2022 ROS Metrics Report
Katherine Scott & Tully Foote
Contents

- Awareness Metrics
- Membership Metrics
- Engagement Metrics
- Code Metrics
Awareness Metrics

Discovering the community, learning more about it and potential community members.
ROS.org Metrics

- Generally we use July as our benchmark month for ROS data.
- Some metrics use the most recent data available.
- Where possible we show annual data and year over year data.
We believe that the ROS 2 Docs are absorbing traffic from the ROS Wiki.
ROS Wiki lost ~11k users, but docs.ros.org has ~56k new users!
index.ros.org

ROS Index lists all the ROS 1 & ROS 2 Packages
index.ros.org

Total users up 33.31% * year-over-year
2. Membership Metrics

Those who sign up to join the community
8347 Discourse Users
+9.8% Since 2021

14,689 Wiki Users
17,181 in 2021, -14.50%
Sampled on 12/15/2021, 12/14/2022 from Google Analytics

5,689 ROS Answers Users
6,406 in July 2021, -11.19%
Sampled for July, 2022. Daily active users via Google Analytics,
ROS Answers
ROS Q&A Website.

In 2022 we announced the service was moving to Stack Exchange
67,427 Questions Asked
As of 12/12/2022.  +6.4% since 1/2022 (63,356)

43,494 Questions Answered
37,590 in 7/2021, +15.7%

434 Questions Asked July 2022
617 in July 2022, -29.6% since 2021
answers.ros.org
Community Support Forum
In 2022 we announced the service was moving to Stack Exchange. We believe much of this traffic has redirected to Reddit and Stack Exchange.
Robotics Stack Exchange

In 2022 we announced the service was moving to Stack Exchange
6,430 Questions Asked
As of 1/4/2023

24,192 Robotics Exchange Users
As of 1/4/2023

941 Unanswered Questions
Unaccepted or unanswered as of 1/4/2023.
14.63% of all questions
ROS Wiki
Knowledgebase for ROS 1 information
17,818 Wiki Pages
As of 1/06/2023. +2.9% since 1/28/2022 (17,320)

7.5 Wiki page edits per day
As of July 2022 vs 5.5 in July 2021, +30%

19,375,664 Page Views in 2022
23,151,780 in 2021 -16.31%
Daily Users per Google Analytics

wiki.ros.org
Wiki.ros.org only contains ROS 1 content, we anticipated declines due to the ROS 2 transitions.

wiki.ros.org

-5.46% Growth year-over-year in daily users
Wiki.ros.org only contains ROS 1 content, we anticipated declines due to the ROS 2 transitions.
Traffic volume by country

wiki.ros.org
Public Wiki Mirrors
Not Included

Asia
Singapore, China, Tokyo, Japan, Ho Chi Minh, Vietnam

Europe
Ireland, Freiburg, Germany, Barcelona, Catalonia

North America
College Park, Maryland, Saint Louis, Massachusetts, Potsdam, New York

South America
Sao Paulo, Brazil
<table>
<thead>
<tr>
<th>Date</th>
<th>Last 24 hours</th>
<th>Last 7 days</th>
<th>Last 30 days</th>
<th>All Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2022-01-07</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topics</td>
<td>4</td>
<td>20</td>
<td>72</td>
<td>6.1k</td>
</tr>
<tr>
<td>Posts</td>
<td>39</td>
<td>223</td>
<td>834</td>
<td>55.6k</td>
</tr>
<tr>
<td>Users</td>
<td>8</td>
<td>58</td>
<td>210</td>
<td>7.6k</td>
</tr>
<tr>
<td>Active Users</td>
<td>200</td>
<td>557</td>
<td>928</td>
<td>—</td>
</tr>
<tr>
<td>Likes</td>
<td>29</td>
<td>144</td>
<td>675</td>
<td>30.5k</td>
</tr>
<tr>
<td><strong>2022-12-12</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topics</td>
<td>3</td>
<td>22</td>
<td>103</td>
<td>7.1k</td>
</tr>
<tr>
<td>Posts</td>
<td>18</td>
<td>166</td>
<td>917</td>
<td>64.6k</td>
</tr>
<tr>
<td>Sign-Ups</td>
<td>3</td>
<td>37</td>
<td>172</td>
<td>8.3k</td>
</tr>
<tr>
<td>Active Users</td>
<td>200</td>
<td>501</td>
<td>930</td>
<td>—</td>
</tr>
<tr>
<td>Likes</td>
<td>14</td>
<td>139</td>
<td>653</td>
<td>37.5k</td>
</tr>
<tr>
<td>Chat Messages</td>
<td>3</td>
<td>10</td>
<td>41</td>
<td>216</td>
</tr>
</tbody>
</table>
## ROS Discourse

