

## Profile Summary (Total time: 2423.085 s)

Generated 01-Mar-2021 17:02:43 using performance time.

Function Name	Calls	Total Time (s)	Self Time* (s)	Total Time Plot (dark band = self time)
<a href="#">Boss_2_RC_nnlc_accuracy</a>	1	2422.998	0.119	
<a href="#">clientconstraint_fixedrank_equality_nonneg_lowrankcompletion</a>	1	2422.849	0.047	
<a href="#">rlbfgs</a>	39648	1627.608	17.603	
<a href="#">linsearch_hint</a>	114061	1197.512	21.456	
<a href="#">getCost</a>	2821012	1036.220	197.549	
<a href="#">almbddmultiplier</a>	1	604.963	0.276	
<a href="#">exactpenaltyViaSmoothinglqh</a>	2	600.967	6.564	
<a href="#">SQP</a>	1	600.096	24.449	
<a href="#">exactpenaltyViaSmoothinglse</a>	1	600.046	4.966	
<a href="#">hessianmatrix</a>	5555	495.755	5.170	
<a href="#">getHessian</a>	288860	459.314	12.277	
<a href="#">SQP&gt;@(X,d)hessLagrangian(X,d,mus,lambdas)</a>	144430	420.404	0.632	
<a href="#">SQP&gt;hessLagrangian</a>	144430	419.773	94.194	
<a href="#">...nk_equality_nonneg_lowrankcompletion&gt;@(Y)nncostfun(Y,row,col)</a>	64575619	403.552	168.133	
<a href="#">getCostGrad</a>	153709	342.936	2.780	
<a href="#">getGradient</a>	317804	323.859	21.140	
<a href="#">almbddmultiplier&gt;@(X)cost_alm(X,problem0,rho,lambdas,gammas)</a>	585646	312.289	15.848	
<a href="#">almbddmultiplier&gt;cost_alm</a>	585646	296.440	85.515	
<a href="#">fixedrankembeddedfactory&gt;projection</a>	14185016	295.653	240.393	
<a href="#">fixedrankembeddedfactory&gt;ehess2rhess</a>	7365930	268.875	103.020	
<a href="#">...nstraint_fixedrank_equality_nonneg_lowrankcompletion&gt;nncostfun</a>	64575619	235.418	235.418	
<a href="#">...tpenaltyViaSmoothinglse&gt;@(X)grad_exactpenalty(X,problem0,rho)</a>	71314	224.487	1.949	
<a href="#">exactpenaltyViaSmoothinglse&gt;grad_exactpenalty</a>	71314	217.970	83.029	
<a href="#">...ctpenaltyViaSmoothinglqh&gt;@(X)cost_exactpenalty(X,problem0,rho)</a>	445836	200.955	11.400	
<a href="#">exactpenaltyViaSmoothinglqh&gt;cost_exactpenalty</a>	445836	189.554	65.751	
<a href="#">...ctpenaltyViaSmoothinglse&gt;@(X)cost_exactpenalty(X,problem0,rho)</a>	350497	156.427	9.034	
<a href="#">exactpenaltyViaSmoothinglse&gt;cost_exactpenalty</a>	350497	147.393	51.690	
<a href="#">...nk_equality_nonneg_lowrankcompletion&gt;@(Y)eqcostfun(Y,row,col)</a>	22100975	140.182	58.080	
<a href="#">...tpenaltyViaSmoothinglqh&gt;@(X)grad_exactpenalty(X,problem0,rho)</a>	93071	121.691	2.529	
<a href="#">exactpenaltyViaSmoothinglqh&gt;grad_exactpenalty</a>	93071	112.932	41.569	
<a href="#">fixedrankembeddedfactory&gt;lincomb</a>	16138704	105.056	105.056	
<a href="#">StoreDB&gt;StoreDB.getNewKey</a>	3158288	90.257	90.257	
<a href="#">...nstraint_fixedrank_equality_nonneg_lowrankcompletion&gt;eqcostfun</a>	22100975	82.102	82.102	
