INTEGRATED INFORMATION
SUPPORT SYSTEM (IISS)
Volume III - IISS Configuration Management
Part 12 - IBM Installation Guide

General Electric Company
Production Resources Consulting
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Schenectady, New York 12345

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This technical report has been reviewed and is approved for publication.

DAVID L. JUDSON, PROJECT MANAGER
AFWAL/MLTC
WRIGHT PATTERSON AFB OH 45433

5 Aug 1976

FOR THE COMMANDER:

GERALD C. SHUMAKER, BRANCH CHIEF
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WRIGHT PATTERSON AFB OH 45433

1 Aug 86

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**Abstract**

This installation guide provides step-by-step instructions for installing IISS from the IBM release tape onto any IBM containing the prerequisite system hardware and software.

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**Task No.** 62

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Part 12 - IBM Installation Guide

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The Integrated Information Support System is a test computing environment used to investigate and demonstrate and test the concepts of information management and information integration in the contexts of Aerospace Manufacturing. Specifically, IISS addresses the problems of integration of data resident on heterogeneous databases supported by heterogeneous computers, interconnected via a Local Area Network. A common Data Model is maintained and provides the mechanism required to integrate the data.
PREFACE

This installation guide covers the work performed under Air Force Contract F33615-80-C-5155 (ICAM Project 6201). This contract is sponsored by the Materials Laboratory, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Gerald C. Shumaker, ICAM Program Manager, Manufacturing Technology Division, through Project Manager, Mr. David Judson. The Prime Contractor was Production Resources Consulting of the General Electric Company, Schenectady, New York, under the direction of Mr. Allan Rubenstein. The General Electric Project Manager was Mr. Myron Hurlbut of Industrial Automation Systems Department, Albany, New York.

Certain work aimed at improving Test Bed Technology has been performed by other contracts with Project 6201 performing integrating functions. This work consisted of enhancements to Test Bed software and establishment and operation of Test Bed hardware and communications for developers and other users. Documentation relating to the Test Bed from all of these contractors and projects have been integrated under Project 6201 for publication and treatment as an integrated set of documents. The particular contributors to each document are noted on the Report Documentation Page (DD1473). A listing and description of the entire project documentation system and how they are related is contained in document FTR620100001, Project Overview.

The subcontractors and their contributing activities were as follows:

**TASK 4.2**

<table>
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<tr>
<th>Subcontractors</th>
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<tr>
<td>Boeing Military Aircraft Company (BMAC)</td>
<td>Reviewer</td>
</tr>
<tr>
<td>D. Appleton Company (DACOM)</td>
<td>Responsible for IDEF support, state-of-the-art literature search</td>
</tr>
<tr>
<td>General Dynamics/ Ft. Worth</td>
<td>Responsible for factory view function and information models</td>
</tr>
</tbody>
</table>
Subcontractors | Role
---|---
Illinois Institute of Technology | Responsible for factory view function research (IITRI) and information models of small and medium-size business
North American Rockwell | Reviewer
Northrop Corporation | Responsible for factory view function and information models
Pritsker and Associates | Responsible for IDEF2 support
SofTech | Responsible for IDEFO support

**TASKS 4.3 - 4.9 (TEST BED)**

Subcontractors | Role
---|---
Boeing Military Aircraft Company (BMAC) | Responsible for consultation on applications of the technology and on IBM computer technology.
Computer Technology Associates (CTA) | Assisted in the areas of communications systems, system design and integration methodology, and design of the Network Transaction Manager.
Control Data Corporation (CDC) | Responsible for the Common Data Model (CDM) implementation and part of the CDM design (shared with DACOM).
D. Appleton Company (DACOM) | Responsible for the overall CDM Subsystem design integration and test plan, as well as part of the design of the CDM (shared with CDC). DACOM also developed the Integration Methodology and did the schema mappings for the Application Subsystems.
Subcontractors and other prime contractors under other projects who have contributed to Test Bed Technology, their contributing activities and responsible projects are as follows:

