

READ ME FIRST!

Installing Mascot for the first time

If you are installing Mascot for the first time, please read the 'last minute additions' on page 2 and the 'platform specific notes' on page 3 before following the installation instructions in Chapter 2 of the Installation and Setup Manual. A complete, up-to-date copy of the Manual can be found on the Mascot installation DVD, (*manual.pdf*).

Installing as version update

Licence files used for Mascot 2.3 and earlier will not work with Mascot 2.4. You will need to register online using the supplied product key. If you are moving to new hardware at the same time as making a version update, you'll need to copy your existing licence file (*mascot.license* in the Mascot config directory) from the old system to the new **before** trying to register online.

New: Database Manager

A new, browser-based Database Manager replaces the separate configuration and download scripts used in Mascot 2.3 and earlier. Up-to-date configuration information for popular public databases is maintained on the Matrix Science public web site. Provided the Mascot Server can connect to the Internet, these predefined database definitions will be kept up-to-date automatically.

New: Report Builder

The second tab of the Protein Family Summary has been greatly enhanced and the name changed from Quantitation to Report Builder. Its main purpose is to build a customised table of protein hits, which is particularly useful if you need a minimal list of proteins for a publication.

And lots more

- Can specify a Preferred taxonomy in the Protein Family Report.
- Decoy database sequences can be randomised or reversed.
- Display decoy statistics at a specified FDR, e.g. 1%.
- Built-in Site analysis for variable modifications.

Changes since last release

Details of individual changes since the previous major release of Mascot are listed on page 5 of these notes.

Last minute additions to documentation

See page 2

Last minute additions to documentation

- Some third party applications require helper scripts to be installed on the Mascot web server. If Mascot security is enabled, you should be aware that such scripts may create security holes.
- Microsoft Internet Explorer 8 and later versions do not allow text to be pasted into a file upload control. This may break the integration between some older, third party software and the Mascot search form. If the software vendor does not have a fix, you may need to downgrade to Internet Explorer 7.

Platform Specific Notes

Perl

The following compilations of Perl are supported by Mascot Parser 2.4.1 when a component of Mascot Server 2.4:

filename	32bit	64bit
mspartner56.so	X	
mspartner58[_64].so	X	X
mspartner58-thread-multi[_64].so	X	X
mspartner510[_64].so	X	X
mspartner510-thread-multi[_64].so	X	X
mspartner512[_64].so	X	X
mspartner512-thread-multi[_64].so	X	X
mspartner514[_64].so	X	X
mspartner514-thread-multi[_64].so	X	X

Linux Kernel / Distribution

Any Linux distribution that includes a 2.6 kernel, glibc 2.3.4 or later, and libstdc++ 3.4.3 or later should be sufficient.

Mascot is tested during development with Debian 5.0 “Lenny” and 6.0 “Squeeze”.

SELinux

If SELinux is enabled and set up in targeted enforcing mode, you may need to perform extra steps to allow Mascot scripts to run and to allow Mascot HTML pages to be installed outside */var/www*.

We recommend running the Mascot server behind an institution firewall in which case, the easiest way to fix SELinux problems is to disable SELinux in the configuration file */etc/selinux/config* by changing SELINUX=enabled to SELINUX=disabled and reboot the computer.

If you need to run with SELinux enabled, you may have to modify the Mascot directory security context in order to allow CGI and WWW content outside the standard */var/www* document root:

Check what the current security context is for */var/www*:

```
stat -Z -c %C /var/www/html
```

This should print `system_u:object_r:httpd_sys_content_t`.
Check what the current security context is for the Mascot directory:

```
stat -Z -c %C /usr/local/mascot
```

If the two contexts are not the same, rectify the problem:

```
chcon -R -u system_u -r object_r -t  
httpd_sys_content_t /usr/local/mascot
```

You may also get the following message in the web server error log during the installation process *Permission denied: exec of '/usr/local/mascot/cgi/install1.pl' failed*. To fix this, you need to disable SELinux protection for the httpd daemon. You can do this by editing `/etc/selinux/targeted/booleans` in a text editor and setting `httpd_disable_trans=1`. Save and close the file, and run the following commands as root:

```
/usr/sbin/setsebool -P httpd_disable_trans 1  
/etc/init.d/httpd restart
```

Alternatively, on RHEL 5/CentOS 5, go to Administration; Security Level; Firewall and view the Security Level Configuration dialog box to make the changes.

