A SELECTION OF FANTASTIC ANECDOTES ABOUT CONTINUOUS INTEGRATION IN UNITY

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HELLO!

I'm Ben!

- Rare - Kinect Sports 1&2
- Creative Assembly - Alien: Isolation
- Lionhead - Incubation ... *cough*
- Playsport - Motorsport Manager
- ... and something else soon

Not a build engineer...

CONTINUOUS INTEGRATION

CONTINUOUS INTEGRATION - WHAT?

- "Build automation"
- Check project builds successfully
- Run tests
- Deploy

CONTINUOUS INTEGRATION - WHY?

- Make sure build always works outside editor
- Do repetetive bits devs will miss
- Monitor project quality
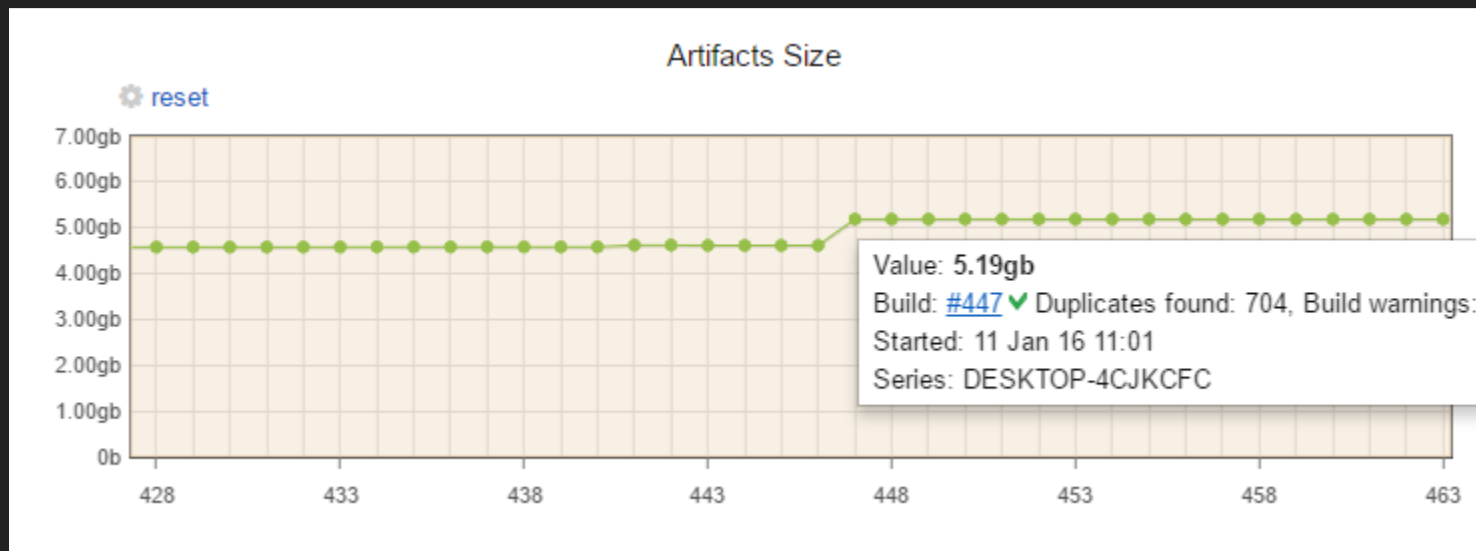
CONTINUOUS INTEGRATION - HOW?

- Use TeamCity
- ... or Jenkins if you don't like nice things
- Run on normal PC, as service on Windows, PostgreSQL DB

ANECDOTES!

LIGHTMAPS ARE BIG!

