

КРПС

Инспектирование Обзор кода

Лекция №6 (версия 1.0)

```
sent"/>  
fish.web.present
```

```
<!-- do not forg
```

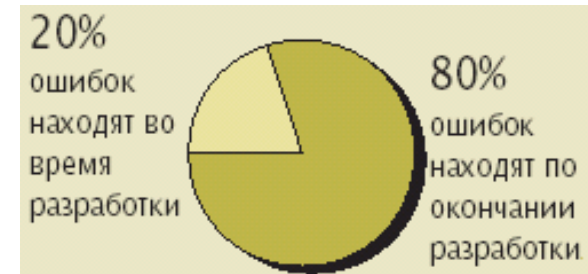
```
oot)" else="$ {gf
```

```
app.context-root
```

```
resent">
```

```
b]"/>
```

Проблема качества ПО



```
sent"/>  
fish.web.present
```

```
<!-- do not forg
```

```
oot}" else="$gfv
```

```
app.context-root
```

```
resent">
```

```
b]"/>
```

Инспектирование

В тех случаях, когда верифицируется не программный код, а проектная документация на систему, которую нельзя "выполнить" или создать для нее отдельные тестовые примеры, также обычно прибегают к методу экспертных исследований программного кода или документации на корректность или непротиворечивость.

Такие экспертные исследования обычно называют **инспекциями (inspection)** или **просмотрами (review)**. Существует два типа инспекций - *неформальные* и *формальные*.

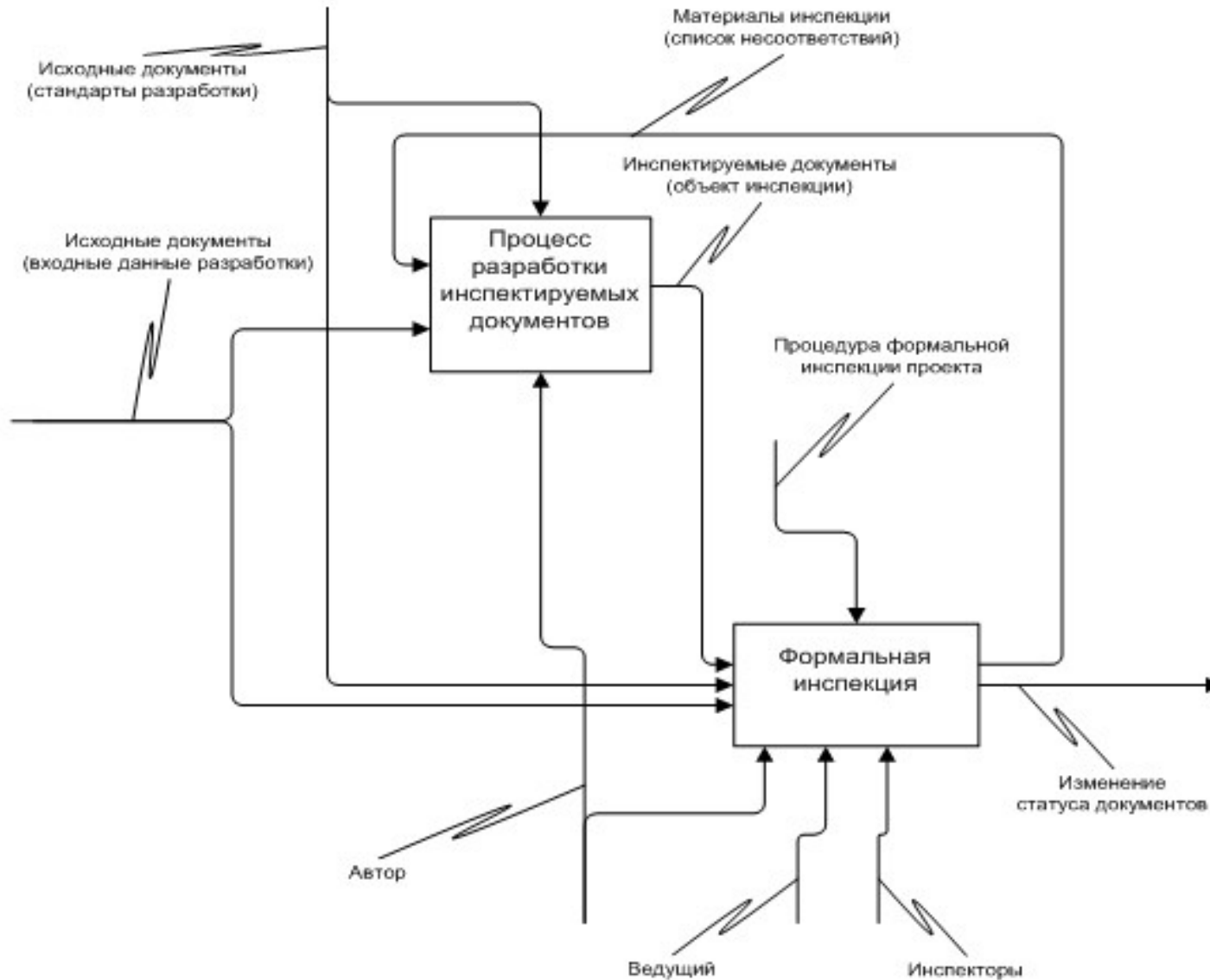
Инспектирование – это техника «белого ящика» для обеспечения качества. Оно состоит в проверке частей проекта на наличие дефектов.

