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User/Programmer Guide for UCMD 99 Component Addition From Magnetic Tape Coordinate Data

MASTER

Bruce C. Whittet

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USER/PROGRAMMER GUIDE FOR UCMD 99:
COMPONENT ADDITION FROM MAGNETIC TAPE COORDINATE DATA

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MASTER

ABSTRACT

This document describes a FORTRAN computer program UCMD 99 which is used to read coordinate information from magnetic tape to either create or append to an Applicon AGS/880 drawing file.

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1.0 INTRODUCTION

The creation of graphic drawing files on the Applicon AGS/880 system requires that XYZ coordinate data be entered by keyboard typing or with the use of a stylus/data-tablet.

On large engineering projects, the amount of data to be entered into the graphics system exceeds the use of the above methods of data input. Much of the coordinate data to be entered is a result of engineering computer programs operating on separate computing systems such as CDC-6600 NOS.

UCMD 99 is a program that performs the function of reading an externally generated magnetic tape containing coordinate data into the Applicon system to automatically create the desired graphic drawing file. This drawing file can then be modified using the various Applicon commands.

This document defines the operation of UCMD 99 as well as the program structure.

2.0 EXECUTION INSTRUCTIONS

2.1 Input

UCMD 99 is preferably executed from an AGS activity with a graphics display, keyboard and tablet attached. The activity should have the pertinent drawing file loaded and be placed in the edit mode.

UCMD 99 requires input of the component name, level assignment, and if component is cell type. Prompting is given by UCMD 99. Data to be input is mounted on MT0 (see Data Preparation, para. 2.6). User input is described in the following paragraphs. After the drawing file has been preconditioned and data tape has been mounted, execution of UCMD 99 is started by entering the command "UCMD 99; GO;".

2.2 Output

UCMD 99 output consists of execution messages and the addition of polyarc or cell instances to the user's drawing file.

2.2.1 Execution Messages - Execution messages are output to appear in the upper left area of the graphics display. At the start of execution, the UCMD name and version are displayed. Component name is requested, level assignment, and if the component input is a cell. If no errors exist in the data tape, UCMD 99 will respond with either "n is being added on level m", or "c is being added". If an error does exist, a message will be displayed and execution will be terminated and control returned to the user.

Upon completion, a message is displayed, the data tape is rewound and control is returned to the user.

2.3 Operating Instructions

2.3.1 Logi and load the required drawing file.

2.3.2 In the CTRL mode, enter the INFO command. Observe if UCMD 99 is loaded and return to the CTRL mode.

If UCMD 99 is not loaded, enter the command

LUCM UCMD99.1;

2.3.3 Enter edit mode.

2.3.4 Mount data tape with read/write ring removed.

2.3.5 Start UCMD 99 execution by entering the command

UCMD 99;GO;

2.3.6 Input parameter as required (see examples).

2.4 Error Messages

If an error condition does exist, UCMD 99 will not attempt to add to the drawing file. Only two known conditions may exist.

2.4.1 The AGS natural units setting may be too large and the XYZ coordinate will lie outside the drawing world. "***** NATURAL UNIT SETTING IS TOO LARGE *****", is output and the run is aborted.

2.4.2 The format of the data tape is incorrect. Format must be I310.0, ASCII, 800 BPI, odd parity, core dump, and 80 characters/record (see para. 2.6). "ERROR IN DATA RUN TERMINATED", is output and the run is aborted.

2.5 Examples

Figure 2.5.1 illustrates the UCMD 99 input and output for a prepared data tape.

2.6 Data Preparation

Data must reside on magnetic tape in ASCII format, 800 BPI, odd parity, core dump, and 80 characters per physical record.

Coordinates are I3F10.0. Column one is used for comment to UCMD 99. A number '1' in column one indicates the start of a new line. A number '2' in column one will restart UCMD 99 after adding the points already read in and allow the user to change component type and/or level assignment.

3.0 UCMD 99 PROGRAM DOCUMENTATION

UCMD-99 VERSION 01A

ENTER COMPONENT NAME: P1;

ENTER COMPONENT LEVEL: 1;

IS COMPONENT A CELL ? (Y OR N) N;

ADDING POLYARC

P1 IS BEING ADDED ON LEVEL 1

END OF DATA
RUN COMPLETE
STOP -UCMD 99-

USING: P1 NUMBER SELECTED: 0
ON LEVELS: 1 SAVED POINTS: 0
EDIT LEVELS: 1 REF. LEVELS: NONE
GRID: 0.100 0.100 0.100 OFF: 0.000 0.000 0.000
VIEW CENTER: 0.000 0.000 0.000 WIDTH: 1000.318

Figure 2.5.1

3.1 Documentation Guidelines

This publication documents program UCMD 99 per "Software Documentation Guidelines and Procedures for Applicon Systems," SAND79-1831, January 1978.

