



# Virtual CICS user group: Newsletter 56



Welcome to the Virtual CICS user group newsletter. The Virtual CICS user group at [virtualcics.hostbridge.com](http://virtualcics.hostbridge.com) is an independently-operated vendor-neutral site run by and for the CICS user community.

## Virtual CICS user group presentation

The latest webinar from the Virtual CICS user group was entitled, "Extending CICS applications with Java using Maven and Gradle". It was presented by Stewart Francis, Lead Software Engineer at IBM.

Stew is the CICS Explorer architect. He's been working at Hursley for 13 years, 12 of them on CICS. Stew has spent the last few years as technical lead for some of CICS's developer experience initiatives. When he's allowed out of the house, he enjoys rock climbing and mountain biking.

Stew started off by explaining why he was talking about enterprise modernization using Java. He said there was a skills shortage with traditional Z languages that may inhibit agility. However,

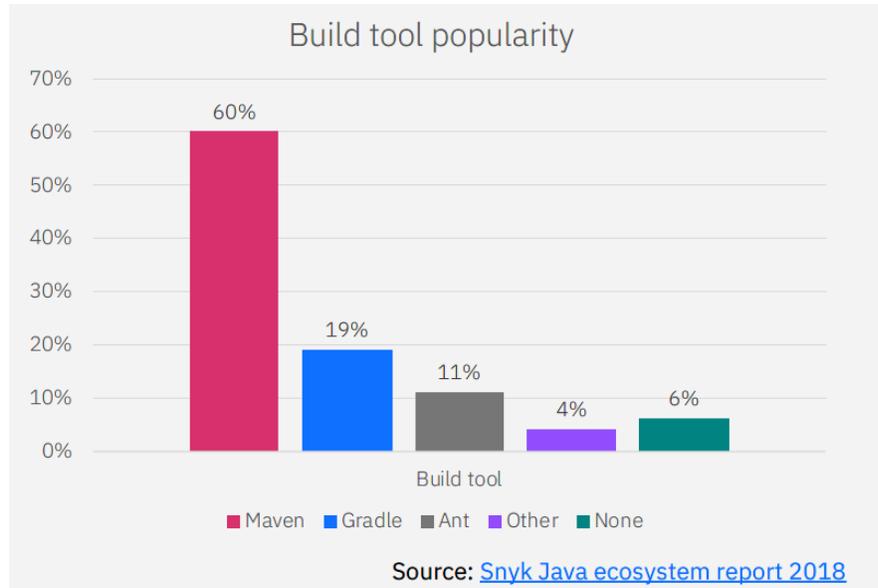


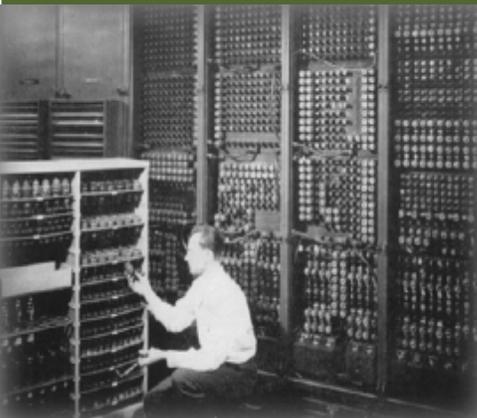
Figure 1: Build popularity

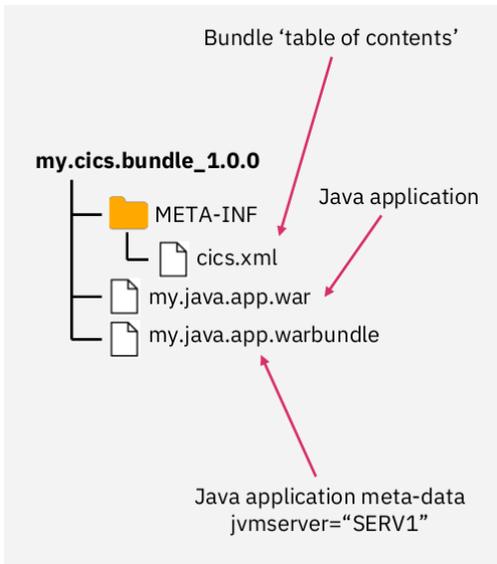
we can run lots of modern languages on mainframe (Java, Node, Python...). Also, modern language adoption can expose mainframe applications to new talent pools. Plus, there's great integration with CICS.

