



# About QGIS 3.44

QGIS Project

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# CHAPTER 1

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## 序言

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Welcome to the documentation of the geographical information system (GIS) software QGIS. QGIS is subject to the GNU General Public License version 2, or any later version. More information is available on the [QGIS website](#).

本文档的内容是作者和编辑对 QGIS 相关知识进行系统的编写和详细认真的验证，即使如此，错误还是不可避免的存在。

因此，作者、编辑和发布者不对文档的错误以及可能导致的后果承担任何责任。我们鼓励您报告可能存在的错误。

This document has been typeset with reStructuredText. It is available as reST source code on [github](#), and online as HTML and PDF via <https://www.qgis.org/resources/hub/#documentation>. Translated versions of this document can be browsed and downloaded via the documentation area of the QGIS project as well.

For more information about contributing to this document and about translation, please read [QGIS-documentation-guidelines](#).

### 本文档中的链接

该文档包含内部和外部链接。单击内部链接将在文档内移动，而单击外部链接将打开互联网地址。

### 文档作者与编辑者

对以下文档的撰写、审查和翻译作出贡献的人员名单可在[贡献者](#) 获得。

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**互联网：** <https://www.qgis.org>

### 文档许可

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### 1.1 QGIS 3.44 更新内容

This release of QGIS includes hundreds of bug fixes and many new features and enhancements, compared to QGIS 3.40. For a list of new features, visit the [visual changelogs](#).

我们建议您使用此版本，而不是以前的发行版。

欢迎来到地理信息系统 (GIS) 的奇妙世界!

QGIS is an Open Source Geographic Information System. The project was born in May 2002 and was established as a project on SourceForge in June the same year. We have worked hard to make GIS software (which is traditionally expensive proprietary software) available to anyone with access to a personal computer.

QGIS currently runs on most Unix platforms, Windows, and macOS. QGIS is developed using the Qt toolkit (<https://www.qt.io>) and C++. This means that QGIS feels snappy and has a pleasing, easy-to-use graphical user interface (GUI). There are also independently created applications that allow you to take QGIS into the field. These applications can run on Android and iOS.

QGIS 旨在成为一个用户友好的地理信息系统，提供常用的功能和特性。该项目的最初目标是提供一个 GIS 数据查看器。QGIS 在其发展过程中已经达到了这样一个阶段：它被用于日常 GIS 数据查看需求、数据捕获、高级 GIS 分析以及以复杂的地图、地图册和报告的形式呈现。QGIS 支持大量的栅格和矢量数据格式，使用插件架构可以轻松添加新的格式支持。

QGIS 是根据 GNU 通用公共许可证 (GPL) 发布的。根据此许可证开发 QGIS 意味着您可以检查和修改源代码，并保证您，我们的快乐用户，将始终能够访问一个免费和可以自由修改的 GIS 程序。您应该已经收到一份完整的许可证副本和您的 QGIS 副本，您也可以在附录附录 A: *GNU 通用公共许可证 (GNU GPL)*。

#### Tip

##### 更新文档

The latest version of this document can always be found in the documentation area of the QGIS website at <https://www.qgis.org/resources/hub/#documentation>.



该节介绍本手册将使用的统一样式。

### 3.1 图形用户界面约定

图形用户界面约定样式旨在模拟 GUI 的外观。通常，样式将反映非悬停外观，因此用户可以直观地浏览 GUI，以找到与手册中的说明类似的内容。

- 菜单选项: 图层 ▶ 添加栅格图层或 设置 ▶ 工具栏 ▶ 数字化

- 工具:  添加栅格图层

- 按钮: 另存为默认

- 对话框标题: 图层属性

- 选项卡: 常规

- 复选框:  渲染

- 单选按钮:  *Postgis SRID*  *EPSG ID*

- 选择数字:

- 选择字符串:

- 浏览文件: ...

