



User Manual

MDCMS

Change and Distribution Management
from
Midrange Dynamics

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1 Overview of the MDCMS Manual

This manual is a guide for installing and using the Midrange Dynamics Change Management System. This manual will refer to this system as MDCMS. MDCMS is a tool that helps manage source and objects throughout the development, migration, modification, and distribution life cycle.

2 Starting MDCMS

The MDCMS menu is accessed by typing MDCMS from a command line. Press F4, if necessary, to select a product instance other than the default instance.

```

MDCMS                                COMPANY NAME                4.09.15
SCRN1                                MDCMS MAIN MENU            7:36:08

                                     Opt  Description
                                     1   MDCMS Setup Menu
                                     2   Object Manager
                                     3   RFP Manager
                                     4   RFP History
                                     5   Object History/Archive
                                     6   Project Manager
                                     7   MDXREF
                                     8   Send RFP to Remote System
                                     9   Receive RFP from Remote System

                                     Selection: _

F3=Exit   F6=Messages   F8=Submitted Jobs   F11=View Output   F21=Sys Command

```

Option 1: MDCMS Setup Menu

The first step in preparing to use MDCMS is the *MDCMS Setup Menu*. This portion of MDCMS defines the environment, object types and methods of source and object management. It is a mandatory process for using MDCMS.

Option 2: Object Manager

The *Object Manager* function contains the daily processes for checking out source or objects from application environments, making modifications to the checked-out source, and requesting the installation of the changes back into the application environments.

Option 3: RFP Manager

The *RFP Manager* function provides the means to create, manage, submit, approve and install Requests for Promotion, which are installation packages containing 1 or more objects for deployment.

Option 4: RFP History

The *RFP History* function lists all installed Requests for Promotion to view the activity logs, perform a rollback or to copy a completed RFP to a new RFP.

Option 5: Object History/Archive



The *Object History/Archive* function is a post-installation process for reviewing Source and Object installations. The installation process archives the source or object that is being replaced in application environments. This function provides a method of retrieving previous versions of application source or rolling back objects.

Option 6: Project Manager

Project Manager. Here, users may create and maintain requests for work to be done on a Project or Task basis.

Option 7: MDXREF

MDXREF is a tool used to view the inter-relationship between objects. This includes what and how programs use files, what and how files relate to one another, the complete process flow of applications, etc. See the MDXREF manual for instructions and more information.

Options 8 & 9: Send RFP to Remote System / Receive RFP from Remote System

When MDCMS is installed on 2 or more IBMi systems or logical partitions, application changes may be transported quickly and safely between the systems/partitions. This allows for a development system to be separate from a production system with very little hassle. Or, it allows for unlimited remote IBMi systems to send and receive updates simultaneously.

Function Keys:

F3=Exit – Exit MDCMS

F6=Messages – Display messages

F8=Submitted Jobs – Work with submitted jobs

F11=View Output – Display the MD Output panel and other spool files

F21=Sys Command – Command line prompt



3 Setting up MDCMS

```

CMSMNU2                                COMPANY NAME                                4.09.15
SCRN1                                  MDCMS Setup Menu                                7:36:32

  Opt  Description                                Opt  Description
   1  Application Groups                          11  System Settings
   2  Promotion Levels                            12  Email Settings
   3  Attributes                                  13  Services
   4  Commands/Scripts                            14  Logging
   5  Templates                                  15  User Groups
   6  OS/400 Locations
   7  Distribution Levels

   8  Security Settings (MDSEC)                   17  Push Settings Data to Locations
   9  License Keys                                18  Send Settings to Remote System
                                                19  Receive Settings from Remote System
                                                20  Create Config Deployment Settings

  Selection: __

F3=Exit   F6=Messages   F8=Submitted Jobs   F11=View Output   F21=Sys Command

```

The **MDCMS Setup Menu** consists of several options that are used to define the overall system environment for MDCMS and options for replicating the environment on remote systems.