Инспектирование

Правила:

- 1) Вскрытие дефектов;
- 2) Участие коллег;
- 3) Распределение ролей (Ведущий, автор, корректор, регистратор, профильный inspectирующий, специализированный inspectирующий, простой inspectирующий);
- 4) Тщательная подготовка.

Инспектирование



```
sent"/>  
fish.web.present
```

```
<!-- do not forg
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oot)" else="$gfv
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resent">
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b]"/>
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Жизненный цикл артефакта



Инспектирование кода

Просмотр кода (англ. **code review**) или *инспекция кода* (англ. *code inspection*) — систематическая проверка исходного кода программы с целью обнаружения и исправления ошибок, которые остались незамеченными в начальной фазе разработки. Целью просмотра является улучшение качества программного продукта и совершенствование навыков разработчика.

В процессе инспекции кода могут быть найдены и устранены такие проблемы, как ошибки в форматировании строк, состояние гонки, утечка памяти и переполнение буфера, что улучшает безопасность программного продукта. Системы контроля версий дают возможность проведения совместной инспекции кода. Кроме того, существуют специальные инструментальные средства для совместной инспекции кода.

Типы обзора (I)

- Через плечо (Over-the-shoulder) – One developer looks over the author's shoulder as the latter walks through the code.
- По почте (Email pass-around)– Source code management system emails code to reviewers automatically after checkin is made.
- Парное программирование (Pair Programming) – Two authors develop code together at the same workstation, such is common in Extreme Programming.
- Автоматизированный обзор (Tool-assisted code review) – Authors and reviewers use software tools, informal ones such as pastebins and IRC, or specialized tools designed for peer code review.

Типы обзора (II)

- **Pre-commit review** - Данный вид review проводится перед внесением изменений в VCS. Этот подход позволяет содержать в репозитории только проверенный код. В microsoft используется этот подход: всем участникам review рассылаются патчи с изменениями. После того как собран и обработан фидбэк, процесс повторяется до тех пор пока все ревьюверы не согласятся с изменениями.
- **Post-commit review** - Данный вид review проводится после внесения изменений в VCS. При этом можно коммитить как в основную ветвь, так и во временную ветку (а в основную ветку вливать уже проверенные изменения).

Инструментальные средства Rietveld

The screenshot shows a Mozilla Firefox browser window with the address bar containing `http://codereview.appspot.com/602`. The page title is "range: lean and mean - Code Review". The navigation menu includes "File", "Edit", "View", "History", "Bookmarks", "Tools", and "Help". The main content area displays the Rietveld interface for a code review. At the top, it shows the user "jake" and various utility links like "Settings", "Help", "Bug tracker", "Discussion group", and "Sign out". Below this, there are links for "Create Issue", "My Issues", "Recent Issues", and "Repositories". The issue title is "Issue: range: lean and mean". The creation details state it was created 5 days, 17 hours ago by Benjamin and last updated 3 days, 21 hours ago. The SVN base is `http://svn.python.org/view/*checkout*/python/branches/py3k/`. The "Reviewers" section includes "Can't Edit/Delete", "Publish+Mail Comments", and "Start Review". The "Description" section contains a paragraph and a numbered list of three items: 1. No slicing, 2. Length is computed in constructor and is a PyLong in the object's struct, and 3. start, stop, and step are exposed as attributes. Below the description is a section for "Patch Set 1" with "Total comments: 9" and a link to the patch set. At the bottom, there is a table with columns for "Raw unified diffs", "Stats", "Side-by-side diffs with inline comments", and a column for links to other patch sets.

Raw unified diffs	Stats	Side-by-side diffs with inline comments	
Lib/test/test_range.py	1 chunk 21 lines	1 comment	delta from patch set 2 delta from patch set 3 delta from patch set 4 delta from patch set 5
Objects/rangeobject.c	13 chunks 243 lines	8 comments	delta from patch set 2 delta from patch set 3 delta from patch set 4 delta from patch set 5

