

# NEW FEATURES IN RELEASE 7.0

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## PERFORMANCE ENHANCEMENTS

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### **Pooled Tables (R7.0.8)**

The Pooled Tables Performance Option enables efficient creation of multiple reports, graphics, and extract files with only a single pass against any database that FOCUS can report from. It dramatically minimizes database I/O and the related CPU costs. Pooled Tables can be implemented without any changes to FOCUS application code. Simple configuration settings allow individual applications or groups of requests to be fully optimized to exploit pooling.

### **IUCV CMS SU (R7.0.8)**

Inter-user communications vehicle is now supported for CMS SU. This is a desirable protocol as the master processor is not enqueued serially per request. IUCV also offers performance gains when compared to the VMCF communications protocol.

IUCV is not supported for any release prior to R7.0.8. If any earlier release of FOCUS is used with an IUCV server the results are unpredictable. Please see the Simultaneous Usage Reference Manual, CMS Version (DN 1000015.0797)

### **Automatic Allocation of FOCUS Files (R7.0.8)**

The automatic allocation of FOCUS files in MVS FOCUS has been removed from FOCUS Release 7.0.1.

### **External Indices for FOCUS Databases**

External Indices enable indexing on concatenated FOCUS databases, indexing on DEFINEd fields and indexing records selected through WHERE and IF tests.

### **External Sort**

Formerly a HiperFOCUS feature, External Sort can now be employed to deliver significant performance enhancements for TABLE, MATCH and GRAPH commands.

### **Automatic Indexed Retrieval (AUTOINDEX)**

FOCUS can now automatically perform indexed retrieval for TABLE requests containing equality or range tests.

### **AUTOPATH**

FOCUS can now automatically select optimal retrieval paths by choosing the lowest possible segment within a hierarchy as its entry point. This enhances performance by reducing database I/O.

### **Pre-Loading Access File Descriptions**

Interface Access Files can now be pre-loaded into memory, reducing I/O required each time they are referenced.

### **Improved Page Handling -- SET TRACKIO**

This feature enhances FOCUS performance by reducing I/O for FOCSORT files and FOCUS databases read from disk. Twelve 4K blocks are read/written for each TABLE, MODIFY and MAINTAIN request.

## **Aggregation Optimization (R7.0.3)**

TABLE requests that contain the SUM verb and use an external sort enjoy performance gains in CPU time from 5%-15% due to aggregation optimization. These gains are achieved by passing aggregated records to an external sort avoiding the FOCUS merge process.

## **MINIO (R7.0.5)**

A new buffering technique for sequentially organized FOCUS files significantly reduces I/O and elapsed times when reading and writing FOCUS files. It is used in conjunction with the TRACKIO feature to further optimize database I/O operations.

## **FIXRETRIEVAL (R7.0.5)**

Logical keys are created for FOCUS HOLD files. This greatly enhances retrieval by reading only those key records that match the IF/WHERE selection criteria in the query. This ensures that an entire HOLD file is not read unnecessarily. The request that creates the HOLD file must contain a BY field which ensures sorting. The HOLD MFD now includes SEGTYPE=Sn or SHn, where n is the number of BY fields coded in the query.

## **RAISED LIMITS**

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### **Specifying up to 256 Verb Objects**

The old verb object limit of 95 has been raised to 256.

### **Longer Length for HOLD FORMAT LOTUS Files**

The old LRECL limit of 240 has been raised to 512.

### **Increased Size of FOCSORT**

The FOCSORT work file size has been increased from 64K pages to 256K pages.

### **Larger FOCUS Databases**

The maximum FOCUS database size has been increased from 64K pages to 256K pages. The 64 segment limit has not changed.

### **Multi-Image FOCSORT (R7.0.6)**

The MVS FOCSORT work file may now expand upon its initial allocation up to a total of 16 temporary datasets. A new temporary dataset is allocated when the initial FOCSORT space is exhausted. The size of these temporary datasets is based upon the first FOCSORT allocation.

### **Increased Number of Indices**

The number of combined real segments, plus indices, plus text segment has been increased to 189.

### **Large Packed Fields**

FOCUS Release 7.0 now supports 31-digit packed numbers.

### **Increased Number of Literal Values in a File**

The old limit of 3200 bytes has been raised for FOCUS and SQLDS files. FOCUS now supports up to 32,767 literals in an IF field EQ ddname selection.

## REPORTING ENHANCEMENTS

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### Universal Concatenation

Multiple data sources may be read in one retrieval request. Disparate file types can be concatenated to appear as though they are one file.

