Lecture 2
Pre-processing
Concurrent Versions System Archives
Debian Developer
Coordinates
Distributed Development
I hope no one else is editing the same parts of the code as I am.

Hmmm... I think what I wrote yesterday was much better!

Oh god! I missed my meeting and don’t have access to the files.

OK, I have now edited my code and added new classes. How can the others access it?

Distributed Development
I hope no one else is editing the same parts of the code as I am.

Hmmm... I think what I wrote yesterday was much better!

Oh god! I missed my meeting and don’t have access to the files.

OK, I have now edited my code and added new classes. How can the others access it?

Am I the only one working on a weekend?
Distributed Development
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Distributed Development
Distributed Development

CVS Server
Concurrent Versions System

CVS Server

...a mechanism for storing multiple versions of files.
Concurrent Versions System

...a mechanism for storing multiple versions of files.

Not only for groups, but individuals too! - Back-up - Version - Roll-back - Branches
Concurrent Versions System

- Record the history of all files in the repository.
- Share the files amongst a group of people.
- Have multiple people edit the same files.
- Merge changes from different people.
- Time portal.
How does CVS work?
How does CVS work?
How does CVS work?

Hello World Project

is stored in

CVS Server
How does CVS work?

Hello World Project is stored in the CVS Server.

New Developer
How does CVS work?

Hello World Project

is stored in

CVS Server

fetch me all files belonging to Hello World Project

New Developer
How does CVS work?

Hello World Project

is stored in

CVS Server

New Developer
How does CVS work?

Hello World Project

is stored in

CVS Server

Project Files

New Developer

current developers
How does CVS work?

New Developer
How does CVS work?

New Developer

user changes files
How does CVS work?

New Developer -> user changes files -> local copy changed

Project Files (changed)
How does CVS work?
How does CVS work?

Project Files
(changed)

local copy changed

CVS Server
How does CVS work?

- **Project Files (changed)**
- **CVS Server**
- **Hello World Project**

local copy changed

server updates project repository
How does CVS work?
How does CVS work?
How does CVS work?

CVS Server

Update project files
How does CVS work?
How does CVS work?
Revision Example
Revision Example

Revisions to Foo.java

1.1 — 1.2
Revision Example

Revisions to Foo.java
Branches Example

- Branch 1.2.2
  - 1.2.2.1
  - 1.2.2.2
  - 1.2.2.3

- Branch 1.2.4
  - 1.2.4.1
  - 1.2.4.2
  - 1.2.4.3
Revisions & Branches
- Each version of a file has a unique revision number.
- Revision number has even number of dot separated integers.
- 1.1 is usually the first revision number.
- Successive revision numbers are incremented by 1.
Revisions & Branches

- Each version of a file has a unique revision number.
- Revision number has even number of dot separated integers.
- 1.1 is usually the first revision number.
- Successive revision numbers are incremented by 1.

- Each branch has a unique branch number.
- Branch number has odd number of dot separated integers.
- All revisions on a branch have revision numbers formed by appending an ordinal number to the branch number.
Basic CVS Commands

cvs checkout
Basic CVS Commands

cvs checkout

cvs update
Basic CVS Commands

cvs checkout
cvs update
cvs add
Basic CVS Commands

- `cvs checkout`
- `cvs update`
- `cvs remove`
- `cvs add`
Basic CVS Commands

cvs checkout

cvs update

cvs release

cvs remove

cvs add
Basic CVS Commands

- cvs checkout
- cvs update
- cvs release
- cvs remove
- cvs add
- cvs log
Basic CVS Commands

cvs checkout
cvs update
cvs diff
cvs release
cvs add
cvs remove
cvs log
Basic CVS Commands

cvs checkout

cvs update

cvs diff

cvs release

cvs remove

cvs add

cvs log

cvs tag
Basic CVS Commands

cvs checkout
cvs update
cvs diff
cvs release
cvs add
cvs remove
cvs rtag
cvs log
cvs history
cvs tag
Why Pre-process CVS Data?
Why Pre-process CVS Data?

Tom Ball et al. “If your version control system could talk...”
Why Pre-process CVS Data?

Tom Ball et al. “If your version control system could talk...”