<table>
<thead>
<tr>
<th>Subcontractors</th>
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<tbody>
<tr>
<td>Digital Equipment Corporation (DEC)</td>
<td>Consulting and support of the performance testing and on DEC software and computer systems operation.</td>
</tr>
<tr>
<td>McDonnell Douglas Automation Company (McAuto)</td>
<td>Responsible for the support and enhancements to the Network Transaction Manager Subsystem during 1984/1985 period.</td>
</tr>
<tr>
<td>On-Line Software International (OSI)</td>
<td>Responsible for programming the Communications Subsystem on the IBM and for consulting on the IBM.</td>
</tr>
<tr>
<td>Rath and Strong Systems Products (RSSP) (In 1985 became McCormack &amp; Dodge)</td>
<td>Responsible for assistance in the implementation and use of the MRP II package (PIOS) that they supplied.</td>
</tr>
<tr>
<td>SofTech, Inc.</td>
<td>Responsible for the design and implementation of the Network Transaction Manager (NTM) in 1981/1984 period.</td>
</tr>
<tr>
<td>Software Performance Engineering (SPE)</td>
<td>Responsible for directing the work on performance evaluation and analysis.</td>
</tr>
<tr>
<td>Structural Dynamics Research Corporation (SDRC)</td>
<td>Responsible for the User Interface and Virtual Terminal Interface Subsystems.</td>
</tr>
</tbody>
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Subcontractors Role

General Dynamics/Ft. Worth Responsible for factory view
<table>
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<tr>
<th>Contractors</th>
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<th>Contributing Activities</th>
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<td>Boeing Military Aircraft Company</td>
<td>1701, 2201,</td>
<td>Enhancements for IBM node use. Technology Transfer to Integrated Sheet Metal Center</td>
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<td>(BMAC)</td>
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<td>Control Data Corporation (CDC)</td>
<td>1502, 1701</td>
<td>IISS enhancements to Common Data Model Processor (CDMP)</td>
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<td>D. Appleton Company (DACOM)</td>
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<td>IISS enhancements to Integration Methodology</td>
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<tr>
<td>General Electric</td>
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<td>Operation of the Test Bed and communications equipment.</td>
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<tr>
<td>Hughes Aircraft Company (HAC)</td>
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<td>Structural Dynamics Research</td>
<td>1502, 1701,</td>
<td>IISS enhancements to User Interface/Virtual Terminal Interface (UI/VTI)</td>
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<td>Corporation (SDRC)</td>
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SECTION 1

INTRODUCTION

This guide accompanies the Release 1.8 of IISS for installation on an IBM MVS computer. It provides the instructions for installing the IISS Network Transaction Manager (NTM) and Communications to a VAX computer running IISS.
SECTION 2

NECESSARY HARDWARE AND SOFTWARE

The following system hardware and software should be sufficient for the installation and operation of IISS. It is possible that lower versions of some software may be sufficient.

- IBM 4341, 303X, or 308X
- 150 Cylinders 3330 Disk Space or equivalent
- 1600 BPI tape drive
- MVS/SP 1.3 or MVS/XA
- Assembler H Ver. 2
- COBOL VS R2.3
- 'C' Compiler
- ACF/VTAM Ver. 2
The format of the release tape for the IISS IBM is an ANSI labeled, 9-track tape written at 1600 bpi. It is a multi-file tape with each file having the format of an IEBUPDTE input data stream. Each file has a logical record length of 128 bytes with a blocksize of 2048 bytes.

At the present time all program source record length is 80 characters or less; therefore the installation JCL will truncate the 128 byte records to 80 byte records for the appropriate compilers.
SECTION 4
INSTALLATION

(1) Create the following JCL and submit to download file 1 to disk from the tape. This file contains the JCL needed to continue the IISS installation.

```plaintext
//IISS JOB (ACCT,'IISS SYSTEM'),
// PRTY=07,CLASS=A,TIME=3,MSGCLASS=A
// CREATE JCL BUILD DATASET
// REPLACE DATASET NAMES WITH YOUR INSTALLATION SPECIFIC NAMES
//DOWNLOAD PROC IISS='IISS', * IISS SYSTEM HIGH LEVEL INDEX
   R='R18', * IISS RELEASE LEVEL
   SUNIT='TAPE9', * SOURCE TAPE UNIT NAME
   SVOL='IISS16', * IISS TAPE VOLUME SERIAL NUMBER
   DUNIT='3330', * DESTINATION DASD UNIT NAME
   DVOL='IISS01', * DESTINATION VOLUME SERIAL
//STEP1 EXEC PGM=IEBGENER,REGION=512K
//SYSUT1 DD DSN=FOR007.DAT,DISP=(OLD,KEEP),
   LABEL=(1,AL),UNIT=SUNIT,VOL=SER=SVOL,
   DCE=(LRECL=128,BKSIZE=2048,RECFM=FB,OPTCD=Q)
//SYSUT2 DD DSN=TEMP,DISP=(NEW,PASS),
   DCE=(LRECL=80,RECFM=FB,BKSIZE=3120),
   SPACE=(CYL,(5,5,20),RLSE),UNIT=SSQ
//STEP2 EXEC PGM=IEBUPDTE,REGION=256K,PARM=NEW
//SYSUT3 DD SYSOUT=A
//SYSUT2 DD DSN=IISS..&R..BUILD,DISP=(NEW,CATLG,DELETE),
   DCE=(LRECL=80,RECFM=FB,BKSIZE=3120),
   SPACE=(CYL,(5,5,20),RLSE),UNIT=DUNIT,VOL=SER=DVOL
//PEND
//STEP1 EXEC DOWNLOAD,R='R18',DUNIT='3380',
   SUNIT='TAPE9',SVOL='IISS16',DVOL='D80036'
//STEP1.SYSIN DD *
   GENERATE MAXFLDS=1
   RECORD FIELD=(80)
```

