



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



Overview

- Features & Specs
- What's New
- Videos
- Versions
- Customers
- Pricing & Purchase
- Evaluation
- 日本語

Alienbrain
by SOFTIMAGE[®]
Asset Management for Artists

Introducing Alienbrain

Have you ever lost a file? Have you ever wasted time looking for the right version of a file? Have you ever accidentally used the wrong version of a file?

Next time, use Alienbrain.

Alienbrain is a digital asset management system for artists in the entertainment industry. It combines everything studios need to securely store, version, manage and share any kind of file, with an intuitive user interface that let artists work visually.

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

What is Alienbrain



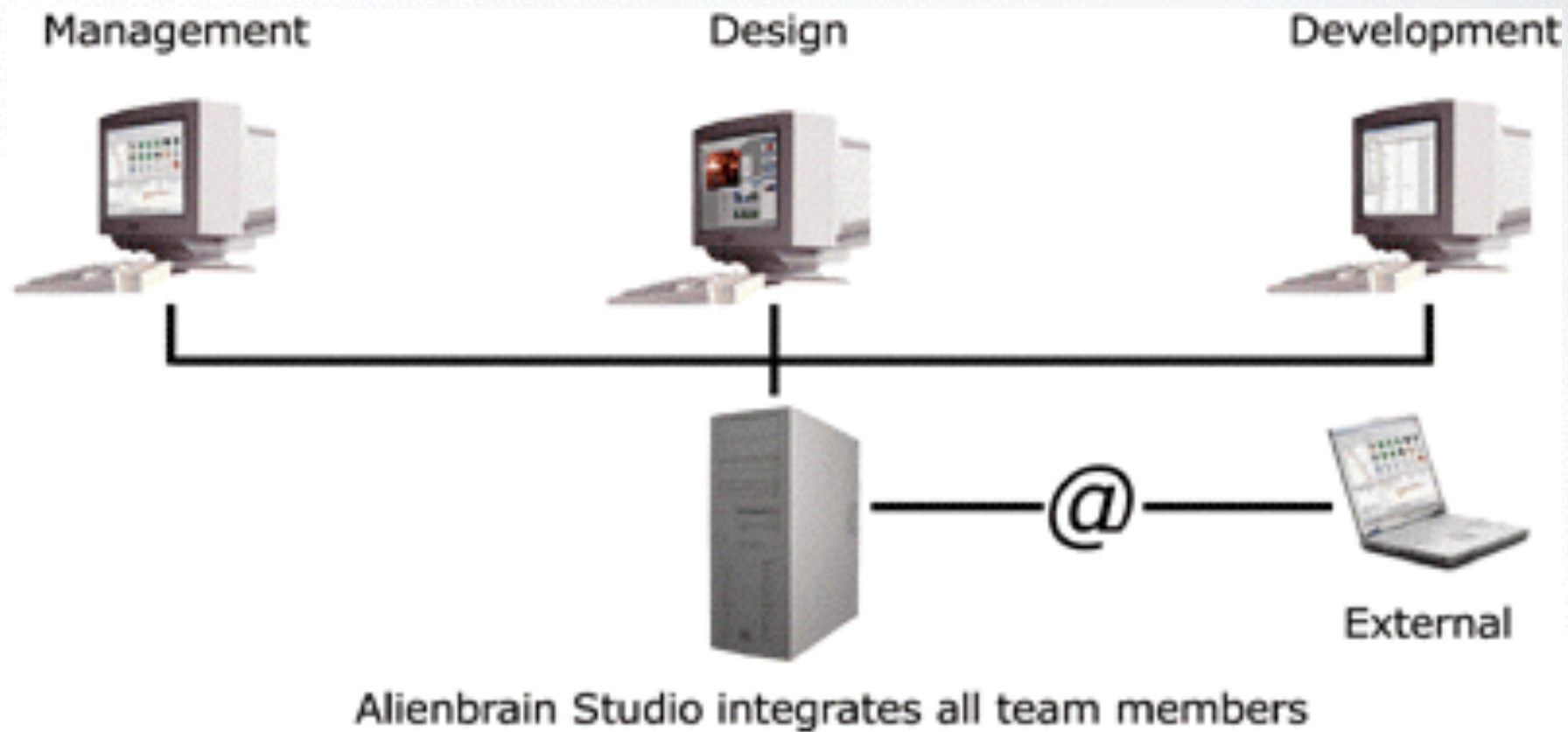
- Industry standard for file management
 - in professional media and entertainment projects.
- Systems for creative teams
 - +DAM: Digital Asset Management
 - +SCM: Software Configuration Management
- Tools for any kind of file for import, version, manage and share