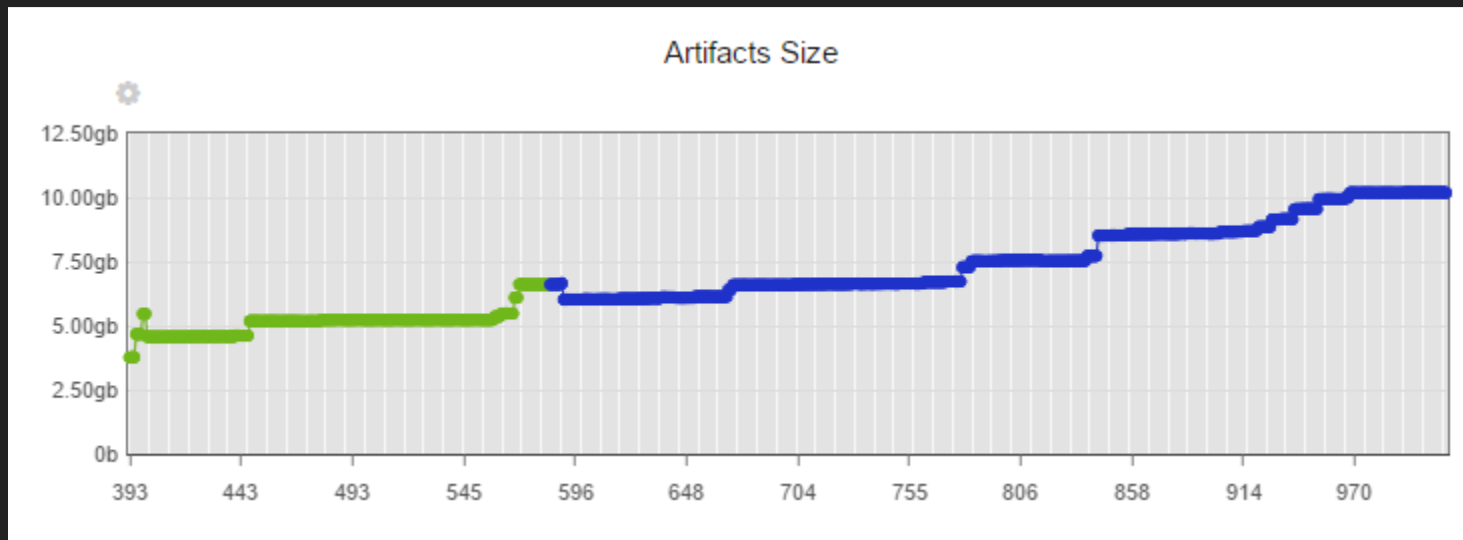Set up script to track built game size as Team City metric

Noticed this one day after wondering about build size limits

Checked contributing changelist... lightmaps!

LIGHTMAPS ARE BIG!
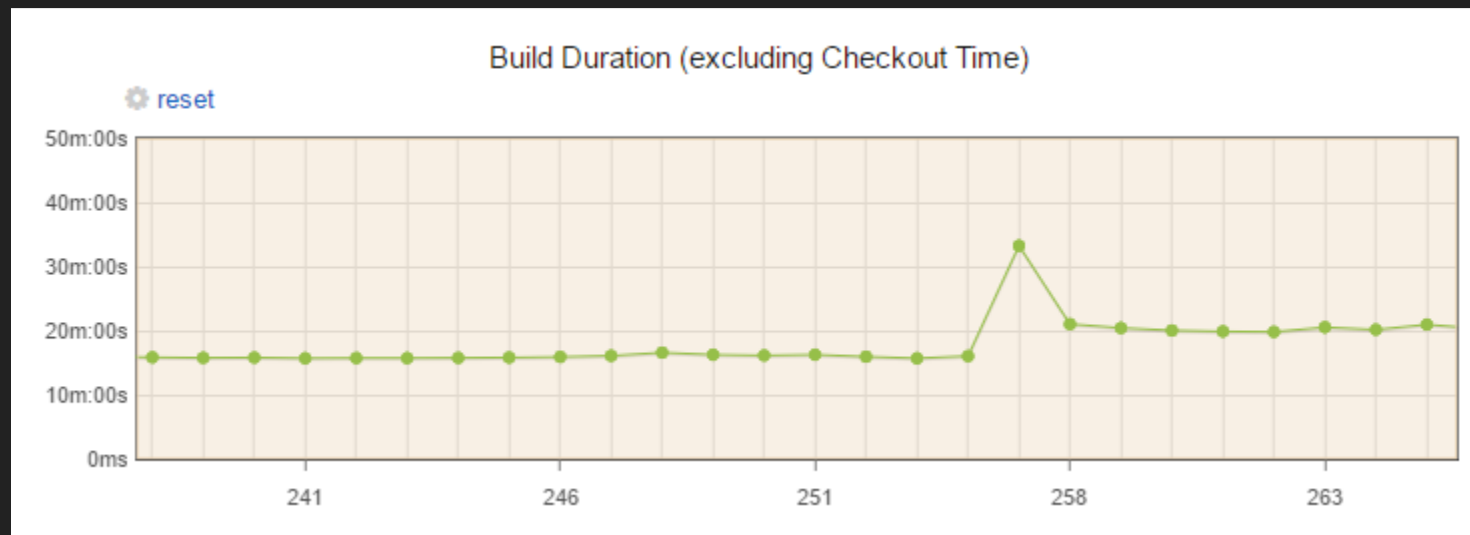
Carried on tracking this... it's not looking good!