The 'BUILD' dataset just created now contains the JCL necessary to install IISS. The user must modify the JCL to meet
his installation specific requirements.

(2) It is first necessary to create the partitioned datasets (PDSs) that will contain the IISS source programs. This is done by submitting the member BLDSPDS of the BUILD dataset.

(3) Once the PDSs are built, the PDSs are loaded with the IISS source programs by submitting the member SRCLOAD.

(4) Submit member BLDLOAD to create source member load libraries that will be used for linking the source programs.

(5) Members IISSASM, IISSASR, IISSCOB, IISSCCX, IISSFOR, and IISSLNK are used by the compilation steps of the installation and must be installed into a system procedure library such as SYS1.PROCLIB.

(6) Member IHCPGEN of the IPC library identifies to IISS the VTAM application name for IISS Inter Host Communications and the terminal nodename of the communications link to the VAX. Modify this member to your installation specific VTAM names. Additional information may be found in the section titled 'Inter-Host Communications Installation'.

(7) All members of the BUILD dataset beginning with 'CL' are JCL to perform compilations of the IISS source code. These members may contain multiple JOB cards; therefore modification may be necessary.

- Submit member CLIPC18 to compile the IBM system primitive routines.
- Submit member CLCOMM18 to compile the communications application.
- Submit member CLNTM18 to compile the NTM programs.
- Submit member CLCDM18 to compile the CDMP utility programs.
- Submit member CLUI18 to compile the User Interface routines.

(8) Submit member FLCREAT to create the IISS runtime libraries.

(9) All member of the BUILD dataset beginning with 'LK'
are used to link the source programs into the executable load modules.

- Submit member LKIPC18 to link the IBM primitives.

- Submit member LKCOMM18 to link the communications application.

- Submit member LKNMTM18 to link the NTM Monitor, MPUs, AP services, and NTM test programs.

- Submit member LKCDN18 to link the CDNP utility programs.

- Submit member LKUI18 to link the User Interface programs.

(10) Submit ALIAS to assign alias names to the generated load modules.

(11) IISS requires approximately 20 cylinders of VSAM data space for its message queues and table overflow datasets. Define this data space to a VSAM catalog and modify members VSAMBLD and VSAMCLR to point to this VSAM data space and catalog.

(12) Submit VSAMBLD to create the necessary VSAM runtime datasets.

(13) Submit member FILINIT to install the default IBM IISS parameters into the runtime datasets.

(14) Install member MSTRIIS into a system procedure library. This JCL is used to run IISS.
IISS should now be started by issuing the following on a MVS system console.

S MSTRIIS
SECTION 6
INTER-HOST COMMUNICATIONS INSTALLATION

For each remote host to be communicated with, you must code an additional IHCPGEN module. This module must be assembled and link-edited as reentrant. The name given to this module must match the terminal id or port-name the COMM uses to refer to this host. A VTAM application definition statement must be placed in your system's VTAMLST. The ACBNAME parameter must agree with the value of the APPLID parameter coded on the IHCPORT macro. The format of an APPL statement is:

REMOHOST APPL AUTH-ACQ,ACBNAME-REMOVAX

REMOVAX is the value coded for APPLID on the corresponding IHCPORT macro.

The communications lines connecting each host must be defined and varied active prior to starting the inter-host link. The label on the LU parameter defined by your VTAM system programmer must match the value coded for the VTRESID parameter in the IHCPORT macro.