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 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



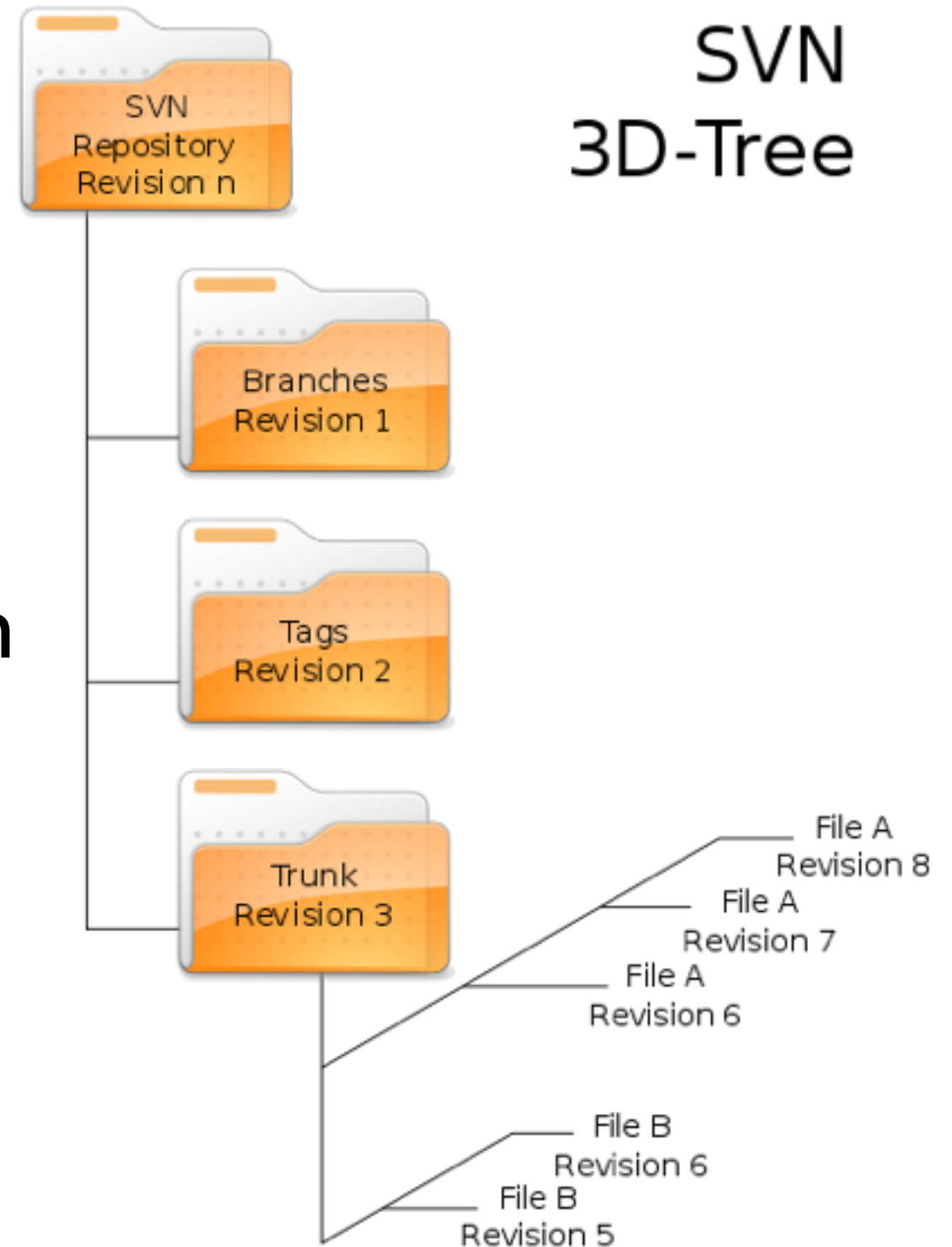
- CVS
- Subversion (SVN)
- Git
 - was initially created by Linus Torvalds for Linux kernel development

