qualities of hash functions. Code is highly portable, and hashes are identical on all platforms (little / big endian).

XZ Utilis is free general-purpose data compression software with high compression ratio. XZ Utilis were written for POSIX-like systems, but also work on some not-so-POSIX systems. XZ Utilis are the successor to LZMA Utilis.

Yasm is a complete rewrite of the NASM-2.11.06 assembler. It supports the x86 and AMD64 instruction sets, accepts NASM and GAS assembler syntaxes and outputs binary, ELF32 and ELF64 object formats.

Z3 is a theorem prover from Microsoft Research. It is licensed under the MIT license.

Zlib is a compressed number format for multidimensional floating-point and integer arrays.

Zip is a compression and file packaging/archive utility.

A free, general-purpose, legally unencumbered lossless data-compression library.

Zstandard, or zstd as short version, is a fast lossless compression algorithm, targeting real-time compression scenarios at zlib-level and better compression ratios.

The zipfile provides read access to ziped files in a zip-archive, using compression based solely on free algorithms provided by zlib. It also provides a functionality to overlay the archive filesystem with the filesystem of the operating system environment.