Digital Asset

Building Applications in DAML

Contents

Write your application in DAML

Language built for distributed systems

DAML is built for **developer productivity** and to shield an application from the underlying ledger details. This means applications written in DAML are **portable across different DAML-compatible ledgers** similar to how JDBC and SQL are portable across databases.

Digital Asset is working tirelessly to integrate **DAML into a growing number of databases and ledgers** every day.

You no longer need to choose a ledger before you get started and can even **migrate as ledgers evolve and improve**.

Launch and evolve your application in DABL

Cloud environment for rapid innovation

DABL is a **live, production environment** that allows you to launch your DAML application in seconds.

DABL allows you to **test your application with users** and evolve quickly without any of the underlying ledger hassles and difficulties.

Applications launched in DABL can be **redeployed to DAML-compatible, enterprise ledgers** whenever you are ready.

Migrate to a growing list of enterprise ledgers

Go when ready

Each ledger has a differing set of functionality and features that can take a **significant amount of time and investment to fully understand**.

Ledgers are evolving quickly, with large technology vendors entering the market regularly.

DAML based applications give you the **flexibility to explore, learn, test, and pick the ledger of choice** on your own schedule without having to delay launching your application.

Most ledgers are built for a specific purpose (not yours)

No one should lose their home because they lost their private key

Very few applications benefit from or need the properties of public ledgers. In fact, most financial applications **require advanced privacy and governance** to meet the demands of their users.

Key management and other operational requirements are often **too complicated for end users** and has resulted in significant monetary losses.

Most ledgers are designed to be extremely difficult to change - it's a feature! - but this makes **updating, maintaining, and correcting errors unnecessarily difficult for your application**

DIGITALASSET.COM

Digital Asset can help get you started today

We offer a suite of starter packages

Digital Asset can help you **bring your application to market quickly** and effectively. Choosing DAML allows you to build the application then choose your ledger.

You will **retain full IP and control** of your application that you build in DAML. Our goal is to build a community of successful applications built with DAML.

Building your application in **DAML gives you leverage** in the distributed ledger ecosystem. Writing apps in Kotlin (for Corda), Axlang (for Axoni), or Chaincode (for Fabric) locks you into their ledgers unless you choose to completely rewrite your application. Other languages like Solidity (EVM) are not fit for purpose.

Contents

DAML

Build an application in the time it takes to build a website

DAML is a programming language designed to make you **up to 10x faster** when building an application for the **cloud** or **distributed systems**. It is licensed under Apache 2.0 **open source**; free to use, open to modify, and ready for the application or project you are working on today.

DAML is integrated with a growing number of **databases**, **cloud platforms**, and **distributed ledgers**. Many of which are open source and free to use just like DAML itself.

DAML Application Portability

Choose your ledger *after* you write your application

DAML is a language for **describing how applications behave**, regardless of the database or ledger that application runs on.

This means your **application is portable** across DAML-compatible platforms and the details of the underlying ledger do not pollute your application code.

DAML SDK

Application development and testing from the IDE

DAML is **fully integrated into the open source VS Code** Interactive Development Environment (IDE). You can try from the browser right now at **webide.daml.com**

DAML has a **built-in testing and scenario language** that allows the developer to visualize their code, in real time, in the IDE.

Real time, **static analysis tools** help prevent the developer from making errors while writing application code.

DAML Privacy

DAML is built for privacy

Privacy is **configurable** and defined by each smart contract.

DAML provides first-class built-in types for **business concepts - actors, signatories, observers** - which define who is allowed to act on and see each contract on the ledger.

Privacy in DAML is **defined at the sub-transaction level**. This means that parties are disclosed information only on a need-to-know basis even within a large transaction.

DAML in Production

DAML is built on decades of production code and knowhow

DAML utilizes key components from the **Haskell** code community. This means DAML benefits from well over 20 years of functional programming design and community support.

Similar to Scala and Kotlin, DAML is a functional language that runs in the **JVM**, giving you the runtime tools and environments that you are familiar with today.

