浙江大学计算机学院
数字媒体与网络技术

Digital Asset Management
数字媒体资源管理

7. Interactive Media and Game Development process

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Game Types

- Arcade Games
- Puzzle Games
- Role Playing Games
- Strategy Games
- Adventure Games
- First-Person Shooters
- Third-Person Action
- Sports Games
- Racing Games
- Simulators
- Party Games
- Educational Games

Game Studios – Vertical Structure

- Developers
- Publishers
- (Distributors)
- Retailers

- Much like a mini-Hollywood

Developers

- *Design and implement games*
  - Including: programming, art, sound effects, and music
  - Historically, small groups
  - Analogous to book authors
- Structure varies
  - May exist as part of a Publisher
  - May be "full-service" developers or may outsource some
    - Motion Capture (to replicate realistic movement)
    - Art and Animation (can be done by art house/studio)
- Many started on PC games (console development harder to break into)
- Typically work for royalties & funded by advances
  - Do not have the capital, distribution channels, or marketing resources to publish their games
  - Often seen that developers don't get equitable share of profits
  - Can be unstable

Publishers

- *Fund development of games*
  - Including: manufacturing, marketing/PR, distribution, and customer support

- Publishers assume most of the risk, but they also take most of the profits
- Relationship to developers
  - Star Developers can often bully Publishers, because publishers are desperate for content
  - Most Developers are at the mercy of the almighty Publisher Originally grew out of developers
- Massive consolidation in recent years
- Most also develop games in-house

Retailers

- *Sell software*
- Started with mail-order and computer specialty stores
- Shift in 80's to game specialty stores, especially chains (Today 25%)
  - *EB Games, GameStop*
- Shift in 90's to mass market retailers (Today 70%) (ask)
  - *Target, WalMart, Best Buy*
- Retailers generally earn 30% margin on a $50 game
- Electronic download of games via Internet still in infancy
  - Big but not huge (Today 5%)

Game Development Process (1/5)

- **Inspiration**
  - getting the global idea of the game
  - duration: 1 month (for a professional game)
  - people: lead designer
  - result: treatment document, decision to continue
- **Conceptualization**
  - preparing the "complete" design of the game
  - duration: 3 months
  - people: designer + prototype programmers/artists
  - result: complete design document
  - (continued next slide)

Game Development Process (2/5)

- **Prototypes**
  - Build prototypes as proof of concept
    - Can take 2-3 months (or more)
    - Typically done a few months in
  - In particular, use to test game play
  - Throw prototype away afterwards
    - Don't expect it to evolve into game!
  - Pitch to Publisher

Game Development Process (3/5)

- **Blueprint**
  - separate the project into different tiers
  - duration: 2 months
  - people: lead designer, software planner
  - result: several mini-specifications
- **Architecture**
  - creating a technical design that specifies tools and technology used
  - duration: 2 months
  - people: project leader, software planner, lead architect
  - result: full technical specification

Game Development Process (4/5)

- **Tool building**
  - create a number of (preferably reusable) tools, like 3D graphics engine, level builder, or unit builder
  - duration: 4 months
  - people: project leader and 4 (tool) programmers
  - result: set of functionally tools (maybe not yet feature complete)
- **Assembly**
  - create the game based on the design document using the tools; update design document and tools as required (consulting the lead designer)
  - duration: 12 months
  - people: project leader, 4 programmers, 4 artists
  - result: the complete game software and toolset

Game Development Process (5/5)

- **Level design**
  - create the levels for the game
  - duration: 4 months
  - people: project leader, 3 level designers
  - result: finished game with all levels, in-game tutorials, manuals
- **Review**
  - testing the code, the gameplay, and the levels
  - duration: 3 months (partially overlapping level design)
  - people: 4 testers
  - result: the gold master

Managing IM&G Development with Alienbrain

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Alienbrain

http://www.softimage.com/products/alienbrain/

What is Alienbrain

- Industry standard for file management
  - in professional media and entertainment projects.