- 选择颜色:

- 滑块:

- 输入文本: Display name

阴影表示可单击的 GUI 组件。

## 3.2 文本或键盘约定

本手册还包括与文本、键盘命令和编码相关的样式，以提示不同的对象，例如类或方法。这些样式与 QGIS 中任何文本或编码的实际外观不一致。

- 超链接: <https://qgis.org>
- 按键组合: 按 Ctrl+B, 意思是先按住 Ctrl 键, 再按 B 键。
- 文件名: lakes.shp
- 类名: **NewLayer**
- 方法: *classFactory*
- 服务器: *myhost.de*
- 用户文本: `qgis --help`

代码行由固定宽度的字体表示:

```
PROJCS["NAD_1927_Albers",  
GEOGCS["GCS_North_American_1927",
```

## 3.3 特定于平台的说明

图形用户界面顺序和少量文本可以内联格式化: 单击   文件 **X** *QGIS* ► 退出关闭 *QGIS*. 这表明在 Linux、Unix 和 Windows 平台上, 应先单击文件菜单, 然后退出; 而在 macOS 平台上, 应先单击 QGIS 菜单, 然后退出。

大量文本可以格式化为列表:

-  Do this
-  Do that
- **X** Or do that

或作为段落:

 **X** 示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本

 示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本示例文本。

出现在使用手册中的屏幕截图是在不同平台上创建的。

QGIS 通过核心功能和插件提供了丰富的 GIS 功能。搜索栏使得搜索各功能模块，数据集和其他信息变得更加方便。

下面简要概述了六大常规类别的功能和插件，然后是初步了解集成的 Python 控制台。

### 4.1 视图数据

您可以将不同格式、不同投影方式的矢量与栅格数据（以 2D 或 3D 形式）的组合显示，且无需转换为内部或通用格式。受支持的格式包括：

- 包含空间字段的表和视图 (PostGIS、SpatiaLite, MS SQL Spatial 和 Oracle Spatial)、已安装的 OGR 库支持的矢量格式 (包括 GeoPackage、ESRI Shapefile、MapInfo、SDTS、GML 等等)。详见 [label\\_workingvector](#) 章节。
- 已安装的 GDAL 库 (地理空间数据抽象库) 支持栅格和影像格式，例如 GeoTIFF、ERDAS IMG、ArcInfo ASCII 网格、JPEG、PNG 等。参见 [working\\_with\\_raster](#) 章节。
- 网孔数据 (支持 TIN 和常规网格格式)。参见 [label\\_meshdata](#)。
- 矢量瓦片
- 来自 GRASS 数据库 (本地/地图集) 的 GRASS 栅格与矢量数据。参见 [sec\\_grass](#) 章节。
- 以 OGC Web 服务形式提供的在线空间数据，包括 WMS、WMTS、WCS、WFS 和 WFS-T。参见 [working\\_with\\_ogc](#) 章节。

QGIS 的身份认证架构可以帮助您管理用于 Web 服务和其他资源的用户/密码、证书以及密钥。

- 电子数据表 (ODS / XLSX)

支持时态数据。

## 4.2 浏览数据与制图

您可以使用友好的用户界面进行制图与交互式浏览空间数据。用户界面上提供了许多非常有用的工具，包括：

- QGIS 浏览器
- 动态重投影
- 2D 和 3D 地图渲染
- 数据库管理器
- 打印布局
- 报告
- 概览面板
- 地理书签
- 注记工具
- 识别/选择要素
- 编辑/查看/搜索属性
- 基于数据定义的要素标注
- 基于数据定义的矢量与栅格符号工具
- 带网格图层的地图集制图
- 地图的指北针、比例尺与版权标注
- 支持保存与还原工程

## 4.3 创建、编辑、管理与输出数据

您可以创建、编辑、管理与输出多种格式的矢量和栅格图层。QGIS 提供了以下功能：

- 矢量数字化工具
- 能够创建并编辑多种格式的文件和 GRASS 矢量图层
- 用于对矢量和图像进行地理编码的配准工具。
- 用于导入、导出 GPX 格式，将其他 GPS 格式转换成 GPX 格式，或者直接从一台 GPS 设备（在 Linux 上通过 USB 添加到 GPS 设备列表中）下载/上传数据的 GPS 工具
- 支持可视化与编辑开放街道地图数据
- 能够通过数据库管理器插件从文件创建空间数据库中的数据表
- 改进的空间数据表处理能力
- 管理矢量属性表的工具
- 将屏幕截图保存为带空间坐标参考图片的选项
- 具有增强功能的 dxf 导出工具，可以导出样式，且可以通过插件来执行类似 cad 的功能