So, why is my CVS so silent?
Why Pre-process CVS Data?

Tom Ball et al. “If your version control system could talk...”

So, why is my CVS so silent?

• CVS has limited query functionality and is slow.
  ⇒ Copy CVS into a database

• CVS splits up changes on multiple files.
  ⇒ Infer transactions

• CVS knows only files—but what about functions?
  ⇒ Detect fine-grained changes

• CVS contains unreliable data which is noise.
  ⇒ Clean data.
Why Pre-process CVS Data?

Tom Ball et al. “If your version control system could talk...”

So, why is my CVS so silent?

- CVS has limited query functionality and is slow.
  ⇒ Copy CVS into a database

- CVS splits up changes on multiple files.
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- CVS knows only files—but what about functions?
  ⇒ Detect fine-grained changes

- CVS contains unreliable data which is noise.
  ⇒ Clean data.

Preprocessing is the key to a talkative version control system.
APFEL collects CVS data
APFEL collects CVS data

Hello World Project

APFEL

Mirror CVS repository into database
- Mirror repository: Receiving server response
- Mirror repository: Processing .../diagram/state/ui

Run in Background  << Details  Cancel

Database
Data Extraction

- What data should be extracted?
- “Filtering should be performed within the analysis, and not during extraction.”
Create incremental copies with `cvs rdiff -s` or `cvs status`. 

**Data Extraction**

- RCS file: `/home/eclipse/org.eclipse.jdt.core/model/org/eclipse/jdt/core/IBuffer.java,v`
- Working file: `./org.eclipse.jdt.core/model/org/eclipse/jdt/core/IBuffer.java`
- head: 1.17
- branch:
- locks: strict
- access list:
- symbolic names:

```
v_397: 1.16
v_396a: 1.16
... 
v_382: 1.15
JDK_1_5: 1.15.0.2
Root_JDK_1_5: 1.15
v_381: 1.15
... 
```

- keyword substitution: o
- total revisions: 24; selected revisions: 24
- description:

```
revision 1.17
date: 2004/01/13 15:48:42; author: jnunnel; state: Exp; lines: +1 -1
Updated copyrights to 2004
```

```
revision 1.16
date: 2003/12/15 16:25:37; author: jnunnel; state: Exp; lines: +15 -26
46040
```

```
revision 1.15
date: 2003/05/26 16:13:24; author: pmulet; state: Exp; lines: +5 -1
branches: 1.15.2;
*** empty log message ***
```

```
... 
```

```
revision 1.15.2.1
date: 2004/01/12 19:53:11; author: othomann; state: Exp; lines: +15 -26
Merge with HEAD
```

Commit Mails

All changes listed in a commit mail belong to one transaction.

CVSROOT: /cvs/gcc
Module name: gcc
Changes by: zack@gcc.gnu.org 2004-05-01 19:12:47

Modified files:
gcc/cp : ChangeLog decl.c

Log message:
* decl.c (reshape_init): Do not apply TYPE_DOMAIN to a VECTOR_TYPE. Instead, dig into the representation type to find the array bound.

Patches:
http://.../cvsweb.cgi/gcc/gcc/cp/ChangeLog.diff?...&r2=1.4042
http://.../cvsweb.cgi/gcc/gcc/cp/decl.c.diff?...&r2=1.1204

Commit mails for GCC: http://gcc.gnu.org/ml/gcc-cvs/
Not every project provides useful commit mails.
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.
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Fixed Time Window
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

Fixed Time Window

\[ \forall \delta_i : \forall \delta_j : | \text{time} (\delta_i) - \text{time} (\delta_j) | \leq T \]

<table>
<thead>
<tr>
<th>A:1.3</th>
<th>B:1.2</th>
<th>C:1.4</th>
<th>D:1.3</th>
<th>E:1.5</th>
</tr>
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</table>

same author + same log message
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

Fixed Time Window

∀δ_i ∀δ_j: |time(δ_i) - time(δ_j)| ≤ T

A: 1.3  B: 1.2  C: 1.4  D: 1.3  E: 1.5

+ same author
+ same log message

200 seconds
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

Fixed Time Window: \[ \forall \delta_i: \forall \delta_j: |\text{time} (\delta_i) - \text{time} (\delta_j) | \leq T \]