### Renaming/Rejustifying Row and Column Total Labels

COLUMN-TOTAL and ROW-TOTAL labels can now be renamed and justified right, left or center in your reports.

### Using StyleSheets

FOCUS now supports the creation of presentation quality postscript 'styled' reports. Changes to the fonts, sizes, styles, and colors can all be made during your FOCUS session.

### Count Distinct (R7.0.3)

The DISTINCT verb object operator may be used to aggregate and list unique values of any database field. Similar in function to the SQL COUNT(DISTINCT COL) column function, it permits you to determine the total number of distinct values in one pass of the database.

### Scrolling report Headings in Hotscreen (R7.0.5)

You can to scroll headings and footers along with report contents by using a new SET command called BYSCROLL. The syntax for BYSCROLL is SET BYSCROLL=ON/OFF where ON enables BYSCROLL and OFF disables BYSCROLL. OFF is the default setting. In order to make use of BYSCROLL, the text of the report must be greater than 80 characters and BYPANEL must be set to ON.

### Expanding Byte Precision for COUNT and LIST (R7.0.8)

The COUNT and LIST verbs have been expanding from 5 to 9 bytes of precision. This internally reformats COUNT and LIST from I5 to I9.

### Increasing the Amount of Verbs in a Report Request (R7.0.8)

The number of verbs for a multi-verb request has been increased from 6 to 16.

### Assigning Screening Conditions to a File for Reporting Purposes (R7.0.8)

A filtering mechanism that assigns screening conditions to a file has been added to the functionality of TABLE.

## DIALOGUE MANAGER ENHANCEMENTS

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### Determining which FOCEXEC is Running

&FOCFOCEXEC and &FOCINCLUDE are new Dialogue Manager variables that contain the name of the currently executing FOCEXEC and the current INCLUDED FOCEXEC, respectively.

### Capturing SET Parameter Values

The values of your FOCUS SET commands can now be stored in Dialogue Manager variables. In prior releases, the values of these settings were only displayed via ? SET.

## **MAINTAIN**

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MAINTAIN is Information Builders' new facility for maintaining data files, and replaces MODIFY as its premier data maintenance tool. It has been designed to meet the needs of the FOCUS community for building sophisticated and robust applications reliably and efficiently. It addresses many of the suggestions about MODIFY that FOCUS users have offered, and incorporates state-of-the-art data processing concepts and technology.

MAINTAIN combines power and simplicity in a single data management facility. It incorporates the following features:

### **Set-Based Processing**

You can manipulate groups of database records at the same time. You can define the group as a sequential range of records, as all records that satisfy selection criteria, or a combination of the two. For example, you can select and retrieve all of the records for the first 100 employees who have the job code A25 using just a single MAINTAIN command!

### **Record-at-a-Time Processing**

In addition to set-based processing, you can also identify and work with one record at a time, as in

### **Sophisticated Graphical User Interface (GUI)**

You can use the Winform Painter to create sophisticated interactive windows for entering data, displaying information, and selecting options. You can design Winforms to include user-friendly features such as dialog boxes for requesting special information, check boxes for making choices, buttons for invoking actions, and entry fields with automatic data validation for entering valid values.

### **Triggers and Event-Driven Processing**

The flow of control in conventional processing is mostly pre-determined. That is, the programmer determines the few paths that the user will be able to take through the procedure. To make your application more responsive to the user via the graphical user interface MAINTAIN introduces triggers and event-driven processing. A trigger is a specified event that invokes "triggers" a procedure. Each time that the event occurs, the procedure is invoked. In MAINTAIN, the invoked procedure is a case or special function, and the event is something the user does in a Winform. For example, you might create a trigger for retrieving data: it would notice whenever a user clicks a certain button on the Winform, and react by retrieving the specified data from the database and displaying it in the Winform.

### **Event-Driven Development**

Developing a request by writing out sequential lines of code may be sufficient for conventional linear processing, but event-driven processing demands event-driven development. Developing an application in this way enables you to build much of the application's logic around the user interface. For example, you could start by developing part of the user interface (a Winform), then assign a trigger to a particular Winform event, specify the action (that is, the case) associated with the trigger, and finally code the case - all from within the Winform Painter.

## **Improved Flow-or-Control**

MAINTAIN provides many different ways of controlling the flow of a procedure by using enhanced versions of commands found in MODIFY as well as entirely new commands and functions. For example, you can transfer control via PERFORM, GOTO, and CALL; perform conditional actions using IF; specify blocks of code with CASE and BEGIN; and loop via REPEAT.