During the licence registration process, you may also get the following error on the Mascot status page:

The following serious system error has occurred:

```
Licensing fault (11:0000000d). Please contact Matrix Science for  
support. [M00419]
```

To fix this, disable SELinux protection for the httpd daemon as described above.

Changes since Version 2.3.00

ID	Component	Description
6064	Server	If no ions tolerance units are specified then nph-mascot.exe should stop
6097	Server	Report site specificity for phosphorylation
6212	Server	Missing accession numbers in ms-searchcontrol --xmlresults (ms-distillerget)
6348	Server	Spaces in sequence databases get converted to Xs
6474	Server	Re-word unhelpful error messages
6510	Server	Monitor should exit if "MascotNodeScript" is not defined on Unix platforms.
6549	Server	Replace db_update.pl with Database Manager
6558	Server	Add minimum number of peptides to report to discard one hit wonders
6573	Server	For a decoy search, need a button to 'get me to 1% FDR'
6587	Server	When nph-mascot.exe is passed a sessionID, it should pass this through to master_results.pl
6628	Server	Option to segregate results from multiple Fasta DB
6728	Server	A space in a fasta file name almost works...
6801	Server	The modification specified in the satellite element of a quantitation method needs to be saved in the unimod section of the results file
6802	Server	Spectrum graphic in peptide view should have option to display y axis
6807	Server	Need to make CentroidWidth smarter
6814	Server	get_params.pl displays database status information if passed invalid argument
6817	Server	More options for how on the fly decoy database is produced
6819	Server	ms-status writes compressed UNIMOD files in text format
6824	Server	peptide_view.pl radio buttons, extra match to non-existing tag?
6827	Daemon	Minor Daemon layout issues
6833	Server	wot_no_results should pull e-mail address from cookie
6835	Server	File locking should time out rather than hang on Unix
6865	Daemon	Daemon reports POST The operation timed out and pauses task
6869	Server	PercolatorUseRT doesn't work properly
6875	Server	Report Builder tab to replace Quantitation Overview in Protein Family Summary

6876	Server	Subset protein descriptions are below the accession string in Protein Family Summary
6877	Server	Choose which species is reported if there are multiple equal proteins
6878	Daemon	Mascot Daemon truncates pepmass to 4 decimal places
6879	Server	Mascot detects user's Perl file association instead of the system one
6886	Server	Cannot have weird characters in accession strings in Mascot 2.3
6890	Daemon	Daemon reports 'empty document returned' when retrieving results
6892	Server	SVG graphics float on top of the Find toolbar in Internet Explorer
6894	Server	ms-mascotnode.exe can't map a00 file for locking in cluster mode
6910	Daemon	Mascot Daemon passes unsuitable loglevel to Mascot Distill.exe for quant
6914	Server	Quantitation in presence of modifications
6921	Daemon	Daemon merge of MGF can produce corrupt output
6922	Daemon	Mascot Daemon needs to support MDRO "MultiFileScanNumbering"
6932	Server	Peptide View can display wrong score for non-ET match in ET search
6941	Server	PMF with a single mass value and NoCleave enzyme hangs
6946	Daemon	M00088 caused by _DISTILLER_MDRO_VERSION when choose to merge samples
6951	Daemon	Password fields in Daemon should be masked
6953	Server	Add support for comment lines in fasta files
6954	Server	Add support for taxonomy rule where TaxID explicitly given
6956	Server	If output is CSV and Percolator needs to be run, export_dat_2.pl gives "Internal Server Error"
6957	Server	ms-searchcontrol.exe --results not returning protein mass or description for multiple fasta
6958	Server	Roll-up of browser bugs in Protein Family Summary in 2.3.02
6959	Server	Protein Family Summary data in browser cache needs to invalidate with session timeout
6965	Server	Export to MGF doesn't include SCANS[0], RAWSCANS[0] etc.
6967	Server	nph-mascot.exe needs to write taxonomy IDs in the results file
6973	Daemon	Pause a task in Daemon, seems to produce invalid entries in the Distiller project file
6975	Server	Support combining multiple results files for Distiller
6981	Daemon	Subscript out of range error when run task from Integra Daemon

