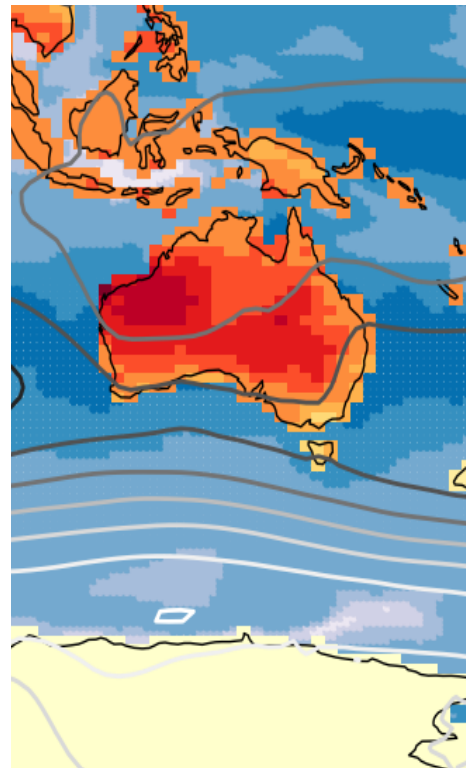


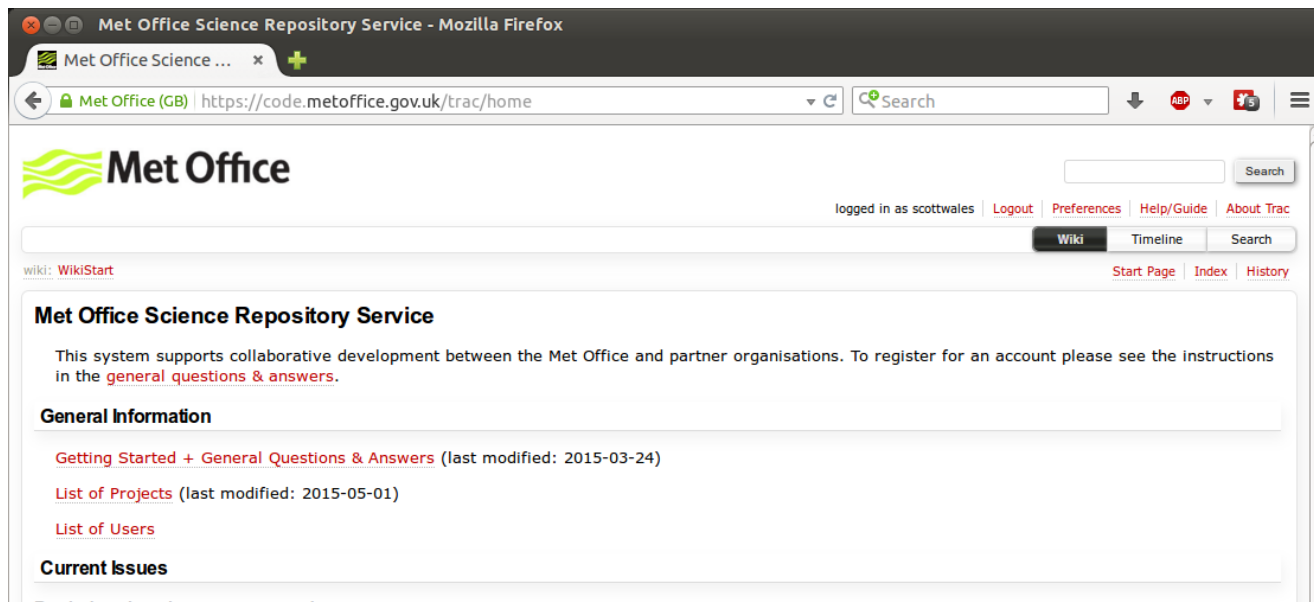
# Developing with the Shared Repository

Scott Wales, ARCCSS CMS



# The Shared Repository

Ticket system & code repository for all groups using Met Office models and configurations