## 4.4 分析数据

您可以对空间数据库和其他 OGR 支持的格式执行空间数据分析。QGIS 当前提供矢量分析、栅格分析、抽样、地理处理、几何图形与数据库管理工具。您也可以使用集成的 GRASS 工具，其中包括 400 多个模块的完整 GRASS 功能 (参见 `sec_grass` 章节)。或者，您可以使用 Processing 插件，它提供了一个强大的地理空间分析框架，可以从 QGIS 调用本地和第三方算法，如 GDAL、SAGA、GRASS、OTB、R 等 (参见 `sec_processing_intro` 章节)。所有分析功能都在后台运行，使您可以在处理完成之前继续进行工作。

图形建模器允许您在直观的图形环境中将功能组合/链接成一个完整的工作流。

## 4.5 在互联网上发布地图

QGIS 可以用于 WMS、WMTS、WMS-C、WFS、OAPIF 与 WFS-T 客户端 (参见 `working_with_ogc` 章节)，同时 QGIS Server (参见 `QGIS-Server-manual` 章节) 允许您使用 Web 服务器在互联网上通过 WMS、WCS、WFS 和 OAPIF 协议发布数据。

## 4.6 通过插件扩展 QGIS 功能

QGIS 可以通过可扩展的插件系统和可用于创建插件的库来满足你的特殊需求。你可以使用 C++ 或者 Python 来创建新应用。

### 4.6.1 核心插件

核心插件包括：

1. 数据库管理器 (从/到数据库中转换、编辑与查看图层及属性表；执行 SQL 查询)
2. 几何图形检查器 (检查几何图形错误)
3. 配准工具 GDAL (利用 GDAL 给栅格数据添加投影信息)
4. GPS 工具 (加载或导入 GPS 数据)
5. GRASS (集成 GRASS GIS)
6. MetaSearch 目录客户端 (与支持 Web 的 OGC 目录服务 (CSW) 标准的元数据目录服务进行交互)
7. 离线编辑 (允许离线编辑与数据库同步)
8. 处理 (QGIS 空间数据处理框架)
9. 拓扑检查器 (查找矢量图层中的拓扑错误)

### 4.6.2 外部 Python 插件

QGIS 提供了越来越多的由社区提供的外部 Python 插件。这些插件位于官方插件资源库中，可以使用 Python 插件安装程序轻松安装。参见 `managing_plugins` 章节。

## 4.7 Python 终端

可以利用集成的 Python 终端执行脚本，该控制台可以通过：插件 ► *Python* 终端打开。该终端作为非模态实用程序窗口打开。可以通过 `qgis.utils iface` 变量与 QGIS 环境进行交互操作，改变了是 `QgisInterface` 类的一个实例。该接口提供了对 QGIS 应用程序中地图画布、菜单、工具栏和其他部分的访问。您可以创建一个脚本，然后将其拖放到 QGIS 窗口中，它将自动执行。

为了进一步了解有关 Python 终端、QGIS 插件与应用编程相关的信息，请转到 [console and PyQGIS-Developer-Cookbook](#)。

## 4.8 已知问题

### 4.8.1 打开文件数量限制

如果您正在打开一个大型 QGIS 项目，并且您确定所有图层都是有效的，但是有些图层被标记为坏的，那么您可能会面临这个问题。Linux（以及其他类似的操作系统）有按进程打开文件的限制。每个进程的资源是受限的，且可以被继承。`ulimit` 命令是一个内置的 shell 命令，它仅为当前 shell 进程更改限制，新的限制将被每一个子进程继承。

输入以下命令，你可以看到所有当前的 `ulimit` 信息：

```
$ ulimit -aS
```

在终端输入以下命令，你可以看到当前每个进程所允许打开的文件数量：

```
$ ulimit -Sn
```

要更改 **现有会话** 的限制，您可以使用以下命令：

```
$ ulimit -Sn #number_of_allowed_open_files
$ ulimit -Sn
$ qgis
```

或者，您可以使用更新的 `prlimit` 实用程序。更多信息请参见：<https://man7.org/linux/man-pages/man1/prlimit.1.html>

#### 永久修改

在大多数 Linux 系统中，资源限制是在登录时通过 `pam_limits` 模块设定的，该模块依据的设置保存在文件 `/etc/security/limits.conf` 或者 `/etc/security/limits.d/*.conf` 中。如果你拥有 `root` 权限（也可以通过 `sudo`）则可以编辑这些文件，但是你需要注销并重新登录使得变更生效。

更多信息：

<https://www.cyberciti.biz/faq/linux-increase-the-maximum-number-of-open-files/> <https://linuxaria.com/article/open-files-in-linux>