```
2 <project def:
3   <target :
4     <pro:
5       <ava:
6         <ava:
7         <ava:
```

sent"/>
fish.web.present

Diff for [codestriker/codestriker.pl](#) revision 1.7

<p>Line 1 Parallel</p> <pre>1 #!/usr/bin/perl -wT 2 3 # New comment 4 5 ##### 6 # Codestriker: Copyright (c) 2001, 2002 David Sitsky. All rights reserved. 7 # sits@users.sourceforge.net 8 # Version 1.1 9 # 10 # Codestriker is a perl CGI script which is used for performing code reviews 11 # in a collaborative fashion as opposed to using unstructured emails.</pre> <p>Line 24 Parallel</p> <pre>24 # This program is free software; you can redistribute it and modify it under 25 # the terms of the GPL. 26 27 # BEGIN CONFIGURATION OPTIONS ----- 28 29 # Location of where to store the code review data. Make sure the</pre> <p>Line 36 Parallel</p> <pre>36 # Location of sendmail. 37 \$sendmail = "/usr/lib/sendmail"; 38 39 # Indicate whether or not the script can interface to CVS. 40 \$cvsenabled = 1; 41 42 # How the CVS repository is accessed. For local access, this is set as the 43 # empty string. 44 # \$cvaccess = "ext:sits@cvs.cvsplot.sourceforge.net";</pre> <p>Line 46 Parallel</p> <pre>46 47 # The path of the cvs repository"; 48 # \$cvsrep = "/cvsroot/codestriker"; 49 \$cvsrep = "/home/sits/cvs";</pre>	<p>Line 1 Parallel</p> <pre>1 #!/usr/bin/perl 2 3 ##### 4 # Codestriker: 5 # sits@users.s 6 # Version 1.2 7 # 8 # Codestriker i 9 # in a collabor</pre> <p>Line 22 Para</p> <pre>22 # This program 23 # the terms of t 24 25 # Constants for 26 \$NORMAL_M 27 \$COLOURED_ 28 29 # BEGIN CONI 30 31 # Location of v</pre> <p>Line 38 Para</p> <pre>38 # Location of s 39 \$sendmail = "/ 40</pre> <p>Line 45 Parallel</p> <pre>45 46 # The path of the cvs repository"; 47 # \$cvsrep = "/cvsroot/codestriker"; 48 # \$cvsrep = "/home/sits/cvs";</pre>
--	--

Comments:

jona 15:29:15 Sunday, 17 August, 2003
Don't we also need an option for \$COLOURED_MIXED_MODE? How is this handled in the UI?

sits 15:29:54 Sunday, 17 August, 2003
The support for COLOURED_MIXED_MODE is no longer available. It has been super-seeded in \$COLOURED_MODE.

Enter new comment:

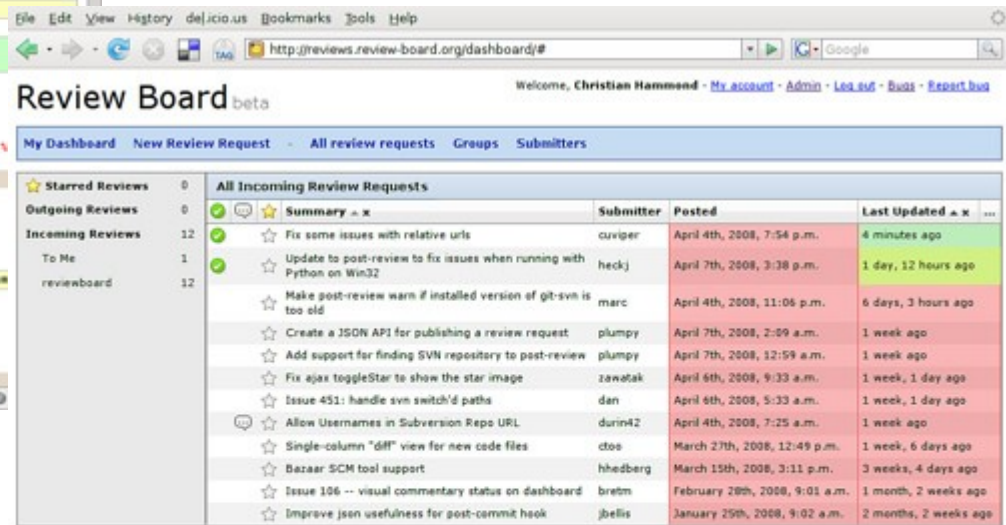
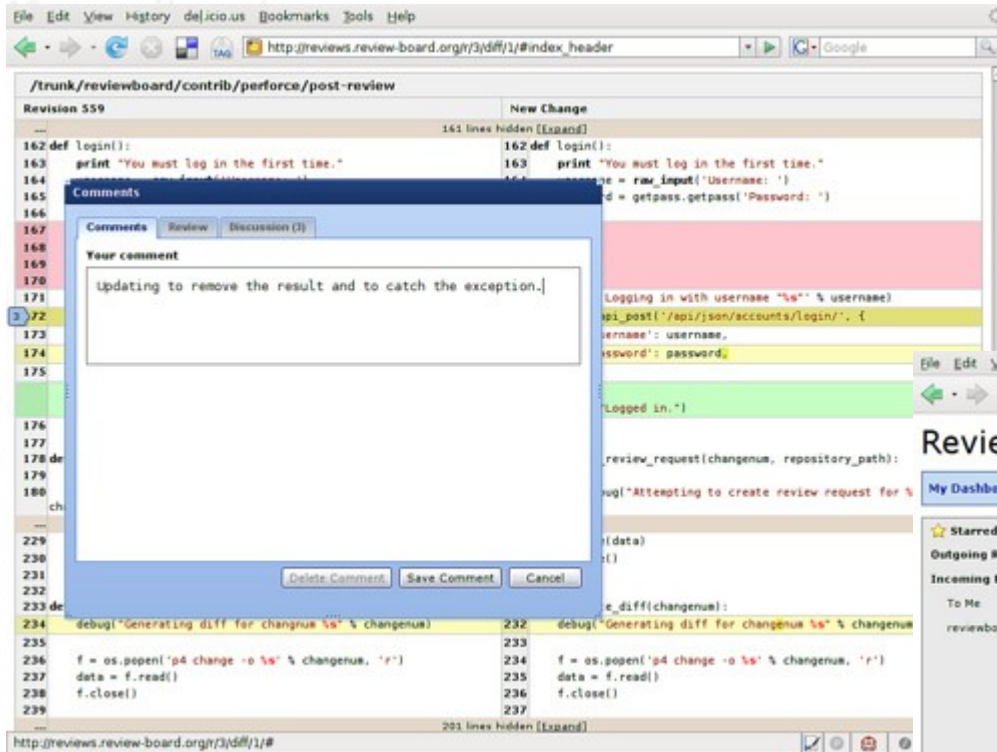
We still need to consider the test case in RELEASE_6_1_2 for this to work properly.

Your email address:

Cc:

Document: Done (3.156 secs)

Инструментальные средства Review Board



Инструментальные средства CodeStriker

The screenshot shows a Mozilla browser window displaying a diff for `codestriker/codestriker.pl` revision 1.7. The diff is presented in a side-by-side comparison format. The left pane shows the original code, and the right pane shows the modified code. The changes include updates to the version number from 1.1 to 1.2 and modifications to the configuration options, specifically the `$COLOURED_MIXED_MODE` setting. A comments dialog box is open on the right side of the browser window, showing a list of comments from users 'jona' and 'sits' dated Sunday, 17 August, 2003. The dialog includes a text area for entering a new comment, a 'Submit' button, and fields for 'Your email address' and 'Cc:'. The browser's address bar shows the URL `http://localhost/codestriker/codestriker.pl?topic=4218432&action=view&mode=1`.