# UM Collaboration

- UK Met Office
- KMA
- CAWCR
- NCRMWF
- NIWA
- NCAS
- ARCCSS



# Configuration Development

- Global Atmosphere/Land/Ocean/Coupled
- UK Earth System Model
- Model Evaluation



# Model Development

- Unified Model
- JULES
- Socrates
- GCOM

um | Unified Model



# Contributing

- Partner contributions to code & configurations are encouraged
- Allows other researchers to make use of what you've developed
- Contributing to Trunk means your code will be updated for new model releases

# Trac

Wiki & change tracking system

Gives visibility to planned changes

Shared repository Trac pages are at

**<https://code.metoffice.gov.uk>**

## Welcome to the UM

Welcome to the UM user/development collaboration service Trac pages.

This service is for the benefit of all registered users.

Please consider the diversity of the UM community when adding to the UM Trac system; tickets, code changes and documentation.

➔ [Getting Started using the shared repository.](#)

Welcome to the UM  
[Release Schedule](#)  
[UM Support](#)  
[The UM library](#)  
[UM release and code management](#)

## Release Schedule

Release	Version	Revision	Date
--	<a href="#">UM10.0</a>	233	28 Nov 14
Current	<a href="#">UM10.1</a>	2765	27 Feb 15
	vn10.2 Code submission review deadline if including JULES changes		29 May 2015
	vn10.2 Code submission review deadline		5 Jun 2015
Next	vn10.2 release (or earlier)		30 Jun 2015

**Tickets Submitted for code review UM10.2= 118**

[Future release timetable](#)

## UM Support

For general UM issues the Met Office has a number of teams that are on hand to provide support. Please refer to

***Who should I contact for support? Who looks after what?***

to identify who you may want/need to contact for appropriate assistance.

If you are still unsure then please email either of the following teams who will aim to point you in the right direction.

- ✉ [UM system team](#)
- ✉ [CRUM team \(climate UM support\)](#)

## The UM library

Essential reading

Recommended reading

Further reading



# Contributing Code

- Open a ticket
- Create a new branch
- Develop your changes
- Run tests
- Code review
- Changes merged to trunk

Each project has its own guidelines that you can find on its Trac wiki

# Open a ticket

Tickets keep track of proposed changes and any discussion during development

Create a new ticket in Trac

Assign it to yourself, and CC the code owner

Find code owners in file **CodeOwners.txt**







# Open a Ticket

## Create New Ticket

**Properties**

Summary:

Description:

**B** **I** **A**      

You may use **WikiFormatting** here.

Type:

Component:

Keywords:

Owner:

Milestone:

Severity:

Cc:

☐ I have files to attach to this ticket

Preview

Create ticket

# Create a new branch

Create a new branch

```
fcm branch-create --ticket 1234 nci_tests
```

Put a link to the branch log in your ticket

```
log:/main/branches/dev/scottwales/nci_tests
```

# Develop your changes

Check out the new branch

```
fcmm co fcm:um.x_br/dev/scottwales/nci_tests
```

or from an existing checkout

```
svn switch ^/main/branches/.../nci_tests
```

Make changes to the branch and commit them

Be sure to add documentation & test cases for new features

# Change Documentation

Create a ticket summary wiki page and link it to your ticket  
**`wiki:tickets/1234/TicketSummary`**

The ticket summary contains a list of questions to identify what areas your code is changing, who needs to know about the changes and is where you put your test results

# Change Documentation

## Testing

Testing should use Rose STEM which will test a selection of standard UM configurations.