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project:**DABL**

From concept to scale, in days

project : DABL is a cloud platform built to help you take your app from humble beginnings to mass adoption with as little development as possible.

- Deploy a production environment in seconds
- Zero devops experience necessary
- Uptime guaranteed

Go to projectdabl.com and try for free today

Features and Services

Take full applications to production in days

Accelerating and de-risking
new application success

Productivity

Tools and libraries
built to improve time
to market and quality
of application

Access

Suite of connectivity
into the growing
ecosystem of APIs,
services, and networks

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DABL Console

Interact with your live ledgers
The console allows you to explore and act on a ledger built immediately, on demand

Simple application automation
Upload automation code and operate it from the dashboard

Collaborate with other developers
Grant access for other developers to share ledgers and extend functionality of an application

DABL Networks

Build your own dedicated networks
Launch your application in a dedicated environment that scales to your capacity needs

Connect to DAML application networks
Deploy your application into a growing number of existing DAML ledgers and ecosystems

Zero effort deployments
Don't waste time, energy, or headcount on building and maintaining your infrastructure

project :DABL v.32.1

docs ↗   🔔 0   vitalik ⌄

Workspace

Collections ＞＞
Your files uploaded to project:dabl.

Expand to view and drag and drop into new projects.

Projects   ⊕ **New Project**

Damlopoly   ...

Files

damlopoly.dar v1 DAML   mybots.py v1 Python

Deployments

| Ledger 1 2 files → | Test Ledger 2 1 file → | Damlopoly 2 files → |
| ● Staging | ● Staging | ● Production |

⊕ **New Ledger**

Sample App   ...

Files

sample.dar v1 DAML   samplebots.py v1 Python

Deployments

| Ledger 1 2 files → | Ledger 2 2 files → |
| ● Staging | ● Production |

⊕ **New Ledger**

Support: docs | email us | project dabl status page | terms & conditions
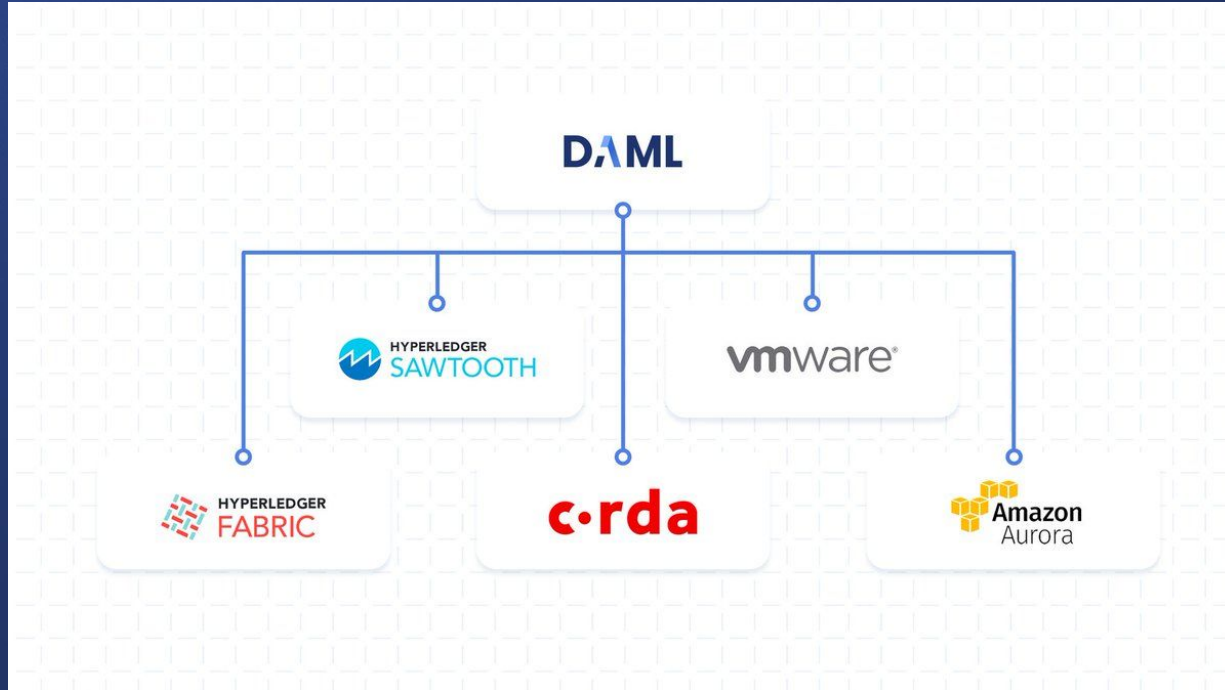
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DAML Integrations