```
Diff for codestriker/codestriker.pl revision 1.7
```

Line 1 Parallel	Line 1 Parallel
1 #!/usr/bin/perl -wT	1 #!/usr/bin/perl
2	2
3 # New comment	
4	
5 #####	3 #####
6 # Codestriker: Copyright (c) 2001, 2002 David Sitsky. All rights reserved.	4 # Codestriker:
7 # sits@users.sourceforge.net	5 # sits@users.s
8 # Version 1.1	6 # Version 1.2
9 #	7 #
10 # Codestriker is a perl CGI script which is used for performing code reviews	8 # Codestriker i
11 # in a collaborative fashion as opposed to using unstructured emails.	9 # in a collabor

Comments:

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Enter new comment:

We still need to consider the test case in RELEASE_6_1_2 for this to work properly.

Your email address:

Cc:

Submit

Инструментальные средства JCR

[Main page](#) | [All comments](#) | [Status report](#) | [View any file](#) | [Administer](#) | [Help](#) | [Logout](#) John Dickson

Project: java project (CLiChart) [status: Reviewing files] [Show project notes](#)

Original baseline: clicart-0.5.1
Modified baseline: clicart-0.5.3
Project notes: *A sample test project containing both Java and non-Java files. This across 2 baselines of CLiChart(<http://www.sourceforge.net/clicart2>), with some extra changes to show JCR features*

Project comments [1 threads, 1 comments] [Show comments](#) [[New thread](#)]

Comments	Thread ▲	Started by
1	General comments	John Dickson

Files (8)

Comments	File . ext (Directory ▲)	Lines	Change %	Chunks	Review priority	Show file notes <input type="checkbox"/>	Reviewed?
0	build.xml (in)	164	1	1			2
0	index.txt (in docs/rst)	271	29	22	Low		2
0	linestats.txt (in docs/rst)	159	5	3			2
2	linestats-jcr.py (in resource/bin)	233	50	33	Med		3
5	AbstractChartBuilder.java (in src/net/sf/clicart/chart)	275	7	10	High		5
1	TimeSeriesChartBuilder.java (in src/net/sf/clicart/chart)	118	2	2			0
0	AbstractDataParser.java (in src/net/sf/clicart/data/jcrpackage)	262	1	1	High		0
2	OptionSetter.java (in src/net/sf/clicart/main/clicserver)	25					0

[Clear review tracker](#)

GitHub

sent"/>
fish.web.present

2 <project def
3 <target :
4 <pro:
5 <ava:
6 <ava:
7
8 irgups / project_2015_01

Unwatch 4 Star 0 Fork

branch: master project_2015_01 / Mob_modul / src / mob_modul / Mob_modul.java

student 6 days ago Добавлен класс к проекту

contributors

20 lines (17 sloc) 0.354 kb

Raw Blame History

