Features controlled by system properties

Jenkins Features Controlled with System Properties

Jenkins has several "hidden" features that can be enabled with system properties. System properties are defined by passing `-Dproperty=value` to the `java` command line to start Jenkins. Make sure to pass all of these arguments **before** the `-jar` argument, otherwise they will be ignored. Example:

```
java -Dhudson.footerURL=http://example.org -jar jenkins.war
```

The following table lists the properties and the version of Jenkins they were introduced in.

- **Property** - Java property name
- **Default** - Default value if not explicitly set
- **Version** - The version of Jenkins the property was introduced in
- **Notes** - Other notes

Properties in Jenkins Core

Property	Default	Version	Notes
hudson.ClassicPluginStrategy. useAntClassLoader	false	1.316	
hudson.ConsoleNote.INSECURE	false	2.44 / 2.32.2	Whether to load unsigned console notes (see SECURITY-382 on Jenkins Security Advisory 2017-02-01)
hudson.consoleTailKB	150	Actually works since 2.98/2.89.3	How many KB of console log to show in default console view
hudson.diagnosis. HudsonHomeDiskUsageChecker. freeSpaceThreshold	1073741824 (up to Jenkins 2.39) 10737418240 (from Jenkins 2.40)	1.339	If there's less than this amount of free disk space, in bytes, on the disk with the Jenkins home directory, and the disk is 90% or more full, a warning will be shown to administrators
hudson.diyChunking	false		Set to true if the servlet container doesn't support chunked encoding
hudson.DNSMultiCast.disabled	false	1.359	Set to "true" to disable DNS multicast
hudson.FilePath. VALIDATE_ANT_FILE_MASK_BO UND	10000	1.592	Max. number of operations to validate a file mask (e.g. pattern to archive artifacts).
hudson.footerURL	http://jenkins-ci.org/	1.416	Allows tweaking the URL displayed at the bottom of Jenkins' UI
hudson.Functions. autoRefreshSeconds	10	1.365	Number of seconds between reloads when Auto Refresh is enabled
hudson.lifecycle			Specify full class name for Lifecycle implementation to override default
hudson.logging. LogRecorderManager. skipPermissionCheck	false	2.121.3 and 2.138	Disable security hardening for LogRecorderManager Stapler access. Possibly unsafe, see 2018-12-05 security advisory.
hudson.matrix.MatrixConfiguration. useShortWorkspaceName	false		Use shorter but cryptic names in matrix build workspace directories. Avoids problems with 256 character limit on paths in Cygwin, path depths problems on Windows, and shell metacharacter problems with label expressions on most platforms. See JENKINS-25783.

hudson.model.AbstractItem.skipPermissionCheck	false	2.121.3 / 2.138	Disable security hardening related to Stapler routing for AbstractItem Possibly unsafe, see 2018-12-05 security advisory.
hudson.model.AsyncAperiodicWork.logRotateMinutes	1440	1.651	The number of minutes after which to try and rotate the log file used by any AsyncAperiodicWork extension. For fine-grained control of a specific extension you can use the *FullyQualifiedClassName*.logRotateMinutes system property to only affect a specific extension. *It is not anticipated that you will ever need to change these defaults*
hudson.model.AsyncAperiodicWork.logRotateSize	-1	1.651	When starting a new run of any AsyncAperiodicWork extension, if this value is non-negative and the existing log file is larger than the specified number of bytes then the log file will be rotated. For fine-grained control of a specific extension you can use the *FullyQualifiedClassName*.logRotateSize system property to only affect a specific extension. *It is not anticipated that you will ever need to change these defaults*
hudson.model.AsyncPeriodicWork.logRotateMinutes	1440	1.651	The number of minutes after which to try and rotate the log file used by any AsyncPeriodicWork extension. For fine-grained control of a specific extension you can use the *FullyQualifiedClassName*.logRotateMinutes system property to only affect a specific extension. *It is not anticipated that you will ever need to change these defaults*
hudson.model.AsyncPeriodicWork.logRotateSize	-1	1.651	When starting a new run of any AsyncPeriodicWork extension, if this value is non-negative and the existing log file is larger than the specified number of bytes then the log file will be rotated. For fine-grained control of a specific extension you can use the *FullyQualifiedClassName*.logRotateSize system property to only affect a specific extension. *It is not anticipated that you will ever need to change these defaults*
hudson.model.DirectoryBrowserSupport.CSP	sandbox; default-src 'none'; image-src 'self'; style-src 'self';	1.625.3, 1.641	Determines the Content Security Policy header sent for static files served by Jenkins. See Configuring Content Security Policy for more details.
hudson.model.DownloadService.never	false		Suppress the periodic download of data files for plugins
hudson.model.Hudson.flyweightSupport	was:false 1.337:true 1.598:unused	1.318	Matrix parent job and other flyweight tasks (e.g. Build Flow plugin) won't consume an executor when true. Unused since 1.598, flyweight support is now always enabled
hudson.model.Hudson.killAfterLoad	false		Exit Jenkins right after loading
jenkins.model.Jenkins.exitCodeOnRestart	5	2.102	When using the -Dhudson.lifecycle=hudson.lifecycle.ExitLifecycle, exit using this exit code when Jenkins is restarted
jenkins.model.Jenkins.logStartupPerformance	false		Log startup timing info
jenkins.model.Jenkins.slaveAgentPort	-1 (disabled)	1.643	Specifies the default TCP slave agent port unless/until configured differently on the UI. -1 to disable, 0 for random port, other values for fixed port. Used to be 0 by default before Jenkins 2.0