## **Transaction Integrity**

MAINTAIN enables you to define a transaction in ways that are meaningful to your application: one transaction can include multiple INCLUDE, UPDATE, and DELETE operations. MAINTAIN respects your DBMS's transaction integrity strategy, and lets it ensure that the entire transaction is written to the database only if all of its component operations were successful. (This is not supported for concurrent database access in Release 7.0.)

## **Modular Processing**

You can create several MAINTAIN requests which work together, one request calling another.

## **Client-Server Processing**

A MAINTAIN request can call other requests residing on different nodes of a network. In this way, you can locate different parts of your application on different platforms to leverage the strengths of each platform. This also enables cooperative processing, so that one MAINTAIN transaction can process related data on many different nodes.

These are just some of the features you can use to develop powerful, flexible data management requests. The MAINTAIN facility is fully documented in a separate volume with a complete language reference and examples of syntax (DN1001000.0495).

## **MISSING (R7.0.3)**

Missing values are now supported in MAINTAIN.

The MISSING attribute may be placed in the Master File Description in the declaration of the field missing the values, after the format.

## **VSAM Support (R7.0.5)**

MAINTAIN now supports read/write functionality for VSAM databases. When using MATCH logic, do not MATCH on the GROUP but on the individual fields that make up the GROUP KEY.

## **WINFORM SET/GET Command (R7.0.5)**

MAINTAIN now allows dynamic changing of object attributes in a WINFORM. The WINFORM SET command is used to change objects. The WINFORM GET command allows you to save the value of the object setting a variable.

## **MAINTAIN Improved SU Performance (R7.0.5)**

MAINTAIN SU now uses data compression with very large blocks of data to maximize throughput for the client applications. This feature can be exploited by using set-based MAINTAIN requests in the form of: FOR ALL NEXT...WHERE...INTO.

## **New WINFORM Objects (R7.0.5)**

Three new OBJECTS were added to the WINFORM painter: LISTBOX, COMBOBOX and RADIO GROUPs.

## Field Level PFKeys (R7.0.5)

The FORMS menu has been enhanced with two new selections: Triggers and Actions.

## Maintain Updates (R7.0.7M)

This release of CMS and MVS FOCUS contains over 150 fixes for the Maintain product. This is a full function FOCUS release which was created primarily to deliver Maintain fixes. Please refer to the known problems section of READMEF for a listing of Maintain problems.

## GENERAL FOCUS ENHANCEMENTS

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### Enhanced ? SET Command

A complete list of all FOCUS parameters that can be set is now available with the ? SET ALL command.

### Project 2000 (R7.0.5)

Year 2000 is approaching and the two-digit year displays will no longer be valid. It is critical that all applications be able to identify and calculate correctly the correct first two digits in a four digit year displays. FOCUS handles this situation by allowing users to define 100 year spans in which date calculations are made. Two new keywords are introduced for establishing date reanges and thresholds, they are: DEFCENT for default century and YRTHRESH for year threshold.

### Project 2000 - Phase II (R7.0.6)

The second phase of the cross-century dates feature expands the sliding window technique to include setting at the file and field level of applications. Four new settings were added for Master File Descriptions: FDEFCENT and FYRTHRESH at the file level, and DEFCENT and YRTHRESH at the field level.

### Project 2000 and SiteAnalyzer (R7.0.7)

SiteAnalyzer monitors queries. Each time an end user issues a TABLE request, SiteAnalyzer records query and environmental attributes about that request. This information includes many attributes about the fields being accessed, including the usage and format attributes. This means that SiteAnalyzer records:

- Whether a TABLE request accesses a date field.
- Whether the date field is a new date format (number of days since the beginning of the twentieth century) or an old date format (the integer representation of YMD).
- How the date is being used (i.e., YYMMDD or YYYYMMDD).
- Whether the field is a real field in the database, a permanent DEFINE in the MFD, or a temporary DEFINE or COMPUTE.
- Whether a date field is used in a DEFINE or COMPUTE.
- Whether a date field is used as a sort field.
- The name of the MFD containing the date field.
- The name of the FOCEXEC containing the TABLE or MODIFY request.
- The user id of the user executing the FOCEXEC.
- Whether the request was issued interactively or in batch (if in batch, the JOB name is also recorded).
- The PDS that contains the MFD.
- The PDS that contains the FOCEXEC.

information just specified, SiteAnalyzer will flag an extraordinary date usage (e.g., in computations, comparisons, new-to-old conversions) and record the line number in the MODIFY where this occurs.