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



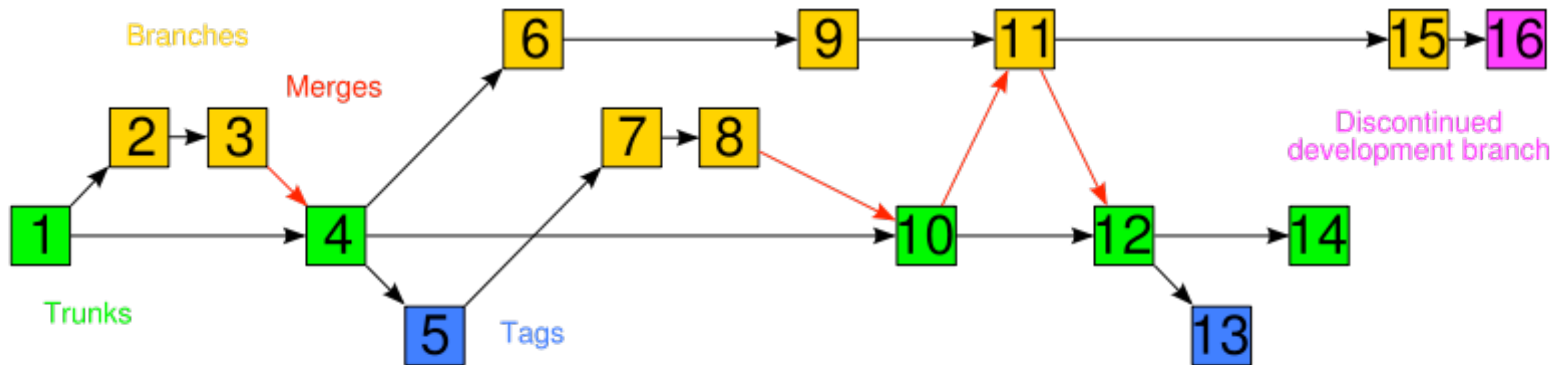
Subversion properties

- 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>

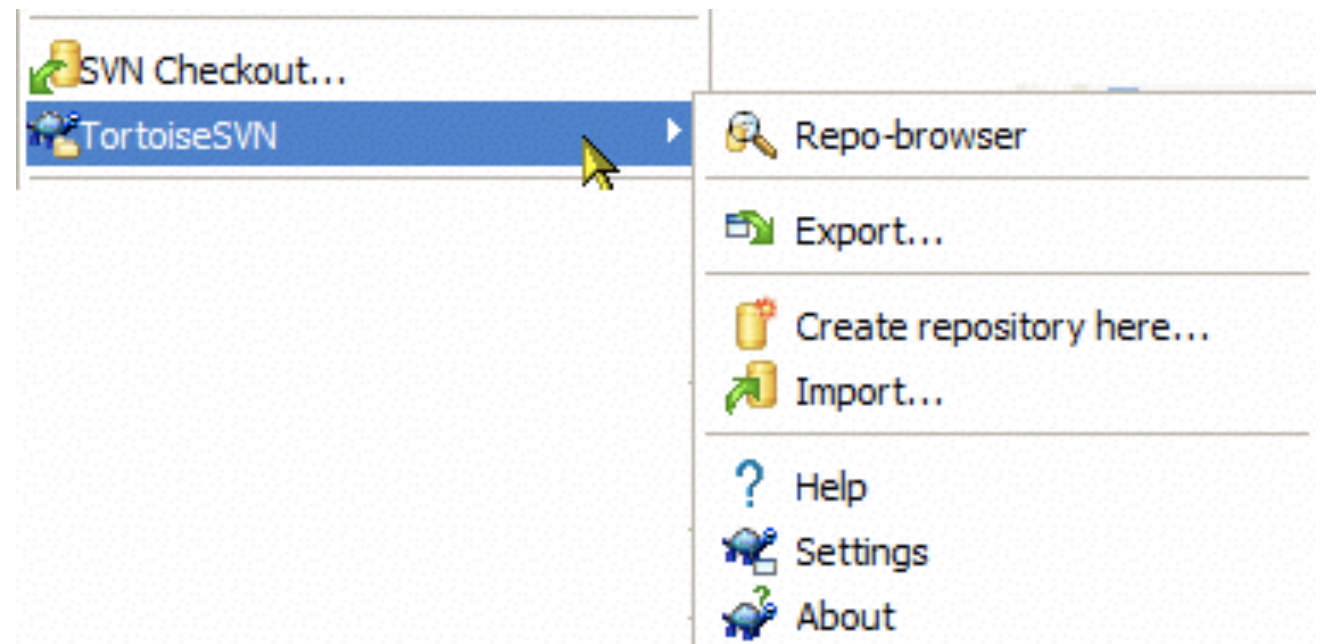
创建版本库 (The Repository)