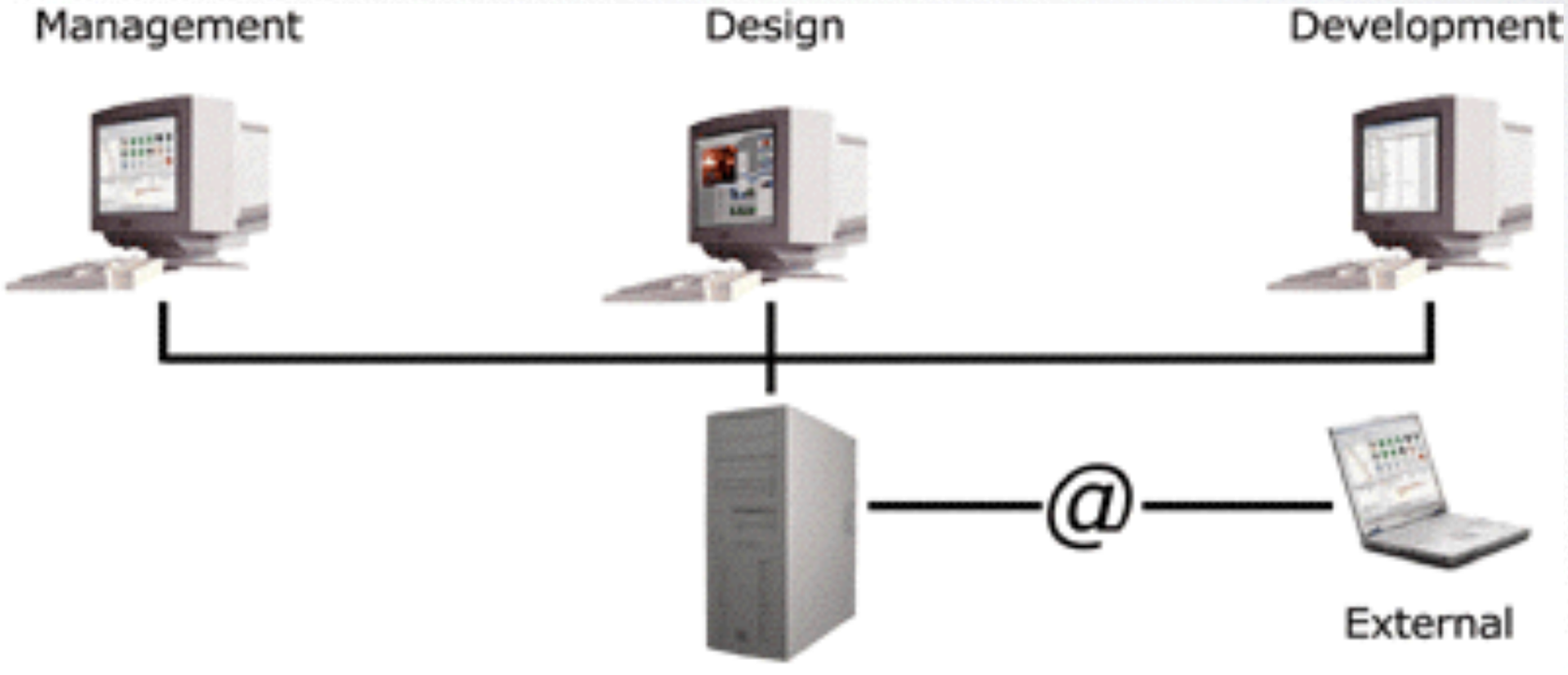
- Systems for creative teams
  + DAM: Digital Asset Management
  + SCM: Software Configuration Management

- Tools for any kind of file for import, version, manage and share

Alienbrain Features

- Secure File Management and Version Control
  - Comprehensive Version History, Rollback, Powerful Search Tools
- Visual Workflows
  - Intuitive User Interface, Previews and Thumbnails, Local File State Icons, Integrations for Leading Art Tools
- Collaborative Environment
  - Image Annotations, Integrated Messaging, Reporting
- Software Configuration Management
  - Labels, Change Sets, Parallel Development and Branching
- Architecture and Administration
  - Server Health Monitoring, Fine-Grained Access Control, Remote Collaboration, Automatic Database Backup, Flexible Storage Management
- Customization and APIs
  - Custom Metadata, Triggers & Events, Command Line Tool

Client / Server architecture



Alienbrain Studio integrates all team members

Alienbrain Server

- maintain the asset files and up-to-date information
  - file sizes/version/attributes
  - raw file data
  - optimized object-oriented database.
- controls and co-ordinates access
  - Security/access collisions
  - download any version
  - modification and upload new versions

Alienbrain Client

- Asset management command center
  - browse the project databases
  - import new files or view, lock and edit.
  - display thumbnail images and preview
  - workflow functions.
- Different client applications types
  - **Essentials for Artists** for creative users.
    - 3-D authoring tool integrations
  - **Essentials for Programmers** for programmers.
    - source code file merging.
  - **Advanced** the complete package.
    - Programmers and Artists, workflow management functionality.
  - **Alienbrain Reader**
    - read only access to project data.

