

# Development tools

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# Agenda

- Software projects
- Building (ant/gant/rake/make/bash)
- VCS (svn/git/mercurial/monotone/darcs)
- Issue tracking (bugzilla/fogbugz/jira/youtrack)
- Continuous integration (hudson/bamboo)
- IDE

# End-User


## Azureus - now called Vuze - Bittorrent Client

[Home](#) | [Download](#) | [Upgrade](#) | [Getting Started](#) | [Wiki](#) | [Forums](#) | [Support](#) | [Vuze.com](#) | [Beta](#)



### Find, Download, Play

Full screen HD Video. Anytime, anywhere.

 **DOWNLOAD VUZE**  
Version 4.3 (PC)  
Free

#### Find torrents easily

- Powerful torrent meta-search with login support for private trackers
- Discover high quality content on the Vuze HD network

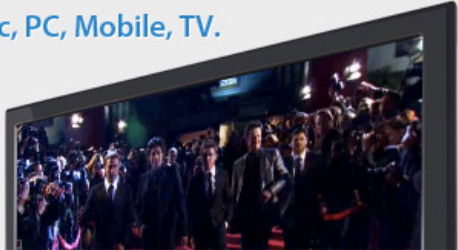
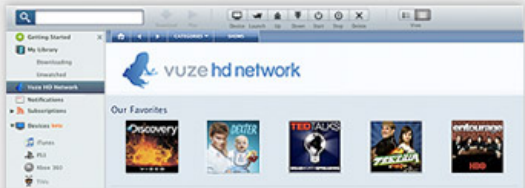
#### Download fast

- Download quickly and efficiently with intelligent bandwidth, queue and speed management


#### Play on all your screens

- Sit back and savor the high-quality entertainment experience
- Now on iPhone, iPod, Apple TV, Xbox 360, Playstation 3, PSP and TiVo

**Find, Download, Play. Mac, PC, Mobile, TV.**




#### Awards



SourceForge 2007 Community Awards Winner: Most Collaborative Project

SourceForge 2006 Community Awards Winner: Best Overall Category




Red Herring Global 100

#### Need Help?


[Forums](#)

[FAQs](#)


#### Many Thanks to:



**YourKit**



**FISHEYE**




**FORTIFY**

*ej-technologies*

SOURCEFORGE.NET®

Our Contributors

 **ZEROTURNAROUND**

# End-User



This type of file can harm your computer. Are you sure you want to download Vuze\_Installer.exe?

Save

Discard

# End-User

The screenshot displays the Azureus torrent client window. The main window title is "Azureus". The menu bar includes "File", "Transfers", "View", "Tools", "Plugins", and "Help". The toolbar contains various icons for file operations and network settings. The main content area shows the "My Torrents" tab with a single torrent titled "41.5% : FC3-test3-binary-i386". The "General" tab is selected, showing a progress bar for "Downloaded" at 41.5% and "Availability" at 58.999. Below this, the "Transfer" section provides detailed statistics: Time Elapsed (1h 20m), Remaining (1h 59m 1.32 GB), Share Ratio (0.134), Downloaded (969.7 MB), Download Speed (211.1 kB/s), Hash Fails (8), Uploaded (130.1 MB), Upload Speed (33.9 kB/s), Max Uploads (4), Max Up kB/s (0), Seeds (53 connected), Peers (28 connected), Total Speed (2.6 MB/s), and Max Down kB/s (0). The "Info" section lists the File Name (FC3-test3-binary-i386), Save In path, # of Pieces (9265), Tracker URL (http://torrent.linux.duke.edu:6969/announce), Tracker Status (OK), Update in (00:12:20), Total Size (2.26 GB), Hash (5EA678F1 0B17355E 32440456 AEE), Size (256.0 kB), and Created On (11-Oct-2004 00:36:08). A "Update Tracker" button is visible. The status bar at the bottom shows "Azureus 2.2.0.0 / Latest 2.2.0.0", "{Nov 01, 19:27} IPs: 0 - 0/1/1", "D: 211.1 kB/s", and "U: [40K] 33.9 kB/s".