As SiteAnalyzer can monitor all FOCUS TABLE and MODIFY usage, this information can assist you with inventory, project scoping, examination, analysis and solution design, modification, integration/user acceptance test and project management for your FOCUS year 2000 project plan.

### **Project 2000 - Phase III (R7.0.8)**

The third and final phase of our year 2000 compliance for FOCUS includes rewritten user subroutines which perform date manipulations. They are: AYMD, AYM, YM, CHGDAT, GREGDT, JULDAT, DAXxx, DTxxx and FOCUS functions YMD,DMY,MDY. These subroutines and functions will now allow for century digit interpretation via the DEFCENT and YRTHRESH FOCUS settings. Date calculations for these subroutines may now extend beyond year 1999. The subroutines have also been enhanced to respect the last argument which may contain the output format from the subroutine.

### **FOCUS File Date and Time Stamp**

Each time a FOCUS file changes, date and time stamps are applied to the database. This occurs when changing data with SCAN, FSCAN, CREATE, REBUILD, HLI, MAINTAIN, and MODIFY. REBUILD may be used to apply this date and time stamp.

### **Generalized Listings of DDNAMES**

? TSO DDNAME now supports truncation of DDnames with wildcards.

### **Enhancement to the TED Command in MVS**

Members of the FOCEXEC PDS may now be edited without mentioning ddname FOCEXEC.

### **SET SAVEMATRIX (R7.0.3)**

The internal matrix may be preserved after Dialogue Manager commands and after the conversion of TABLE to TABLEF.

### **Improved Handling of Text Fields in TED**

Text fields have been significantly improved in Release 7.0 so text data may be displayed in TED exactly as entered into the database.

### **FOCPARM Enhancements**

This file may be used to implement site-wide configuration parameters. It is now required for FOCUS Release 7.0.

### **Changes to the Catalog Search in FOCUS**

A catalog search no longer occurs in order to dynamically allocate FOCUS databases. All FOCUS databases must be explicitly allocated prior to using them.

### **FOCUS Client (R7.0.5)**

Remote procedures and Suffix=EDA queries are now supported for CS/2. This includes any queries that are coded with, -REMOTE BEGIN ... -REMOTE END.

### **Enhancements to JOIN (R7.0.6)**

The JOIN command permits the joining of two files containing different numeric datatypes. This enhancement provides enormous flexibility for creating reports from joined files.

### **Interpreting Quotation Marks within Strings (R7.0.6)**

FOCUS can interpret quote delimited strings containing embedded quotation marks. FOCUS treats two contiguous quotes within a quote-delimited string as a single literal quote. Coding, IF AIRPORT EQ 'O'HARE', is supported.

### **Estimating SORTWORK Signs for External Sort (R7.0.6)**

The parameter 'FILSZ=En' enables the sorting algorithms to estimate SORTWORK space requirements for each sort parameter request. A new FOCUS set switch, ESTRECORDS, is used to pass the estimated number of records to be sorted in the request.

### **Extended Plists (R7.0.8)**

Extended plists are now available in FOCUS in order to accommodate certain new VM commands, such as STORMAP and PIPE.

### **Date Handling for the Year 2000 in FOCUS (R7.0.8)**

FOCUS displays a complete 4-digit year in all parts of FOCUS. The new format is MMDDCCYY.

### **Sink Validation of Userids in CMS (R7.0.8)**

A new file has been created in CMS to help verify who may connect to a specific CMS sink id.

### **Dynamic Language Environment (LE) Support (R7.0.8)**

IBM's recommended platform for high level language products is known as Language Environment for VM and MVS. It provides a unified platform for runtime services used by LE supported languages. FOCUS user-written subroutines can now be linked using IBM's LE environment.

### **TABLA Enhancements or Default Space Allocation Table for Work Files (R7.0.8)**

FOCUS output datasets not allocated by the user are allocated dynamically by FOCUS itself.

### **Year 2000 Subroutines (R7.0.8)**

Enhancements have been made to subroutines that handle dates.

### **Extended Support for Scandinavian External Sort (R7.0.8)**

FOCUS supports external sort with the Scandinavian National Languages Character set, and is able to pass the sort sequences for Swedish, Danish, Finnish, and Norwegian to the external sorting products.

