

# Overview of Berkeley Storage Manager (BeStMan)

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- **SRM v2.2 implementation**
  - Works on existing disk storages with posix compliant file systems
    - E.g. NFS, GPFS, GFS, PNFS, HFS+, PVFS2, Lustre, XrootdFS, Hadoop, Ibrix
  - Supports multiple partitions
  - Adaptable to other file systems and storages
    - Supports GridFTP access to underlying system such as REDDnet
    - Supports customized plug-in for MSS to stage/archive such as HPSS
  - Easy adaptability and integration to special project environments
  - Supports two deployment modes: full mode and gateway mode
- **Supports multiple transfer protocols**
  - Supports load balancing for multiple transfer servers
  - Supports customized plug-in for transfer server selection with custom policy
- **Works with grid-mapfile or GUMS server**
- **Simple installation and easy maintenance**
  - Pacman installation from VDT
  - Or, installation from a downloadable tar file

# Main differences between Full mode and Gateway mode

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- **Full implementation of SRM v2.2**
- **Support for dynamic space reservation**
- **Support for request queue management and space management**
- **Plug-in support for backend mass storage systems**
- **Support for essential subset of SRM v2.2**
- **Support for pre-defined and pre-allocated space tokens**
- **Faster performance without queue and space management**
- **Scalable multiple deployments**

# Who is BeStMan for?

- **Sites that need SRM interface to their local storage resources**
- **Sites with POSIX compliant file systems**
- **Sites that need performance**
- **Sites with limited resources**
- **Community support**
  - CMS, ATLAS, STAR, ESG, ...

- **BeStMan can restrict all user access to certain directory paths through configuration**
- **BeStMan can be configured to restrict user access to files by owners/creators only**
- **A site can customize the load-balancing mechanism for transfer servers through plug-in**
- **A site can customize the file system i/o mechanism for special file system or storage system through plug-in**
- **A site can extend the plug-in for external archival storage systems**
- **Dynamic deployment and personal SRM**
  - **If the target host does not have an SRM, BeStMan can be downloaded, installed, configured, and started with a few commands (or a script) by the end-user for his/her own BeStMan.**
- **Works with other SRM v2.2 server and client implementations**

- **BeStMan is an implementation of SRM v2.2.**
  - Works with posix compliant file systems
    - Scalable performance with Gateway mode on some file systems and storage
  - Can be extended to support custom file system i/o and external archival storage
  - Some policies can be customized
- **Install/maintain through VDT or tar file**
- **Works with other SRM v2.2 implementations**
  - Servers: CASTOR, dCache, DPM, StoRM, SRM/SRB
  - Clients: PhEDEx, FTS, glide-url-copy, lcg-cp, srm-copy, srmcp, ...
  - In OSG, WLCG/EGEE, ESG, ...

- **OSG Storage documentation**
  - <https://twiki.grid.iu.edu/twiki/bin/view/Storage/WebHome>
- **BeStMan**
  - <http://sdm.lbl.gov/bestman>
  - <http://hep-t3.physics.umd.edu/HowToForAdmins.html#osgBestman>
  - <http://wt2.slac.stanford.edu/xrootdfs/bestman-gateway.html>
  - <http://osg-test2.unl.edu/documentation/hadoop/bestman-hdfs>
  - <https://www.usatlas.bnl.gov/twiki/bin/view/Admins/BestMan>
  - <https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/Bestman>
  - <https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/BestmanGateway>
  - <https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/BestmanOnCE>
  - <https://twiki.grid.iu.edu/bin/view/ReleaseDocumentation/BestmanGatewayXrootd>
- **SRM Collaboration and SRM Specifications**
  - <http://sdm.lbl.gov/srm-wg>
- **Contact and support**
  - [osg-storage@opensciencegrid.org](mailto:osg-storage@opensciencegrid.org)
  - [srm@lbl.gov](mailto:srm@lbl.gov)