<a href="#">fixedrankembeddedfactory&gt;retraction</a>	1348618	73.452	73.452	
<a href="#">exactpenaltyViaSmoothinglse&gt;KKT_residual</a>	16757	69.405	3.021	
<a href="#">StoreDB&gt;StoreDB.getWithShared</a>	3851185	67.391	17.037	
<a href="#">StoreDB&gt;StoreDB.remove</a>	1228270	58.766	12.753	
<a href="#">StoreDB&gt;StoreDB.setWithShared</a>	3510185	55.853	23.391	
<a href="#">exactpenaltyViaSmoothinglqh&gt;KKT_residual</a>	22443	52.807	4.137	
<a href="#">StoreDB&gt;StoreDB.get</a>	3851185	50.355	50.355	
<a href="#">rmfield</a>	1257461	47.582	47.582	
<a href="#">fixedrankembeddedfactory&gt;apply_ambient</a>	21550946	42.495	42.495	
<a href="#">fixedrankembeddedfactory&gt;apply_ambient_transpose</a>	21550946	36.846	36.846	
<a href="#">fixedrankembeddedfactory&gt;project_tangent</a>	842474	36.588	3.063	

StoreDB>StoreDB.set	3510185	32.462	32.462	'
SQP>gradLagrangian	11112	28.760	11.283	
tangentorthobasis	5555	26.929	0.577	
evaluation	39656	23.559	5.574	
...@(x,d1,d2)d1.M(:).'*d2.M(:)+d1.Up(:).'*d2.Up(:)+d1.Vp(:).'*d2.Vp(:)	11976264	23.196	23.196	
orthogonalize	5555	22.270	8.087	
handle_light>handle_light.delete	1815957	21.756	21.756	
getEuclideanGradient	331721	19.726	7.831	
SQP>KKT_residual	5556	18.866	0.886	
struct2csv	6	16.719	4.130	
fixedrankembeddedfactory>tangent2ambient	986904	15.269	15.269	
exactpenaltyViaSmoothinglqh>savestats	22441	14.166	0.754	
num2str	412734	13.741	2.865	
...ixedrank_equality_nonneg_lowrankcompletion>@(U)constraintgrad	13010821	12.716	12.716	
rlbfgs>getDirection	114061	10.746	3.986	
exactpenaltyViaSmoothinglse>savestats	16756	10.357	0.517	
...tconstraint_fixedrank_equality_nonneg_lowrankcompletion>objcost	1438669	10.011	10.011	
quadprog	5555	9.762	0.697	
exactpenaltyViaSmoothinglqh>maxabsLagrangemultipliers	22441	9.422	3.248	
num2str>handleNumericPrecision	321968	9.418	0.708	
StoreDB>StoreDB.StoreDB	1815957	9.192	5.743	
almbddmultiplier>@(X)grad_alm(X,problem0,rho,lambdas,gammas)	6239	8.736	0.176	
num2str>convertUsingRecycledSprintf	321968	8.710	8.710	
almbddmultiplier>grad_alm	6239	8.301	2.931	
ipqpdense	5555	8.056	0.499	
SQP>@(x)loneMeritFunction(x,rho)	11842	7.238	0.089	
SQP>loneMeritFunction	11842	7.150	1.714	
exactpenaltyViaSmoothinglqh>complementaryPowerViolation	22443	7.093	2.390	
exactpenaltyViaSmoothinglse>maxabsLagrangemultipliers	16756	6.925	2.428	
mergeOptions	193367	6.357	6.357	
...drank_equality_nonneg_lowrankcompletion>@(X,U)constrainthess	7221500	6.120	6.120	
StoreDB>StoreDB.purge	114061	5.362	3.792	
exactpenaltyViaSmoothinglse>complementaryPowerViolation	16757	5.097	1.745	
rlbfgs>savestats	153709	4.821	4.173	
...drank_equality_nonneg_lowrankcompletion>euclidean_objhessian	144430	4.628	1.848	
fixedrankembeddedfactory>randomvec	144430	4.078	3.221	