Functions

- file management
- version control
- change management
- configuration management
- workflow
- access control
- archiving
- visual working

File Management & Sharing

- import
- browse and view
- move, rename and delete
- automated operations by scripts
- edit files
- Check out /check in / multiple check-out

Version Control

- version history/ get version
- Rollback
- show differences between versions
- Text comparison and merge tool
  - Araxis Merge Professional

Change Management

- change sets as shielded containers
- default change set/create change sets
- (active change set) delete, rename, check out, modify and check in, until submit

Configuration Management

- maintain multiple configurations without duplicating its content

- root branch
- branching manager
- branch selection drop-down list
- integrate changes wizard

Workflow

- An asset-based workflow based on a range of configurable workflow states (work in progress, awaiting modification, awaiting approval, approved, approved-and-locked)
  - assign assets to a user,
  - change the workflow status of an asset
  - set a due date
  - Track and review/approve the changes

Access Control

- Access rights.
- simplified set of role definitions (default permissions)
  - authors,
  - Contributors
  - Editors
  - reviewers

Archiving

- archiving system
  - Offline/online

  - multiple language or platform variants
  - images and 3-D models.

Alienbrain evaluation

- download it from
  - http://www.softimage.com/downloads/abevaluation/Default.aspx
- a fully functional version of Alienbrain 8.1
  - for an unlimited time
  - with a maximum of two simultaneous client connections and five projects.

Best practices

- Alienbrain administration
- Customizations
- process management
- workflow optimization

Version control

Version control for programmer

- CVS
- Subversion (SVN)

- Git
  - was initially created by Linus Torvalds for Linux kernel development

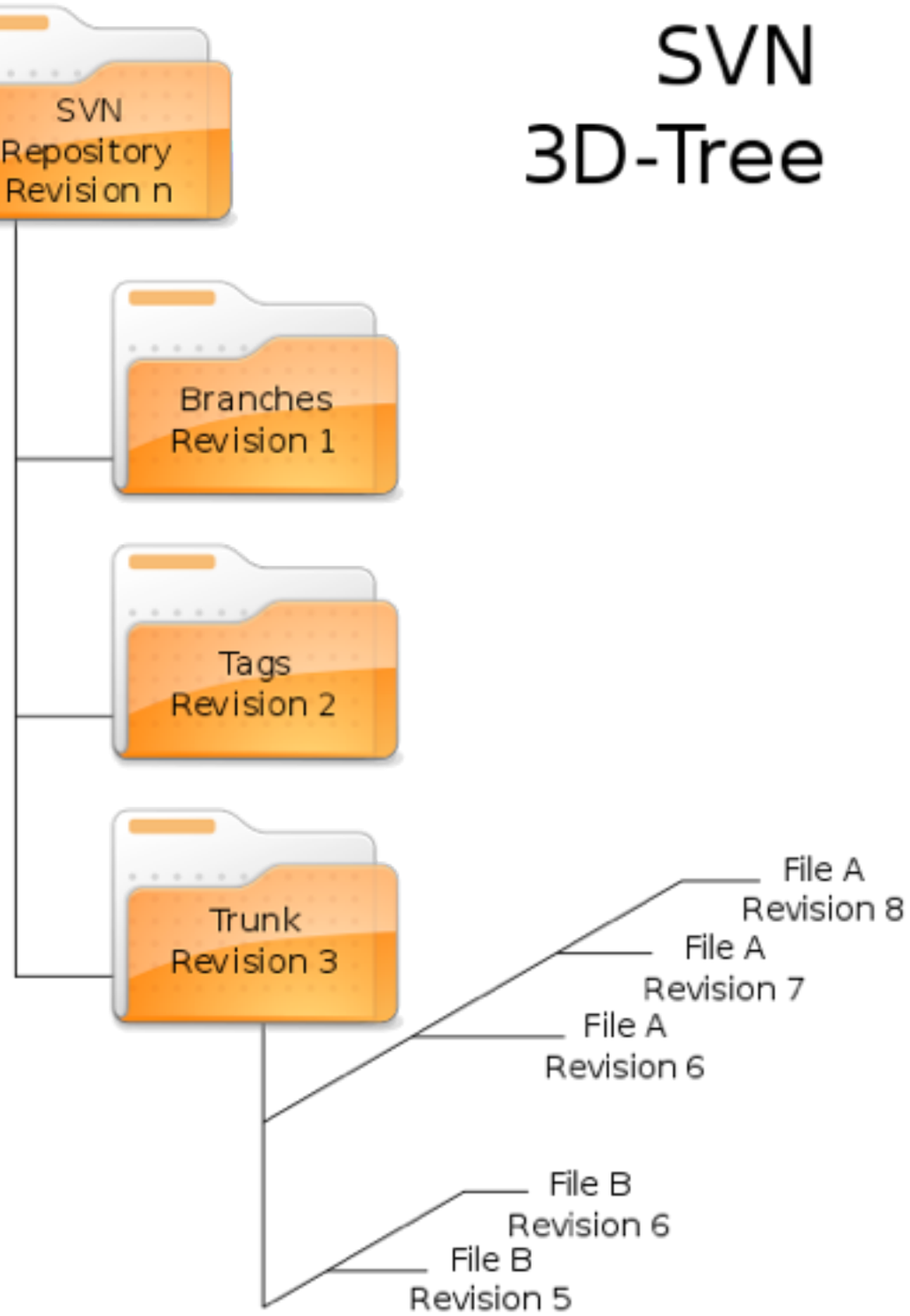
Subversion (SVN)

