

How to Contribute to ONOS

David Boswell, *ON.Lab* @ ONS2016

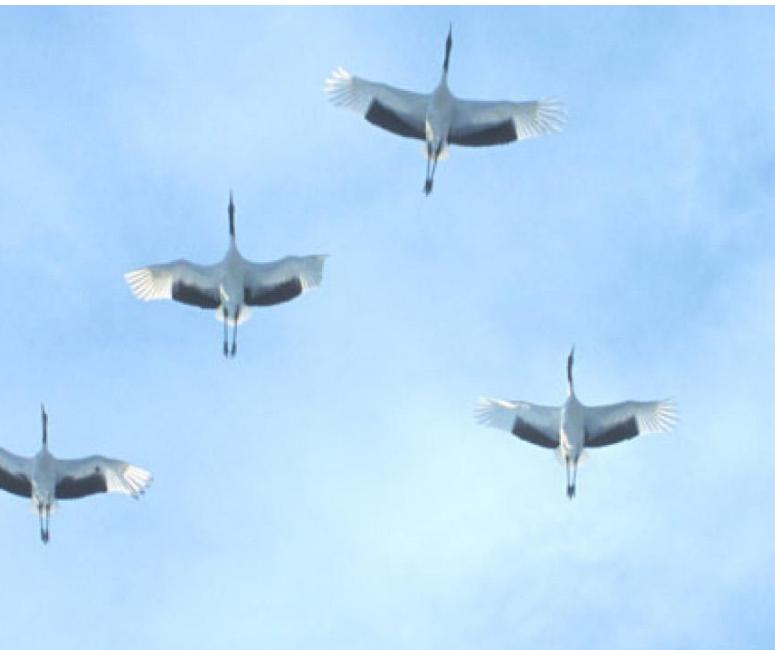


Outline



- The ONOS Mission
- The ONOS Community
- Where To Start
- Contribution Opportunities
 - Coding
 - Documentation
 - Spreading the word
 - Design
 - And more

The ONOS Mission



ONOS is building a better network

- We are pursuing our vision of what networking could be for the public good
- We want to fix closed, proprietary, complex, expensive and inflexible networks
- We want networks that are enabling innovation rather than impeding innovation

Join us on our mission!

The ONOS Community



ON.LAB	SERVICE PROVIDER PARTNERS	VENDOR PARTNERS	COLLABORATORS	COMMUNITY																		
ON.LAB			<table border="1"><tr><td>ADARA</td><td>BLACKDUCK</td><td>cniit</td></tr><tr><td>CREATE-NET</td><td>CRITERION</td><td>ETRI</td></tr><tr><td>GARR</td><td>happiest minds</td><td>Infoblox</td></tr><tr><td>IN2NET</td><td>KAIST</td><td>KREONET</td></tr><tr><td>KISTI</td><td>NAIM</td><td>OpenFlow Korea</td></tr><tr><td>OLF</td><td>SRI International</td><td></td></tr></table>	ADARA	BLACKDUCK	cniit	CREATE-NET	CRITERION	ETRI	GARR	happiest minds	Infoblox	IN2NET	KAIST	KREONET	KISTI	NAIM	OpenFlow Korea	OLF	SRI International		
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- ON.Lab provides architecture shepherding and core engineering with focus
- Leading service providers make ONOS & SDN/NFV solutions relevant to them
- Leading vendors help make ONOS and SDN/NFV solutions real: ready for deployment
- Collaborating organizations help grow the community and grow the impact

The ONOS Community



- Both organizations and individuals are welcome
- Formal [membership is available](#) to organizations at both the Partner and Collaborator tiers
- Membership can include participation in our Board, joint marketing activities and ability to learn from experts in SDN & NFV
- **Membership is not required** to take part in the community -- any person or organization is welcome to join and participate

The ONOS Community



ONOS A Year Ago

ONOS Today

Partners: 1 Service Provider and 6 Vendors	Partners: 5 Service Providers and 8 Vendors
Collaborators: A handful of organizations	Collaborators: Over 40+ organizations
Registered Users: A small group	Registered Users: Over 950
Contributions: Mostly from ON.Lab	Contributions: Diversifying quickly (Huawei, Fujitsu, NEC, SK Telecom, ONF, Create-Net, Ericsson...)