### **The Web Interface for FOCUS**

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The New Web Interface for FOCUS is now available. With the Web Interface, you can access your FOCUS applications from any standard Web browser (such as Netscape Navigator or Microsoft Internet Explorer) rather than a 3270 terminal. Existing applications can be "webified" with little or no changes to the application and new applications can be written for the Internet or Intranet which take full advantage of the web's styling capabilities and universal accessibility.

### **HTML Formatted Reporting (R7.0.7)**

FOCUS Reports can now be styled for the web environment in web-standard HTML (hypertext markup language). You activate this styling using traditional `STYLESHEET` syntax with new extensions specifically designed for the web. You can now add colors, fonts, boldface, italics and other advanced styling to new or existing FOCUS reports and view these reports in any web browser without ANY specialized desktop software. You can even include conditional styling (stoplighting) and DRILL-DOWN capabilities in your FOCUS reports for a more logical, concise, and meaningful report layout. The drill-down feature allows users to click on virtually any element in a report, including HEADINGS or graphical images, and generate a more detailed report or take some other web-based action such as FTP, or EMAIL.

These reports can be viewed immediately, or saved for viewing or distribution via the new `HOLD FORMAT HTML` feature.

### **FOCUS Interactive (R7.0.7)**

The Web Interface can be deployed in a fully online interactive environment allowing the application user to access existing FOCUS applications to the web in an internet-or intranet-based environment. The "Web Interface Server" an advanced, specialized version of our Web3270 server, provides the logon environment and form translation services for the Web interface. FOCUS forms may be presented in standard 3270 mode in your browser or you can choose to translate these forms into html for instant "Webification" of your 3270-based FOCUS applications.

### **The -HTMLFORM Dialog Manager Command (R7.0.7)**

If you'd like to create new reporting based applications which use your own customized HTML forms to generate FOCUS reports, then you can accomplish this with the new Dialog Manager command '-HTMLFORM.' This allows you to build FOCUS based applications which are truly optimized for the web environment.

### **HTMLFORM SAVE (R7.0.8)**

The -HTMLFORM SAVE feature for the WEB Interface allows you to can save html content generated by the -HTMLFORM command to a file, rather than to the screen.

## WEBHOME (R7.0.8)

This feature enables Web application developers to specify execution of a default FOCEXEC procedure in situations where FOCUS would normally return to command level. This allows them to prevent application users from accidentally or intentionally accessing command level FOCUS from within a Web application. This will ensure that the FOCUS application environment remains intact and consistent even when Web applications include drill-downs and/or allow users to access the ad hoc Java report and graph generation tools.

## Java-based Tools

New Java-based tools enable Web Interface users to create ad hoc reports and graphs right from their web browsers through a step-by-step process similar to TableTalk.

### Java Graph Wizard (R7.0.8)

Java Graph Wizard guides a user step-by-step through creating a graph. The Graph Wizard is an alternative to stored graph procedures and generates FOCUS graph syntax from the user's input.

### Java Report Assist (R7.0.8)

Java Report Assist provides a user-friendly environment for creating ad hoc reports in HTML, WP, DIF or LOTUS format. The Report Assistant supports automatic generation of complete record selection criteria, sort fields, headings and footings, subtotals, and calculations.

Complete documentation for this new product may be found in the *Web Interface Users Manual and Installation Guide Release 7.0.8*. (DN 1001038.1097).

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## Information Builders Introduces WEB390™ Secure Internet Server

WEB390 is a commercial-strength Internet server that transforms IBM mainframes into World Wide Web application and data servers, capable of supporting global Internet and Intranet activities for thousands of users. It is a secure server, with full SSL (Secure Socket Layer) protection. By linking the processing power and storage capacities of mainframes with today's Web browsers, WEB390 enables organizations to serve up mainframe data and applications over the Internet without adding costly emulation software to each end user's workstation.

Web390 affords a secure gateway to 3270-based applications in VM/CMS, MVS/TSO or CICS, allowing browser users to access the legacy applications and data that support day-to-day commercial operations. Thanks to the SSL support, you can safely use your mainframe as a repository for distributing information to your entire user population, on a broadcast or a "need to know" basis. When developing new Web applications, you can also use WEB390 to store and deliver Java applets as well as HTML, VRML, and other MIME datatypes.

WEB390 is a standalone Internet server that works with any mainframe application. It will also be offered as an optional upgrade for the Web Interface for mainframe FOCUS, to provide full SSL protection for sites planning to offer products in the public arena.