- Since 2000
- a free version control system which operated much like CVS
- used by SourceForge

Subversion filesystem

can be described as a

three dimensional filesystem



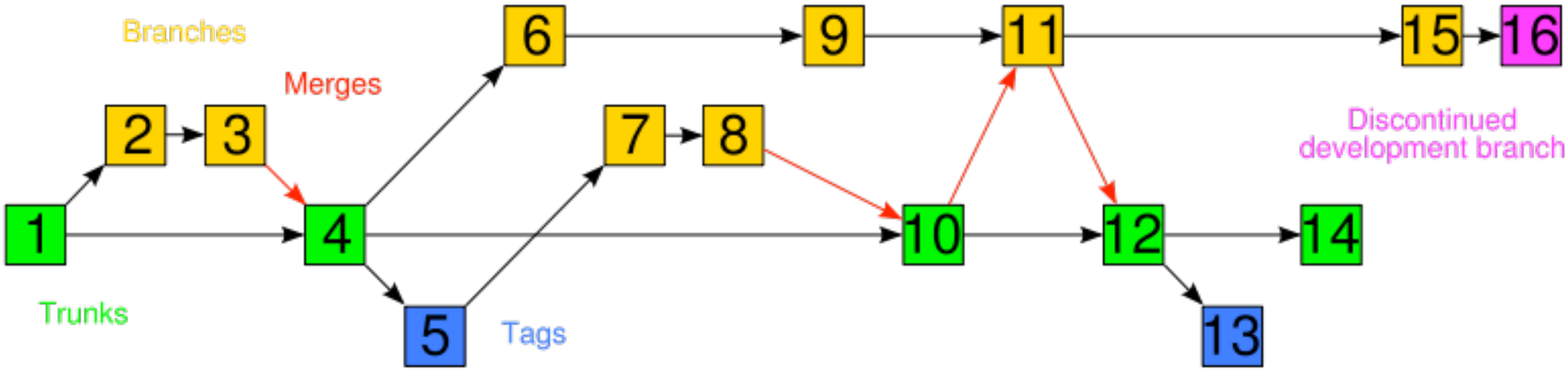
Subversion properties

- name=value pairs of text
- used in two different places in the Subversion filesystem
  - filesystem entries, i.e., files and directories
  - revisions themselves

Subversion properties

- filesystem entries
  - svn:executable
  - svn:mime-type
  - svn:ignore
  - svn:keywords
  - svn:eol-style
  - svn:externals
  - svn:needs-lock
  - svn:special
- revisions themselves
  - svn:date
  - svn:author
  - svn:log

Branching and tagging



Software that uses Subversion

- TortoiseSVN, a Windows shell (i.e. Explorer) extension
- Xcode is Apple's Mac OS X IDE
- Microsoft Visual Studio
  - AnkhSVN is a Visual Studio .NET addin
  - VisualSVN is simple and reliable Subversion integration for Visual Studio 2003 and 2005

TortoiseSVN

- windows平台上的SVN客户端软件
- 易于控制
- 教程
  - https://www.se.auckland.ac.nz/courses/SOFTENG254/resources/TortoiseSVN.pdf