...factory>@(i)sprintf('Manifold of %dx%d matrices of rank %d',m,n,k)	226047	3.677	3.677	
handle_light>handle_light.handle_light	1815957	3.449	3.449	
optimlib/private/interiorPointQPMex (MEX-file)	5555	3.121	3.121	
...@(x,d)sqrt(norm(d.M,'fro')^2+norm(d.Up,'fro')^2+norm(d.Vp,'fro')^2)	1037366	3.045	3.045	
createExitMsg	5555	2.708	1.067	
stoppingcriterion	153709	2.385	2.385	
SQP>const_evaluation	5556	2.270	0.779	
SQP>complementaryPowerViolation	5556	1.749	0.600	
...onstraint_fixedrank_equality_nonneg_lowrankcompletion>eobjgrad	331566	1.746	1.746	
createExitMsg>msgArgs2Str	11110	1.236	0.084	
schur	5555	1.182	1.182	
almbddmultiplier>KKT_residual	456	1.160	0.094	
exactpenaltyViaSmoothinglqh>manifoldPowerViolation	22443	1.070	0.259	
presolve	5555	1.065	0.528	

<a href="#">int2str</a>	62991	0.803	0.803	
<a href="#">exactpenaltyViaSmoothinglse&gt;manifoldPowerViolation</a>	16757	0.767	0.193	
<a href="#">canGetEuclideanGradient</a>	331721	0.709	0.709	
<a href="#">applyStatsfun</a>	159265	0.682	0.682	
<a href="#">optimget</a>	88880	0.679	0.248	
<a href="#">rank</a>	45222	0.582	0.582	
<a href="#">fixedrankembeddedfactory&gt;tangent</a>	144430	0.540	0.540	
<a href="#">prepareOptionsForSolver</a>	5555	0.499	0.499	
<a href="#">optimget&gt;optimgetfast</a>	88880	0.431	0.431	
<a href="#">createExitMsg&gt;stripHTMLTags</a>	16665	0.405	0.405	
<a href="#">num2str&gt;cellPrintf</a>	27775	0.389	0.389	
<a href="#">canGetLineSearch</a>	114061	0.377	0.377	
<a href="#">almbddmultiplier&gt;savestats</a>	455	0.322	0.019	
<a href="#">SQP&gt;savestats</a>	5556	0.272	0.237	
<a href="#">num2str&gt;strvcat</a>	27775	0.267	0.104	
<a href="#">SQP&gt;manifoldPowerViolation</a>	5556	0.258	0.068	
<a href="#">getGlobalDefaults</a>	39653	0.213	0.213	
<a href="#">presolve&gt;forcingRedundantConstr</a>	5555	0.201	0.201	
<a href="#">canGetCost</a>	39648	0.198	0.198	
<a href="#">almbddmultiplier&gt;@(x)complementaryPowerViolation(x,rho,lambdas)</a>	456	0.175	0.005	
<a href="#">postsolve</a>	5555	0.174	0.174	
<a href="#">almbddmultiplier&gt;complementaryPowerViolation</a>	456	0.170	0.052	
<a href="#">presolve&gt;emptyRows</a>	5555	0.168	0.168	
<a href="#">strjust</a>	27775	0.162	0.062	
<a href="#">rlbfgs&gt;@(t)t</a>	114061	0.120	0.120	
<a href="#">checkbounds</a>	5555	0.106	0.106	
<a href="#">computeKKTErrorsForQPLP</a>	5555	0.102	0.102	
<a href="#">strjust&gt;strjustOnChar</a>	27775	0.100	0.100	
<a href="#">optimlib/private/classifyBoundsOnVars</a>	5555	0.086	0.068	
<a href="#">canGetGradient</a>	39648	0.082	0.082	
<a href="#">...edfactory&gt;@(X)struct('M',zeros(k,k),'Up',zeros(m,k),'Vp',zeros(n,k))</a>	5555	0.081	0.081	
<a href="#">isoptimargdbl</a>	5555	0.067	0.067	
<a href="#">getFileinfoForToolstrip</a>	1	0.054	0.019	
<a href="#">ipqpdense&gt;i_unwrapInternalOptions</a>	5555	0.036	0.036	
