



Welcome to the Virtual CICS user group newsletter. The Virtual CICS user group at www.fundi.com/virtualcics 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, "Getting back to basics", and was presented by CreativeDataMovers' Mary Abdill.

Mary has been developing and teaching the development of mainframe applications for many decades. Topics range from COBOL, CICS, DB2, and IMS to REXX, Assembler, PL/I, JCL and utilities, etc. She also develops and teaches Java and Web application development. Her specialty is extended bootcamps, teaching application development for mainframe or for Java and Web development. For details, see her Web site at www.CreativeDataMovers.com.

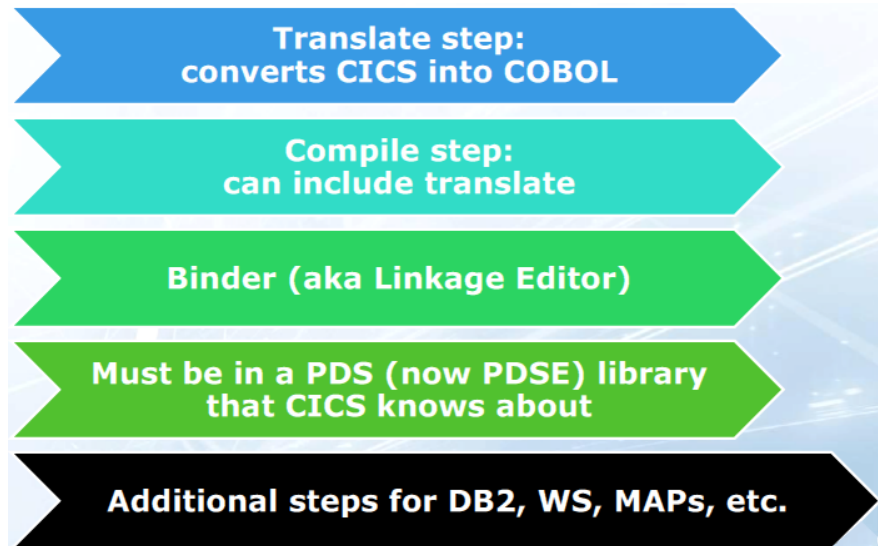


Figure 1: Steps in preparing a CICS/COBOL program

Mary started her presentation with some very basic information. She explained that most CICS programs are written in COBOL, and COBOL was 56 years old on 28 May. CICS itself became 46 on 8 July. She added that more-and-more programs that access CICS programs are written in Java, eg Web

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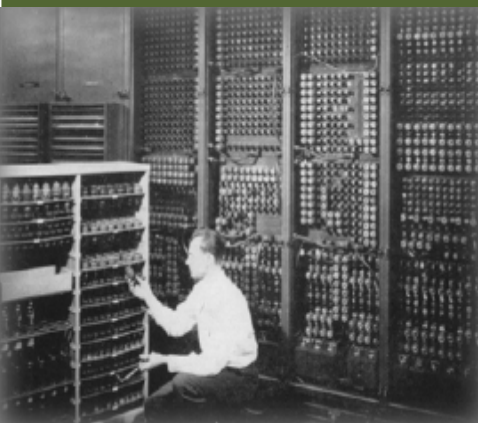




Figure 2: Tools for development

Service calls, Servlet front ends, MQ triggers, etc. Mary then told the user group that the CICS language (API) is embedded in COBOL, ASM, PL/I, C/C++, REXX, Java, and PHP. A translator (precompiler) converts the CICS language into COBOL language.

There are a number of COBOL code restrictions. These are:

- No direct file requests (no OPEN, CLOSE, READ, etc.)
- No ACCEPT, DISPLAY, SORT, MERGE
- No DYNAM, GRAPHIC, NOLIB, NORENT compile options
- Try to avoid COBOL verbs

with a high overhead (INITIALIZE, etc).

COBOL programs may use:

- INSPECT, STRING, UNSTRING
- SSRANGE Compile option
- Static and Dynamic CALLS to programs that may or may not contain CICS commands
- ADDRESS OF and LENGTH OF STOP RUN does not crash the region any more. Recommend GOBACK.