Nearly always lightmaps

Sadly no good analysis tools - best ones are for hackers!

UNITY BUILD TIME JUMP

Noticed this whilst browsing standalone build duration graphs one day...

That was the day we upgraded to Unity 5.3.0!

Would maybe have noticed some time later...

WALL-T

Nobody cares about build failures... unless they can see them!

Asset import, build, analysis	☀ 30/03 17:51	Build - Win32 Development	☀ 31/03 03:28
Build - Win32 Release	🕐 + 292 min	Clean Build - Win32 Release	☀ 31/03 02:51
Build - OSX32 Release	☀ 31/03 04:41	Upload To Steam	☀ 31/03 07:18
Build - Linux32 Release	☀ 31/03 05:15		

https://github.com/hymerman/wall-t

UNITY BUILD RUNNER PLUGIN IS FAIRLY TERRIBLE

- Team City plugin from Mind Candy
- Finds Unity, understands options, tries to help with logs
- Not flexible though, many bugs
- Use my fork instead!
- https://github.com/hymerman/Teamcity-unity3d-build-runner-plugin

FAIL ON LOG ERRORS AND ARTIFACT SIZE CHANGE

Team City default fail conditions don't work for Unity plugin:

- Set built-in option "an error message is logged by build runner"
- Fail if artifact size changes by -90% or +50%
- Catches anything that doesn't set some fail state

WRITE A BUILD SCRIPT!

Unity command line options are limited

- Write your own build script (just a static method)
- Run it with `-executeMethod`
- Parse command line yourself with
  `System.Environment.GetCommandLineArgs`

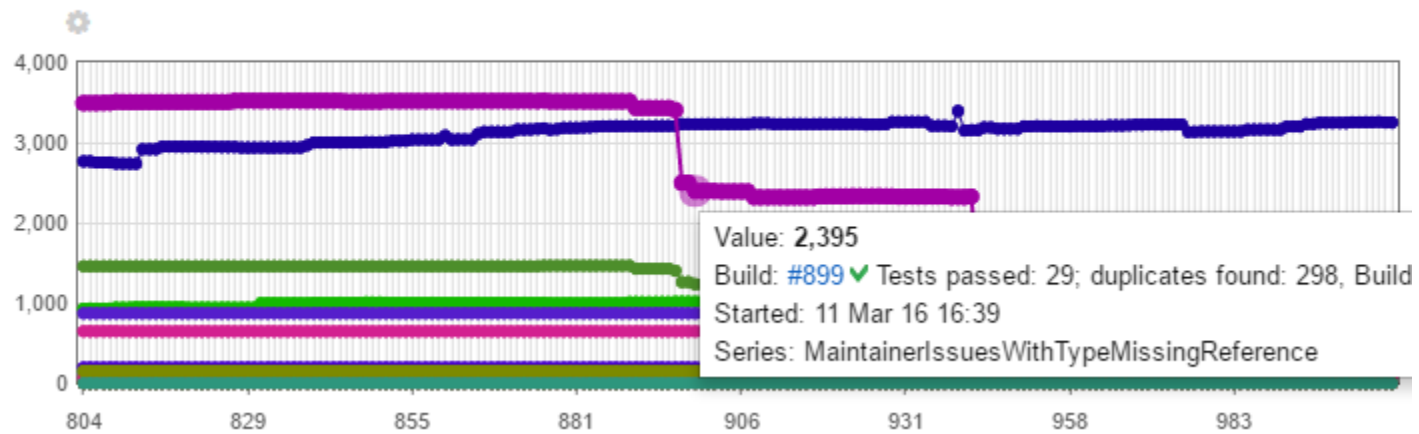# MAINTAINER

- Missing prefabs
- Warning spam about missing scripts
- Maintainer helps! Run it from the build script
- Log stats with:
  `##teamcity[buildStatisticValue key='{0}' value='{1}']`