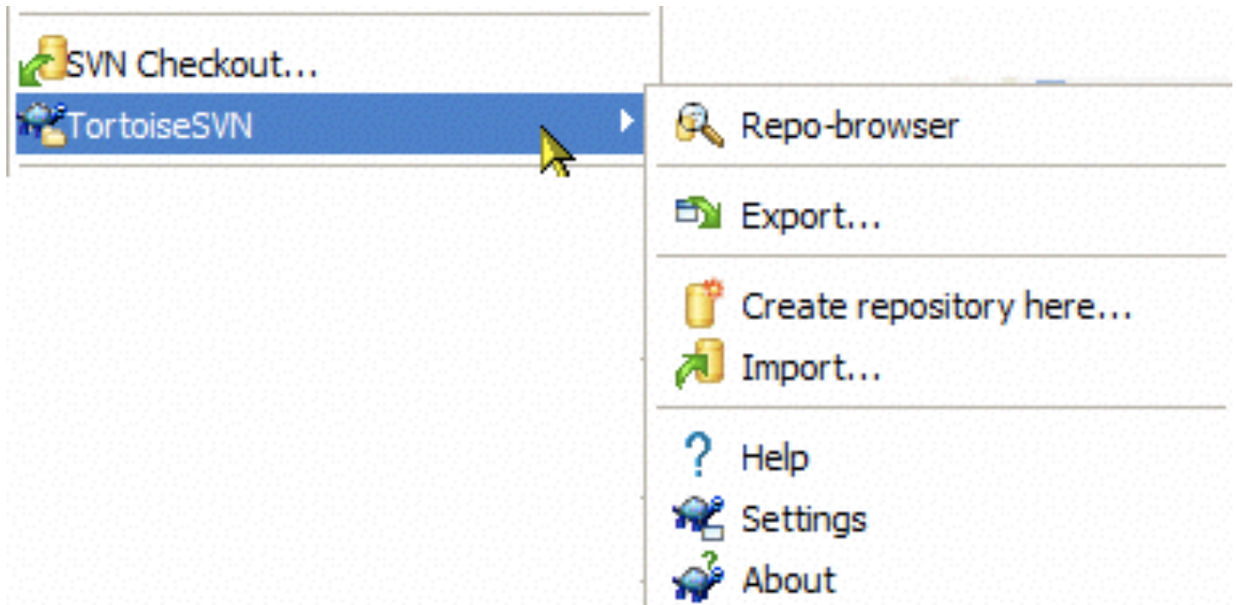
创建版本库
(The Repository)

- 使用命令行工具创建版本库
  - 创建一个名为SVN(例如D:\SVN\)的空文件夹，作为你的所有版本库的根。
  - 在D:\SVN\里创建另一个目录MyNewRepository。
  - 打开命令行窗口(或DOS窗口)，进入D:\SVN\目录，输入

```
svnadmin create --fs-type bdb MyNewRepository
```

创建版本库
(The Repository)

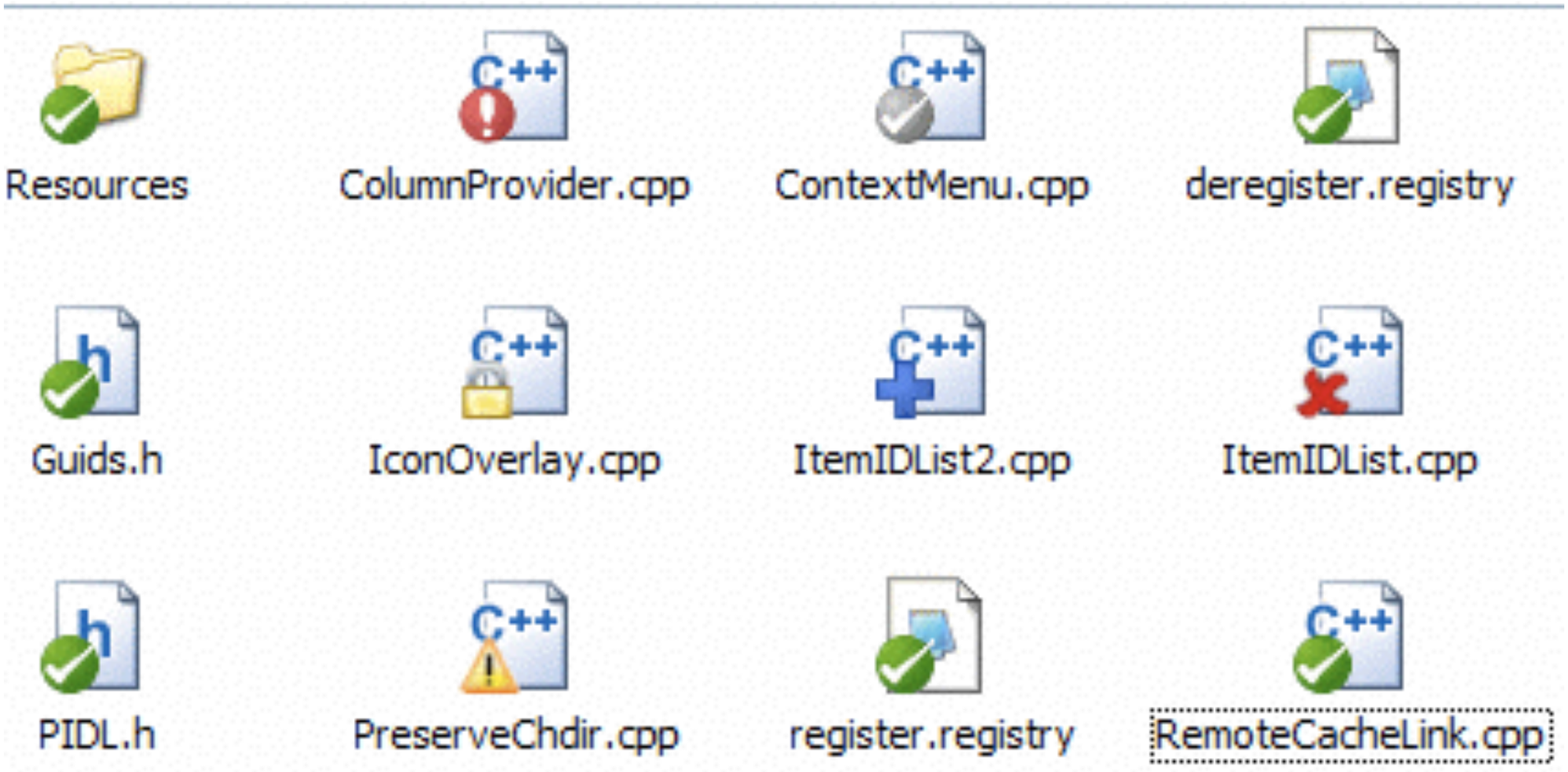
- 使用 TortoiseSVN 创建版本库
  - 打开资源管理器
  - 创建一个新的文件夹，命名为SVNRepository
  - 右键点击新创建的目录，
    - TortoiseSVN → Create repository here ...