### 5.1 邮件列表

QGIS 正在积极开发中，因此它不会总是像您期望的那样发展。获得帮助的首选方式是加入 QGIS 用户邮件列表。您的问题或许触及更广泛的受众，而答案将惠及他人。

#### 5.1.1 QGIS 用户

此邮件列表用于讨论有关 QGIS 的一般性问题，以及有关其安装和使用的具体问题。您可以通过访问以下 URL 订阅 QGIS 用户邮件列表: <https://lists.osgeo.org/mailman/listinfo/qgis-user>

#### 5.1.2 QGIS 开发者

如果您是一名面向更多技术性问题的开发人员，您可能希望加入 QGIS 开发人员邮件列表。此列表也是人们可以加入并收集和讨论 QGIS 相关 UX (用户体验) / 可用性问题的地方。请访问: <https://lists.osgeo.org/mailman/listinfo/qgis-developer>

#### 5.1.3 QGIS 社区团队

此列表涉及文档、上下文帮助、用户指南、网站、博客、邮件列表、论坛和翻译工作等主题。如果您也想参与用户指南的编写，这个列表是提出问题并参与其中的良好开端。您可以通过以下网址订阅此列表: <https://lists.osgeo.org/mailman/listinfo/qgis-community-team>

## 5.1.4 QGIS 翻译

此列表是关于翻译相关工作的。如果您想翻译 QGIS 网站、手册或图形用户界面 (GUI), 这个列表是提出问题并参与其中的良好开端。您可以通过以下网址订阅此列表: <https://lists.osgeo.org/mailman/listinfo/qgis-tr>

## 5.1.5 QGIS 项目指导委员会 (PSC)

此列表用于讨论与 QGIS 全程规范化管理和发展方向相关的指导委员会问题。您可以通过以下网址订阅此列表: <https://lists.osgeo.org/mailman/listinfo/qgis-psc>

## 5.1.6 QGIS 用户组

为了在当地推广 QGIS 并为其发展做出贡献, 一些 QGIS 社区被组织成 QGIS 用户组。这些群组都是为了讨论本地话题, 组织区域性或全国性的用户会议, 组织专题赞助……当前用户组列表可在 <https://qgis.org/community/groups/> 查询。

欢迎订阅以上各列表, 请记住通过回答问题和分享您的经验来为列表做出贡献。

## 5.2 沟通渠道

### 5.2.1 Matrix / IRC

Matrix (<https://matrix.org>) 是一个去中心化聊天项目。QGIS 有一个可通过 #qgis:osgeo.org 别名 (及其他方式) 访问的房间, 该房间与 libera.chat 的 #qgis IRC 频道实现互通。

若使用 Matrix:

1. 在 matrix.org 上创建一个帐户是最简单的, 但如果你有一个 OSGeo 账户, 你也可以使用你的 OSGeo id 作为 matrix id
2. 安装客户端 Elements 是最简单的, 但更多信息请参见 [Matrix clients](#), 或者在浏览器转到 <https://matrix.to/#/#qgis:osgeo.org>

若使用 IRC:

1. 安装一个 IRC 客户端
2. 连接到 `irc://irc.libera.chat/#qgis` 或者在浏览器转到 <https://web.libera.chat/?channels=#qgis>

### 5.2.2 Telegram

电报频道上有一个活跃的用户和社区相关的聊天组 (英语), 你可以 [join here](#)

要从你的手机加入 Telegram, 你需要安装 Telegram 应用程序, 注册并通过上面的链接加入。还有一个网页版 (<https://web.telegram.org>) 在您通过手机号码加入 telegram 之后, 您可以在浏览器中登入。

## 5.3 商业支持

QGIS 的商业支持也可用。更多信息请访问网站 <https://qgis.org/resources/support/commercial-support/>。

## 5.4 Bug 追踪器

虽然 QGIS 用户邮件列表对于一般的‘How do I do XYZ in QGIS?’ 等类型的问题非常有用 - 输入问题，但有时您可能希望通知我们 QGIS 中的 Bug，这时就可以使用 [QGIS Bug 追踪器](#)。