### Rose testing summary

Please list the rose stem *groups* that have been tested from the available groups:

Groups:

- a) nci\_n96\_amip\_eg
- b) nci\_n48\_nd\_noomp
- c) nci\_n48\_eg\_noomp
- d) nci\_n48\_eg\_omp\_noios
- e) nci\_n48\_eg\_omp\_ios
- f) nci\_n512\_eg
- g) nci\_n512\_eg\_ios
- h) nci\_scm\_nwp
- i) nci\_scm\_hadgem
- j) nci\_scm\_togacoare\_ga6

Has your change been tested on the Met Office Cray XC40 ? **NO#**

### Bit Comparability

Will this change preserve model evolution in all the tests held within the <u>rose-stem test jobs (including small execs)</u> ? (the 'all' group)	<b>YES</b>
Does this change alter any UM diagnostic output or their calculations?	<b>NO</b>
<i>Preserving model evolution in model runs does not necessarily imply preserved diagnostics.</i>	
If this change does alter diagnostic output, or calculations, has it been shown to bit reproduce across processors?	<b>NA</b>
If there are changes, are they geographic specific or random?	<b>NA</b>

### Approvals for this change

Before one is allowed to alter code or alter science results one must gain suitable approvals! This involves getting others to add their names

# Run tests

Run tests from a checked-out repository with

```
rose stem --group developer
```



Tests make sure your changes aren't unexpectedly affecting other researcher's runs




# Run Tests

um - localhost - gcylc

File View Control Suite Help

View 1:  running  failed... View 2: None

task	state	host	job system	job ID	T-submit	T-start
1	running					
EXTRACT_SOURCE	running					
EXTRACT	running					
NCI_BUILD	waiting					
INSTALL	waiting					
HOUSEKEEPING	waiting					
ROSE_ANA_COMPARISON	waiting					
NCI	submitted					
NCI_N48_EG_NOOMP	waiting					

running to 1 (filtered: ) live 2015-05-15T15:29:06+10

# Code Review

Once you've finished making changes and run test cases the code owner needs to take a look at it to:

- Understand what the code's doing
- Check for unseen bugs
- Ensure coding standards are followed

# Changes merged to trunk

Once code review is approved the reviewer will merge your changes to the model trunk and close the ticket

source: **main / trunk**

■ Added ■ Modified ■ Copied or renamed

View changes

Revision Log Mode:

☒ Stop on copy

☐ Follow copies

☐ Show only adds and deletes

View log starting at 5709 and back to

Show at most 100 revisions per page.