jenkins.model.Jenkins.slaveAgentPortEnforce	false	2.19.4 and 2.24	If true, enforces the specified `jenkins.model.Jenkins.slaveAgentPort` on startup and will not allow changing it through the UI
hudson.model.Hudson.parallelLoad	true		Loads job configurations in parallel on startup
hudson.model.LoadStatistics.clock	10000		Load statistics clock cycle in milliseconds
hudson.model.LoadStatistics.decay	0.9		Decay ratio for every clock cycle in node utilization charts
hudson.model.MultiStageTimeSeries.chartFont	SansSerif-10	1.562	Font used for load statistics (see Java documentation on how the value is decoded)
hudson.model.ParametersAction.keepUndefinedParameters	undefined	1.651.2 / 2.3	If true, not discard parameters for builds that are not defined on the job. **Enabling this can be unsafe** Since Jenkins 2.40, if set to false, will not log a warning message that parameters were defined but ignored.
hudson.model.ParametersAction.safeParameters	(empty)	1.651.2 / 2.3	Comma-separated list of additional build parameter names that should not be discarded even when not defined on the job.
hudson.model.Queue.cacheRefreshPeriod	1000	1.577 up to 1.647	Defines the refresh period for the internal queue cache (in milliseconds). The greater period workarounds web UI delays on large installations, which may be caused by locking of the build queue by build executors. Downside - builds appear in the queue with a noticeable delay.
hudson.model.Queue.Saver.DELAY_SECONDS	60	2.109	Maximal delay of a save operation when content of Jenkins queue changes. This works as a balancing factor between queue consistency guarantee in case of Jenkins crash (short delay) and decreasing IO activity based on Jenkins load (long delay).
hudson.model.Run.ArtifactList.listCutoff	16	1.330	More artifacts than this will use tree view or simple link rather than listing out artifacts
hudson.model.Run.ArtifactList.treeCutoff	40	1.330	More artifacts than this will show a simple link to directory browser rather than showing artifacts in tree view
hudson.model.Slave.workspaceRoot	workspace	1.341?	name of the folder within the slave root directory to contain workspaces
hudson.model.UpdateCenter.className	n/a	2.4	Allow overriding the implementation class for update center. Useful for custom war distributions with a different update center implementation. Cannot be used for plugins.
hudson.model.UpdateCenter.defaultUpdateSiteId	default	2.4	Configure a different ID for the default update site. Useful for custom war distributions or externally provided UC data files
hudson.model.UpdateCenter.never	false		When true, don't automatically check for new versions
hudson.model.UpdateCenter.skipPermissionCheck	false	2.121.3 / 2.138	Disable security hardening related to Stapler routing for UpdateCenter. Possibly unsafe, see 2018-12-05 security advisory.
hudson.model.UsageStatistics.disabled	false	1.312 or so?	Set to true to opt out of usage statistics collection, independent of UI option.