请记住，您的 Bug 可能并不总是享有您希望的优先级 (取决于其严重性)。有些 Bug 可能需要开发人员付出巨大努力来修复，而且有时面临人力资源不足的问题。

功能请求也可以使用与 Bug 相同的应答系统 - ticket system - 进行提交，请确保选择类型为 功能请求。

如果您发现了 Bug 并自行修复，可以在 [Github QGIS Project](#) 提交一个 Pull Request。

阅读 [‘bug，特性和问题 <<https://qgis.org/resources/support/bug-reporting/>>’](#) 以及 `submit_patch` 获取更多细节。

## 5.5 博客

QGIS 社区还在 <https://planet.qgis.org/> 上运行一个博客，其中为用户和开发人员提供了一些有趣的文章。还有许多其他的 QGIS 博客，我们也邀请您为自己的 QGIS 博客做出贡献！

## 5.6 插件

<https://plugins.qgis.org> 是官方 QGIS 插件的门户网站。在此，您可以通过“官方 QGIS 插件库”找到所有稳定和实验性 QGIS 插件的列表。

## 5.7 维基百科

最后，我们在 <https://github.com/qgis/QGIS/wiki> 维护了一个 WIKI 网站，您在其中可以找到与 QGIS 开发、发布计划、下载网站链接、信息翻译提示等相关的各种有用信息。看看，里面有些好东东！



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## 6.1 作者

以下为投入大量时间和精力编写、审查和更新整个 QGIS 文档的人员。

Tim Sutton	Yves Jacolin	Jacob Lanstorp	Gary E. Sherman	Richard Duivenvoorde
Tara Athan	Anita Graser	Arnaud Morvan	Gavin Macaulay	Luca Casagrande
K. Koy	Hugo Mercier	Akbar Gumbira	Marie Silvestre	Jürgen E. Fischer
Fran Raga	Eric Goddard	Martin Dobias	Diethard Jansen	Saber Razmjooei
Ko Nagase	Nyall Dawson	Matthias Kuhn	Andreas Neumann	Harrissou Sant-anna
Manel Clos	David Willis	Larissa Junek	Paul Blottière	Sebastian Dietrich
Chris Mayo	Stephan Holl	Magnus Homann	Bernhard Ströbl	Alessandro Pasotti
N. Horning	Radim Blazek	Joshua Arnott	Luca Manganelli	Marco Hugentobler
Andre Mano	Mie Winstrup	Frank Sokolic	Vincent Picavet	Jean-Roc Morreale
Andy Allan	Victor Olaya	Tyler Mitchell	René-Luc D'Hont	Marco Bernasocchi
Ilkka Rinne	Werner Macho	Chris Berkhout	Nicholas Duggan	Jonathan Willitts
David Adler	Lars Luthman	Brendan Morely	Raymond Nijssen	Carson J.Q. Farmer
Jaka Kranjc	Mezene Worku	Patrick Sunter	Steven Cordwell	Stefan Blumentrath
Andy Schmid	Vincent Mora	Alexandre Neto	Hien Tran-Quang	Alexandre Busquets
João Gaspar	Tom Kralidis	Alexander Bruy	Paolo Cavallini	Milo Van der Linden
Peter Ersts	Ujaval Gandhi	Dominic Keller	Giovanni Manghi	Maximilian Krumbach
Anne Ghisla	Dick Groskamp	Uros Preloznik	Stéphane Brunner	QGIS Korean Translator
Zoltan Siki	Håvard Tveite	Matteo Ghetta	Salvatore Larosa	Konstantinos Nikolaou
Tom Chadwin	Larry Shaffer	Nathan Woodrow	Martina Savarese	Godofredo Contreras
Astrid Emde	Luigi Pirelli	Thomas Gratier	Giovanni Allegri	GiordanoPezzola
Paolo Corti	Tudor Bărăscu	Maning Sambale	Claudia A. Engel	Yoichi Kayama
Otto Dassau	Denis Rouzaud	Nick Bearman	embelding	ajazepk
Ramon	Andrei	zstadler	icephale	Rosa Aguilar
Patrice Pineault	Jörn Gutzeit	Felix Feckler	Benoît de Mezzo	Étienne Trimaille
Andrea Giudiceandrea	Julien Cabieces	roya0045	Sebastian Gutwein	Jessica Veenstra
Ryan Welfle	Martin Pergler	Ivan Ivanov	muranamihdk	Loïc Bartoletti

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Table 6.1 – continued from previous page