- 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)

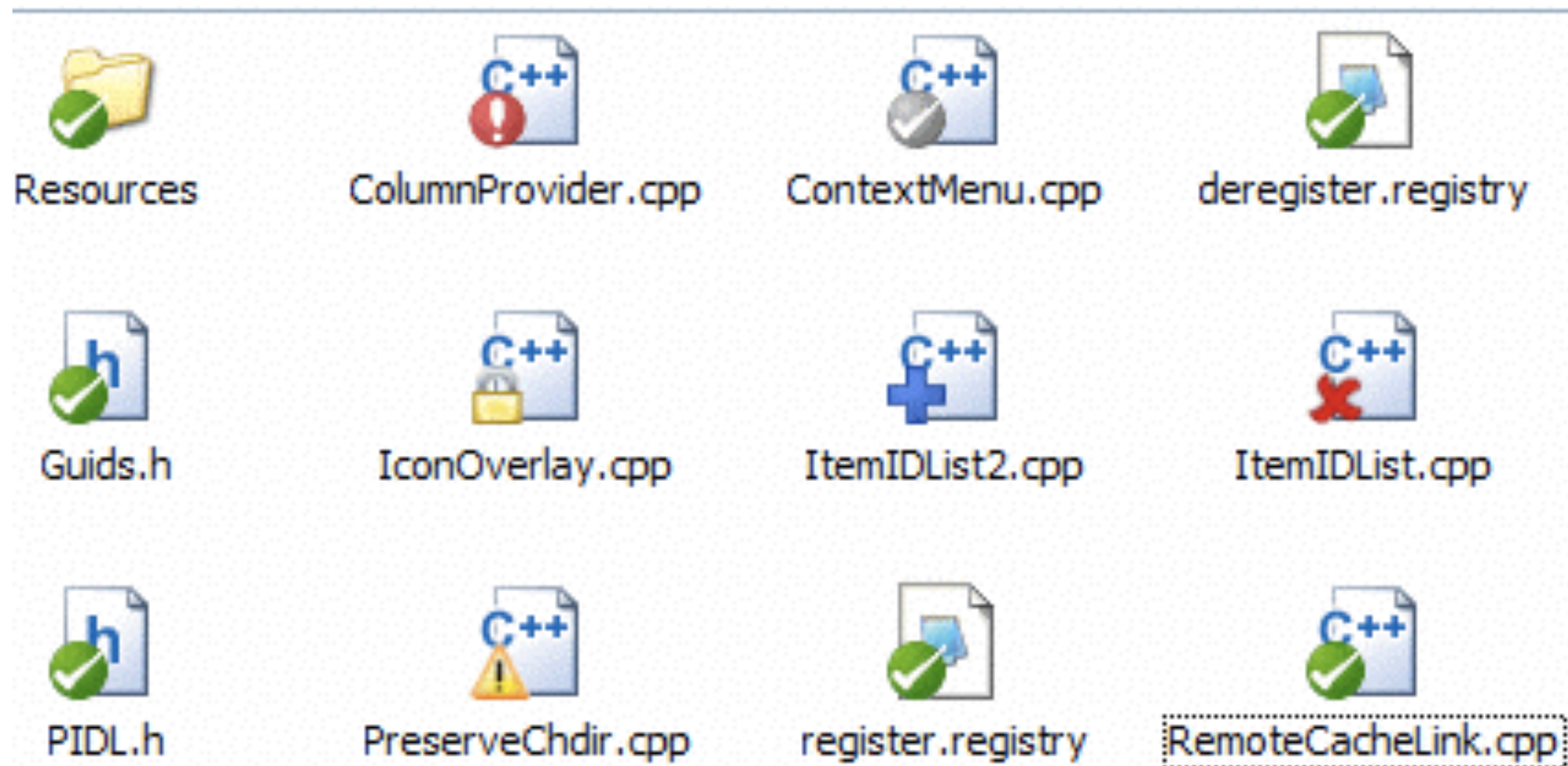
- 使用 TortoiseSVN 创建版本库
 - 打开资源管理器
 - 创建一个新的文件夹，命名为SVNRepository
 - 右键点击新创建的目录，
 - TortoiseSVN → Create repository here ...