hudson.model.User.allowNonExistentUserToLogin	false	1.602	When true, does not check auth realm for existence of user if there's a record in Jenkins. Unsafe, but may be used on some instances for service accounts
hudson.model.User.allowUserCreationViaUrl	false	2.44 / 2.32.2	Whether admins accessing /user/example creates a user record (see SECURITY-406 on Jenkins Security Advisory 2017-02-01)
hudson.model.User.SECURITY_243_FULL_DEFENSE	true	1.651.2 / 2.3	When false, skips part of the fix that tries to determine whether a given user ID exists, and if so, doesn't consider users with the same full name during resolution.
hudson.model.User.skipPermissionCheck	false	2.121.3 / 2.138	Disable security hardening related to Stapler routing for User Possibly unsafe, see 2018-12-05 security advisory.
hudson.model.WorkspaceCleanupThread.disabled	false		Don't clean up old workspaces on slave nodes
hudson.model.WorkspaceCleanupThread.recurrencePeriodHours	24	1.608	How often workspace cleanup should run, in hours.
hudson.model.WorkspaceCleanupThread.retainForDays	30	1.608	Unused workspaces are retained for this many days before qualifying for deletion.
hudson.os.solaris.ZFSInstaller.disabled	false		True to disable ZFS monitor on Solaris
hudson.PluginManager.checkUpdateSleepTimeMillis	1000	2.152	Time (milliseconds) elapsed between retries to check the updates sites.
hudson.PluginManager.CHECK_UPDATE_ATTEMPTS	1	2.152	Number of attempts to check the updates sites.
hudson.PluginManager.skipPermissionCheck	false	2.121.3 / 2.138	Disable security hardening related to Stapler routing for PluginManager Possibly unsafe, see 2018-12-05 security advisory.
hudson.PluginManager.workDir	(*empty*)	1.649	Localtion of the base directory for all exploded .hpi/.jpi plugins. By default the plugins will be extracted under *$JENKINS_HOME/plugins/*.
hudson.PluginStrategy			Allow plugins to be loaded into a different environment, such as an existing DI container like Plexus; specify full class name here to override default ClassicPluginStrategy
hudson.PluginWrapper.dependenciesVersionCheck.enabled	true	2.0	Set to `false` to skip the version check for plugin dependencies.
hudson.ProxyConfiguration.DEFAULT_CONNECT_TIMEOUT_MILLIS	20000	2.0	Connection timeout applied to connections e.g. to the update site.
hudson.scheduledRetention	false	Up to 1.354	Control a slave based on a schedule
hudson.scm.CVSSCM.skipChangeLog	false		Useful with ancient versions of CVS that don't support the -d option in the log command
hudson.search.Search.skipPermissionCheck	false	2.121.3 / 2.138	Disable security hardening related to Stapler routing for Search Possibly unsafe, see 2018-12-05 security advisory.
hudson.security.AccessDeniedException2.REPORT_GROUP_HEADERS	false	2.46 / 2.32.3	If set to true, restore pre-2.46 behavior of sending HTTP headers on "access denied" pages listing group memberships.