Tomasz Taraś	Ian Maddaus	Jürnjakob Dugge	Roman Bug	Damiano Lombardi
Marc Ducobu	Philip Albrecht	Dennis Milechin	Cody Martin	Savinaud Mickaël
Stefan Uhrig	Ariadni-Karolina Alexiou	Björn Hinkeldey	Benjamin Riley	MorriganR
Thayer Young	Shane Carey	Ian Turton	Emma Hain	Germán Carrillo
Jakob Miksch	Nicolas Boisteault	Bertrand Rix	Jorge Rosales	Selma Vidimlic

## 6.2 翻译者

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参与当前翻译的人员：

语言	贡献者
印度尼西亚语	Emir Hartato, I Made Anombawa, Januar V. Simarmata, Muhammad Iqnaul Haq Siregar, Trias Aditya
中文 (繁体)	Calvin Ngei, Zhang Jun, Richard Xie
中文 (简体)	Xu Baocai
荷兰语	Carlo van Rijswijk, Dick Groskamp, Diethard Jansen, Raymond Nijssen, Richard Duivenvoorde, Willem Hoffman
芬兰语	Matti Mäntynen, Kari Mikkonen
法语	Arnaud Morvan, Augustin Roche, Didier Vanden Berghe, Dofabien, Etienne Trimaille, Francis Gasc, Harrissou Sant-anna, Jean-Roc Morreale, Jérémy Garniaux, Loïc Buscoz, Lsam, Marc-André Saia, Marie Silvestre, Mathieu Bossaert, Mathieu Lattes, Mayeul Kauffmann, Médéric Ribreux, Mehdi Semchaoui, Michael Douchin, Nicolas Boisteault, Nicolas Rochard, Pascal Obstetar, Robin Prest, Rod Bera, Stéphane Henriod, Stéphane Possamai, sylther, Sylvain Badey, Sylvain Maillard, Vincent Picavet, Xavier Tardieu, Yann Leveille-Menez, yoda89
加利西亚语	Xan Vieiro
德语	Jürgen E. Fischer, Otto Dassau, Stephan Holl, Werner Macho
印地语	Harish Kumar Solanki
意大利语	Alessandro Fanna, Anne Ghisla, Flavio Rigolon, Giuliano Curti, Luca Casagrande, Luca Delucchi, Marco Braida, Matteo Ghetta, Maurizio Napolitano, Michele Beneventi, Michele Ferretti, Roberto Angeletti, Paolo Cavallini, Stefano Campus
日语	Baba Yoshihiko, Minoru Akagi, Norihiro Yamate, Takayuki Mizutani, Takayuki Nuimura, Yoichi Kayama
韩语	OSGeo Korean Chapter
波兰语	Andrzej Świąder, Borys Jurgiel, Ewelina Krawczak, Jakub Bobrowski, Mateusz Łoskot, Michał Kułach, Michał Smoczyk, Milena Nowotarska, Radosław Pasiok, Robert Szczepanek, Tomasz Paul
葡萄牙语	Alexandre Neto, Duarte Carreira, Giovanni Manghi, João Gaspar, Joana Simões, Leandro Infantini, Nelson Silva, Pedro Palheiro, Pedro Pereira, Ricardo Sena
葡萄牙语 (巴西)	Arthur Nanni, Felipe Sodrê Barros, Leônidas Descovi Filho, Marcelo Soares Souza, Narcélio de Sá Pereira Filho, Sidney Schaberle Goveia
罗马尼亚语	Alex Bădescu, Bogdan Pacurar, Georgiana Ioanovici, Lonut Losifescu-Enescu, Sorin Călinică, Tudor Bărăscu
俄语	Alexander Bruy, Artem Popov
西班牙语	Carlos Dávila, Diana Galindo, Edwin Amado, Gabriela Awad, Javier César Aldariz, Mayeul Kauffmann, Fran Raga
乌克兰语	Alexander Bruy

## 6.3 翻译统计

Efforts of translation for QGIS 3.44 Long Term Release are provided below. Official documentation is published in only the languages that reached 5% of translation.

更新时间: 2026-03-12

字符串数	目标语言的数量	全部翻译率
<b>31320</b>	<b>61</b>	<b>16.7%</b>

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海地语 (海地克里奥尔语)	0.28	希伯来语	0.8	印地语	0.38
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土耳其语	3.34	乌克兰语	3.04	乌尔都语	0.1
越南语	1.48				



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版本 2, 1991 年 6 月

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Version 1.3, 3 November 2008

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