



# Module 3

*Development Environment*

The Corda logo, featuring the word 'corda' in white lowercase letters on a red rectangular background.

**c•rda**



# Overview

This module will explore the Corda Community, available resources, toolchain and walk through running some demos.

## **Learning outcomes:**

- Learn about the Corda toolchain
- Set up development environment and resolve common issues
- Run some sample CorDapps
- Understand what resources are at your disposal



# Repositories

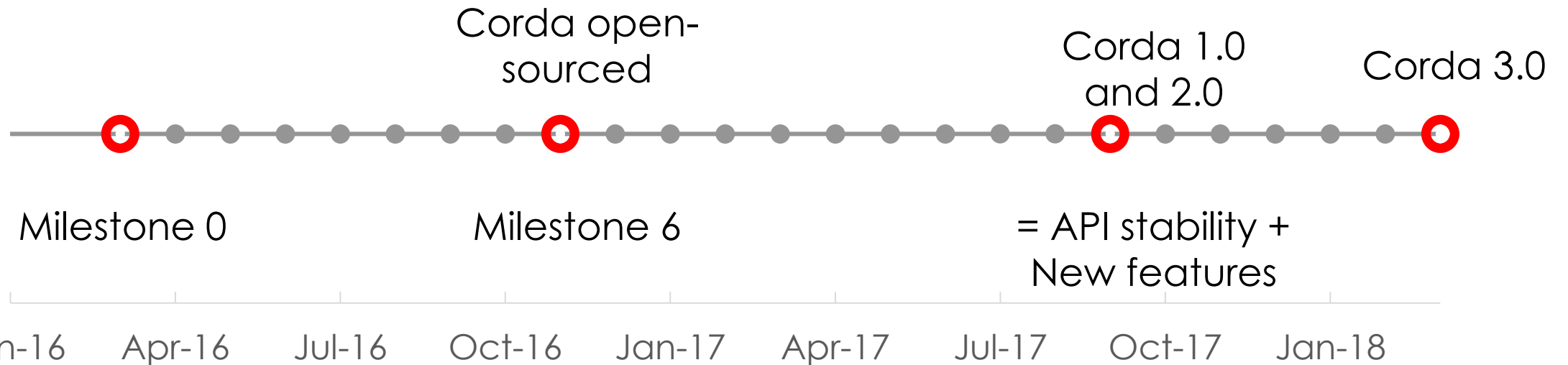
- The Corda code is hosted on Github:

<https://github.com/corda>

- Four key repositories:
  - **corda**: The open-source Corda platform code
  - **cordapp-template (Java or Kotlin)**: A boilerplate CorDapp in both languages to kick-start CorDapp development
  - **cordapp-tutorial**: A simple example CorDapp

# Milestones

- Corda no longer follows a basis of monthly releases following Corda v1.0
- Currently on **v3.0**



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# Snapshots

- Throughout the month, the R3 platform team merge reviewed pull requests to master
- Building the **HEAD** of master results in a **SNAPSHOT** release
- SNAPSHOTS are numbered one higher than the last milestone
- Therefore, as we are on v3.0, new snapshots are created as

## 3.1-SNAPSHOT

- Snapshots are the **latest version** of the code base
- Snapshots can be unstable!





## Prefer milestones

- Unless you require new the functionality offered by a SNAPSHOT release, **always use the latest MILESTONE release**
- Milestones are thoroughly tested before release
- Although SNAPSHOTS are continuously tested, sometimes mistakes slip through the net

**Always remember to check out the latest MILESTONE before deploying your CorDapps or running the demos.**

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# Choosing a release

- Milestone releases are available as branches in all repos
- Check out a given Milestone using:

`git checkout release-M[**MILESTONE-NUMBER**]`

- Milestones can also be enumerated with:

`git tag`

- Corda Milestones are published to Maven, so Corda does not need to be installed to compile CorDapps
- SNAPSHOTS are always on master

# Toolchain

The following is required run/develop CorDapps:

- **JVM** Oracle JDK 8 (latest version ideally – u131 min)
- **IDE** IntelliJ IDEA Community Edition 2017.2.x
- **Source control** Git
- **Build system** Gradle

CorDapps can be written in any JVM language although Corda itself is written in **Kotlin**, which has excellent Java interoperability



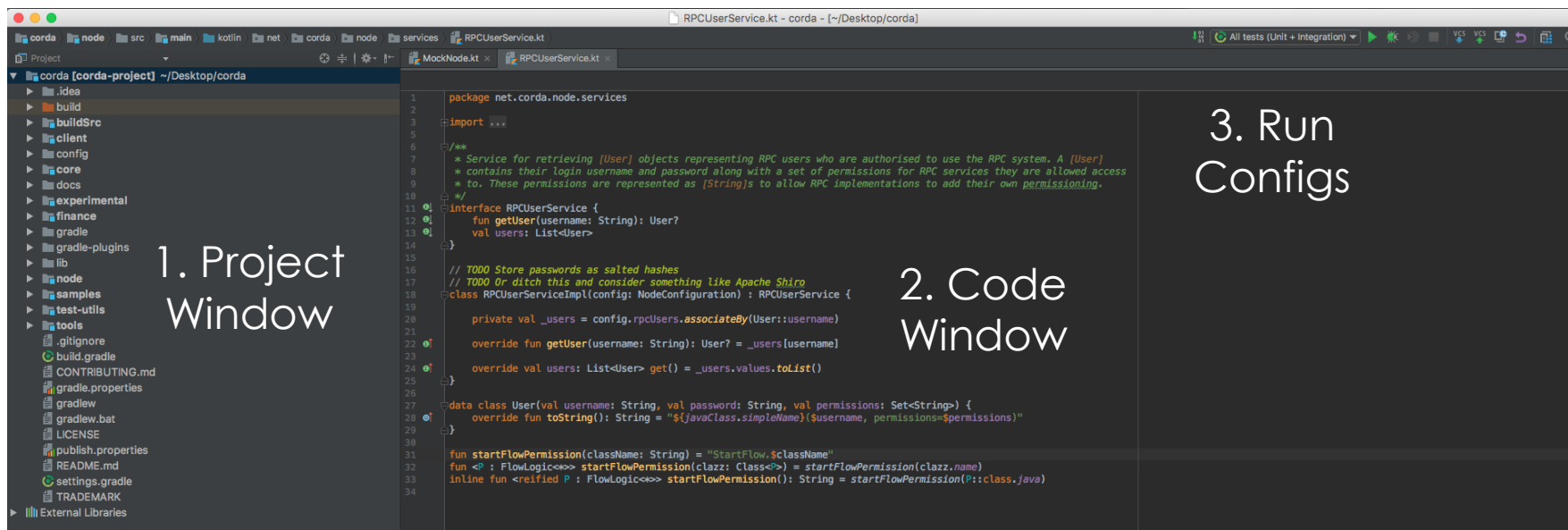
# Getting set up - instructions



<b>Goal</b>	Get your machine set up for Corda development
<b>Steps</b>	<ol style="list-style-type: none"><li>1. Follow the instructions on getting set up: <a href="https://docs.corda.net/quickstart-index.html">https://docs.corda.net/quickstart-index.html</a></li><li>2. Clone the main Corda repo</li><li>3. Check out v3.0 ("release-V3.0")</li><li>4. Open the main Corda repo in IDEA intelliJ</li><li>5. If you encounter any issues, refer to the Troubleshooting page: <a href="https://docs.corda.net/troubleshooting.html">https://docs.corda.net/troubleshooting.html</a></li></ol>

# IntelliJ IDEA

- The IDE is divided into a project window and a code window
- If the project window is hidden, show it using **⌘1/Alt + 1**
- Demos and debugging can be accessed via “Run Configs” menu