hudson.security.ArtifactsPermission	false	1.374	The Artifacts permission allows to control access to artifacts; When this property is unset or set to false, access to artifacts is not controlled
hudson.security.csrf.requestfield	.crumb (Jenkins 1.x), Jenkins-Crumb (Jenkins 2.0+	1.310	Parameter name that contains a crumb value on POST requests
hudson.security.ExtendedReadPermission	false	1.324	The ExtendedReadPermission allows read-only access to "Configure" pages; can also enable with extended-read-permission plugin
hudson.security.HudsonPrivateSecurityRealm.ID_REGEX	`[a-zA-Z0-9_-]+`	2.121 and 2.107.3	Regex for legal user names in Jenkins user database. See https://jenkins.io/security/advisory/2018-05-09/#SECURITY-786
hudson.security.LDAPSecurityRealm.groupSearch	Mouseover		LDAP filter to look for groups by their names
hudson.security.WipeOutPermission	false	1.416	The WipeOut permission allows to control access to the "Wipe Out Workspace" action, which is normally available as soon as the Build permission is granted
hudson.slaves.ChannelPinger.pingInterval	5	1.405	**(Deprecated since 2.37)** Frequency (in minutes) of pings between the master and slaves
hudson.slaves.ChannelPinger.pingIntervalSeconds	300	2.37	Frequency of pings between the master and slaves, in seconds
hudson.slaves.ChannelPinger.pingTimeoutSeconds	240	2.37	Timeout for each ping between the master and slaves, in seconds
hudson.slaves.WorkspaceList	@	1.424	When concurrent builds is enabled, a unique workspace directory name is required for each concurrent build. To create this name, this token is placed between project name and a unique ID, e.g. "my-project@123".
hudson.tasks.ArtifactArchiver.warnOnEmpty	false		When true, builds don't fail when there is nothing to archive
hudson.tasks.Fingerprinter.enableFingerprintsInDependencyGraph	false	1.430	When true, jobs associated through fingerprints are added to the dependency graph, even when there is no configured upstream /downstream relationship between them.
hudson.tasks.MailSender.maxLogLines	250		Number of lines of console output to include in emails
hudson.triggers.SafeTimerTask.logsTargetDir	$JENKINS_HOME/logs	2.114	Allows to move the logs usually found under `$JENKINS_HOME/logs` to another location. Beware that no migration is handled if you change it on an existing instance.
hudson.TcpSlaveAgentListener.hostName	n/a		Host name that Jenkins advertises to its clients. Especially useful when running Jenkins behind a reverse proxy.
hudson.TcpSlaveAgentListener.port	n/a		Port that Jenkins advertises to its clients. Especially useful when running Jenkins behind a reverse proxy.
hudson.TreeView	false		Experimental nested views feature
hudson.triggers.SCMTrigger.starvationThreshold	1 hour		Milliseconds waiting for polling executor before trigger reports it is clogged
hudson.udp	33848		Port for UDP multicast broadcast (set to -1 to disable)
hudson.upstreamCulprits	false	1.327	Pass blame information to downstream jobs
hudson.Util.noSymLink	false		True to disable creation of symbolic links in job/builds directories

hudson.Util.useNativeChmodAndMode	false	2.93	True to use native (JNA/JNR) implementation to set file permissions instead of NIO
hudson.util.ProcessTree.disable	false		True to disable cleanup of child processes
hudson.util.RingBufferLogHandler.defaultSize	256	1.563	Number of log entries in loggers available on the UI at `/log/`
hudson.util.Secret.provider		1.360	Force a particular crypto provider; with Glassfish Enterprise set value to `SunJCE` to workaround a known issue.
hudson.Util.symlinkEscapeHatch	false		True to use exec of "ln" binary to create symbolic links instead of native code
hudson.Util.maxFileDeletionRetries	3	2.2	The number of times to attempt to delete files/directory trees before giving up and throwing an exception. Specifying a value less than 1 is invalid and will be treated as if a value of 1 (i.e. one attempt, no retries) was specified. See JENKINS-10113 and JENKINS-15331.
hudson.Util.deletionRetryWait	100	2.2	The time (in milliseconds) to wait between attempts to delete files when retrying. This has no effect unless *hudson.Util.maxFileDeletionRetries* is greater than 1. If zero, there will be no delay between attempts. If negative, the delay will be a (linearly) increasing multiple of this value between attempts.
hudson.Util.performGCOnFailedDelete	false	2.2	If this flag is set to true then we will request a garbage collection after a deletion failure before we next retry the delete. It is ignored unless *hudson.Util.maxFileDeletionRetries* is greater than 1. Setting this flag to true *may* resolve some problems on Windows, and also for directory trees residing on an NFS share, but it can have a negative impact on performance and may have no effect at all (GC behavior is JVM-specific). Warning: This should only ever be used if you find that your builds are failing because Jenkins is unable to delete files, that this failure is because Jenkins itself has those files locked "open", and even then it should only be used on slaves with relatively few executors (because the garbage collection can impact the performance of all job executors on that slave). *Setting this flag is a act of last resort - it is not recommended, and should not be used on your main Jenkins server unless you can tolerate the performance impact.*
jenkins.CLI.disabled	false	2.32 and 2.19.3	`true` to disable Jenkins CLI via JNLP and HTTP (SSHD can still be enabled)