<table>
<thead>
<tr>
<th></th>
<th>Jan 2022</th>
<th>Dec 2022</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics</td>
<td>72</td>
<td>103</td>
<td>43%</td>
</tr>
<tr>
<td>Posts</td>
<td>834</td>
<td>917</td>
<td>9.95%</td>
</tr>
<tr>
<td>Active Users</td>
<td>928</td>
<td>930</td>
<td>0.22%</td>
</tr>
<tr>
<td>Likes</td>
<td>675</td>
<td>673</td>
<td>-0.3%</td>
</tr>
</tbody>
</table>
Total users down -9.10% year-over-year
Total users down -9.10% year-over-year
ROS on Social Media

Spreading awareness of the project.
Consistent growth, meeting community where they’re at.
Taken 1/6/2022. Graph from socialrise.com
LinkedIn

Visitor metrics

- Unique visitors: 96,116
- Page views: 33,631
- Custom button clicks: 1,344

~70,000 Followers
As of 12/2022

Desktop: 13,111
Mobile: 20,673
LinkedIn

Visitor metrics

Page views

All pages

All filters

Dec 1  Jan 1  Feb 1  Mar 1  Apr 1  May 1  Jun 1  Jul 1  Aug 1  Sep 1  Oct 1  Nov 1

27,743

68,373
@ROSOrg Twitter

Dec 2022 - 11 days

Top Tweet earned 3,134 impressions
Make your RVIZ more testable!
twitter.com/projectotto... 637

Top Follower followed by 46.9K people
The 4th Wave AI
The 4th wave will be in Artificial Intelligence, Nanotechnology, Bioengineering, and Robotics. We focus on the latest NEWS & REVIEWS of Technology via Science, #AI #AI

Top media Tweet earned 1,095 impressions
Congratulations @Ferrico!
The @ROS community has elected you to be the next ROS 2 Technical Steering Committee Community Representative!

DEC 2022 SUMMARY

Tweets
12

Tweets impressions
18.1K

Profile views: 5,122
Mentions: 82

New followers: 141

~13,600 Followers
As of 12/2022
Today we're happy to announce that the OSRC team at Open Robotics has become part of @IntrinsicAI! This change will accelerate @ROS, Gazebo, and Open-RMF development and allow the OSRF to better serve the community.

Get the full details at:
 discourse.ros.org/99e-o-0-w-t...pic.twitter.com/vGhbTcCP7Ws

Do you work in Human-Robot Interaction or Human Modelling? This may interest you!
We have published Open-VICO, an open-source toolkit for Gazebo for human skeleton tracking.
paper: arxiv.org/abs/2203.14733
code: gitlab.itnthesis/public...
@OpenRoboticsOrg @IRH2Lab @GazeboSim pic.twitter.com/1J7t11r61z

Top mention: earned 550 engagements
Juan M. Gandarillas
@gnmarco_ 
Do you work in Human-Robot Interaction or Human Modelling? This may interest you!
We have published Open-VICO, an open-source toolkit for Gazebo for human skeleton tracking.
paper: arxiv.org/abs/2203.14733
code: gitlab.itnthesis/public...
@OpenRoboticsOrg @IRH2Lab @GazeboSim pic.twitter.com/1J7t11r61z

Top media Tweet: earned 3,260 impressions
Congratulations @Fmrlicol!
The @ROS community has elected you to be the next ROS 2 Technical Steering Committee Representative!
Read all about the election on ROS Discourse:

View Tweet.
Distro, Package, and Download Metrics

What we know about users
ROS Package

Downloads

Every year we sample download data from our servers at Oregon State University.
## October 2022
### Debs Downloads, Visitors, Packages

<table>
<thead>
<tr>
<th></th>
<th>October 2021</th>
<th>October 2022</th>
<th>YoY Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Unique Packages</strong> (packages across versions, distros, syncs, etc)</td>
<td>89,144</td>
<td>146,745</td>
<td>+64.62%</td>
</tr>
<tr>
<td><strong>Different Packages</strong></td>
<td>19,562</td>
<td>23,614</td>
<td>+20.71%</td>
</tr>
<tr>
<td><strong>Deb Downloads</strong></td>
<td>45,100,525</td>
<td>49,078,176</td>
<td>+8.82%</td>
</tr>
<tr>
<td><strong>Unique Visitors</strong></td>
<td>789,956</td>
<td>767,632</td>
<td>-2.82%</td>
</tr>
</tbody>
</table>
## 2022 Total Debs Downloads, Data, Packages