Maintainer Warnings

Value: **2,395**
Build: #899 ✔ Tests passed: 29; duplicates found: 298, Build
Started: 11 Mar 16 16:39
Series: MaintainerIssuesWithTypeMissingReference

WARNINGS AS ERRORS
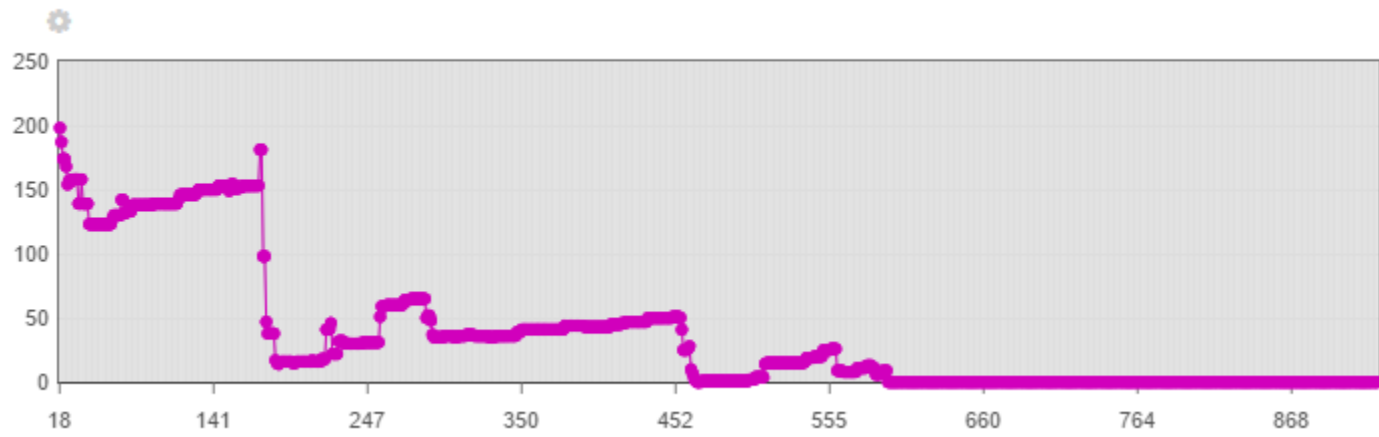
Build warnings creep up over time

- Fix them all then set warnings as errors
- Create gmcs.rsp and smcs.rsp in Assets
- Fill them with "`-warnaserror+  -nowarn:0649`"

Build warnings

UNITY BUG WITH NEW/DELETED FILES

- Random false build failures
- *Unity compiles before updating assets!* (bug 759704)
- Workaround: build twice
- Ignore errors in first build with "Errors as Warnings" flag

META FILES

OH MY GOD META FILES

- *Check in your damn meta files!*
- Not a Unity 'Quirk' - can cause broken prefabs, materials, you name it
- Not yet solved but considering TeamCity SWABRA plugin
- Can report files generated by build machine
- More than a bit flaky though!

UPGRADE UNITY ON ALL MACHINES AT ONCE

Minor updates (and patches!) *change serialisation format*

Devs on different versions churn files

Update all at once

Run script to force save assets

`EditorUtility.SetDirty` and `AssetDatabase.SaveAssets`

SVN IS SLOW

Nightly clean build grew to **~12 hours**!

Import SVN to git using git-svn and host locally

Massively faster full sync

Many problems so not rolled out yet

COPY STEAMPIPE OUT OF BUILD DIRECTORY

Automated Steam building is ace!

... except when it fails to log in because of Steam Guard

Turns out auth is stored locally

Copy steamcmd.exe elsewhere so auth doesn't get cleared

UNIT TESTS

Unfamiliar codebase - test assumptions!

Use 'Editor Tests Runner' window in-editor

Run on command line with:

- -runEditorTests
- -editorTestsResultFile path.xml
- -editorTestsFilter
- -editorTestsVerboseLog teamcity
- "XML report processing" build feature

FUTURE WORK

- Capture all non-code warnings
- Asset size breakdown
- Functional testing
- Loads more! This stuff is cool, right?!

QUESTIONS?

THE END

https://github.com/hymerman/guildford-uug-talk-ci-anecdotes

I'm hiring! unitytalk@benhymers.com

So are Playsport! contact@playsportgames.net