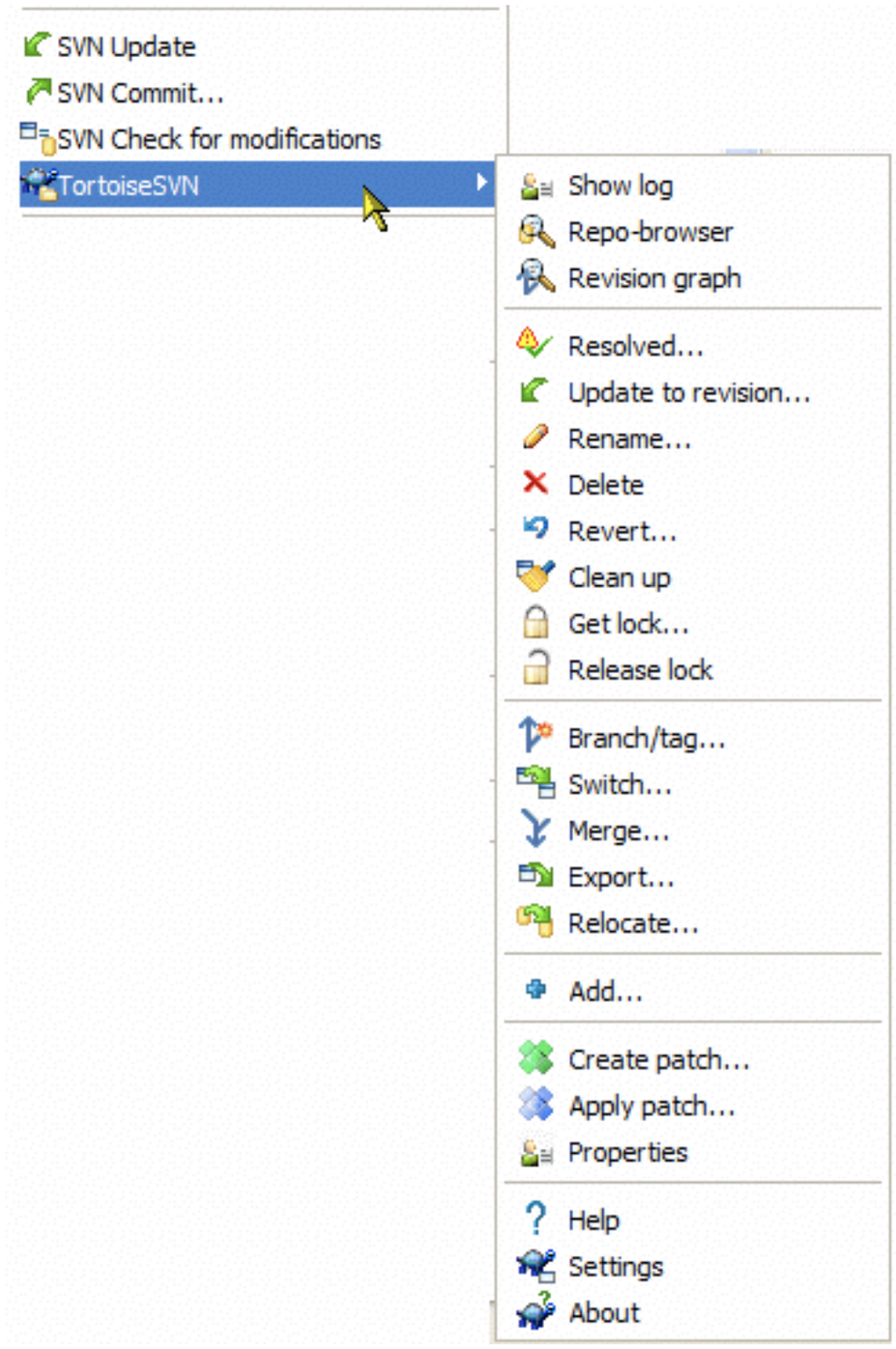
访问版本库

- 本地：
  - file:///C:/SVNRepository/
- 网络：
  - file://ServerName/path/to/repos/

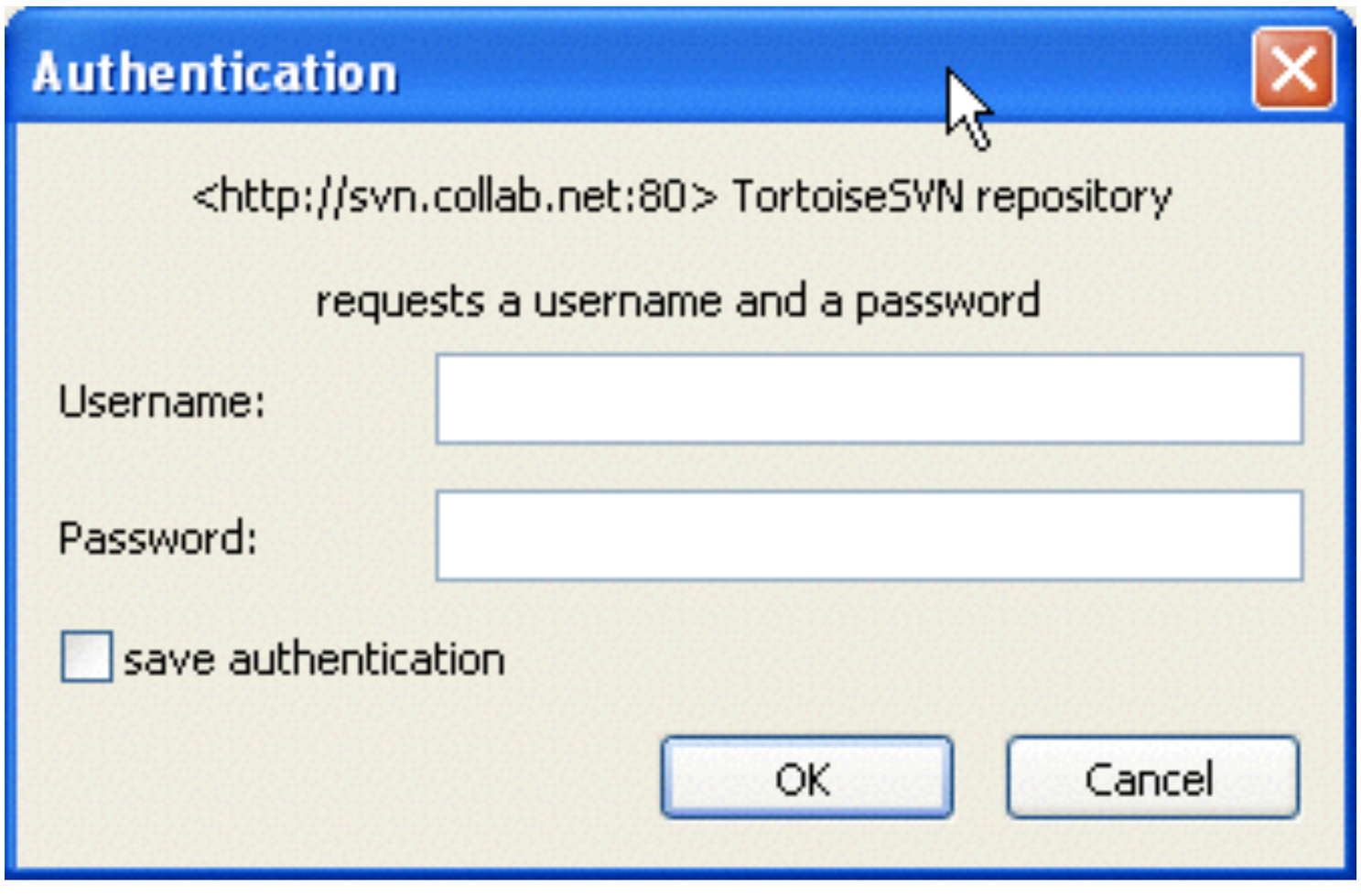
Icon Overlays



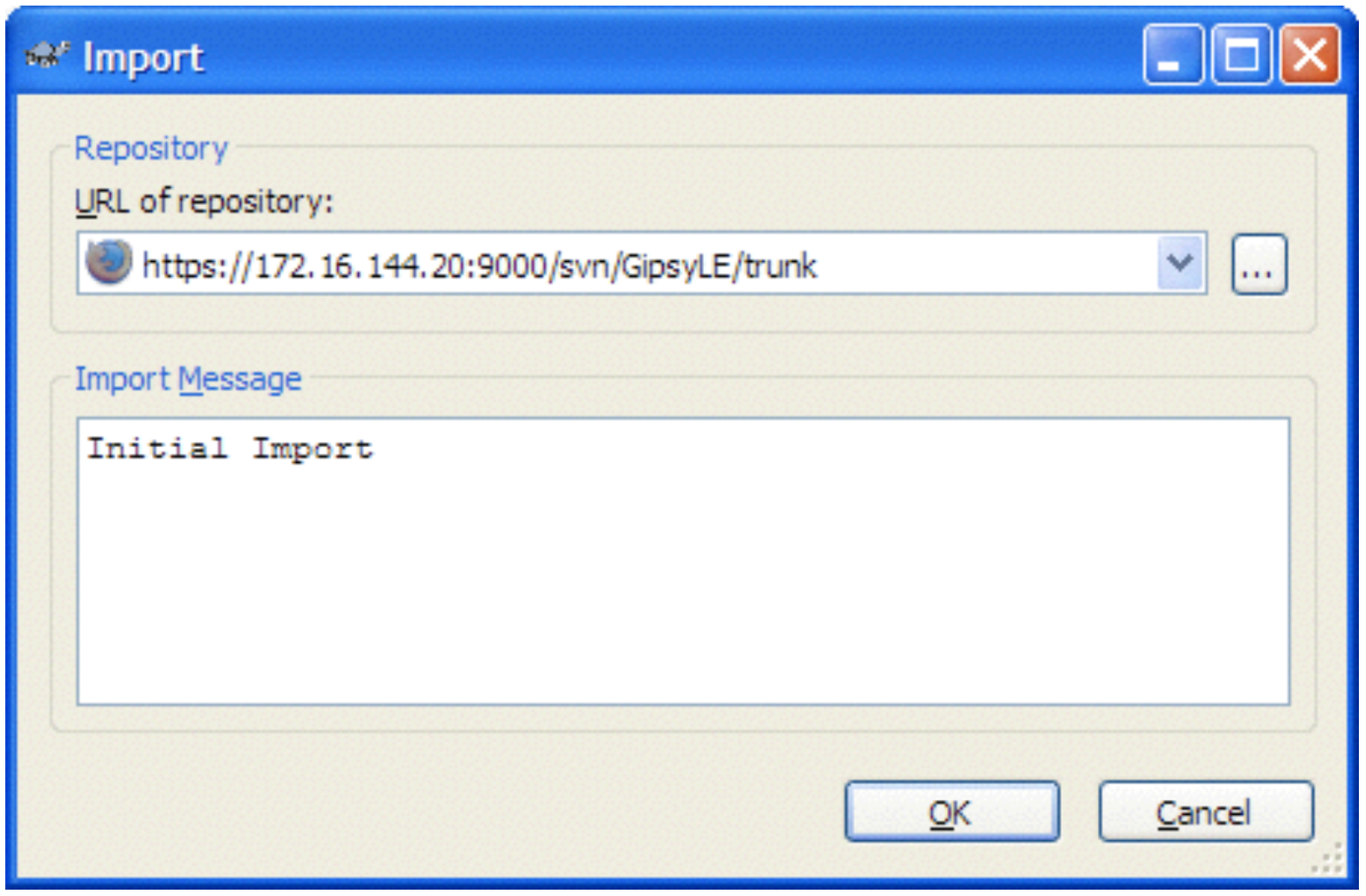
Context Menus



Authentication



Import Data



Select the command TortoiseSVN → Import...

Check Out


查看(V)
排列图标(I)
刷新(E)
自定义文件夹(F)...
粘贴(P)
粘贴快捷方式(S)
撤销重命名(U) Ctrl+Z
SVN 检出(K)...
TortoiseSVN
新建(W)
属性(R)


检出
版本库
版本库 URL：
file:///D:/MySVN
检出至目录(D)：
C:\Documents and Settings\晓月\桌面\Project
检出深度
全递归
省略外部(X)
版本
最新版本(H)
版本(R)
显示日志(L)
确定(O)
取消(C)
帮助(H)

Update data

- TortoiseSVN → update

Add data

- TortoiseSVN → add ..

Commit data

- Conflicts?

See difference

- Text?
- How about image?

Merge

- version ...
- ?