<a href="#">SQP&gt;musposiPowerViolation</a>	5556	0.033	0.033	
<a href="#">getSystemObjectInfo</a>	1	0.025	0.001	
<a href="#">getSystemObjectInfo</a>	1	0.025	0.001	
<a href="#">almbddmultiplier&gt;manifoldPowerViolation</a>	456	0.024	0.007	
<a href="#">isSystemObjectFile</a>	1	0.023	0.002	
<a href="#">canGetHessian</a>	5555	0.021	0.021	
<a href="#">isSystemObjectCode</a>	1	0.020	0.000	
<a href="#">isSystemObjectCode&gt;plsSystemObjectCode</a>	1	0.020	0.008	
<a href="#">mtree.mtree&gt;mtree.mtree</a>	2	0.019	0.005	
<a href="#">optimlib/private/classifyBoundsOnVars&gt;equalFloat</a>	5555	0.018	0.018	
<a href="#">dlmwrite</a>	1	0.015	0.001	
<a href="#">@mtree/private/mtree_info</a>	10	0.015	0.006	
<a href="#">presolve&gt;freeLinearColumnSingletons</a>	5555	0.015	0.015	
<a href="#">dlmwrite&gt;parseinput</a>	1	0.014	0.002	
<a href="#">fixedrankembeddedfactory&gt;@()(m+n-k)*k</a>	11110	0.014	0.014	

<a href="#">presolve&gt;infiniteRHS</a>	5555	0.013	0.013	
<a href="#">presolve&gt;fixVarsEqBnds</a>	5555	0.013	0.013	
<a href="#">cell.ismember</a>	1	0.012	0.008	
<a href="#">presolve&gt;unconstrVars</a>	5555	0.012	0.012	
<a href="#">getCode</a>	1	0.011	0.009	
<a href="#">functionNameClashCheck</a>	5555	0.011	0.011	
<a href="#">presolve&gt;singletonIneqs</a>	5555	0.011	0.011	
<a href="#">@mtree/private/nodeinfo</a>	1	0.010	0.009	
<a href="#">presolve&gt;singletonEqs</a>	5555	0.010	0.010	
<a href="#">presolve&gt;dbltnEqualities</a>	5555	0.009	0.009	
<a href="#">mtree.mtfind</a>	1	0.009	0.005	
<a href="#">mdbstatus</a>	1	0.007	0.000	
<a href="#">fixedrankembeddedfactory&gt;random</a>	6	0.006	0.001	
<a href="#">mdbstatus&gt;localGetFileBreakpoints</a>	1	0.006	0.006	
<a href="#">close</a>	1	0.006	0.001	
<a href="#">RandStream.RandStream&gt;getMethodNames</a>	1	0.006	0.006	
<a href="#">close&gt;safegetchildren</a>	1	0.005	0.001	
<a href="#">stiefelfactory&gt;@(qr_unique(randn(n,p,k,array_type)).</a>	12	0.005	0.002	
<a href="#">almbddmultiplier&gt;maxabsLagrangemultipliers</a>	455	0.005	0.005	
<a href="#">fileparts</a>	3	0.005	0.001	
<a href="#">fixedrankembeddedfactory.</a>	1	0.004	0.003	
<a href="#">mtree.restrict</a>	1	0.004	0.002	
<a href="#">constraintsdetail</a>	6	0.004	0.004	
<a href="#">allchild</a>	1	0.004	0.003	
<a href="#">optimset</a>	1	0.003	0.003	
<a href="#">cell.unique</a>	2	0.003	0.002	
<a href="#">qr_unique</a>	12	0.003	0.003	
<a href="#">nthroot</a>	7	0.003	0.003	
<a href="#">ParseTreeUtils&gt;ParseTreeUtils.getTree</a>	1	0.002	0.000	
<a href="#">mtree.pathit</a>	1	0.002	0.001	
<a href="#">mtree.wholetree</a>	2	0.002	0.002	
<a href="#">fileparts&gt;getExtension</a>	3	0.002	0.002	
<a href="#">mfile</a>	1	0.001	0.001	
<a href="#">fileparts&gt;unixExecution</a>	3	0.001	0.001	