Where To Start: Communication



Say hi and ask for help at:

- [Mailing lists](#)
- [Slack](#)
- [Twitter](#)
- [Meetings](#)

Find this on the wiki at: <http://onosproject.org/login/>

Where To Start: Documentation



Learn the basics at:

- [Tutorials](#)
- [Screencasts](#)
- [Guides](#)
- [Javadocs](#)
- [FAQs](#)

Where To Start: Tools



Register for an account at:

<http://onosproject.org/register/>

Welcome to ONOS

By registering below you will create a single sign-on that gives you access to the following features:
ONOS Tools (Jira & Gerrit) & Documentation (Documentation)

User Registration
All fields marked with * are mandatory.

First Name*	Username*
Last Name*	Password* (min 8 characters)
Company	Confirm the password*
Email*	<input type="checkbox"/> I'm not a robot

Where To Start: Tools



Issue tracking and project management at:

<https://jira.onosproject.org/>

The screenshot shows the Jira System Dashboard. At the top, there's a navigation bar with icons for Jira, Dashboards, Projects, Issues, Capture, Agile, and a red 'Create' button. Below the navigation is a section titled 'System Dashboard'.

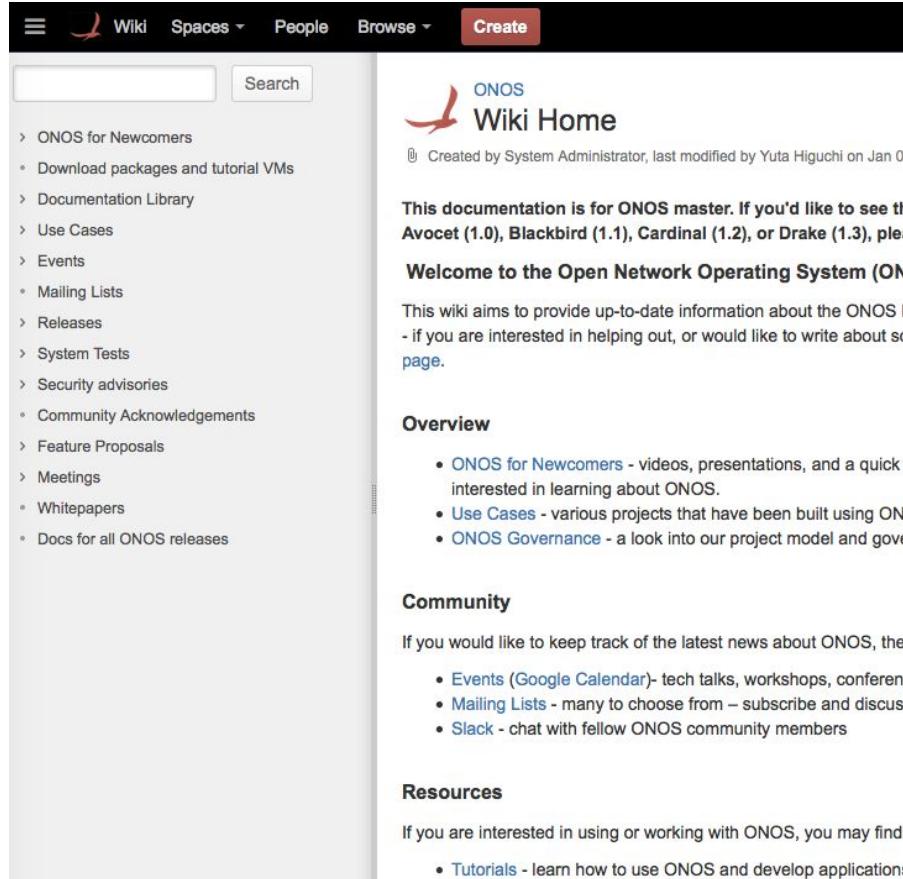
- Introduction:** Describes ONOS as a SDN network operating system designed for high availability, performance, scale-out and rich abstractions. It links to onosproject.org.
- Agile Sprint Health Gadget:** A gadget showing a warning message: "The selected sprint for this gadget is not currently active."
- Assigned to Me:** A table listing tasks assigned to the user. The columns are T (Type), Key, Summary, and Priority (P). The tasks listed are:

T	Key	Summary	P
💡	ONOS-3242	Make documentation contribution information easier to find	↑
💡	ONOS-3243	Create proposal for increasing number of code reviewers	↑
🔴	ONOS-3319	Directly link to contribution wiki pages from How to Contribute page	↑
💡	ONOS-3447	Redesign new ONOS home page to better promote contribution opportunities	↑
💡	ONOS-3448	Reorganize and simplify ONOS site nav to promote contribution info	↑
💡	ONOS-3449	Review and update content on ONOS project site to clarify contribute info	↑
💡	ONOS-3597	Create wikipedia page about ONOS Project	↑

Where To Start: Tools



Project documentation wiki at:
<https://wiki.onosproject.org/>



The screenshot shows the ONOS Wiki Home page. At the top, there is a navigation bar with links for Wiki, Spaces, People, Browse, and Create. Below the navigation bar is a search bar and a sidebar menu. The main content area features a title "ONOS Wiki Home" with a red bird icon, a creation timestamp, and a brief introduction about the documentation for ONOS master. It also includes sections for Overview, Community, and Resources, each with a list of links.

ONOS Wiki Home

Created by System Administrator, last modified by Yuta Higuchi on Jan 01, 2018

This documentation is for ONOS master. If you'd like to see the documentation for a specific release, please select it from the dropdown menu above.

Welcome to the Open Network Operating System (ONOS) Wiki!

This wiki aims to provide up-to-date information about the ONOS project. If you are interested in helping out, or would like to write about something, please see the "Community" section below.

Overview

- ONOS for Newcomers - videos, presentations, and a quick start guide for those interested in learning about ONOS.
- Use Cases - various projects that have been built using ONOS.
- ONOS Governance - a look into our project model and governance.

Community

If you would like to keep track of the latest news about ONOS, the following resources are available:

- Events (Google Calendar) - tech talks, workshops, conferences, and other community events.
- Mailing Lists - many to choose from – subscribe and discuss ONOS-related topics.
- Slack - chat with fellow ONOS community members.

Resources

If you are interested in using or working with ONOS, you may find the following resources helpful:

- Tutorials - learn how to use ONOS and develop applications.

Where To Start: Tools



Code repo and review tool at:
<https://gerrit.onosproject.org/>

All	Projects	Documentation	
Open	Merged	Abandoned	status:open
Search for status:open			
Subject	Status	Owner	Project
► More APIs permission for new ONOS APIs	Merge Conflict	Heedo Kang	onos
Refactor: Narrow data provided to method		Sho Shimizu	onos
Refactor: Inline method	Merge Conflict	Sho Shimizu	onos
Support for watching changes to static cluster metadata file		Madan Jampani	onos
Refactor: Rename		Sho Shimizu	onos
Refactor: Narrow data provided to method		Sho Shimizu	onos
Refactor: Extract method		Sho Shimizu	onos
Refactor: Narrow data provided to method		Sho Shimizu	onos
[ONOS-3952] Implement FloatingIP Handler for OpenstackRoutingService	Merge Conflict	kyuhwi choi	onos
Override toString for flow objectives		Charles Chan	onos
Added SegmentRouting tests 0.0	Merge Conflict	Flavio Augusto De Castro Junior	OnosSystemTe...
Framework of the new CHOTest		You Wang	OnosSystemTe...
SM-ONOS performance improvement		Heedo Kang	onos
removed code duplication in translator, and addressed review comments	Merge Conflict	VinodKumarS-Huawei	onos
Add path intent compiler that generates flow objective intents		Ray Milkey	onos
PCEP modifacaton to support PCEP-LS		Mahesh Poojary Huawei	onos
Add MPLS encapsulation behaviour ONOS-3467		Michele Santuari	onos
Removed leftover openstack applications		Hyunsun Moon	onos
Added E-CORD metro path provisioner.		Naoki Shiota	onos-app-samples
Add support for OTU ports in TributarySlotQuery		Rimon Ashkenazy	onos
[ONOS-3946] Implement IcmpHandler for OpenstackRoutingService - Process Icmp ...	Merge Conflict	Daniel Park	onos
Separated OpenstackInterface feature from OpenstackNetworking application.		Sangho Shin	onos
Separate options for disabling upstart/init.d installation		Bob Lantz	onos
YANG construct collision detection framework added		GauravAgrawal-Huawei	onos