The interface is easier to install, with enhanced diagnostic facilities as well as added support for locking the keyboard and designating a special attention key.

## **FASTPDS**

I/O has been minimized for accessing data in globally allocated libraries by copying directory information for partitioned datasets in a server's startup JCL directly into memory at initialization.

## **APF Internal Authorization**

You can reduce the APF authorization requirements on the MSO server, selectively allocating modules that do not perform authorized functions to non- APF authorized libraries.

## **The MSO Resource Manager**

This facility monitors MSO usage and insures that all users share CPU resources equitably.

## **VSAM File Allocation in MSO JCL**

The new SZERO=YES parameter permits sharing of subpool zero across tasks to enable VSAM files to be allocated in MSO JCL.

## **MSO Console Browser**

This new facility permits authorized users to conveniently browse and select datasets allocated to the MSO server.

## **DYNAM Utilities Menu**

A new menuing system enables users to manipulate and submit files more easily.

## **Fast Logon Enhancements**

You can now logon directly on the VTAM screen, bypassing the logon screen.

## **Private & Public DDNAME (R7.0.5)**

If the installation elects, MSO users may allocate their own, 'private' level of Master File Descriptions or FOCEXECs that are accessed in addition to the global level.

## **Full SDSF Support (R7.0.5)**

MSO users can directly invoke SDSF from the MSO TOE screen. This may be especially useful for users who have only CICS access to the MVS system that they are running on.

## **MSO Load Balancing (R7.0.5 and 7.0.6)**

MSO users may log on to a single MSO point of contact via CICS, TSO, or VTAM and be automatically routed to one of up to 32 MSO regions. This feature provides even distribution of MSO users across MSO regions without intervention on the part of MSO administrators or users.

## **MSO VTAM Logon Time Out (R7.0.6)**

MSO administrators can set a maximum number of seconds that the MSO VTAM Logon screen is displayed by adding the parameter LOGON\_TIMEOUT in their MSO Configuration files.

## **Language Environment (LE) Support (R7.0.6)**

FOCUS user-written subroutines can be linked and run using IBM's Language Environment (LE). LE support is available for both the MVS and VM operating systems.

By exploiting this MVS 5.1 feature, we halved the virtual storage requirements below the 16 Meg line needed to support a typical FOCUS user. This enables more FOCUS users to operate in a single address space.

### **MSO Monitoring and Statistics (R7.0.6)**

MVS resource utilization reports for a region or for all users can be viewed immediately online or evaluated in MSOPRINT files. Four types of statistical information are available: On demand, Monitoring, Short on Storage, and Shutdown.

### **EDA to MSO Bridge (R7.0.6)**

Any FOCUS client (FFW, FPA, etc.) connected to an MVS EDA server can gain direct access to full functioning FOCUS using MSO.

### **Enhanced MSO Message Routing (R7.0.6)**

MSO installations can control the printing/listing destination of all MSO messages. Messages can be routed to the operator's console (WTO) or MSOPRINT or both.

### **MSO/CICS Cooperative Processing (R7.0.8)**

CICS transactions and MSO FOCEXECs may now communicate directly with each other in a synchronous mode.

## **HiperFOCUS**

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### **HiperBudget**

The HiperBudget feature of HiperFOCUS permits sites to regulate the use of expanded storage on a system-wide basis.

## **FOCUS PERSONAL AGENT (FPA)**

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### **TCP/IP Connectivity Options for TSO and VM (R7.0.6)**

Using FPA you can connect to host FOCUS via the highly efficient TCP/IP protocol. Using the Sockets interface of TCP/IP, the startup of your host-based FOCUS "server" session can be automated via the "rexec" (Remote Exec) function of TCP/IP, and data can be accessed from that remote FOCUS session as if it were local to the PC.

### **Interruptible Server for TSO and VM (R7.0.6)**

The interruptible server allows FPA users to monitor, terminate, or display partial data as the host request is processed, providing a powerful way to govern large data queries and prevent runaway requests.

## **INTERFACES**

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### **Redefines for Interfaces (R7.0.5)**

There is an enhancement to support redefined fields within records in non-FOCUS files. Redefinition is supported for IDMS, IMS, VSAM, DB2 and FIX files only.

Static SQL support enables FOCUS users to optimize processing by prespecifying and binding (for DB2) or preprocessing (for SQL/DS) those procedures that generate SQL statements, avoiding the need to reinterpret SQL statements at runtime. This provides greater control over security and performance.