<a href="#">...straint_fixedrank_equality_nonneg_lowrankcompletion&gt;check_rank</a>	4	0.001	0.001	
<a href="#">stiefelfactory.</a>	2	0.001	0.001	
<a href="#">RandStream.RandStream&gt;RandStream.RandStream</a>	1	0.001	0.001	
<a href="#">...raint_fixedrank_equality_nonneg_lowrankcompletion&gt;egradzerofun</a>	155	0.001	0.001	
<a href="#">ismember</a>	1	0.001	0.000	
<a href="#">cell.unique&gt;celluniqueR2012a</a>	2	0.001	0.001	
<a href="#">...constraint_fixedrank_equality_nonneg_lowrankcompletion&gt;zerofun</a>	365	0.001	0.001	
<a href="#">getSettingsRoot</a>	16	0.001	0.001	
<a href="#">ismember&gt;ismemberR2012a</a>	1	0.001	0.000	
<a href="#">randsample</a>	1	0.001	0.001	
<a href="#">ParseTreeUtils&gt;ParseTreeUtils.isTreeError</a>	1	0.000	0.000	
<a href="#">num2cell</a>	1	0.000	0.000	
<a href="#">allchild&gt;getchildren</a>	1	0.000	0.000	
<a href="#">mpower</a>	6	0.000	0.000	
<a href="#">fileread</a>	1	0.000	0.000	

<a href="#">mtree.mtree&gt;validateInput</a>	2	0.000	0.000	
<a href="#">ismember&gt;ismemberBuiltinTypes</a>	1	0.000	0.000	
<a href="#">fileparts&gt;returnCharOrString</a>	3	0.000	0.000	
<a href="#">partialMatchString</a>	2	0.000	0.000	
<a href="#">mtree.iskind</a>	1	0.000	0.000	
<a href="#">@mtree/private/collect_qualifiers</a>	1	0.000	0.000	
<a href="#">close&gt;getEmptyHandleList</a>	1	0.000	0.000	
<a href="#">RandStream.RandStream&gt;RandStream.delete</a>	1	0.000	0.000	
<a href="#">optimset&gt;checkfield</a>	1	0.000	0.000	
<a href="#">mtree.root</a>	1	0.000	0.000	
<a href="#">RandStream.randperm</a>	1	0.000	0.000	
<a href="#">RandStream.RandStream&gt;RandStream.algName</a>	1	0.000	0.000	
<a href="#">RandStream.RandStream&gt;getargs</a>	1	0.000	0.000	
<a href="#">mtree isempty</a>	2	0.000	0.000	
<a href="#">allchild&gt;@()set(rootobj,'ShowHiddenHandles',Temp)</a>	1	0.000	0.000	
<a href="#">optimfun/private/uselargeoptimstruct</a>	1	0.000	0.000	
<a href="#">dlmwrite&gt;setdlm</a>	1	0.000	0.000	
<a href="#">@mtree/private/collect_qualifiers&gt;is_qual</a>	1	0.000	0.000	
<a href="#">uitools/private/allchildRootHelper</a>	1	0.000	0.000	
<a href="#">Type&gt;Type.Type</a>	4	0.000	0.000	
<a href="#">mtree.count</a>	1	0.000	0.000	
<a href="#">optimset&gt;displayType</a>	1	0.000	0.000	
<a href="#">cellstr</a>	1	0.000	0.000	
<a href="#">close&gt;checkfigs</a>	1	0.000	0.000	
<a href="#">close&gt;request_close</a>	1	0.000	0.000	
<a href="#">optimset&gt;onDeprecationPathOptionCheck</a>	1	0.000	0.000	
<a href="#">optimfun/private/optimoptiongetfields</a>	1	0.000	0.000	
<a href="#">webwindowmanager&gt;webwindowmanager.delete</a>	1	0.000	0.000	

\***Self time** is the time spent in a function excluding any time spent in child functions. The time includes any overhead time resulting from the profiling process.