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# Gradle

- Corda and CorDapps are **built using Gradle**
- If there are no folders or modules in the IDEA project window, the **Gradle project must first be imported**
- Instructions on how to do this can be found here:

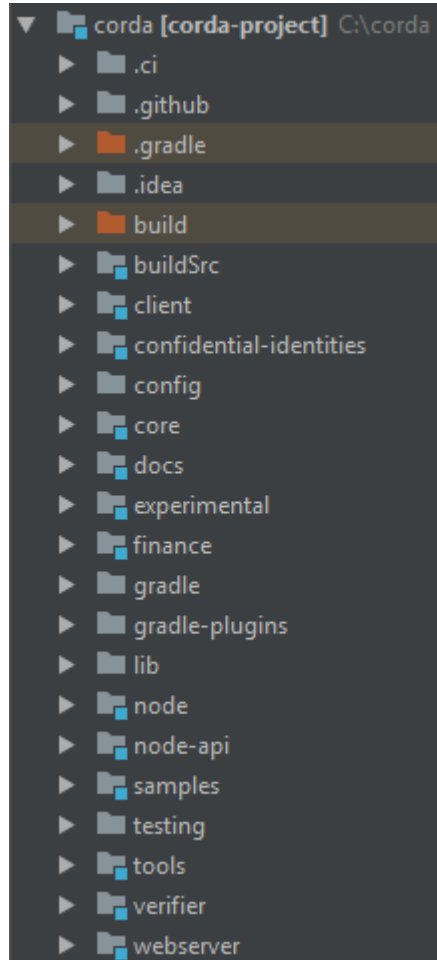
<https://docs.corda.net/troubleshooting.html#no-source-files-are-present>

# Key IDEA shortcuts

IDEA provides some useful shortcuts:

- **Search everywhere (double-press Shift)**: Allows you to find the declarations for classes, functions, etc. by name
- **See declaration (Ctrl+B and click/⌘B and click)**: Allows you to navigate to the declaration of a class or function to see its fields, methods, params, etc.

# The Corda repository



Gradle plugins source code

Security flows (new from v1.0)

Corda core classes

The platform documentation (also on docs.corda.net)

The Gradle plugins used to deploy Corda nodes

Node implementation internals (non-public APIs)

Sample CorDapps, demonstrating cash, oracles...

Testing DSLs and utilities

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# Exploring the Corda repo

- There are quite a few modules defined in the main Corda repo!
- We'll now spend a bit of time walking through the content of the main Corda repo and the CorDapp template repo
- There is a lot going on – we can help you focus on the most relevant areas

# Running a sample CorDapp - instructions



<b>Goal</b>	Run the Corda Example
<b>Steps</b>	<ol style="list-style-type: none"><li>1. Follow the instructions on running the Corda example demo here: <a href="https://docs.corda.net/tutorial-cordapp.html">https://docs.corda.net/tutorial-cordapp.html</a></li><li>2. Run the demo from both IDEA and the command line</li><li>3. If you encounter any issues, refer to the Troubleshooting page: <a href="https://docs.corda.net/troubleshooting.html">https://docs.corda.net/troubleshooting.html</a> or ask us!</li></ol>



# Resources

1. **Documentation (<https://docs.corda.net/>)**
  - Has tutorials (e.g. <https://docs.corda.net/tutorial-contract.html>)
  - API reference (<https://docs.corda.net/api/javadoc/index.html>)
2. **Slack (<https://slack.corda.net/>)**
  - Great for quick questions about design and implementation
  - Our entire dev team hangs out there
3. **Stack Overflow (<https://stackoverflow.com/questions/tagged/corda> )**
  - Replaces “discourse” for technical Q&A
  - Discourse is still used for non-tech discussions
  - Only recently started migrating; not many questions there yet
4. **Corda.net**
  - Key announcements (e.g. Milestone releases)
  - Blog posts on key topics







# Summary

- Corda release process
- Milestones versus Snapshots
- The available repos
- Gradle – build automation
- IntelliJ IDE
- Running a demo