Java and JavaScript are very popular programming

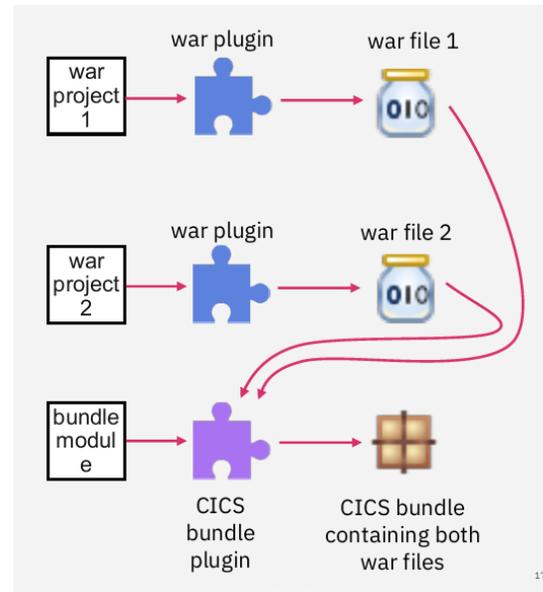
### Contents:

Virtual CICS user group presentation	1
Meeting dates	4
CICS news	4
Recent CICS articles	5
Creating CICS APIs with HostBridge Mitigates COBOL Skills Shortage for one of Nation's Largest Banks	5
About the Virtual CICS user group	5





**Figure 2: CICS bundle**



**Figure 3: Create CICS bundle**

languages. And CICS TS has had some form of Java support since 1998. In CICS TS 5.6, IBM has really been trying to make the skillset of existing Java developers directly applicable to z/OS and CICS TS.

The trouble is that Java development in CICS feels different to other platforms. So, IBM wants to make CICS Java development more immediately recognizable to all Java developers.

According to a recent survey, the two most popular build tools are Maven (by far the most popular) and Gradle (see Figure 1).

Maven and Gradle are pluggable build systems and dependency management for Java applications. Pluggable build systems:

- Create plugins that encapsulate build logic

- Plugins are shareable across projects within an enterprise, or with the world
- Applications can declare dependencies on plugins too.

Dependency management provides:

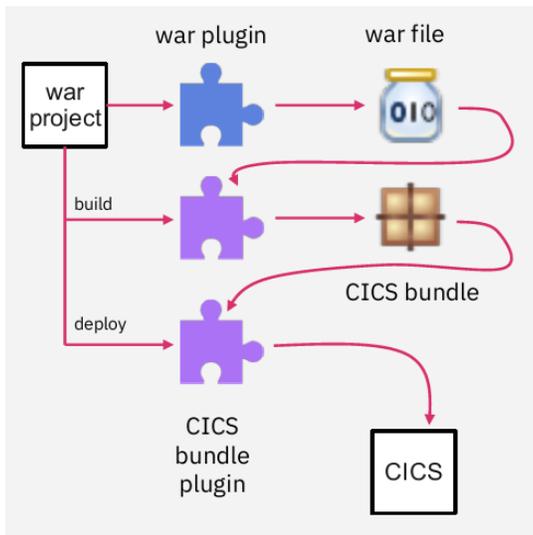
- Online catalog of libraries: Maven Central
- Used by both Maven and Gradle builds
- More than 3 million reusable components
- Applications can declare dependencies on these libraries
- Maven and Gradle take care of retrieving the library and using it at build-time / runtime.

This doesn't fit into CICS

Java development very smoothly:

- Java libraries for EXEC CICS API etc aren't available on Maven Central
- IBM built bespoke support in CICS Explorer for automatically setting up a compilation environment for users
- Doesn't really help if you want to use Maven or Gradle, though.
- Once you have the API to code against set up locally, actually writing the code in CICS Explorer is pretty good
- However, to get your Java into CICS, need to use a CICS bundle.

A CICS bundle is a package for deploying resources



**Figure 4: Bundle deployment**

into CICS. Once our Java application is deployed, we need some way of referring to it so we can, for example, undeploy it later

CICS bundles provide: identity for a collection of resources; a means of life-cycling them; and a means of supplying additional meta-data. For Java applications we must specify which JVM is to be used.

The anatomy of a CICS bundle is shown in Figure 2. There are: packaging entities for getting a lot of different stuff into CICS; Java applications; transactions; URI maps; policies; event bindings; etc. It's authored using CICS Explorer.

A recent survey of Java developer IDE choices found that IntelliJ was the most popular, closely followed by Eclipse. The others, like

Apache NetBeans were much less popular.