☐ Show full log messages

Update

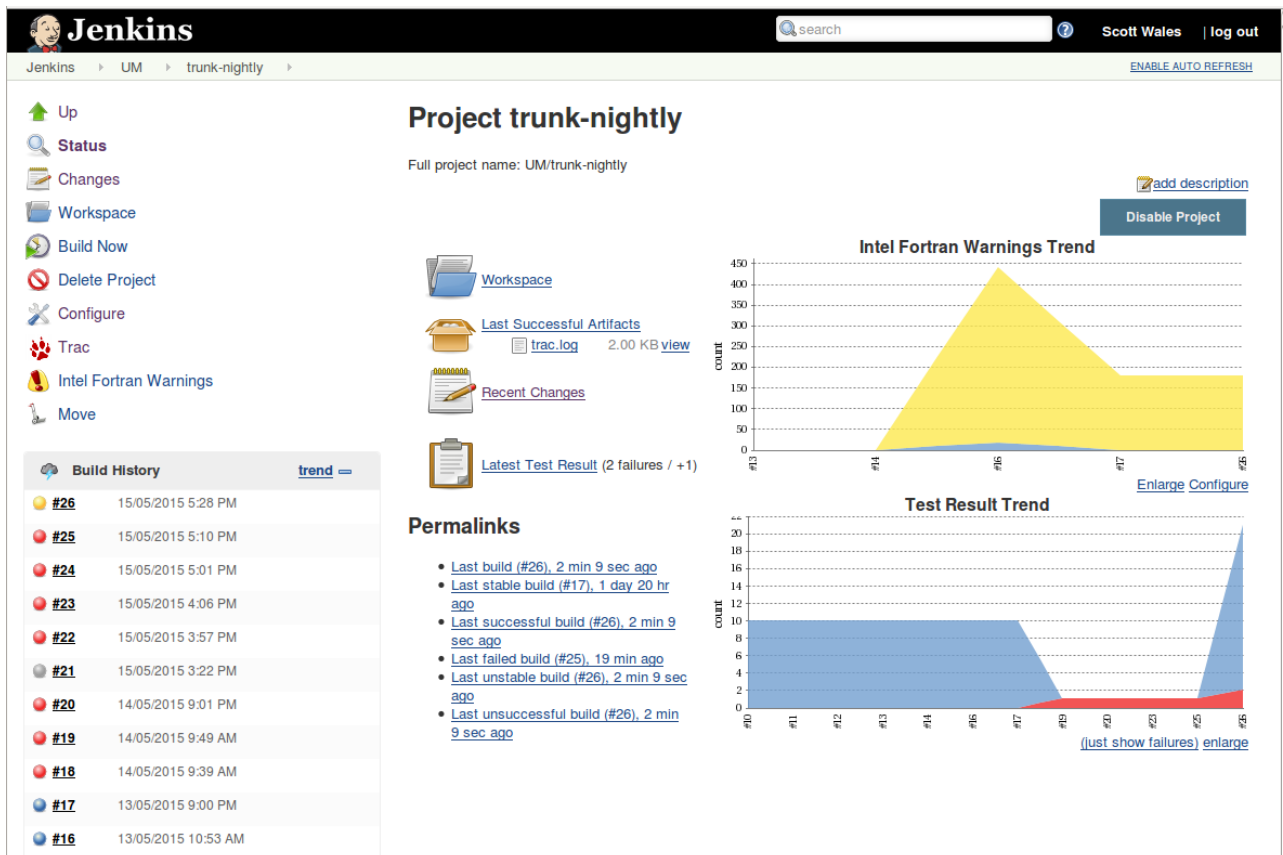
Diff	Rev	Age	Author	Log Message
○ ●	@5709	32 minutes	stuartwhitehouse	#352 : Michael Whitall : <b>Further Commit</b> Remove out of date SCM ...
○ ○	@5707	15 hours	rickywong	#322 : Ian Boutle : General ticket for BL scheme updates : task : ...
○ ○	@5706	16 hours	richardbarnes	#259 : Dan Copsey : Fix out of bounds in coupled models : defect : ...
○ ○	@5705	16 hours	rickywong	#352 : Michael Whitall : Remove out of date SCM apps from rose-stem : ...
○ ○	@5702	16 hours	stuartwhitehouse	#482 : Steve Wardle : Fieldcalc fixes for the XC40 : defect : utils : ...
○ ○	@5618	41 hours	roddysharp	#84 : Martin Dix : Implement extra rose-stem tests at NCI : ...
○ ○	@5588	46 hours	seanswarbrick	#93 : Richard Hill : Fix args in 2nd order gradient PUT; full support ...
○ ○	@5582	2 days	glenngreed	#530 : Paul Selwood : remove a barrier from u_model : enhancement : ...
○ ○	@5566	3 days	joemancell	#569 : Richard Barnes : Uncomment error checking of aerosol options : ...
○ ○	@5525	3 days	glenngreed	#343 : Paul Earnshaw : Retire cruntimc.h : enhancement : technical : ...
○ ○	@5514	3 days	stewardardle	#525 : Joe Mancell : Fix timer in reconfiguration : defect : technical ...
○ ○	@5512	3 days	stewardardle	#579 : Stuart Whitehouse : Fix monitor task for DESKTOP_MODE : ...
○ ○	@5511	3 days	stewardardle	#492 : Stuart Whitehouse : rose-stem changes for the XCF : task : ...
○ ○	@5509	3 days	stewardardle	#532 : Stuart Whitehouse : Add time control to createbc : enhancement ...