Where To Start: Tools



Code review scores

- -2: the patchset will not be merged
- -1: the patchset requires major changes
- 0: not reviewed or some minor changes are required
- +1: looks good to reviewer but require other reviewers' confirmation
- +2: looks good and approved by module owner

Note: two +1s is not equal to +2

Where To Start: Tools



ONOS is on Github at:

[https://github.com/
opennetworkinglab/onos](https://github.com/opennetworkinglab/onos)

*Note: this is a read-only mirror --
don't submit code through Github*

The screenshot shows the GitHub repository page for 'opennetworkinglab / onos'. At the top, there's a navigation bar with 'GitHub' and 'Explore Features Enterprise'. Below the header, the repository name 'opennetworkinglab / onos' is displayed, along with tabs for 'Code', 'Pull requests 3', 'Pulse', and 'Graphs'. The main title 'Open Network Operating System' is centered above a summary bar. The summary bar includes metrics: 6,557 commits, 8 branches, and 18 releases. Below the summary, there's a dropdown for 'Branch: master' and a green button for 'New pull request'. A navigation bar at the bottom right includes 'New file', 'Find file', 'HTTPS', and the URL 'https://github.com/opennetworkinglab/onos'. The main content area lists recent commits from 'madjam' using 'onlab-gerrit', categorized by file type (apps, cli, core, docs, drivers, features, incubator, protocols, providers, tools) and their descriptions.

Category	Description
apps	Fix NPE in SegmentRoutingManager
cli	[ONOS-4015] Enhance Region CLI to support add/update Nodelds sets
core	Remove base (p0) partition in StorageManager
docs	Cleaning up and re-organizing javadocs; it's time to start splitting ...
drivers	fix olt cookie issue
features	Remove references to onlab-netty and onlab-nio
incubator	Fixes some issues that were preventing intent tests from running
protocols	Updating copyright; using as a test for new module owner permissions.
providers	Adding a grid topology simulator to the null provider.
tools	Clarify config parameters/environment variables

Where To Start: Tools



Continuous integration at:
<https://jenkins.onosproject.org/>

The screenshot shows the Jenkins dashboard with the following sections:

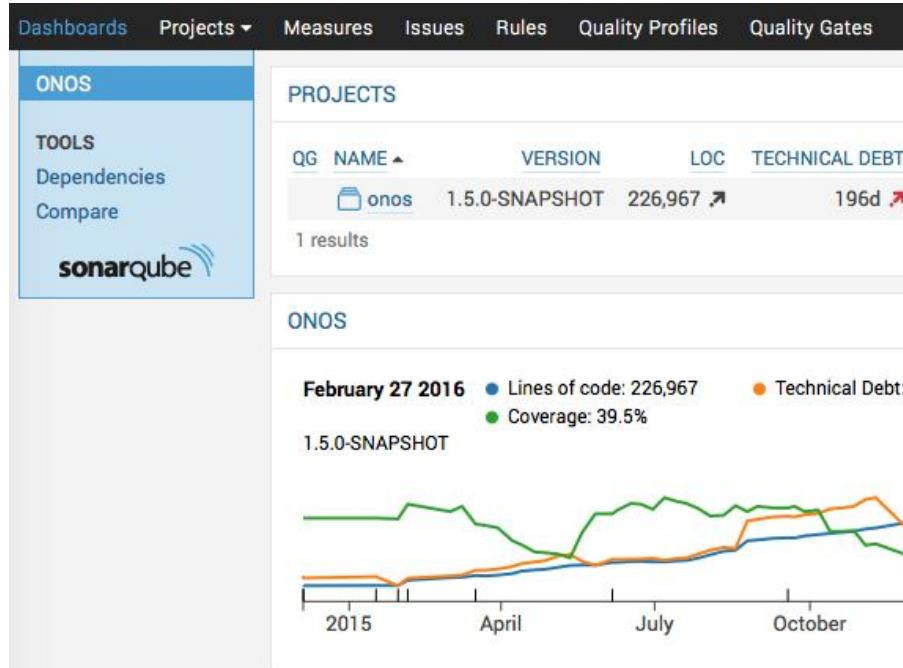
- Build Queue (5):**
 - onos-gerrit
 - onos-master
 - onos-app-samples-gerrit
 - onos-gerrit
 - onos-gerrit
- Build Executor Status:**
 - 1 onos-gerrit #12238
 - 2 onos-gerrit #12239
 - 3 onos-gerrit #12240
- Recent Items:** A table showing recent builds with columns for Status (S), Workstation (W), and Name. Entries include copycat-master, onos-app-sam, onos-gerrit, onos-master, onos-nightly, and onos-sonar.

Where To Start: Tools



Code quality tool at:

<https://sonar.onosproject.org/>



Where To Start: Tools



IntelliJ IDEA Java IDE at:

<https://www.jetbrains.com/idea/>

Note: There is a free Community Edition available

The screenshot shows the IntelliJ IDEA interface. The left side features the 'Project' tool window with a tree view of the 'core-api' module under 'src'. The 'com.intellij.lang.folding' package is expanded, showing classes like LanguageFolding, CompositeFoldingBuilder, and CustomFoldingBuilder. The right side shows the code editor with the file 'LanguageFolding.java' open. The code implements the 'LanguageFolding' class, which delegates to 'CompositeFoldingBuilder'. It handles cases where the root node is null or the builder is null, returning an empty folding descriptor. It also handles the case where the language is null by returning the cached result if available. Otherwise, it iterates over extensions to find a matching language and returns its base language's implementation.

```
private LanguageFolding() { super("com.intellij.lang.FoldingBuilder"); }

@NotNull
public static FoldingDescriptor[] buildFoldingBuilder(@NotNull PsiElement root, @NotNull Document doc) {
    if (!DumbService.isDumbAware(builder) && DumbService.isDumb()) {
        return FoldingDescriptor.EMPTY;
    }

    if (builder instanceof FoldingBuilderEx) {
        return ((FoldingBuilderEx)builder).buildFoldRegions(root, doc);
    }

    final ASTNode astNode = root.getNode();
    if (astNode == null || builder == null) {
        return FoldingDescriptor.EMPTY;
    }

    return builder.buildFoldRegions(astNode, doc);
}

public FoldingBuilder forLanguage(@NotNull Language language) {
    FoldingBuilder cached = language.getUserData(FOLDING_CACHE);
    if (cached != null) return cached;

    List<FoldingBuilder> extensions = forKey(language);
    if (extensions.isEmpty()) {
        Language base = language.getBaseLanguage();
        if (base != null) {
            result = forLanguage(base);
        } else {
            result = getDefaultImplementation();
        }
    } else {
        result = extensions.get(0);
    }
}
```

Contribution Opportunities



- Coding
- Documentation
- Spreading the word
- Design
- And more

Find this on the wiki at: [A Beginner's Guide to Contribution](#)

Contribution Opportunities



Keep your eye on our Twitter account
after ONS:

https://twitter.com/ONLab_ONOS

Prizes, recognition and bragging rights
available!