**Azureus**

File Transfers View Tools Plugins Help

My Torrents 41.5% : FC3-test3-binary-i386

General Details Pieces Files

Downloaded 41.5 %

Availability 58.999

**Transfer**

Time Elapsed : 1h 20m Remaining: 1h 59m 1.32 GB Share Ratio : 0.134

Downloaded : 969.7 MB ( 560.0 kB discarded) Download Speed: 211.1 kB/s Hash Fails : 8 ( ~ 2.0 MB )

Uploaded : 130.1 MB Upload Speed : 33.9 kB/s Max Uploads : 4 Max Up kB/s: 0

Seeds : 53 connected (60 in swarm) Peers : 28 connected (39 in swarm) Total Speed : 2.6 MB/s Max Down kB/s: 0

**Info**

File Name : FC3-test3-binary-i386 Total Size : 2.26 GB

Save In : D:\Documents and Settings\Woce\Application Data\Azureus\downloads\FC3 Hash : 5EA678F1 0B17355E 32440456 AEE

# of Pieces : 9265 Size : 256.0 kB

Tracker URL : <http://torrent.linux.duke.edu:6969/announce> Created On : 11-Oct-2004 00:36:08

Tracker Status: OK

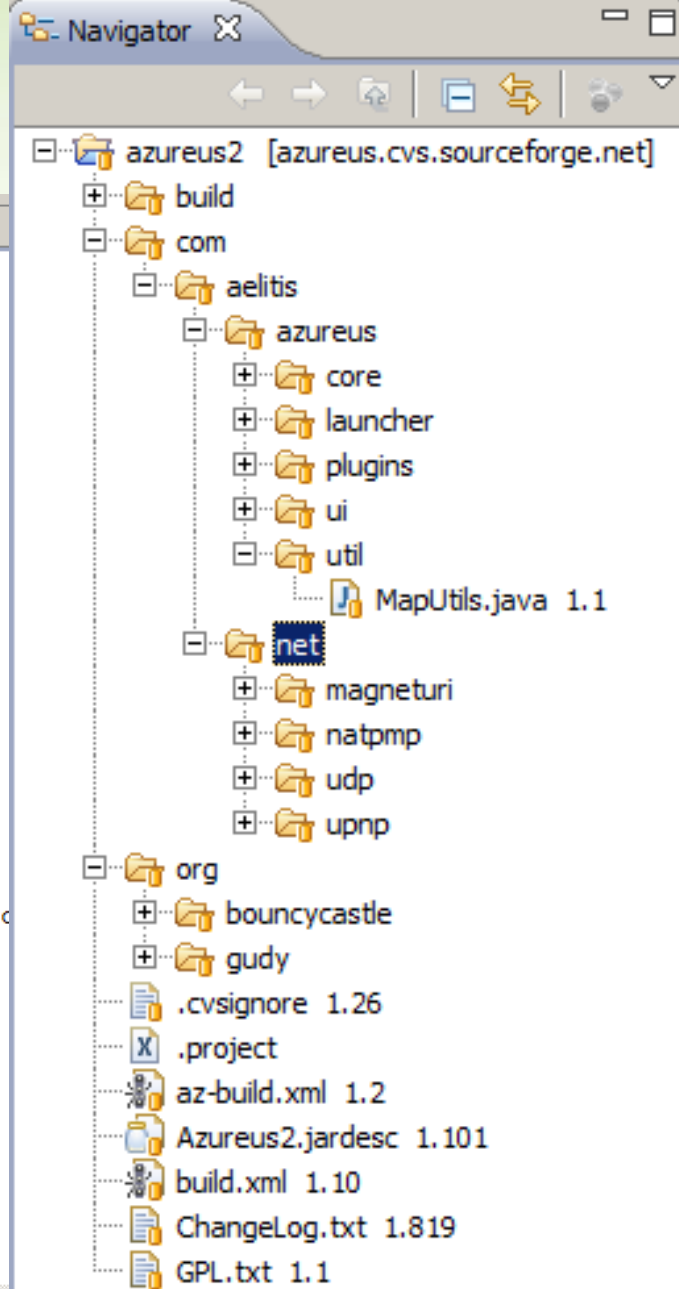
Update in : 00:12:20 Update Tracker

Comment :