A DAML-driven application was successfully demoed running on several ledgers at Synchronize London, June 2019

Enterprise Partner: VMware

Coming to market soon!

VMware will distribute and provide a commercially supported DAML on VMware Blockchain ledger.

This ledger will come with all the enterprise features, quality, and support customers are accustomed to receiving from VMware.

DAML on VMware Blockchain will integrate seamlessly into other VMware offerings such as their deployment and operations tooling (Helen).

VMware Blockchain Platform

Project Concord - A distributed trust foundation for enterprise-grade blockchains

Byzantine Fault Tolerant
Project Concord has a highly scalable byzantine fault tolerant consensus engine at its core with security being a critical element.

High Performance
Project Concord has scalability and performance built into the engine.

Energy Efficient
With Project Concord's low CPU and byzantine fault tolerant core energy waste and high CO_2 usage is left to legacy blockchain engines.

Enterprise Partner: BTP

Blockchain Technology Partners product Sextant enables rapid deployment

"Our mission is to radically simplify enterprise adoption of blockchain technologies. We accelerate innovation by providing the foundations that businesses can build upon; ensuring that they focus on business application development, not blockchain infrastructure.

We have embraced the Red Hat professional open source support business model and offer a carefully curated Hyperledger Sawtooth distribution - built, tested and maintained by our engineers and hosted in our Docker Hub repository."

Sextant by BTP

Sextant™ unlocks the value of blockchain for business

Sextant accelerates innovation by providing enterprises with a platform that they can build upon:

- Hyperledger Sawtooth distribution built, tested and maintained by BTP engineers and hosted in a Docker Hub repository
- One click deployment of enterprise-grade Sawtooth networks underpinned by robust cloud native Kubernetes runtime environment
- An integral component of agile software development lifecycle for blockchain developers

Sextant by BTP

More DAML enterprise ledgers coming soon

Sextant will enable more DAML-compatible ledgers over time with similar levels of support and ease of use you can find in the Sawtooth distribution today.

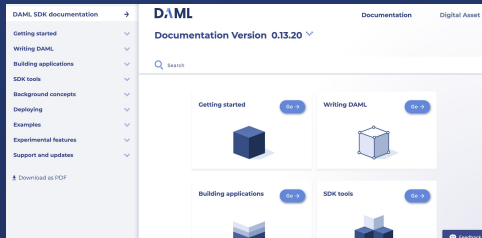Current targets include:

- AWS Aurora
- AWS QLDB

More coming soon!

Digital Asset continues to enhance DAML tooling, roll-out new DABL functionality, and build-out the integrations with a number of new ledger partners.

Download the latest DAML SDK - don't forget to sign-up to get notified of upcoming releases!

https://docs.daml.com/

Checkout the latest project : DABL roadmap

https://trello.com/b/rOQZIBEC/dabl-public-roadmap
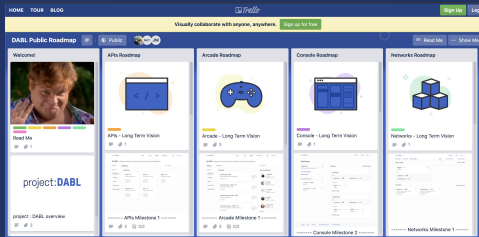
Help us prioritize our ledger integrations

enterprise@digitalasset.com

Where would you like to see DAML running?