```
1  /*
2  * To change this template, choose Tools | Templates
3  * and open the template in the editor.
4  */
5  package mob_modul;
6
7  /**
8   *
9   * @author student
10  */
11  public class Mob_modul {
12
13      /**
14       * @param args the command line arguments
15       */
16      public static void main(String[] args) {
17          // TODO code application logic here
18      }
19  }
```

Инструментальные средства gerrit (GerritHub.io)

The screenshot displays the GerritHub web interface. At the top, there is a navigation bar with 'GerritHub™' on the left and 'All My Projects People Documentation GitHub' on the right. Below the navigation bar, a yellow banner reads 'Welcome to the new You can revert to the old scr'. The main content area is titled 'Change 214620 - Needs Verified' and contains the following information:

- Enhance Dashboard for Cisco FWaaS**
- Enhance Network/Firewalls/Firewalls to support additional attributes (neutron router interface and firewall direction) which are required by Cisco FWaaS.
- +Create Firewall", "Edit Firewall", and "Firewall Details" will be enhanced accordingly.
- Change-Id: I62dd6494a0efdc255735c9962ed7ada2f655f291
- implements: blueprint bp-cisco-fwaas-horizon

On the right side, there is a 'Reply...' button and a list of metadata:

- Owner: Yanping Qu
- Reviewers: Abishek Subramanian, Rob Cresswell
- Project: cisco-openstack/horizon
- Branch: staging/junoplus
- Topic: bp/bp-cisco-fwaas-horizon
- Strategy: Merge if Necessary
- Updated: 18 hours ago

Below the metadata is a 'Follow-Up' button. Further down, a 'Code-Review -1' section shows 'Abishek Subramanian' as the reviewer, with a 'Verified' status.

At the bottom, there is a 'Files' section with a table of files. The table has columns for 'File Path', 'Comments', and 'Size'. The file 'openstack_dashboard/dashboards/project/firewalls/tests.py' is selected and highlighted in blue.

File Path	Comments	Size
<input type="checkbox"/> Commit Message		
<input type="checkbox"/> openstack_dashboard/api/fwaas.py	comments: 1	8
<input type="checkbox"/> openstack_dashboard/dashboards/project/firewalls/forms.py		53
<input type="checkbox"/> openstack_dashboard/dashboards/project/firewalls/templates/firewalls/_firewall_details.html	comments: 1	9
<input checked="" type="checkbox"/> openstack_dashboard/dashboards/project/firewalls/tests.py	comments: 2	81
<input type="checkbox"/> openstack_dashboard/dashboards/project/firewalls/workflows.py	comments: 1	44
<input type="checkbox"/> openstack_dashboard/local/local_settings.py example	comments: 1	3

Инструментальные средства gerrit (GerritHub.io)