The steps needed to prepare a CICS program are shown in Figure 1.

Mary showed that CICS commands are inserted

into the COBOL source. Most commands become CALLs to the EIP (Execute Interface Program). The EIP is a traffic cop that passes requests to the correct control programs. The CICS translator pre-compiles the program (it comments out CICS commands and inserts CALLs and data items).

In the old days, you'd run a CICS program on a green screen terminal. Nowadays, you have:

- 3270 emulation – logon and enter transaction;
- HATS, which gives Web browsers access and is 3-tier.
- HOD – another 3-tier solution

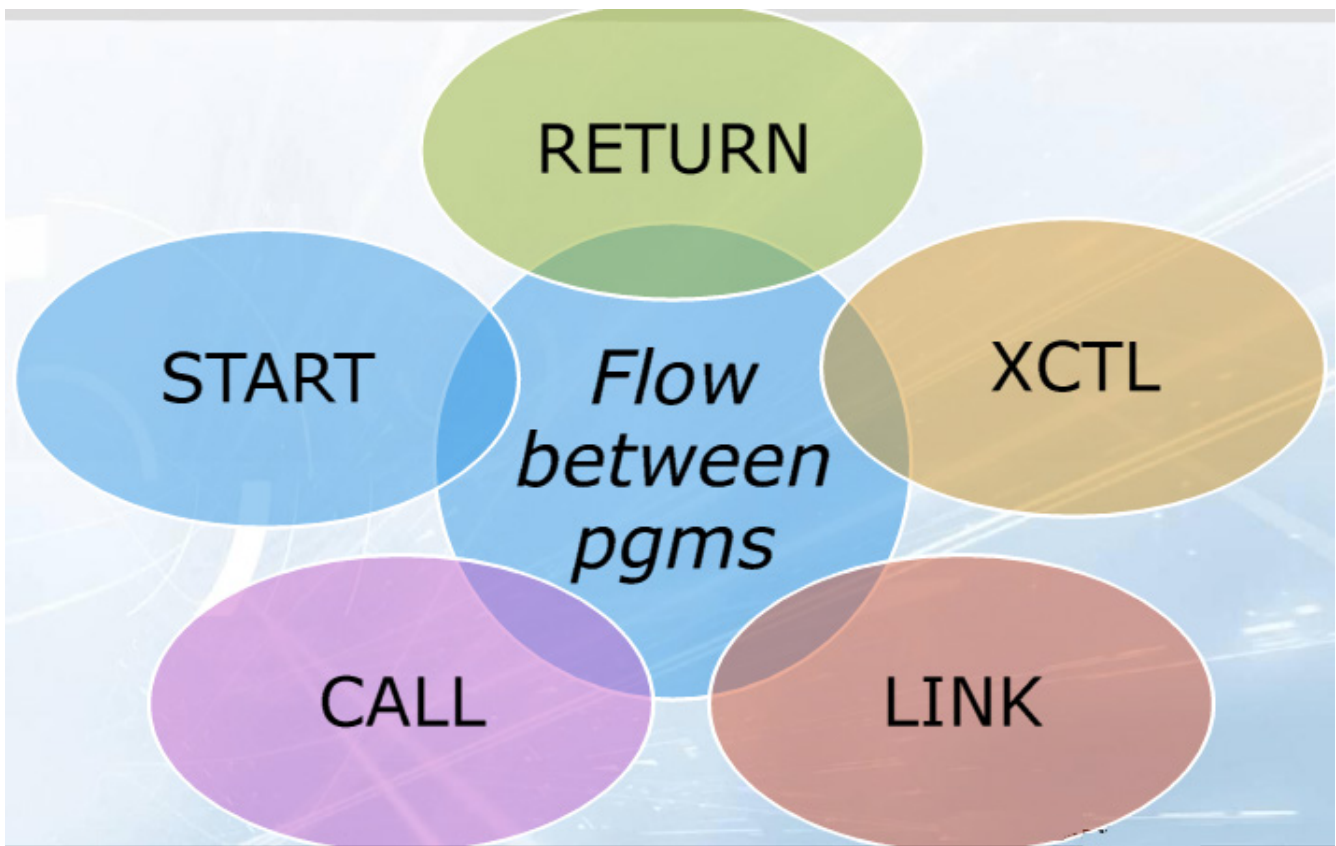


Figure 3: COBOL call

- CWS - a feature of CICS TS API, which is 2-tier.
- Java Web front end – send Commarea to CICS
- Any program (usually Web) – invoke CICS as a Web Service (SOAP or REST)
- Run CICS in background (using JCL), and run your CICS program in batch CICS region
- MQ triggers a CICS program
- Scheduler triggers, etc.

Tools that can be used for development are illustrated in Figure 2.

Mary gave us some basic definitions: a transaction is a unit of work for the computer generally initialized by a user entering a Transaction Identifier (Transid); a task is created by CICS to process a transaction; and pseudoconversational programming is where multiple tasks complete a transaction.

The flow of control between programs can use RETURN, XCTL, CALL, LINK, and START commands. This is shown in Figure 3.

CICS programs are STATELESS (except for conversational programs. CICS programs remember

nothing. Every run gets a fresh copy of Working-Storage.

How to remember and have a conversation? It can use the Commarea, Channels and containers, TS Queues (Temp storage), VSAM files, DB2 tables, MQ, and hidden fields in sent/received maps.

There are new ways to use CICS. For example, HATS replaces your MAPs with HTML and JavaScript. Maps are now GUI that appears in your browser, however, they are not the beautiful HTML that users expect to see in a browser. Don't send hidden fields, because now the user can see them. Alternatively,