<table>
<thead>
<tr>
<th></th>
<th>2021</th>
<th>2022</th>
<th>YoY Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Packages</strong> (packages across versions, distros, rebuilds, syncs, etc)</td>
<td>441,338</td>
<td>434,629</td>
<td>-1.52%*</td>
</tr>
<tr>
<td><strong>Different Packages</strong></td>
<td>20,857</td>
<td>24,069</td>
<td>+15.4%</td>
</tr>
<tr>
<td><strong>Deb Downloads</strong></td>
<td>507,345,965</td>
<td>501,333,806</td>
<td>-1.18%*</td>
</tr>
<tr>
<td><strong>Data Served (TB)</strong></td>
<td>156.62</td>
<td>173.35</td>
<td>+10.68%</td>
</tr>
</tbody>
</table>

* The frequency of syncs / updates declined in 2022, accordingly the number of downloads is slightly lower.
Distro Data
ROS usage data by version
## Distros by Year / Percentage

<table>
<thead>
<tr>
<th>Distro</th>
<th>10/2021</th>
<th>10/2022</th>
<th>YoY Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROS 1 Kinetic</td>
<td>4.74%</td>
<td>2.62%</td>
<td>-2.62%</td>
</tr>
<tr>
<td>ROS 1 Melodic</td>
<td>36.64%</td>
<td>17.19%</td>
<td>-19.45%</td>
</tr>
<tr>
<td>ROS 1 Noetic</td>
<td>24.35%</td>
<td>34.80%</td>
<td>+10.45%</td>
</tr>
<tr>
<td>ROS 2 Humble</td>
<td>NA</td>
<td>10.04%</td>
<td>NA</td>
</tr>
<tr>
<td>ROS 2 Galactic</td>
<td>7.63%</td>
<td>8.12%</td>
<td>+0.49%</td>
</tr>
<tr>
<td>ROS 2 Foxy</td>
<td>14.04%</td>
<td>13.59%</td>
<td>-0.45%</td>
</tr>
<tr>
<td>ROS 2 Rolling</td>
<td>1.84%</td>
<td>3.38%</td>
<td>+1.54%</td>
</tr>
<tr>
<td>All other distros</td>
<td>2.24%</td>
<td>1.43%</td>
<td>-0.81%</td>
</tr>
</tbody>
</table>
Distro Download Stats

Download Percentage from packages.ros.org October 2021 vs October 2022

ROS.org metrics only. Does not include mirrors.
ROS by Version

What version of ROS is most used by the community?
47,070,071
Total Packages Downloaded in October 2022

43,806,035
Total Packages Downloaded October 2021

+7.45%
Increase in total October package downloads year over year!

501,333,806
Approximate Number of Packages Downloads in 2022
11,473,533
ROS 2 Packages Downloaded in October 2021

17,721,801
ROS 2 Packages Downloaded October 2022

+54.46%
Increase in ROS 2 Packages Downloaded YoY

212,000,000
Annualized ROS 2 Packages Downloaded in 2022
ROS 1 Packages Downloaded in October 2022: 26,776,424

ROS 2 Packages Downloaded in October 2022: 17,721,801

ROS 2 as a Percentage of all ROS Downloads: 39.82%

Increase of ROS 2 Downloads: +12.02%

In October 2021 27.81% of downloads were ROS 2.
Source Code & Academic Metrics

Source code and citations
10,467

Citations of “ROS: an open-source Robot Operating System” (Quigley et al., 2009) on 12/12/22.

+13% Since January 2022
Citations of “Robot Operating System 2: Design, architecture, and uses in the wild” (Macenski et al., 2022) on 12/12/22.
Open Robotics maintains a list of companies using ROS culled from job listings, ROS Discourse posts, and other sources.

This isn’t a definitive list, it is simply the companies we know about!
The rosdistro is the repository where releases are managed and the main index of publicly announced ROS packages. Most pull requests on this repository are requests for indexing or packaging of ROS packages.
6,664
Number of Github repositories tagged with #ROS on 12/12/2022
1,040

Number of Github repositories tagged with #ROS2 on 12/12/2022