jenkins.model.Jenkins.buildsDir	${ITEM_ROOTDIR}/builds	2.119	The configuration of a given job is located under $JENKINS_HOME/jobs/[JOB_NAME]/config.xml and its builds are under $JENKINS_HOME/jobs/[JOB_NAME]/builds by default. This option allows you to store builds elsewhere, which can be useful with finer-grained backup policies, or to store the build data on a faster disk such as an SSD. The following placeholders are supported for this value: • **${JENKINS_HOME}** – Resolves to the Jenkins home directory. • **${ITEM_ROOTDIR}** – The directory containing the job metadata within Jenkins home. • **${ITEM_FULL_NAME}** – The full name of the item, with file system unsafe characters replaced by others. **${ITEM_FULLNAME}** – See above, but does not replace unsafe characters. This is a legacy option and should not be used. For instance, if you would like to store builds outside of Jenkins home, you can use a value like the following: /some_other_root/builds/${ITEM_FULL_NAME} This used to be a UI setting, but was removed in 2.119 as it did not support migration of existing build records and could lead to build-related errors until restart.
jenkins.model.Jenkins.disableExceptionOnNullInstance	false	2.4 **only**	true to disable throwing an IllegalStateException when Jenkins.getInstance() returns null
jenkins.model.Jenkins.enableExceptionOnNullInstance	false	2.5	true to enable throwing an IllegalStateException when Jenkins.getInstance() returns null
jenkins.model.Jenkins.crumbIssuerProxyCompatibility	false	2.119	true to enable crumb proxy compatibility when running the Setup Wizard for the first time.
jenkins.model.Jenkins.workspacesDir	${JENKINS_HOME}/workspace/${ITEM_FULL_NAME}	2.119	Allows to change the directory layout for the job workspaces on the master node. See jenkins.model.Jenkins.buildsDir for supported placeholders.
jenkins.InitReactorRunner.concurrency	2x of CPU		During start of Jenkins, loading of jobs in parallel have a fixed number of threads by default (twice the CPU). To make Jenkins load time 8x faster, increase it to 8x. For example, 24 CPU Jenkins Master host use this: -Dhudson.InitReactorRunner.concurrency=192
jenkins.install.runSetupWizard	undefined	2.0	Set to false to skip install wizard. Note that this leaves Jenkins unsecured by default. Development-mode only: Set to true to not skip showing the setup wizard during Jenkins development. NOTE: This property is only effective the first time you run Jenkins in given JENKINS_HOME.
jenkins.security.ApiTokenProperty.adminCanGenerateNewTokens	false	2.129	true to allow users with ADMINISTER permission to create API tokens using the new system for any user. NOTE: The user will not be able to use that token since it's only displayed to the creator, once.

jenkins.security.ApiTokenProperty.showTokenToAdmins	false	1.638	True to show API tokens for users to administrators on the user configuration page. This was set to false as part of SECURITY-200
jenkins.security.FrameOptionsPageDecorator.enabled	true	1.581	Whether to send `X-Frame-Options: sameorigin` header, set to false to disable and make Jenkins embeddable
jenkins.slaves.JnlpSlaveAgentProtocol3.enabled	undefined	1.653	`false` to disable the JNLP3 agent protocol, `true` to enable it. Otherwise it's randomly enabled /disabled to A/B test it.
jenkins.slaves.NioChannelSelector.disabled	false	1.560	true to disable Nio for JNLP slaves
org.jenkinsci.main.modules.sshd.SSHD.idle-timeout	undefined	2.22	Allows to configure the SSHD client idle timeout (value in milliseconds). Default value is 10min (600000ms).
org.jenkinsci.plugins.workflow.steps.durable_task.DurableTaskStep.REMOTE_TIMEOUT	20 seconds	workflow-durable-task-step-plugin 2.29	How long to wait for remote calls (see JENKINS-46507)

No compatibility guarantee

In general, these switches are often experimental in nature, and subject to change without notice. If you find some of those useful, please file a ticket to promote it to the official feature.

Properties in other components

Particular Jenkins component have their own release cycle and documentation. In particular cases such components also include System Properties.

- Remoting - Jenkins Communication Layer: Remoting Configuration