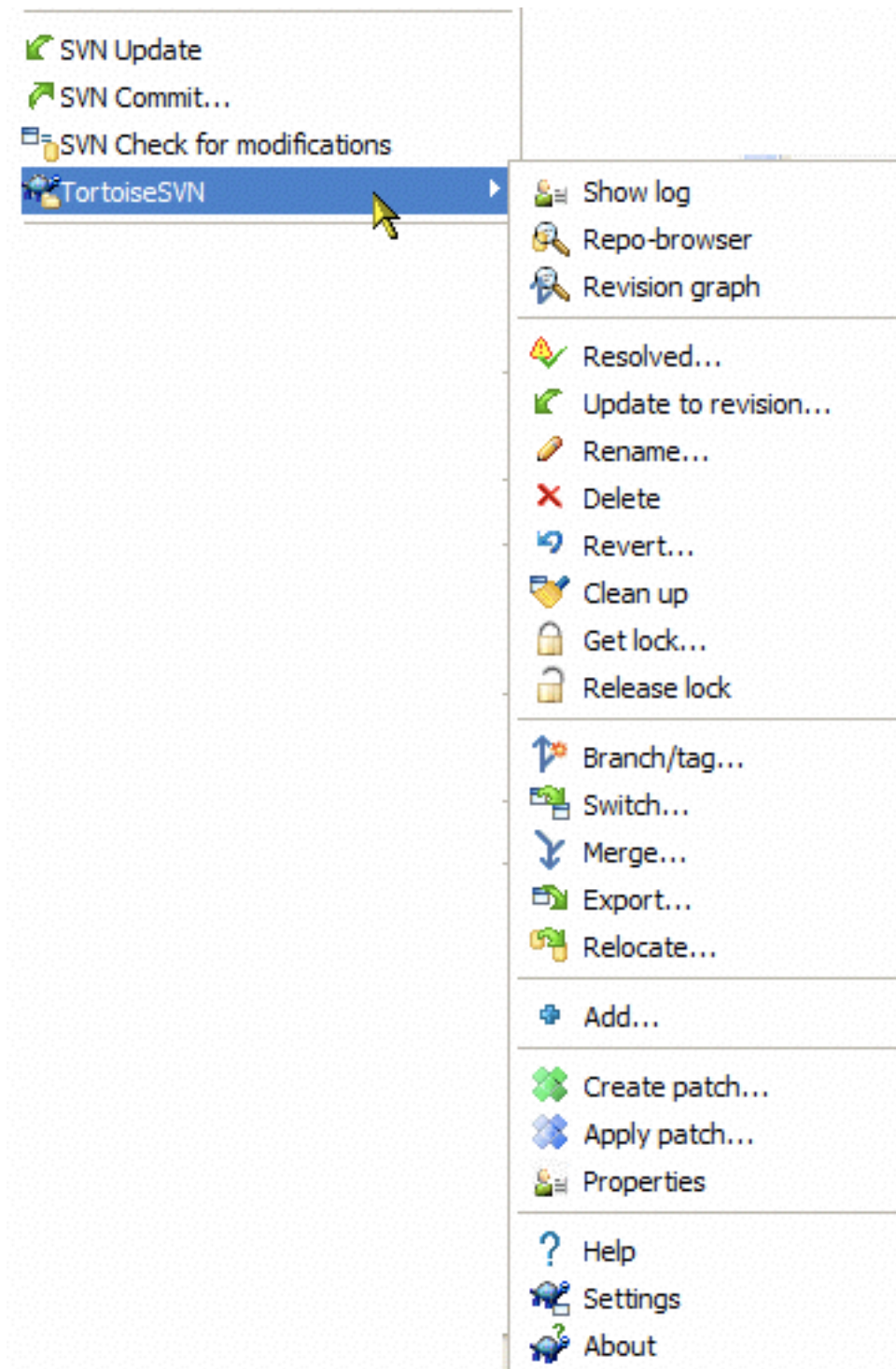
访问版本库

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

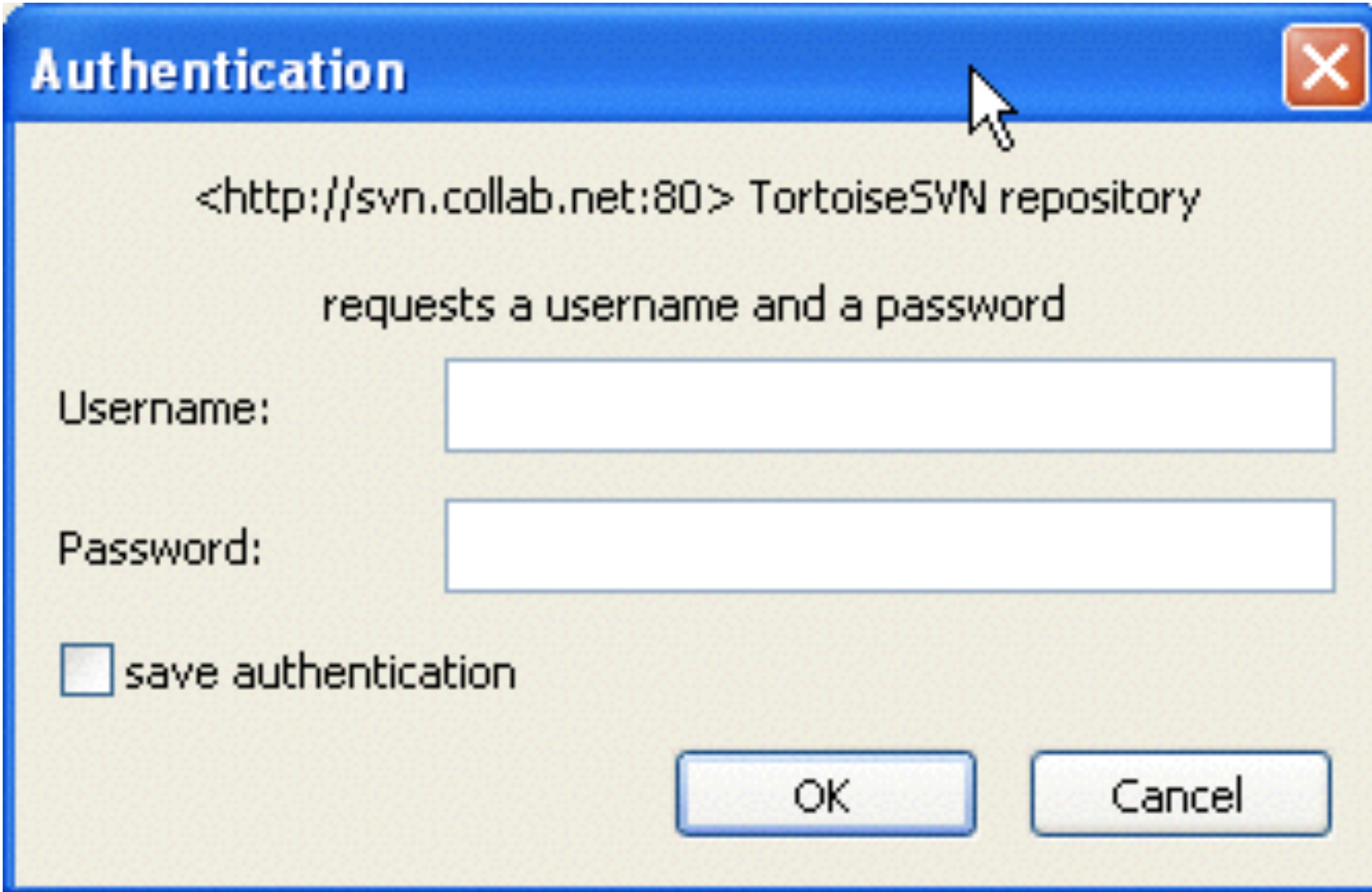
Icon Overlays



Context Menus



Authentication



The image shows a standard Windows-style authentication dialog box. The title bar is blue and contains the text 'Authentication' and a red close button with a white 'X'. The main area has a light beige background. At the top, it displays the URL '<http://svn.collab.net:80> TortoiseSVN repository' and the message 'requests a username and a password'. Below this are two text input fields: the first is labeled 'Username:' and the second is labeled 'Password:'. At the bottom left, there is a checkbox labeled 'save authentication'. At the bottom right, there are two buttons: 'OK' and 'Cancel'.