- \( A:1.3 \)
- \( B:1.2 \)
- \( C:1.4 \)
- \( D:1.3 \)
- \( E:1.5 \)

200 seconds

Sliding Time Window:

- \( A:1.3 \)
- \( B:1.2 \)
- \( C:1.4 \)
- \( D:1.3 \)
- \( E:1.5 \)
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

Fixed Time Window

∀δᵢ ∀δⱼ: |time(δᵢ) − time(δⱼ)| ≤ T

200 seconds

Sliding Time Window

∀δᵢ ∃δⱼ: |time(δᵢ) − time(δⱼ)| ≤ T
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

### Fixed Time Window

\[ \forall \delta_i : \forall \delta_j : |time(\delta_i) - time(\delta_j)| \leq T \]

- A: 1.3
- B: 1.2
- C: 1.4
- D: 1.3
- E: 1.5

- same author
- + same log message
- 200 seconds

### Sliding Time Window

\[ \forall \delta_i : \exists \delta_j : |time(\delta_i) - time(\delta_j)| \leq T \]

- A: 1.3
- B: 1.2
- C: 1.4
- D: 1.3
- E: 1.5

- same author
- + same log message
- 200 seconds
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

Fixed Time Window

\[ \forall \delta_i, \forall \delta_j : |time(\delta_i) - time(\delta_j)| \leq T \]

same author

+ same log message

200 seconds

Sliding Time Window

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**Sliding Time Window**

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- B: 1.2
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All changes by the same developer, with the same message, made at the same time belong to one transaction.

Fixed Time Window

∀δ_i : ∀δ_j : |time(δ_i) − time(δ_j)| ≤ T

A: 1.3  B: 1.2  C: 1.4  D: 1.3  E: 1.5

same author
+ same log message

200 seconds

Sliding Time Window

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A: 1.3  B: 1.2  C: 1.4  D: 1.3  E: 1.5

same author
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200 seconds
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| Fixed Time Window | \( \forall \delta_i : \forall \delta_j : | \text{time} (\delta_i) - \text{time} (\delta_j) | \leq T \) |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| A:1.3             | same author                                                                                                                        |
| B:1.2             | + same log message                                                                                                                  |
| C:1.4             | 200 seconds                                                                                                                         |
| D:1.3             |                                                                                                                                     |
| E:1.5             |                                                                                                                                     |

| Sliding Time Window | \( \forall \delta_i : \exists \delta_j : | \text{time} (\delta_i) - \text{time} (\delta_j) | \leq T \) |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| A:1.3               | same author                                                                                                                        |
| B:1.2               | + same log message                                                                                                                  |
| C:1.4               | 200 seconds                                                                                                                         |
| D:1.3               |                                                                                                                                     |
| E:1.5               |                                                                                                                                     |
Infer Transactions: Time Windows

All changes by the same developer, with the same message, made at the same time belong to one transaction.

| Fixed Time Window | \( \forall \delta_i: \forall \delta_j: |time(\delta_i) - time(\delta_j)| \leq T \) |
|-------------------|---------------------------------------------------|
| A:1.3             | ![Time Window Diagram](image)                     |
| B:1.2             |                                                    |
| C:1.4             |                                                    |
| D:1.3             |                                                    |
| E:1.5             | same author                                        |
|                   | + same log message                                 |
|                   | 200 seconds                                         |

| Sliding Time Window | \( \forall \delta_i: \exists \delta_j: |time(\delta_i) - time(\delta_j)| \leq T \) |
|---------------------|--------------------------------------------------|
| A:1.3               | ![Time Window Diagram](image)                    |
| B:1.2               |                                                    |
| C:1.4               |                                                    |
| D:1.3               |                                                    |
| E:1.5               | same author                                       |
|                     | + same log message                                 |
|                     | 200 seconds                                         |
Mapping Changes to Entities
Mapping Changes to Entities

Parse r1 for entities

r1

A()
B()
C()
D()
E()

r2
Mapping Changes to Entities

Parse r1 for entities

A()
B()
C()
D()
E()