```
19 from django.core.urlresolvers import reverse
20 from django.core.urlresolvers import reverse_lazy
21 from django import http
22
23 from openstack_dashboard import api
24 from openstack_dashboard.api import fwaas
25 from openstack_dashboard.test import helpers as test
26
27 cisco_fw = (api.fwaas.get_firewall_provider().lower() == 'cisco')
```

Abishek Subram... I would do away with this. I recommend looking at the curre...

5:50 AM

```
28
29
30 class FirewallTests(test.TestCase):
31     class AttributeDict(dict):
32         def __getattr__(self, attr):
33             return self[attr]
34
35         def __setattr__(self, attr, value):
36             self[attr] = value
37
38     DASHBOARD = 'project'
```

+10 ... skipped 257 common lines ... +10

```
296         }
297         api.fwaas.rule_list(
298             IsA(http.HttpRequest), tenant_id=tenant_id).AndReturn(rules)
299
300         self.mox.ReplayAll()
301
302         res = self.client.post(reverse(self.ADDPOLICY_PATH), form_data)
303
304         self.assertFormErrors(res, 1)
305
306         @test.create_stubs({api.fwaas: ('firewall_create', 'policy_list'),
307                               api.neutron: ('port_get', 'router_get', 'port_list')})
308         def test_add_firewall_post(self):
```

Abishek Subram... As stated above, create new test cases to run with the cisco...

5:50 AM

```
309         firewall = self.firewalls.first()
310         policies = self.fw_policies.list()
311         tenant_id = self.tenant.id
312         form_data = {'name': firewall.name,
313                     'description': firewall.description,
314                     'firewall_policy_id': firewall.firewall_policy_id,
315                     'shared': firewall.shared,
316                     'admin_state_up': firewall.admin_state_up
```

ИСТОЧНИКИ

- Орлов С.А. «Технологии разработки программного обеспечения»
- Курс лекций «Верификация программного обеспечения» (<http://www.intuit.ru/studies/courses/1040/209/info>)
- Википедия — Обзор кода, Code Review
- Open Source Review Tools (<http://ostatic.com/blog/open-source-code-review-tools>)

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