# What happens next

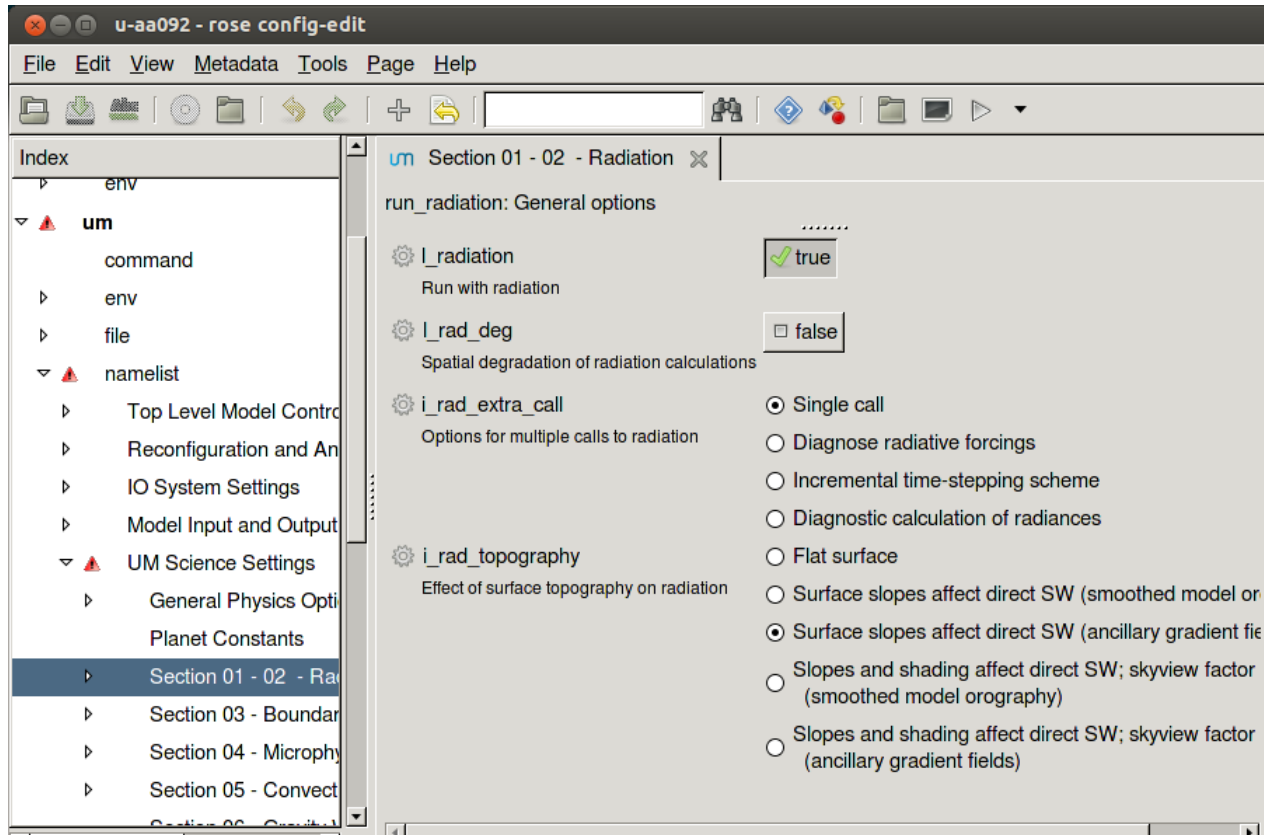
Changes will be available for others to use at the next UM release

Tests get run at NCI regularly on trunk to ensure nothing breaks (nightly & weekly sets)

# Nightly Testing



# UI Changes



# Documentation Changes



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**Unified Model Documentation Paper 000**

UM Basic User Guide

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UM Version : 10.1  
Last Updated : 2015-03-06 (for vn10.1)  
Owner : Glenn Greed