Parse r2 for entities

A()
F()
B()
D()
E()
Mapping Changes to Entities

Parse r1 for entities

Parse r2 for entities

A()  diff  A()
B()  diff  new  F()
C()  gone
D()  diff  D()
E()  diff  E()
Fine-grained changes

```java
public static void initDefaults(IPreferenceStore store) {
    store.setDefault(OPEN_STRUCTURE_COMPARE, true);
    store.setDefault(SYNCHRONIZE_SCROLLING, true);
    store.setDefault(SHOW_PSEUDO_CONFLICTS, false);
    store.setDefault(INITIALLY_SHOW_ANCESTOR_PANE, false);
    store.setDefault(SHOW_MORE_INFO, false);
    store.setDefault(IGNORE_WHITESPACE, false);
    store.setDefault(PREF_SAVE_ALL_EDITORS, false);
    store.setDefault(USE_SPLINES, false);
    store.setDefault(USE_SINGLE_LINE, true);
    store.setDefault(USE_RESOLVE_UI, false);
    store.setDefault(PATH_FILTER, "");  //NON-NLS-1$
}
```
public static void initDefaults(IPreferenceStore store) {
    store.setDefault(OPEN_STRUCTURE_COMPARE, true);
    store.setDefault(SYNCHRONIZE_SCROLLING, true);
    store.setDefault(SHOW_PSEUDO_CONFLICTS, false);
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    store.setDefault(USE_SPLINES, false);
    store.setDefault(USE_SINGLE_LINE, true);
    store.setDefault(USE_RESOLVE_UI, false);
    store.setDefault(PATH_FILTER, "\$NON-NLS-1$"ера);
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    store.setDefault(IGNORE_WHITESPACE, false);
    store.setDefault(PREF_SAVE_ALL_EDITORS, false);
    //store.setDefault(USE_SPLINES, false);
    store.setDefault(USE_SINGLE_LINE, true);
    //store.setDefault(USE_RESOLVE_UI, false);
    store.setDefault(PATH_FILTER, ""$NON-NLS-1$"");
}

Removed call to setDefault (2x):
store.setDefault(USE_SPLINES, false);
store.setDefault(USE_RESOLVE_UI, false);

Inserted comments (2x):
//store.setDefault(USE_SPLINES, false);
//store.setDefault(USE_RESOLVE_UI, false);
public static void main(String[] args) {
    System.out.println("Hello Portland.");
    System.out.println("Hello eTX.");
}

| P-public | T-String[] |
| P-static | V-args |
| T-System | T-System |
| V-out    | V-out    |
| M-println| M-println|
| Y-"Hello Portland." | Y-"Hello eTX." |
### Collecting Tokens

<table>
<thead>
<tr>
<th>Modularization</th>
<th>packages, imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inheritance</td>
<td>extends, implements</td>
</tr>
<tr>
<td>Method calls</td>
<td>inner vs final call</td>
</tr>
<tr>
<td>Variable usage</td>
<td>identifiers, types</td>
</tr>
<tr>
<td>Exceptions</td>
<td>throws, throw, catch</td>
</tr>
<tr>
<td>Comments</td>
<td>Javadoc, blocks, lines</td>
</tr>
<tr>
<td>Various</td>
<td>modifiers, literals, operator, keywords</td>
</tr>
</tbody>
</table>
Noise: Large Transactions

- “Change #include filenames from <foo.h> to <openssl.h>.” (552 files)
- “Change functions to ANSI C.” (491 files)

Select an upper bound N for transaction size.
Noise: Merges
Noise: Merges

Branch Point
Noise: Merges

Branch Point

A, B  C, D  E, F  G, H
Noise: Merges

A, B, C, D, E, F, G, H

Branch Point

Merge Point

A, B, C, D, E, F, G, H
Aspects

create()
connect()
close()
serve()
fork()
Aspects

Typical Aspects
enter() / leave()
log()
lock() / unlock()
Aspects

Typical Aspects
- enter()/leave()
- log()
- lock()/unlock()

- create()
- connect()
- close()
- serve()
- fork()
Aspects

Typical Aspects
- enter()/leave()
- log()
- lock()/unlock()