Coding Contributions



- Scratching your own itch
- Helping the core team with the roadmap
- Building apps on top of ONOS

Find this on the wiki at: [Contributing to the ONOS Codebase](#)

Scratching Your Own Itch



- For small fixes, [submit a patch for review](#)
- For larger fixes or for new features, please submit a proposal to the [Tech Steering list](#) before submitting code
- Proposals help us support you by giving feedback early and will help us determine how your change fits in with future releases

Steps For Submitting Code



1. Create and switch to a new branch
2. Make changes to the code
3. Test the changes
4. Commit the changes
5. Pull upstream changes
6. Sync the branch with updated master
7. Submit code for review

Find this on the wiki at: [Sample Gerrit Workflow](#)

Also note our [Code Style](#) and [Unit Test Guidelines](#)

Example of a Feature Proposal



There is no set structure to follow, but the [IPv6 Feature Proposal](#) provides a nice template you can follow.

- Project Contributors
- Overview
- Design
- Completed Tasks
- Remaining Tasks

Helping Core Team With Roadmap



- Get familiar with our processes by working on a starter bug
- Next take a bounty bug -- we'll be happy to thank you with some ONOS swag for fixes to bounties
- Start attending sprint planning and sprint demo meetings
- Help wanted with virtualization, build infrastructure, GUI refresh and more

Building Apps On Top Of ONOS



- Stay right here for a demo of how to get started building apps for ONOS
- 4:00 - 4:40 PM: Developing Apps with ONOS -- Live Demos of SDK
- Find this on the wiki at: [Creating and deploying an ONOS application](#)

Documentation Contributions



- Join us on [#onos-docs on Slack](#) or on the [Docs Community call every other Wednesday](#)
- Take a documentation [bounty bug](#) -- we'll be happy to thank you with some ONOS swag for fixes to bounties
- The documentation contribution area is new and we welcome your help in shaping it -- if you love docs and want to help us build a doc community, join us

Spreading The Word Contributions



- Share about ONOS and use the **#ONOSProject** hashtag on your social networks
- Share more than technical information — social activity, like having a lunch with other ONOS community members, is great content to post too
- Subscribe to our [Twitter account](#) and retweet posts that you think are interesting
- Like us on our new [ON.Lab Facebook page](#)

Spreading The Word Contributions



- We're starting an ONOS Ambassadors program and want people from around the world to take part
- We're looking for people who want to give presentations and talk to people about ONOS in the areas where you live
- If this sounds like something you're interested in, please reach out to david@onlab.us

Design Contributions



- We're looking for people who are interested in design, UX and UI who want to get involved with the ONOS community
- Many open source communities have vibrant design communities, such as the [Fedora Design Team](#)
- The design contribution area is a new effort and we welcome your help in shaping it -- if you want to help, please reach out to david@onlab.us

Other Contributions



- **Testing:** [Submit any ONOS bugs](#) you find and learn about our [System Test](#) setup
- **Code review:** We encourage people to help with code review and we grant [Module Owner status](#) to people who do exceptional reviews
- **Community:** Help us create and execute a strategy to strengthen the ONOS community by joining the [Community Steering Team](#)
- **Bring your idea to us:** As an open source project, we welcome your ideas. If you have a contribution idea not listed here, share your idea on the [onos-discuss list](#).

One More Thing...



- A CORD Community will be launching soon in May
- There will be many contribution opportunities there to get involved with
- Learn more at <http://www.opencord.org/>

Speak with Community Members



Stop by our booths in the SDN Solutions Showcase to ask questions, share ideas and get involved

- ONOS booth SU4
- Global Deployment Powered by ONOS (25B)
- R-CORD (25J), E-CORD (25N), M-CORD (25O)



Any Questions?