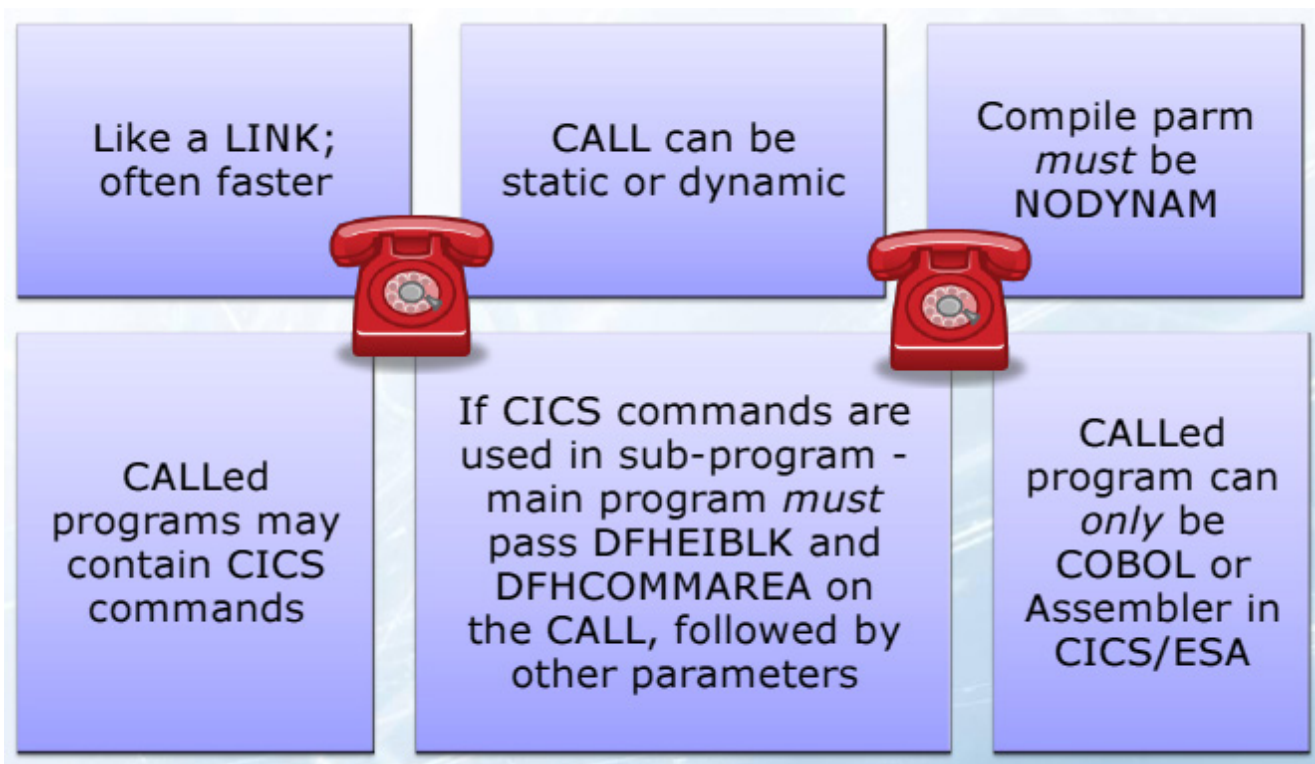


Figure 4: COBOL call

use Web services. These have single input and single output. SOAP can be the vehicle enclosing your data. There are no maps/mapsets. User I/O is handled by the invoking program. They require modularization/separation of concerns.

Mary's CICS program design considerations were:

- Follow the standards in place for your site
- Use modular design with small functional programs
- Structure to reduce maintenance but keep code concise
- Minimize paging by

avoiding unnecessary branching

- Avoid high overhead instructions
- Keep WORKING-STORAGE small. If possible, use LINKAGE SECTION. Code literals in PROCEDURE.

Mary did provide the user group with some RETURN notes. She said, while the transid on the RETURN can be any transid defined in a PCT, she recommended using the same one as for your program. The CICS translator by default defines a one-byte DFHCOMMAREA in the LINKAGE SECTION.

Even if the transid specified causes the same program to be restarted, it has a FRESH COPY (all new) WORKING-STORAGE, etc.

Figure 4 looks at using a COBOL call.

Mary gave us a program control summary, saying that program control commands tie application systems together. XCTL goes to another program at the same level. LINK effectively CALLS another program. CALL can be coded to programs with or without CICS commands. CALLs to programs with CICS commands must pass the EIB block and DFHCOMMAREA.

A copy of Mary Abdill's presentation is available for download from the Virtual CICS user group Web site at www.fundi.com/virtualcics/presentations/BasicsJul15.pdf.

You can see and hear the whole user group meeting by downloading the WMV file from www.fundi.com/virtualcics/presentations/2015-07-07meeting.wmv.