Aspect Mining: Identifying Aspects in Legacy Code
Cross-cutting changes
SELECT token_name, COUNT(DISTINCT element_id_id)
FROM cvs_tokens_method NATURAL JOIN cvs_revisions
WHERE token_type='M' AND change_type='CHG'
GROUP BY transaction_id, token_name
ORDER BY COUNT(DISTINCT element_id_id) DESC;
SELECT token_name, COUNT(DISTINCT element_id) 
FROM cvs_tokens_method NATURAL JOIN cvs_revisions 
WHERE token_type='M' AND change_type='CHG' 
GROUP BY transaction_id, token_name 
ORDER BY COUNT(DISTINCT element_id) DESC;

<table>
<thead>
<tr>
<th>token_name</th>
<th>count</th>
</tr>
</thead>
<tbody>
<tr>
<td>getString</td>
<td>1462</td>
</tr>
<tr>
<td>lock</td>
<td>1284</td>
</tr>
<tr>
<td>unlock</td>
<td>1284</td>
</tr>
<tr>
<td>error</td>
<td>996</td>
</tr>
<tr>
<td>isValidWidget</td>
<td>988</td>
</tr>
</tbody>
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SELECT token_name, COUNT(DISTINCT element_id) 
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GROUP BY transaction_id, token_name 
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<td>996</td>
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<tr>
<td>isValidWidget</td>
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</tbody>
</table>
public static final native void _XFree(int address);
public static final void XFree(int /*long*/ address) {
    lock.lock();
    try {
        _XFree(address);
    } finally {
        lock.unlock();
    }
}
public static final native void _XFree(int address);
public static final void XFree(int /*long*/ address) {
    lock.lock();
    try {
        _XFree(address);
    } finally {
        lock.unlock();
    }
}
# One line fixes

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;301</td>
<td>Expression</td>
</tr>
<tr>
<td>150</td>
<td>Method call</td>
</tr>
<tr>
<td>120</td>
<td>Literal (boundaries, constants)</td>
</tr>
<tr>
<td>73</td>
<td>Keyword (true/false confusion)</td>
</tr>
<tr>
<td>60</td>
<td>Operator</td>
</tr>
<tr>
<td>39</td>
<td>Identifier</td>
</tr>
<tr>
<td>39</td>
<td>Comment (!!)</td>
</tr>
</tbody>
</table>
## One line fixes

<table>
<thead>
<tr>
<th>Count</th>
<th>Type</th>
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<td>&gt;301</td>
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One line fixes

Bug report: 119638 - Typo in ToolItem.getControl

< * the item when the items is a <code>SEPARATOR</code>.

---

> * the item when the item is a <code>SEPARATOR</code>
A Bug’s Life
A Bug’s Life
A Bug’s Life

User encounters an error
A Bug’s Life

User encounters an error

No idea what to do?
A Bug’s Life

User encounters an error

Take slightly extreme measures
User encounters an error

Report the bug!
A Bug’s Life
A Bug’s Life
A Bug’s Life
A Bug’s Life

Unconfirmed → New → Assigned → Resolved

- Invalid
- Duplicate
- Fixed
- Won’t Fix
- Works for Me
A Bug’s Life
A Bug’s Life

Unconfirmed → New → Assigned → Resolved → Verified

Invalid → Duplicate

Invalid → Duplicate

Invalid → Duplicate

Fixed

Won’t Fix

Works for Me
A Bug's Life

- Unconfirmed
- New
- Assigned
- Resolved
- Verified
- Closed

- Invalid
- Duplicate
- Fixed
- Won't Fix
- Works for Me

If Problem is fixed
A Bug’s Life

Diagram showing the lifecycle of a bug with states: Unconfirmed → New → Assigned → Resolved → Verified → Closed. Branching paths include Invalid, Duplicate, Fixed, Won’t Fix, and Works for Me. If the problem is fixed, it stays in the Resolved state and can be verified and closed.
JIRA

A commercial tool for

Bug Tracking, Issue Tracking and Project Management

Developed by Atlassian

www.atlassian.com/software/jira
JIRA

Bug Tracking, Issue Tracking and Project Management

Developed by Atlassian

www.atlassian.com/software/jira

Other popular bug trackers...