6983	Daemon	Cannot use non-alphanumerics in Mascot password in Daemon
6984	Server	contaminants_from_MPI changed location
6985	Server	Confusing message in errorlog.txt if ExecAfterSearch logging level set incorrectly
6987	Server	Cannot edit seq query after failed search
6988	Server	Cutting dendrograms in Google Chrome 7.0 is finicky
6993	Server	"This page cannot be displayed" in IIS 7
10471	Parser	Code to process mascot.dat for installation moves comments around + additional tab
10536	Parser	IgnoreIonsScoreBelow is converted to a score and rounded to an integer internally
10576	Parser	New mascot.dat options need to be added to ms_mascotoptions
10621	Parser	New methods for Server bug 2904: getTaxonomyID(), anyTaxonomyIDs(), isSpeciesDescendantOf()
10627	Parser	On Windows, NTFS, cache files get re-created when going to/from Summer Time (Daylight savings)
10633	Server	Make nph-cache_families.pl usable from other scripts
10634	Parser	Support for Perl 5.12 and Perl 5.14
10635	Server	Unassigned list shows expect values and thresholds for ET matches
10637	Server	peptide_view.pl and protein_view.pl need to support merged results reports
10638	Parser	Increase CDB file size limit from 4Gb to unlimited
10641	Server	Format of peptide match table should be more like summary report
10643	Server	Cannot view Protein Family Summary when using Percolator RT
10649	Server	Update XMLHttpRequest.js
10651	Server	Remote exploit in client.pl
10652	Parser	If protein accession contains =, getSectionValueStr() returns empty string
10654	Server	Help text: Local modifications contained in a spectra append rather than replace global mods
10656	Server	Minor glitches with rendering in MSIE7
10659	Parser	Stalls at end of creating common cache
10661	Server	Combination of peaklist and TMPP-Ac (N-term) modification causes crash
10664	Parser	If accession contains a comma, ms_proteinsummary parses it wrong
10668	Parser	Need additional function: getMultiFileQueryNumber

10672	Server	export_dat_2.pl should use the batch feature in ms-getseq.exe
10673	Parser	Functions for finding proteins and peptides by modifications
10674	Server	mzIdentML: passThreshold set incorrectly, plus add new CV terms
10676	Parser	New ms_datfile constructor to load a file from the public website
10682	Parser	ms_mascotoptions is missing setIgnoreDupeAccession() and setReportNumberChoice()
10686	Server	Protein view for EMBL EST always shows 'unknown species'
10688	Server	Peptide view displays error tolerant matches that should be suppressed
10689	Server	Non standard genetic code matches have incorrect peptide sequence in results file
10691	Parser	ms_wwwoptions is missing methods to update and delete entries
10704	Parser	Add support for taxonomy rule where TaxID explicitly given
10706	Server	Protein Family View find improvements
10707	Server	SECTASK_MAXCONCURRENTSEARCHES value is ignored
10710	Server	Support IE9 and Firefox 4-11
10718	Server	ms-status.exe needs to return status in XML format
10722	Server	Too many search threads created
10726	Parser	Security problem with multiple group membership
10729	Parser	ms_datfile::updateForInstaller() sets incorrect number of DB threads
10737	Server	Impurity correction for multiplex is broken
10738	Server	Protein accession disappears on collapse in MSIE9
10740	Server	retention time not parsed from mzML peaklist.
10741	Server	Choose preferred taxonomy in export_dat_2.pl
10751	Server	Satellite ions (dvv) should not be restricted to fragments containing R
10766	Server	pepXML handles fixed + variable mods at same site incorrectly
10770	Server	Perform normality check after outlier rejection, not before
10772	Server	Mascot crash in cluster mode when a fragment intensity is "NaN"
10780	Parser	Change definition of isPeptideUnique to be unique per family member rather than per family
10787	Parser	findProteins() should search alternative accessions also
10790	Server	Contaminants help page needs updating
10797	Parser	Custom parameters for ms_user and ms_group
10798	Parser	New options ReportBuilderColumnArrangement_n
10804	Parser	Change getPeptideThreshold() to allow return of either