Azureus 2.2.0.0 / Latest 2.2.0.0 {Nov 01, 19:27} IPs: 0 - 0/1/1 D: 211.1 kB/s U: [40K] 33.9 kB/s

# Developer

```
build.xml  MapUtils.java x
114         return Base64.decode((String) o);
115     }
116 }
117
118 String b32Key = key + ".B32";
119 if (map.containsKey(b32Key)) {
120     o = map.get(b32Key);
121     if (o instanceof String) {
122         return Base32.decode((String) o);
123     }
124 }
125
126 return def;
127 } catch (Throwable t) {
128     Debug.out(t);
129     return def;
130 }
131 }
132
133 public static Object getMapObject(Map map, String key, Object
134     if (map == null) {
135         return def;
136     }
137     try {
138         Object o = map.get(key);
139         if (cla.isInstance(o)) {
140             return o;
141         } else {
142             return def;
143         }
144     }
```





# Building

```
~/projects/azureus2
[javac]         throws UPnPException
[javac]         ^
[javac] C:\projects\azureus2\com\aelitis\net\upnp\impl\services\UPnPSSWANCommonInterfaceConfigImpl.java:62: incompatible types
[javac] found   : com.aelitis.net.upnp.UPnPException
[javac] required: java.lang.Throwable
[javac]         throw( new UPnPException( "GetCommonLinkProperties not supported" ));
[javac]         ^

BUILD FAILED
C:\projects\azureus2\build.xml:39: Compile failed; see the compiler error output for details.

Total time: 12 seconds

toomas@RnD-demo ~/projects/azureus2
$ ant
Buildfile: build.xml

init:
[echo] Building Azureus2.jar...

compile:
[javac] Compiling 2821 source files to C:\projects\azureus2
[javac] Note: Some input files use or override a deprecated API.
[javac] Note: Recompile with -Xlint:deprecation for details.
[javac] Note: Some input files use unchecked or unsafe operations.
[javac] Note: Recompile with -Xlint:unchecked for details.

jar:
[jar] Building jar: C:\projects\azureus2\dist\Azureus2.jar

BUILD SUCCESSFUL
Total time: 1 minute 5 seconds

toomas@RnD-demo ~/projects/azureus2
$
```

# Build tools

- make/ant/gant/rake/bash/maven

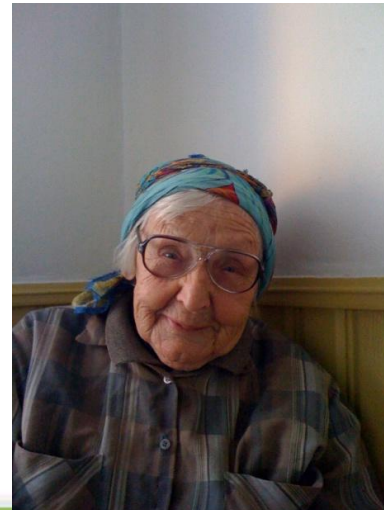
- Usually filesystem oriented

- Compiling
- Copying
- Moving
- Packaging

- Repetitive tasks

# Demo

# Version Control System



# Version Control System

- Standalone program
- Gigantic undo
  - Revisions
  - Timestamps
  - Author
- SVN
- CVS, Git, Mercurial, TeamFoundation, Darcs, Monotone