Bugzilla

PRTracker™
Sample Bug Report

**JBoss Application Server**

**Use of isUserInRole from.jsp does not work for JACC**

- **Key:** JBAS-3054
- **Type:** Bug
- **Status:** Resolved
- **Created:** 04/08/08 03:17 AM
- **Updated:** 22/04/08 03:37 AM

**Components:** Security, Web (Tomcat) service

**Affects Versions:** JBossAS-4.0.4.CR2

**Fix Versions:** JBossAS-5.0.0.PRE7, JBossAS-4.0.4.GA

**Security Level:** Public (Everyone can see)

**Original Estimate:** 4 hours

**Remaining Estimate:** 1 day, 2 hours

**Time Spent:**

**Environment:** org.jboss.test.web.test UserRoleUnitTest (JACC, testUserConflictingUserRole)


**Description**

Use of isCallerInRole from a jsp page is failing because the (javax.security.jacc.WebRoleRefPermission.jsp X) permission references the page as via the name "jsp" and there is no default mapping for this. We need to create such a permission mapping for every web.xml security-role element.

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**All** | **Comments** | **Work Log** | **Change History** | **FishEye**
---|---|---|---|---
**Dimitris Andreacis** [16/04/08 05:59 AM]

Anil, wanna take it?

**Anil Salidhna** [20/04/08 02:19 PM]

The problem does not exist because of the permission mapping based on the servlet-name, but rather due to the way the jacc permissions are created based on the metaData while the roles applicable to the caller exist in the JBossGenericPrincipal.

Please refer to the forum thread for more details.

**Anil Salidhna** [21/04/08 02:47 PM]

Resolved for 4.0.4.GA.

Needs to be resolved for jboss-head.

**Anil Salidhna** [21/04/08 04:19 PM]

Resolved in HEAD.

**Anil Salidhna** [21/04/08 06:08 PM]

Scott pointed out something that was addressed in the Appendix B section of the Jacc specification. So this issue needs a short revisit.

**Anil Salidhna** [22/04/08 02:32 AM]

Resolved in 4.0 and HEAD with the Appendix (B.19) guideline in the jacc spec.
Use of isUserInRole from jsp does not work for JACC

Use of isCallerInRole from a jsp page is failing because the (javax.security.jacc.WebRoleRefPermission jsp X) permission references the page as via the name "jsp" and there is no default mapping for this. We need to create such a permission mapping for every web.xml security-role element.

Dimitris Andreadis 2008/04/28 05:50 AM
Anil, wanna take it?

Anil Salichana 2008/04/28 02:17 PM
Resolved for 4.0.4.GA
Needs to be resolved for jboss-head.

Anil Salichana 2008/04/08 04:19 AM
Resolved in HEAD.

Anil Salichana 2008/04/08 02:17 AM
Resolved in 4.0 and HEAD with the Appendix (B.19) guideline in the jacc spec.
# Sample Bug Report

## One Line Summary

**JBoss Application Server**

Use of isUserInRole from jsp does not work for JACC

### Component(s):
- Security, Web (Tomcat) service

### Affects Versions:
- JBossAS-4.0.4.CR2

### Fix Version(s):
- JBossAS-5.0.0 Beta, JBossAS-4.0.4 GA

### Security Level:
- Public (Everyone can see)

### Original Estimate:
- 4 hours

### Remaining Estimate:
- 0 minutes

### Time Spent:
- 1 day, 2 hours

### JBoss Forum Reference:

## Description

Use of isCallerInRole from a jsp page is failing because the `((javax.security.jacc.WebRoleRefPermission jsp X) permission referencess the page as via the name "jsp" and there is no default mapping for this. We need to create such a permission mapping for every web.xml security-role element.

### Comments

**Dimitris Andreacis** (16 Apr 08 06:50 AM)

Anil, wanna take it?

**Anil Saldhana** (20 Apr 08 02:17 PM)

The problem does not exist because of the permission mapping based on the servlet-name, but rather due to the way the jacc permissions are created based on the metaData while the roles applicable to the caller exists in the JBossGenercPrincipal.

Please refer to the forum thread for more details.