Option 1: Application Groups

Defines the name of each business application process within MDCMS.

Option 2: Promotion Levels

Defines the object environments (library list) of the applications including the job descriptions and approval, installation and archiving settings.

Option 3: Attributes

Defines the installation libraries for each source and object type within an Application/Promotion Level.

Option 4: Commands

Defines the default commands per Attribute or Promotion for compiling and installing objects.

Option 5: Templates

Definition Templates for Object Authority, Replication and searching that can be applied to Attributes.

Option 6: OS/400 Locations

Defines the connection properties for DDM, MDWorkflow and file transfer between this partition and all target OS/400 partitions.

Option 7: Distribution Levels

Defines the target levels on remote locations for the sending of Promotion Packages.

Option 8: Security Settings (MDSEC)

Defines user authority to MDCMS and MDXREF and provides tools to manage authorization lists and DDM security. MDSEC may also be started by typing the command MDSEC on a command line.

Option 9: License Keys

Allows for the update of the MD product license keys in case the previous keys are about to expire or a new MD product license is to be added.

Option 11: System Settings

Defines the system-level settings, such as the title to be displayed at the top of most MD product screens, the ID to identify the system that sends a promotion package, and the naming format to use for temporary libraries.

Option 12: Email Settings

Defines the connection properties to a SMTP server, email logging and a list of email addresses to be used by the MDMAIL and MDMAILF email APIs.

Option 13: Services

Defines the job queue, start and end times for each of the MDCMS batch services.

Option 14: Logging

Lists each of the log tables in MDCMS and allows the administrator to set the retention period for each log entry type.

Option 15: User Groups

Defines User Groups and Group Types that can be used for email recipients, projects and MDWorkflow test acceptance.

Option 17: Push Settings Data to Locations

Sends some or all settings to a remote IBM i system using a DDM Push connection definition.

Option 18: Send Settings to Remote System

Sends some or all settings for a Promotion Level to a remote IBM i system using a file transfer connection definition.

Option 19: Receive Settings from Remote System

Receives settings for a Promotion Level from a remote IBM i system that had been sent using option 18 on that system.

Option 20: Create Config Deployment Settings

Generate an Application to manage the MDCMS product, including the deployment of new versions, patches, license keys and settings.

Function Keys:

F3=Exit - Return to MDCMS Main Menu

F6=Messages – Display messages

F8=Submitted Jobs – Work with submitted jobs

F11=View Output – Display the MD Output panel and other spool files

F21=Sys Command – Command line prompt



3.1 Application Groups

The Application Maintenance function defines application software into manageable groups for MDCMS.

```

CMR233                                COMPANY NAME                                11/19/11
SCRN1                                 Application Codes                          7:36:53

                                     Position to Appl: ____

Type options, press Enter.
2=Edit 3=Copy 4=Delete 5=Display L=Linked Apps

Opt  Appl  Description                                RFP Start Link Cst Jrn LFM Trg
-    MD2K  MD2000 Interface Applications            160002  Y   N   Y   Y   N
-    ACCT  XYZ Accounting Package                      80002   Y   Y   Y   Y
-    IBUS  International Business System            490000  Y   Y   Y   Y

                                     Bottom

F3=Exit  F6=Add  F11=Output

```

Screen Definitions:

Position to Appl

This is used to position the display to a specific Application Group.

Opt

2=Edit – Change the Description of an Application Group

3=Copy – Copy values for Entity to a new Application Group

4=Delete – Delete an Application Group. This is only possible if there are no Levels defined for the Application Group

5=Display – View all information for the Application Group

L=Linked Apps – Manage the list of Applications that contain objects that reference objects existing in the selected Application

Appl

This is a 4 character abbreviation of an Application Group to be used by MDCMS, MDXREF and MDSEC.

Description

A brief title to identify an Application Group.

RFP Start Index

The start position of new RFP numbers. An RFP number is the identifier for an installation package. By default, MDCMS spaces the range for RFP numbers 40000 positions apart so that each application has its own range of numbers. If preferred, applications can start at any point, including at the same point as other applications. MDCMS ensures that any generated number is not already in use by the same or other application.



