Custom Chart

In addition to statistic charts generated automatically by TeamCity, it is possible to configure your own statistical charts based on the set of build metrics provided by TeamCity or values reported from build script. In the latter case you will need to configure your build script to report custom statistical data to TeamCity.

Displaying a custom chart in TeamCity web UI

To make TeamCity display a custom chart in web UI, you need to update dedicated configuration file:

- For Project-level chart: `<TeamCity Data Directory>`/config/`<Project Name>`/plugin-settings.xml
- For Build Configuration-level chart: `<TeamCity data dir>`/config/main-config.xml

You can edit these files while the server is running, they will be automatically reloaded.

Project page has charts added by default, see details.

A statistics chart is added using `graph` tag. See the examples below:

Custom project-level charts in `plugin-settings.xml`

```
<settings>
  <custom-graphs> <!-- This tag is required only in plugin-settings.xml -->
   <graph title="Duration comparison" hideFilters="showFailed" seriesTitle="some key">
     <valueType key="BuildDuration" title="duration2" buildTypeId="bt7"/>
     <valueType key="BuildDuration" title="duration1" buildTypeId="bt3"/>
     <valueType key="customKey" title="Custom data" /> <!-- Will use data from build configuration
bt3 -->
   </graph>
  </custom-graphs>
</settings>
```

Custom build configuration-level charts in `main-config.xml`

```
<server ...>
 <!-- Some other stuff -->
 <graph title="Passed Test Count" seriesTitle="Configuration">
   <valueType key="PassedTestCount" title="This configuration" />
   <valueType key="PassedTestCount" title="Passed Test Count" buildTypeId="bt32"/> <!-- This is
explicit reference to build configuration -->
 </graph>
 <graph title="Tests against Coverage">
   <valueType key="PassedTestCount" title="Tests" />
   <valueType key="CodeCoverageL" title="Line coverage" />
 </graph>
 <graph title="Custom data" seriesTitle="Metric name">
   <valueType key="key1" title="Metric 1" />
   <valueType key="key2" title="Metric 1" />
   <valueType key="BuildDuration" title="Duration" />
 </graph>
</server>
```

Note, that when adding custom charts on the project level intermediate `custom-graphs` tag is required.

Tags reference

`<graph>` : describes a single chart. It should contain one or more `valueType` subtags, which describe series of data shown in the chart.

Attribute	Description
title	Title above the chart.
seriesTitle	Title above list of series used on the chart (in singular form). Default is "Serie".
defaultFilters	List of comma-separated options, which should be checked by default. Can include the following: • showFailed — include results from failed builds by default. • averaged — by default, show averaged values on the chart.
hideFilters	List of comma-separated filter names that should not be shown next to the chart: • all — hide all filters. • series — hide series filter (you won't be able to show only data from specific valueType specified for the chart. • range — hide date range filter. • showFailed — hide checkbox which allows to include data for failed builds. • averaged — hide checkbox which allows to view averaged values. Defaults — empty (all filters are shown).

`<valueType>` : describes a series of data shown on the chart. Each series is drawn with a separate color and you may choose one or another series using a filter.

Attribute	Description
key	A name of the valueType (or series). It can be predefined by TeamCity, like `BuildDuration` or `ArtifactsSize` (see below the complete list of pre-defined build metrics), or you can provide your own data by reporting it from the build script.
title	Series name, shown in the series selector. Defaults to `<key>`.
buildTypeId	This field allows to explicitly specify build configuration to use data from for given valueType. This field is mandatory for the first valueType used in a chart, if the chart is added at project level. In other cases it is optional. However, note that TeamCity chooses build configuration to take data from according to following rules: 1. if `buildTypeId` is set within `valueType`, data is taken from this build configuration even if it belongs to another project. 2. if `buildTypeId` is not set within current `valueType`, but it is set in `valueType` above current one within the chart, the data from the build configuration referenced above will be taken. See example for `plugin-settings.xml` file above. 3. if `buildTypeId` is not set within current `valueType` and is not set above, the chart will show data for the current build configuration, i.e. this chart will work only for build configurations. Such charts can be configured only in `main-config.xml`.

Build Metrics Provided by TeamCity

The following lists the pre-defined value providers that can be used to configure a custom chart. Using these values doesn't require build script modification.

Value	Description	Unit
ArtifactsSize	Sum of all artifact file sizes in artifact directory.	Bytes
BuildArtifactsPublishingTime	Duration of the artifact publishing step in the build.	Milliseconds
BuildCheckoutTime	Duration of the source checkout step.	Milliseconds
BuildDuration	Build duration, excluding checkout or artifact publishing time.	Milliseconds
CodeCoverageB	Block-level code coverage	%
CodeCoverageC	Class-level code coverage	%
CodeCoverageL	Line-level code coverage	%
CodeCoverageM	Method-level code coverage	%

CodeCoverageAbsLCovered	Number of covered lines	int
CodeCoverageAbsMCovered	Number of covered methods	int
CodeCoverageAbsCCovered	Number of covered classes	int
CodeCoverageAbsLTotal	Total number of lines	int
CodeCoverageAbsMTotal	Total number of methods	int
CodeCoverageAbsCTotal	Total number of classes	int
DuplicatorStats	Number of found code duplicates	int
FailedTestCount	Number of failed tests in the build	int
IgnoredTestCount	Number of ignored tests in the build	int
InspectionStatsE	Number of inspection errors in the build	int
InspectionStatsW	Number of inspection warnings in the build	int
PassedTestCount	Number of successfully passed tests in the build	int
SuccessRate	Indicator whether the build was successful	0 - failed, 1 - successful
TimeSpentInQueue	How much time build was in queue	Milliseconds

Custom Build Metrics

If pre-defined build metrics do not cover your needs, you can report custom metrics to TeamCity from your build script and use them to create a custom chart. There are two ways to report custom metrics to TeamCity:

- using service messages from your build,
- or using `teamcity-info.xml` file.

Note, that custom value keys should be unique and should not interfere with value keys predefined by TeamCity.

See also:

Concepts: Code Coverage | Code Inspection | Code Duplicates
User's Guide: Statistic Charts
Extending TeamCity: Build Script Interaction with TeamCity