# Version Control System

DEMO

<https://swingset3.dev.java.net/source/browse/swingset3/>

# Issue/Bug Tracking

- List of Issues
- Like Facebook but for issues
- <https://issues.apache.org/jira/browse/MYFACES>
- <http://youtrack.jetbrains.net/issues/IDEA>
- <https://bugzilla.mozilla.org/query.cgi?format=advanced>

# Continuous integration

- Quality control
- Test runs on update
  - Compile
  - Test
  - Blame
- Hudson/Bamboo/TeamCity



# TeamCity

IntegrationBuild (MySQL) <span>⌵</span>				Run ...
#11811	🔄 Tests passed: 226 <span>⌵</span>	No artifacts	Changes (1) <span>⌵</span>	1h:0m left <span>▬</span> Stop
#11810	🔴 Tests failed: 1 (1 new), passed: 3158, ignored: 35 <span>⌵</span>	No artifacts	No changes <span>⌵</span>	26 Nov 08 15:10 (1h:13m)
IntegrationBuild (Oracle) <span>⌵</span>		1 build in queue <span>⌵</span>		Pending (1) <span>⌵</span> Run ...
#1937	⚠️ 🔴 Tests failed: 3 (1 new), passed: 1546, ignored: 25 <span>⌵</span>	No artifacts	Changes (1) <span>⌵</span>	overtime: 12m:32s <span>▬</span> Stop
#1938	🟢 Tests passed: 3173, ignored: 25 <span>⌵</span>	No artifacts	Changes (6) <span>⌵</span>	26 Nov 08 14:42 (1h:46m)
IntegrationBuild (PSQL) <span>⌵</span>		1 build in queue <span>⌵</span>		Pending (1) <span>⌵</span> Run ...
#2822	🟢 Tests passed: 3173, ignored: 25 <span>⌵</span>	No artifacts	Changes (6) <span>⌵</span>	26 Nov 08 14:42 (1h:24m)
IntegrationBuild (Solaris) <span>⌵</span>				Run ...
#1795	🔄 Tests passed: 528, ignored: 9 <span>⌵</span>	No artifacts	Changes (1) <span>⌵</span>	31m:31s left <span>▬</span> Stop
#1794	🟢 Tests passed: 3407, ignored: 33 <span>⌵</span>	No artifacts	Changes (2) <span>⌵</span>	26 Nov 08 15:07 (52m:13s)
Javadoc-Inspections <span>⌵</span>				Run ...
#3468	🔄 Analyzing code ... 93% <span>⌵</span>	No artifacts	Changes (1) <span>⌵</span>	7m:09s left <span>▬</span> Stop
#3467	🟢 Success <span>⌵</span>	No artifacts	Changes (2) <span>⌵</span>	26 Nov 08 14:47 (26m:06s)
MasterBuild <span>⌵</span>				Run ...
#8074	🔄 target: buildNSISAgent <span>⌵</span>	No artifacts	Changes (1) <span>⌵</span>	2h:43m left <span>▬</span> Stop
#8073	🔄 Tests passed: 840, ignored: 19 <span>⌵</span>	Artifacts <span>⌵</span>	Changes (2) <span>⌵</span>	1h:14m left <span>▬</span> Stop
#8072	🔄 Tests passed: 4316, ignored: 43 <span>⌵</span>	Artifacts <span>⌵</span>	Changes (1) <span>⌵</span>	7m:41s left <span>▬</span> Stop
#8071	🔄 Tests passed: 1285, ignored: 10 <span>⌵</span>	Artifacts <span>⌵</span>	Changes (2) <span>⌵</span>	15m:25s left <span>▬</span> Stop

# Continuous integration

- Tons of plugins
  - Project health
  - Code health (static analysis, coverage)
  - SVN/GIT/CVS/Team Foundation/Monotone etc.
  - Notifications (email/xmpp/twitter)
  - Screenshots
  - Etc.

# Continuous integration

DEMO

# IDE

- Eclipse
- IntelliJ IDEA
- NetBeans
- DEMO



Questions?