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Project application POC

Tokenization application example

Rather than explain how DAML can help you tokenize assets and manage wallets, we built an app and made the code available to you.

You can follow the walk through sent with this deck to deploy and run the application in projectdabl.com

Just add UI and you are live

DAML Community Testimonials

DAML users in their own words on projects relevant to your project

[ASX on CHESS Replacement Project](#)

[Broadridge on Distributed Repo](#)

[BTP on Dematerialized Assets](#)

[OpenCrowd on Asset Backed Tokens](#)

[NuID on Decentralized Identity](#)

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Quick Facts about Digital Asset

- Founded in 2014, Digital Asset has offices in 6 countries and has raised over $115m from more than 15 strategic investors

- Digital Asset is the creator of DAML™ — the powerful smart-contract language for modeling multi-party business workflows on traditional databases or enterprise-scale distributed ledger technology (DLT)

- We provide tools and services that allow innovators to harness smart contracts and the power and security of blockchains

- Digital Asset solutions are applicable to all industries, including both enterprise and innovative startups creating solutions for supply chain, mortgage services, insurance, and other business processes

- Our earliest successes have been in financial services and healthcare industries to solve complex problems faced by infrastructure organizations and their market participants, and improve the processes supporting health care services

Enterprise Success Stories

Digital Asset has a proven track record supporting complex, highly regulated, and systemically important entities with the successful execution of their business cases

Enable enterprise scale solutions
Since January 2016, DA has worked with ASX, the Australian Stock Exchange, on a project to completely replace its 20-year-old cash equities clearing and settlement system -- CHESS

Create innovative products and solutions
In 2018, DA successfully completed a prototype with the Hong Kong Exchanges and Clearing Limited (HKEX) to bring the power of DAML to its post-trade allocation and processing platform.

Drive industry standards and efficiency
The International Swaps and Derivatives Association (ISDA) partnered with DA to build an Event Specification Module in DAML which complements the ISDA CDM by allowing developers to unambiguously construct lifecycle events with a machine-executable specification

Streamline and improve workflows
Broadridge, a leading provider of investor communications, technology-driven solutions, and data and analytics to the financial services industry, is using DAML to create their next generation repo solution

*Not an exhaustive list

Digital Asset Reference Applications

Digital Asset has also developed a number of in house solutions that showcase the innovative properties of DAML, which can be customized to clients' unique needs

Capital Markets

Bond Issuance

Collateral Management

Derivatives Lifecycle

Direct Asset Control

FpML Integration

ISDA CDM Event Specification

Structured Products

Structured Trade Products

Swaps Lifecycling

Healthcare

Claims Processing

Supply Chain

Supply Chain

Real Estate

MBS Repackaging

Open source; code available on github

Investors

ABN·AMRO

accenture

ASX

BNP PARIBAS

Broadridge

citi

CME Ventures

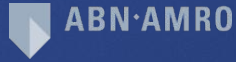DEUTSCHE BÖRSE GROUP

DTCC

Goldman Sachs

IBM

J.P.Morgan

NEX

PNC

Santander InnoVentures

DAML Services

Operate independently or engage with Digital Asset for enhanced support to accelerate and optimize your DAML solutions

Increase Knowledge
Supporting clients with information, education, and training on DLT and on DAML for a variety of audiences, from non-technical to software engineers

Identify and shape opportunities
Workshopping to help identify the opportunities, requirements, and partners for effective and innovative DAML-driven solutions

Leverage DAML expertise
Designing and reviewing DAML solutions, whether created by clients or partners, to identify opportunities for more effective approaches

Engage your market
DAML libraries and demos built to win opportunities, enable differentiated solutions, and bring products to market faster

Opportunity Discovery   Requirements Definition   Code Quality Reviews

Prototype Development   Production Builds   Training