**Anil Saldhana** (21 Apr 08 02:17 PM)

Resolved for 4.0.4 GA.

Needs to be resolved for jboss-head.

**Anil Saldhana** (21 Apr 08 04:19 PM)

Resolved in HEAD.

**Anil Saldhana** (21 Apr 08 06:39 PM)

Scott pointed out something that was addressed in the Appendix B section of the Jacc specification. So this issue needs a short revisit.

**Anil Saldhana** (22 Apr 08 02:32 AM)

Resolved in 4.0 and HEAD with the Appendix (B.19) guideline in the jacc spec.
**Sample Bug Report**

**Description and Comments**

Use of `isUserInRole` from jsp does not work for JACC

- **Component(s):** Security, Web (Tomcat) service
- **Affects Version(s):** JBossAS-4.0.4.CR2
- **Fix Version(s):** JBossAS-5.0.0.GA
- **Security Level:** Public

**Original Estimate:** 4 hours  
**Remaining Estimate:** 0 minutes  
**Time Spent:** 1 day, 2 hours

**Environment:** org.jboss.test.web.test:UserInRole:IntTestCase(JACC):UseConflictingUserInRole

**JBoss Forum Reference:** [http://www.jboss.org](http://www.jboss.org)

### Description

Use of `isCallerInRole` from a jsp page is failing because the `javax.security.jacc.WebRoleRefPermission.jsp X` permission references the page as via the name "jsp" and there is no default mapping for this. We need to create such a permission mapping for every web.xml security-role element.

### Comments

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimitris Andreadis</td>
<td>16/Apr/08 05:50 AM</td>
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<tr>
<td>Anil Salihana</td>
<td>20/Apr/08 02:13 PM</td>
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Neds to be resolved for jboss-head. |
| Anil Salihana  | 21/Apr/08 04:19 PM | Resolved in HEAD. |
| Anil Salihana  | 21/Apr/08 06:58 PM | Scott pointed out something that was addressed in the Appendix B section of the Jacc specification. So this issue needs a short revisit. |
| Anil Salihana  | 22/Apr/08 02:32 AM | Resolved in 4.0 and HEAD with the Appendix (B.19) guideline in the jacc spec. |
Sample Bug Report

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- The problem does not exist because of the permission mapping based on the servlet-name, but rather due to the way the jacc permissions are created based on the metaData while the roles applicable to the caller exist in the JBossGenernPrincipal.
- Please refer to the forum thread for more details.

**Operations**

- Scott pointed out something that was addressed in the Appendix B section of the Jacc specification. So this issue needs a short revisit.
- Resolved in 4.0 and HEAD with the Appendix (B.19) guideline in the jacc spec.
## Linking Bug Reports to Changes

<table>
<thead>
<tr>
<th>teicher</th>
<th>2003-10-29 16:11:01</th>
</tr>
</thead>
<tbody>
<tr>
<td>fixes issues mentioned in bug 45635: [hovering] rollover hovers</td>
<td></td>
</tr>
<tr>
<td>- mouse exit detection is safer and should not allow for loopholes any more, except for shell deactivation</td>
<td></td>
</tr>
<tr>
<td>- hovers behave like normal ones:</td>
<td></td>
</tr>
<tr>
<td>- tooltips pop up below the control</td>
<td></td>
</tr>
<tr>
<td>- they move with subjectArea</td>
<td></td>
</tr>
<tr>
<td>- once a popup is showing, they will show up instantly</td>
<td></td>
</tr>
</tbody>
</table>
TA-RE

An exchange language for mining software repositories

• Results are difficult to reproduce since different tools extract data using different methods.
• Benchmarking is virtually impossible.
• Other domains have repositories or corpora (plural of corpus) of data sets, e.g. PROMISE, UCI Repository, Reuters corpus.
• TA-RE presents software evolution data including CVS transactions and bug data in an XML format.
Summary

- Databases simplify the exploration of CVS.
- Sliding time windows are superior to fixed ones.
- Fine-grained analyses are feasible and worthwhile.
- Outlook: CVS mapped with bug data facilitates research in defect analysis and prediction, code clone investigation, cost estimation drivers, code decay and many more topics.