		homology or identity threshold as double
10806	Server	Speclist.txt format changes break taxonomy in Mascot Server
10812	Server	Cron emulator improvements for Database Manager
10866	Server	Support for multiple modifications on one site
10872	Server	Out of memory error, cluster mode, search against user supplied Database
10874	Parser	Support for additional regular expression in the Taxonomy_n section to read speclist.txt
10875	Parser	Export with show_decoy=1 crashes for some searches if there is already a cache file
10895	Server	Add RAWFILE and LOCUS to MGF spec
10905	Server	Quantitation displayed in XML tab has corrupt mod names
10924	Server	Help pages for SwissProt - should point to speclist.txt from EBI
10943	Parser	Cron emulator improvements
10947	Parser	After calling getNumDecoyHitsAboveIdentity() with non default threshold, getPeptideQuery() can fail
10959	Server	Better error reporting for FDR button
10960	Server	10 copies of the same unassigned peptide when filtering unassigned
10961	Server	Better IIS debugging for master_results_2.pl
10963	Server	Need to report homology threshold when there is a single match with non-zero score (but lots of matches with zero score)
10969	Parser	Add function: ms_processors::getAutoDetectNumThreads(const int numLicensed)
10970	Server	Linux installer changes for Mascot 2.4
10971	Server	Need to be able to use 'auto' for SubClusterSet
10974	Server	Divide by zero when precursor charge specified as Mr
10978	Server	Miscellaneous minor issues with MGF format
10979	Parser	Add support for RAWFILE and LOCUS in ms_inputquery
10984	Server	Satellite ions should not be restricted to fragments containing R
10990	Server	nph-mascot gives intermittent progress reports with Firefox 8
10992	Parser	Improvements to homology threshold
10995	Parser	Prevent any score threshold ever dropping below 13
11002	Parser	Change minPepLenInPepSummary functionality. Don't show proteins in which the only significant peptides have length < MinPepLenInPepSummary
11003	Server	Change db_gui.pl to just allow editing of options section
11005	Server	Change links on ms-config for db_gui.pl and add for database manager

11009	Server	qmatch needs to be a count of m/z candidates that are >= MinPepLenInSearch
11018	Parser	getThresholdForFDRAboveIdentity / Homology can fail to get the best values
11022	Server	Don't report a homology threshold for spectra with a very small number of peaks
11029	Server	A PMF search with BEGIN IONS should give a fatal error message
11039	Server	qmatch overflow. Was a 32 bit integer with limit of 2,147,483,647
11041	Parser	qmatch overflow. 64 bit Linux parser wraps numbers greater than 2,147,483,647
11044	Server	Filenames and paths should be allowed to have _.\$%().
11045	Server	View unformatted sequence string from protein view fails if there is a space in the accession
11051	Server	Export script fails to honour Percolator setting in form
11055	Daemon	Improved error reporting for when creating / opening mgf from MDRO