Stew highlighted the problem facing users. They can only author CICS bundles in CICS Explorer. The Java developer experience is better in CICS Explorer than more popular IDEs. However, it is difficult to effectively use Maven and Gradle in any environment.

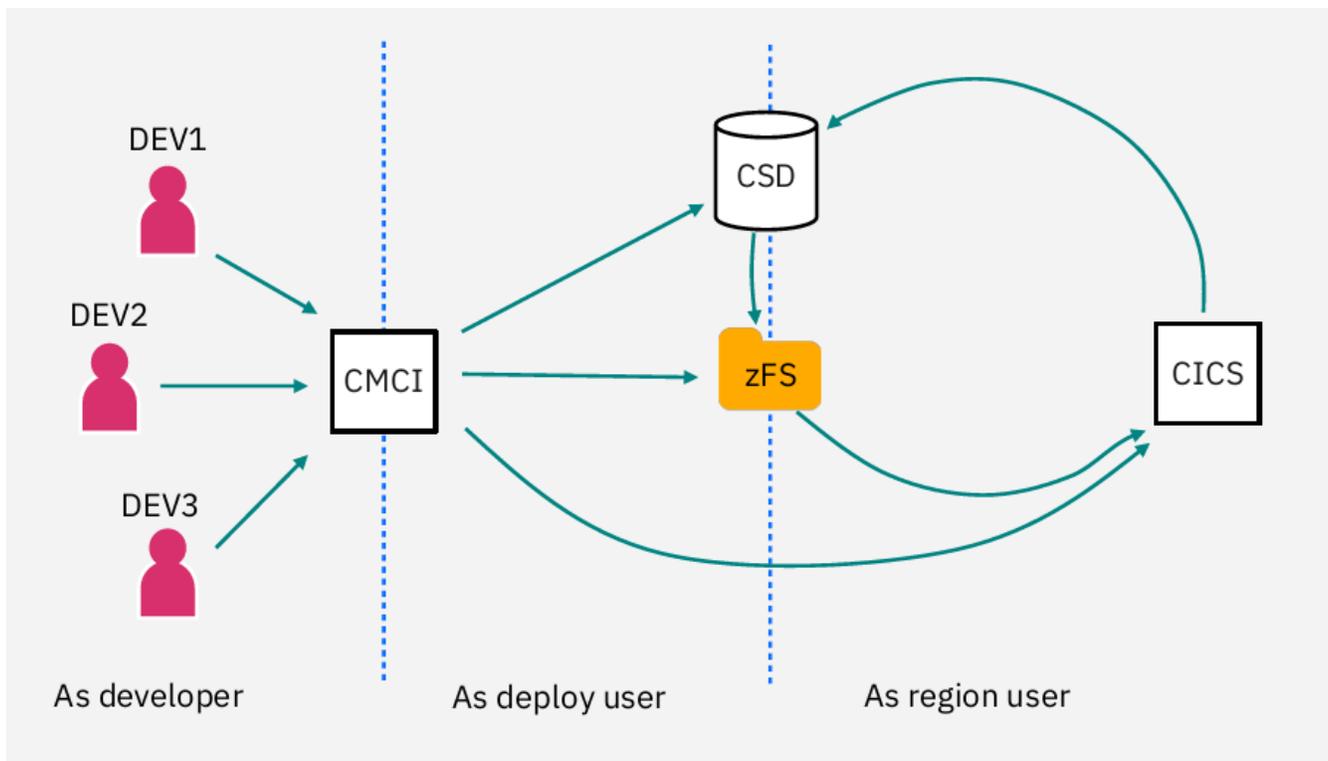
IBM's solution was to put their Java API libraries in Maven central, eg JCICS (`com.ibm.cics.server`), annotations (`com.ibm.cics.server.invocation.annotations`), annotation processor (`com.ibm.cics.server.invocation`). They also created a Maven plugin for authoring CICS bundles, which can be used directly in your Java application build toolchain. And they created a Gradle plugin for authoring CICS bundles, which can be

used directly in your Java application build toolchain.

Stewart showed how to produce a CICS bundle as part of the Maven/Gradle build for an existing Java application. The simplest use case allows automatic 'CICS bundling' of a Java application so it can be deployed into CICS. There's minimal configuration, and minimal customization.