## **Usability Enhancements**

The SQL Interface adds support for ASC/DESC KEYORDER and long DECIMAL datatypes, as well as enhanced EXPLAIN facilities, and the abilities to specify index space and storage parameters. Sample CLISTS and JCL are now provided in FOCSQL.DATA.

## **Optimization Enhancements**

SQL Interfaces now pass additional joins, aggregations and screening conditions (i.e., DEFINES and WHERE/MISSING) to the RDBMS's to better exploit their native capabilities.

## **Installation Enhancement for SQL/DS Interface**

A new COLLID parameter has been added for the GENFSQL, permitting users to specify a high-level qualifier other than the VM userid or SQLUID value (if one exists) for use in environments such as DRDA, where this passed value may be used as a collection id to a remote location.

## **DRDA Support Enhancements to the DB2 Interface**

The DB2 Interface for FOCUS Release 7.0 supports DRDA Level 2 commands included in DB2 Version 3 and the SET CURRENT PACKAGESET command of DB2 Version 2 Release 2 and Version 3.

## **Outer Join Optimization (R7.0.6)**

This feature improves FOCUS Relational Interface performance by enabling the interfaces to deliver better optimized SQL to RDBMS's, permitting them to optimize their own join processing. Native RDBMS Outer Join syntax is passed when FOCUS SET ALL=ON is specified.

## **Aggregations on DEFINE fields (R7.0.6)**

This relational interface enhancement delivers optimized SQL to each RDBMS, allowing the RDBMS to optimize its own execution and minimizing the size of the answer sets returned to requesters - an extremely important capability for client-server applications. FOCUS defined fields are passed as objects of the RDBMS ORDER BY clause.

## **Joins Between Heterogeneous File Types (R7.0.6)**

This new feature improves the SQL that the interfaces pass to relational database servers, improving their native abilities to optimize their own execution. The relational interface JOIN mechanism can now pass a single SELECT statement per TABLE request when all active segments of the given SQL suffix in a file comprise a contiguous single-path subtree.

## **Statement Level Isolation (R7.0.7)**

Ability to change isolation level at the statement level including UR (uncommitted Read).

## **Outer Join Optimization for the Teradata Interface (R7.0.7)**

The Teradata Interface may also optimize outer joins. For a complete description please review New Feature Bulletin NF539.

## **DB2 Interface SET ISOLATION Command (R7.0.8)**

Starting with FOCUS Release 7.0.8, interface has been enabled to take advantage of the DB2 version 4 (and higher) ability to pass an SQL statement isolation level.

## **FOCSAM INTERFACE**

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### **MAINTAIN/VSAM (R7.0.5)**

MAINTAIN supports READ/WRITE operations to VSAM files. UPDATE, INCLUDE, and DELETE actions are supported for KSDS VSAM files only. READ operations such as NEXT are supported for both KSDS and ESDS files. RRDS files are not supported.

### **VSAM Data and Index Buffers**

New SET commands BUFNI and BUFND permit users to establish DATA and INDEX buffers for processing VSAM files online.

### **DYNAM Support for BUFNI and BUFND**

The DYNAM command has also been enhanced to support the BUFNI and BUFND parameters, permitting runtime allocation of VSAM index and data buffers.

### **Dynamically Setting the Addressing Mode**

A new SET command allows you to switch the AMODE of the FOCSAM Interface so that the Interface can be run with 24-bit programs.

### **Dynamic GETPRV Exit**

The GETPRV user exit is now dynamically called at execution time. It is a substitute for internal READ calls, and includes new functionality such as reentrancy and multiple concurrent exit processors.

### **Enhancement to the ZCOMP1 User Exit**

The ZCOMP1 User Exit has been enhanced to support re-entrant code, and to provide an initialization entry point for housekeeping functions.

## **ADABAS INTERFACE**

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### **The New ADABAS Interface**

The now fully reentrant ADABAS interface permits specification of field suffixes in the FOCADBS file and provides support for multi-field and short-to-long-field joins, long fieldnames, use of IF/WHERE tests against descriptors in OCCURS segments, and null suppression on fields in ACCESS files. ADABAS optimizations include support for L9 direct calls and compression of the format buffer passed to the ADABAS nucleus, as well as elimination of unnecessary additional calls for (signed) numeric fields.

### **Changing Default Calltype for Non-Descriptor Fields**

Retrieval optimization has been improved by extending the use of ADABAS FIND (S1) calls for use with non-descriptor as well as descriptor fields.