CODING OF THE IHCPORT MACRO.

Each communications link between two IISS systems will have a load module associated with it that will contain all the VTAM control blocks necessary to establish and maintain communications. This module will have the same name as the PORT-NAME in the COMM application. It is created by the 'IHCPORT' macro. The format of the IHCPORT macro is shown below.

IHCPORTAPPLID-xxxx,TRMID-yyyy,VTRESID-zzzz,WAITV-nnnn,TFLAG-ff

where

APPLID is the name of the VTAM ACB name coded in the VTAM APPL statement. This application must be authorized to acquire terminals.

TRMID is the port-name passed by COMM to the Inter-Host Communications program to identify this module.

VTRESID is the VTAM LU name of the terminal definition associated with the port (i.e., the label on the VTAM LU macro
that defines the port).

WAITV is the maximum time in 1/100 seconds that the IHC program will wait for a response from the port. The default value is 1000 or ten seconds. It should be noted that this timeout value only applies to waiting for replies from the port. When it is necessary to wait for VTAM to schedule an event, there is no timeout.

TFLAG is an option to specify terminal characteristics. Currently, only values of '00' or '80' are supported with '80' being the default. A value of '80' indicates whether the port will support VTAM data flow control request units (DFC RUs) and other characteristics of a terminal with a FM profile of 3 and a TS profile of 3. The default value will treat the port as a remote 3274 or 3276 SNA terminal and a value of '00' will treat it as a local, non-SNA 3270.
SECTION 7
DATASET NAMING CONVENTION

Below are the default dataset names that will be created during installation of IISS release 1.8.

IISS.R18.BUILD
    Installation JCL library
IISS.R18.LOADLIB
    Program load library
IISS.R18.IISSCLIB
    COBOL copy source library
IISS.R18.IISSHLIB
    'C' include source library
***************
IISS.R18.IPC
    IPC source library
IISS.R18.NTM.MONITOR
    NTM MONITOR source library
IISS.R18.NTM.MPU
    NTM MPU source library
IISS.R18.NTM.TEST
    NTM TEST source library
IISS.R18.NTM.SERVICES
    NTM SERVICES source library
IISS.R18.UI.CLIB
    'C' utility source library
IISS.R18.UI.DRIVER
    UI/VTI terminal driver library
IISS.R18.UI.FPAI
    UI/FP Appl. Inter. library
IISS.R18.CICS
    CICS Interface source library
IISS.R18.CDM
    CDMP Utility source library
***************

All dataset listed between the rows of asterisks will have a load library created as well with a '.LOADLIB' concatenated to the dataset name.

IISS run time sequential datasets

IISS.R18.SYSGEN
    System Initialization file
IISS.R18.NTMLOG
    Message Log file
IISS.R18.ERRLOG
    Error Log file
IISS.R18.HSTTBL
    Host Status Table
IISS.R18.APCTBL
    APC Status Table
IISS.R18.APITBL
    AP Information Table
IISS.R18.APITBL
    AP Characteristics Table
IISS.R18.CATBL
    Message Category Table
IISS.R18.DIRTBL
    AP Directory Table
IISS.R18.LOGTBL
    User Logon Table
IISS.R18.ACTTBL
    Message Authority Check Table
IISS.R18.AUTTBL
    Message Authority Table
IISS.R18.AGNTBL
    Test Data Table
IISS.R18.MRIWTI
    Waiting-To-Initiate Message Queue
IISS.R18.COVTI
    Waiting-To-Initiate Message Queue
IISS.R18.UIIWTI
    Waiting-To-Initiate Message Queue

7-1
IISS.R18.T1IWTI  Waiting-To-Initiate Message Queue
IISS.R18.OTHWTI  Waiting-To-Initiate Message Queue
IISS.R18.OTMDLQ  Message Delivery Queue

IISS run time VSAM datasets

IISS.R18.APOTBL  AP Operating Information Table
IISS.R18.APSTBL  AP Status Table
IISS.R18.CLDTBL  AP Child Table
IISS.R18.MPRTBL  Message Pair Table
IISS.R18.IATTBL  AP I'm Alive Table
IISS.R18.GDMGS  Guaranteed Delivery Message Queue
IISS.R18.GRDSTSB  Guaranteed Delivery Message Status Table
IISS.R18.APCQUE  OFF-APC Message Queue
IISS.R18.APQUE  ON-APC Message Queue
END
7-87
DTIC