Meeting dates

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

- On 8 September 2015, we have IBM's Keith Allen talking about "DevOps and CICS".
- 10 November 2015, tbc.

We will be using Citrix GoToMeeting for the user group meetings.

CICS news

HostBridge Technology has announced HostBridge Redis for z/OS. The product enables customers to put their mainframe data to work in analytics, and mobile and cloud architectures. Redis is the in-memory NoSQL data store used

by cloud and mobile apps. HostBridge Redis for z/OS is a modernizing extension for transaction processing systems such as CICS and IMS, and database systems such as DB2 and VSAM. Using HostBridge Redis, customers can share their data with applications on any platform, inside or outside the enterprise. Full details can be found at <https://www.hostbridge.com/index.php/products/redis-for-zos>.

IBM has announced Rocket's Mainframe Data Access Service on Bluemix. It provides clients with a simple, seamless, and secure connection to data on the IBM z Systems mainframe for development of new mobile and hybrid cloud apps through Bluemix. Clients can access a no-charge trial of the service, which provides universal access to the data, regardless of location interface or format, including CICS, IMS, VSAM, ADABAS, and DB2, SMF, Tape and Sys Logs, and allows access to that data through methods developers prefer, including MongoDB APIs, JDBC, Web services, SQL and the REST protocol via z/OS Connect. Full details can be found at <https://www-03.ibm.com/press/us/en/pressrelease/46810.wss>.

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 www.fundi.com/virtualcics 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.

The Virtual CICS user group is free to its members.