Figure 3 shows how to create a dedicated CICS bundle module integrated into an existing Maven/Gradle build. This is more complicated to set up, but allows greater flexibility. Users can add additional resources to the CICS bundle like transactions, and URI maps. Plus, users can add multiple Java applications to the same bundle. This lets developers choose to use Maven or Gradle to author CICS bundles.

There's a new API in CICS TS 5.6 Open Beta for publishing CICS bundles (see Figure 4). This does all the things that previously had to be done manually. It isolates developers from having to understand the mechanics of how CICS bundles are implemented. It also means that IBM can use this API in their new Maven and Gradle plugins to integrate the publish process with the Java application build.



**Figure 5: How the API works**

As Figure 5 illustrates: system programmers can pre-configure which bundles developers can publish; application developers can choose the IDE that best suits them, plus they are liberated from having to understand CICS bundles and how to use them. This all means that deploying applications is faster and easier. And, system programmers can give application developers autonomy without sacrificing control.

Stew Francis also gave the group a couple of demonstrations showing how to use these techniques in a live environment.

A copy of Stewart Francis' presentation is available for download from the Virtual CICS user group website at [virtualcics.hostbridge.com/presentations/MavenGradleMay20.pdf](https://virtualcics.hostbridge.com/presentations/MavenGradleMay20.pdf).

You can see and hear the whole user group meeting at <https://youtu.be/537gVqjc6Bc>.

### Meeting dates

The following meeting dates have been arranged for the Virtual CICS user group:

- On 7 July, we have Russ Teubner, CEO and co-founder at Hostbridge discussing "Getting and

Using CICS Integration Analytics".

- The following meeting is on 8 September, when Colin Pearce will be discussing "Debugging CICS/COBOL ASRA Abends with Enterprise COBOL 6.2".

We are using Zoom for the user group meetings.

### CICS news

IBM has announced CICS TS V5.6, which, they say, delivers significant new capabilities to improve the developer experience, including the choice of APIs, frameworks, editors, and

HostBridge is now offering services, support, expertise, and even free pilot software to help organizations rapidly make CICS applications available.

build tools, while at the same time providing updates in the key areas of security, resilience, and management.

More information can be found at <https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=an&subtype=ca&supplier=897&letternum=ENUS220-077>

## Recent CICS articles

*IBM CICS and IMS Support Leading-Edge Development* by Joseph Gulla in IBM Systems Magazine (4 May 2020): <https://www.ibmssystemsmag.com/Trends/05/2020/cics-ims-leading-edge-development>.

## Creating CICS APIs with HostBridge Mitigates COBOL Skills Shortage for one of Nation's Largest Banks

A recent blog at [hostbridge.com/mitigate-cobol-skills-shortage-with-javascript/](https://hostbridge.com/mitigate-cobol-skills-shortage-with-javascript/) looks at how one of the largest banks in the USA has avoided the impact of the

COBOL skills shortage by creating APIs to its COBOL applications. By creating APIs on the mainframe using JavaScript, they were able to bypass needing to write code in COBOL.

Using the HostBridge JavaScript Engine (HB.js), the bank has implemented APIs to many of its CICS applications originally written in COBOL. Using this approach, applications off the mainframe get data from mainframe applications through the HB.js-created API running on the mainframe. Applications off the mainframe don't have to know how to navigate mainframe applications, or what screen layouts look like. They simply need to know how to send an HTTP request to the HostBridge-created API. Mainframe application changes aren't required either.

It's a simple way to make mainframe CICS applications available to anyone or anything that needs them; and it requires no COBOL skills.

The HostBridge JavaScript Engine (HB.js) is a server-side JavaScript implementation. It is an open source JavaScript engine ported to run natively under CICS. HB.js includes enhancements to exploit IBM z System

facilities, where appropriate, and is also zIIP enabled. Enterprises can author and execute HB.js Scripts to integrate and orchestrate CICS applications and transactions.

## About the Virtual CICS user group

The Virtual CICS user group was established as a way for individuals using IBM's CICS TS systems to exchange information, learn new techniques, and advance their skills with the product.

The Web site at [virtualcics.hostbridge.com](https://virtualcics.hostbridge.com) provides a central point for coordinating periodic meetings (which contain technically-oriented topics presented in a webinar format), and provides articles, discussions, links, and other resources of interest to IBM CICS practitioners. Anyone with an interest in CICS is welcome to join the Virtual CICS user group and share in the knowledge exchange.

To share ideas, and for further information, contact [trevor@itech-ed.com](mailto:trevor@itech-ed.com).

The Virtual CICS user group is free to its members.