3.2 Date of Documentation

March 19, 1980.

3.3 Name of Program

UCMD 99

3.4 Name of Author of Program

Bruce C. Whittet, 2454

3.5 Name of Program Administrator

W. R. Bopp, 2457

3.6 Date Program Was Completed

January 1, 1980

3.7 Brief Description of the Program

UCMD 99 reads XYZ coordinates stored on magnetic tape and adds specified components to the drawing file. Component type and level assignments input by the user at execution time; component changes are determined by the tape data.

3.8 Full Narrative Description of the Program

Upon execution of UCMD 99 record header and coordinate instance declarations are made for DSA routines. Assignment of logical unit 3 as MT0: is made.

In the second phase, the DSA buffers are established with the SETUP routine. Then the IDSA routine is called to initialize the data structure.

Subroutine UNITS1 then returns the natural units to variable SF for scaling of input data to be added to the drawing file.

UCMD name a version number is output to the terminal and a request for user input of component name, level and if cell. If level is greater than one, SHIFTR sets the appropriate bit for level assignment. NAMCID routine returns CID type to CIDTK.

If polyarc is being added, component name is returned to activity display along with level assignment. The first 80 characters are

read into the buffer from tape and decoded into ICHECK, XYZ. ICHECK is then checked. If ICHECK is a '1', a record header is called with RAHDR and the vector is scaled with SF and added with RACRD routine and the next 80 characters are read from tape. If a '0' is read into ICHECK, the next vector is added. If a '1' is read into ICHECK, a new record header is called. If ICHECK contains a '2', FINADD is called and a new component name is requested.

When a cell is named, UCMD 99 jumps to a block of program that sets up the cell MATRIX and changes the record type to that of a cell. Here only RAHDR is called for cell addition. Again if ICHECK contains a '2', a new component name is requested.

At EOF the message 'END OF DATA', 'RUN COMPLETE' is output to the terminal and the final FINADD is called. The tape is rewound and 'stop -UCMD99- ' is given. Control returns to the user and the new drawing is displayed.

3.9 Hardware Configuration Required

UCMD 99 executes on an Applicon Graphic System using a Digital Equipment Corporation PDP-11 minicomputer. Peripheral devices required for input/output operations are a graphic device, keyboard, tablet, and tape drive.

3.10 Language Used

UCMD 99 is written in DEC PDP-11 RSX11-M language and compiled using Fortran IV with subroutines using MACRO-11 language.

3.11 Operating System Used

UCMD 99 executes in the user command environment of an Applicon AGS/880 operating system of version 8.5.

3.12 Type of Program

UCMD 99 is a main program which executes in the Applicon operating system as a user activated overlay.

3.13 Special Routines Used

Special routines used within UCMD 99 are linked from the Applicon library module FOR881.OLB.

UCMT99.TSK is the user command table load module used with LOVALL for UCMD 99.

3.14 Form of Program

The UCMD 99 absolute load module resides on the MADDS AGS/880 production disk packs under the file name UCMD 99.n located in area [COMMON,COMMON].

3.15 Files

UCMD 99 does not create, modify, or delete any tape or disk files during execution.

3.16 Program Flow Chart

See Figures 3.16.1 and 3.16.2.

3.17 Program Listing

A current source listing is available from Org. 2424 Software Coordinator.

3.18 Backup Capability

The following is a list of all the files necessary to rebuild UCMD 99. Included in this list is a file named BLD99.BAT. This file contains all of the RSX/BATCH commands to assemble, link, and LOVALL the UCMD 99 program. The current backup tape and version should be obtained from the Software Certificate.

UCMD99.FTN

UCMD99.MAC

BLD99.BAT

FOR881/LB

Figure 3.16.1

Figure 3.16.2

4.0 Record of Changes to Program

See the UCMD 99 Software Certificate.

5.0 Key Words

Applicon Graphic System, MADDS, drawing file, user command, component, cell, data tape.

6.0 References

Fortran User Command Interface Option AGS/881 System Reference Manual, Revision B, Applicon Incorporated, Burlington, Massachusetts, September 1978.

PDP-11 Fortran Reference Manual, DEC-11-LFLRA-C-D, Digital Equipment Corporation, Maynard, Massachusetts, December 1975.

PDP-11 Processor Handbook, Digital Equipment Corporation, Maynard, Massachusetts, April 1975.

MADDS User Guide AGS/880, Sandia Laboratories, Org. 2424

AGS/880 User's Guide, Applicon M-4080, Applicon Incorporated, Burlington, Massachusetts, August 1979.

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