### **AUTOADBS**

A new facility automatically generates Master File and Access File Descriptions for ADABAS files based on information in the Predict Data Dictionary and user selections.

## **ADABAS Dynamic Security (R7.0.6)**

ADABAS user passwords can be set from the command level in FOCUS and EDA/SQL. A new SET command allows the password in the FOCADBS file to be overridden, or omitted entirely.

## **ADABAS Dynamic Database Number (R7.0.6)**

ADABAS database numbers (DBNOs) can be set from the command level in FOCUS and EDA/SQL. A new SET command allows users to override the DBNO in the FOCADBS file. This new feature makes Master and Access files sharable among databases.

## **DATAKOM INTERFACE**

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### **AUTODATAKOM**

A new facility automatically generates Master File and Access File Descriptions for CA-DATAKOM/DB data files based on information in the CA-DATAKOM/DB Data Dictionary and user selections.

### **FSTRACE for the CA-DATAKOM/DB Interface**

New trace facilities enable users to review field and parameter contents for all commands and control blocks passed between the interface and the DATAKOM/DB database. This trace information can be stored in a sequential file or viewed on-line.

### **Enabling CA-DATAKOM/DB's CBS Trace (Release 7.0.3)**

CA-DATAKOM/DB's Compound Boolean Selection (CBS) Trace can be invoked through the FOCUS Datacom Interface.

## **M204 INTERFACE**

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### **Model 204 Interface Enhancements**

Features added beginning with Release 6.8 Put Level 9404 include: more efficient processing of COUNT requests, new ACCDATA attribute for generating either character-string or numeric HLI requests against non-key MODEL 204 fields, and enhancements to the FOCUS Master and Access File descriptions. A new manual (DN#1000945.0594) is available.

### **M204 Interface Enhancements (R7.0.7)**

The interface has extended its data access capabilities to include accessing Invisible Ordered and Numeric fields using Key suffixes of IOA and ION. This is fully described in New Feature Bulletin, NF601.

### **Invisible Ordered Character and Ordered Numeric Data Type Key Support (R7.0.8)**

This feature will allow access and selection of Model 204 invisible ordered character and invisible ordered numeric fields.

## **IDMS INTERFACE**

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### **AUTOIDMS**

AUTOIDMS may use multiple data dictionaries. This enhances usability as multiple access files are created for dictionaries that contain subschemas. Please see TM7902.3 for additional information.

## **IMS Enhancements via SET IMS=NEW**

The new IMS interface introduced in release 6.8 Put Level 9312 is comprehensively described in DN#1000977.1194 (IMS/DB Interface Users Manual and Installation Guide Release 6.8). A few of the significant improvements include: replacement of the FOCBMP server by the XMI server, addition of the comma-delimited FOCPSB, new SET commands and trace facilities, a new IMS Access file and an IMDTEST verification program and improved security.

### **Controlling IMS Access via DBCTL**

FOCUS now supports IBM's DBCTL (Database Control) option for controlling access to IMS databases. This offers improved efficiency and security and simplifies working with PSBs in processing IMS data.

### **Automatic index selection using AutoSelect (Release 7.0.6)**

The AutoSelect feature improves IMS Interface performance by reducing the size of data sets retrieved from IMS through exploitation of IMS secondary indexes. This new feature alleviates the need to create multiple FOCUS Master File Descriptions to describe IMS databases with secondary indexes.

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## **SYSTEM 2000 INTERFACE TRACE FACILITY**

### **System 2000 Interface Trace Facility (R7.0.8)**

Two new trace levels have been enabled. The traces can be used for informational or debugging purposes.

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## **TERADATA INTERFACE**

### **Teradata Outer Join Optimization (R7.0.8)**

This feature improves the Teradata Relational Interface performance by enabling the interface to deliver better optimized SQL to the Teradata RDBMS, permitting the RDBMS to optimize its own join processing.

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## **NATIONAL LANGUAGE SUPPORT**

### **National Language Support (R7.0.5)**

The 'SET LANG=' command is now fully supported for all languages. Japanese, Dutch, German, French, Swedish, and Spanish language files are all available. If you require additional language support, please contact the International Division for more information.

### **Double Byte Character Set K Format and G Prefix**

The introduction of K format and G prefix for representing pure DBCS strings or DB2 graphic data types enables support for languages such as Kanji, which require two bytes of storage to uniquely represent each character.

### **Checking Current Language Settings**

A new command, ? LANG, is now available to query the current language setting and attributes.