Authentication

<http://svn.collab.net:80> TortoiseSVN repository

requests a username and a password

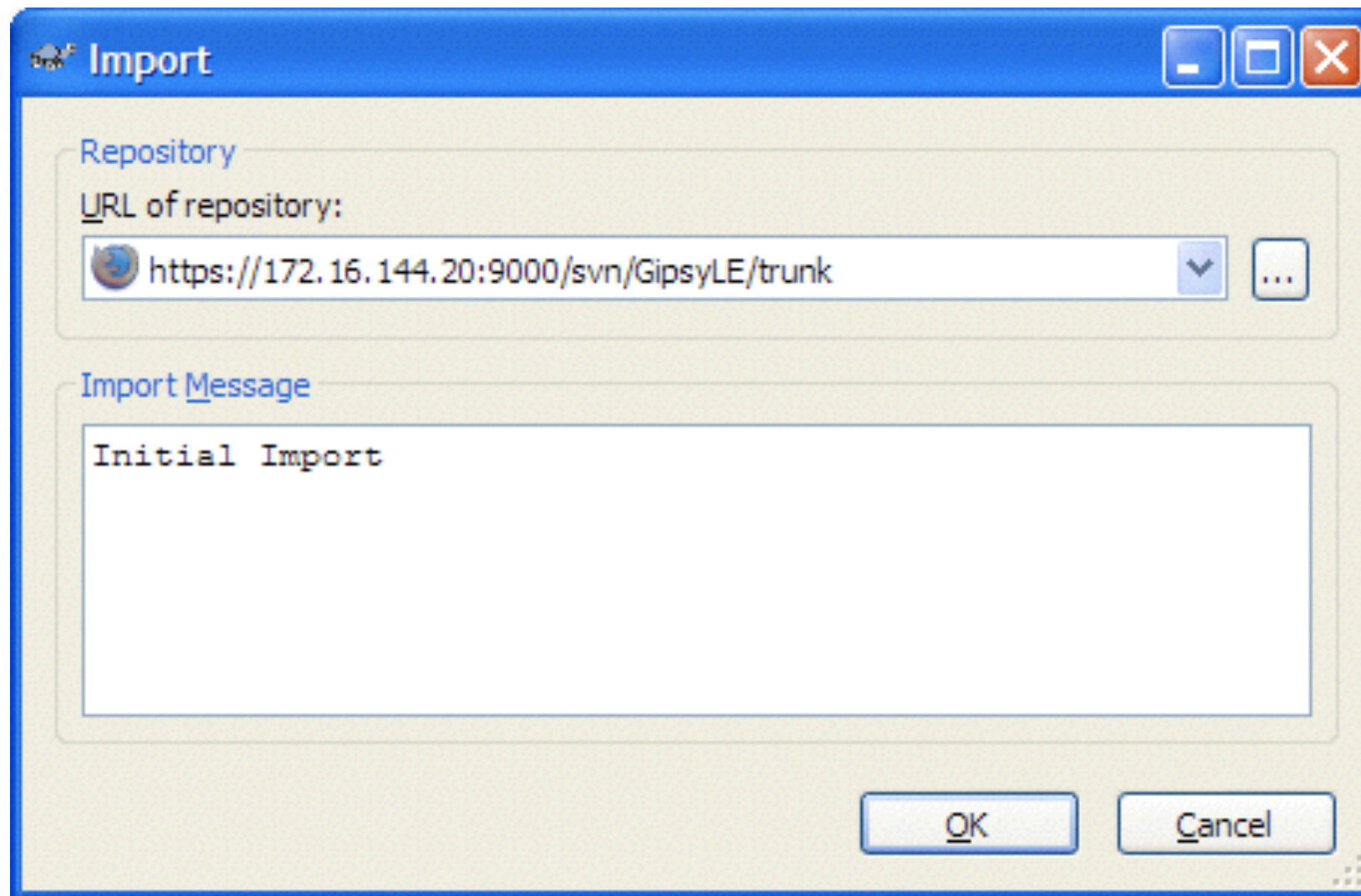
Username:

Password:

save authentication

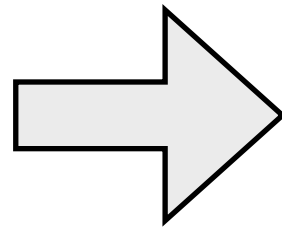
OK Cancel

Import Data



Select the command TortoiseSVN → Import...

Check Out



Update data

- TortoiseSVN → update

Add data

- TortoiseSVN → add ..



Commit data

- Conflicts?

See difference

- Text?
- How about image?

Merge

- version ...
- ?