Automatically Reapply Constraints

Y – When a physical file is installed for the given application, automatically reapply all constraints that were defined for the previous version of the file.

N – Any constraints will not be automatically reapplied

This value is the default for all files in the application and partition, and can be overridden for specific files.

Automatically Reapply Journaling

Y – When a physical or logical file is installed for the given application, automatically reapply journaling based on the settings defined for the previous version of the file.

N – Journaling will not be automatically reapplied

This value is the default for all files in the application and partition, and can be overridden for specific files.

Automatically Reapply LF Members

Y – When a logical file is installed for the given application, automatically recreate all members that were defined for the previous version of the file.

N – Any logical file members will not be automatically recreated

This value is the default for all files in the application and partition, and can be overridden for specific files.

Automatically Reapply Triggers

Y – When a physical file is installed for the given application, automatically reapply all system (non-SQL) triggers that were defined for the previous version of the file. Any SQL triggers that should be re-applied should be requested for recompile and placed on same RFP as the file.

N – Any triggers will not be automatically reapplied

This value is the default for all files in the application and partition, and can be overridden for specific files.

Function Keys:

F3=Exit

F6=Add –Add a new Application Group

F11=Output – Display the MD Output panel and other spool files



3.1.1 Linked Applications

View and Manage the list of Applications that contain objects that reference objects existing in the selected Base Application.

```

MDCALNK                                COMPANY NAME                                01/22/14
SCRN1                                  Linked Applications                                08:22:59

Base Appl: TEST  Test äpp

Linked.: Y = Objects in selected Appl reference Objects in Base Appl
Inc Lib: Y = Include Base Appl RFP Temp Libs when compiling Linked Appl RFP

Linked  Inc Lib  Appl  Description
  Y      Y      DATA  Test Data 22
  Y      -      INV   Inventory Application
  -      -      BSIS  Rene Test 2
  -      -      SKIK  Test Data 22

                                                                 Bottom

F3=Exit  F11=Output

```

All defined Applications are listed on this screen. The Applications that are currently linked to the Base Application are listed first.

Linked

Y - The Application contains objects that reference objects in the Base Application indicated at the top of the screen. If an Application is linked, MDCMS will show the referencing objects when using the option Include Related Objects from the Object Manager for an object in the Base Application.

For example, a file in the Base Application is checked out. The programmer then uses option I=Include Related Objects in the Object Manager to check out impacted programs, etc. MDCMS will first show dependencies within the same Base Application and then will proceed to show the dependencies in each linked application.

When submitting an RFP for Promotion from the Base Application, MDCMS will also check and warn the programmer of any dependencies in the linked Applications.

The Level Number in the Linked Application must match the Level Number in the Base Application for the Referencing to be considered.

Inc Lib

Y - Any temporary MDCMS Installation Libraries for Base Application RFPs will be included in the library list during the compile of objects for a Linked Application RFP. The libraries will be placed after the temporary libraries for the Linked RFP but before the rest of the library list.

This is typically relevant for environments, such as Production, that have the RFPs compiled and prepared during the day and then have the installation itself occur at a later time.

For a Base Application RFP to be considered, the status of the RFP must be one of the following:

- 02 - Waiting for Approval
- 03 - Waiting for Installation
- IP - Installation Pending
- 04 - Installation Job submitted but not yet started



3.2 Promotion Levels

Promotion Level Maintenance defines and sequences the specific environments for the installation of objects for an Application.

```

CMR229                                COMPANY NAME                                4.09.06
SCRN1                                Promotion Level Maintenance                            7:37:14

                                     Nxt BsO Chk RFP RFP RFP RFP RFP
                                     Lvl Lvl Out Rcv Sbm Apr Ins Snd
Filters:  ___ _  _____  _____  _  _  _  _  _  _  _
Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=Display  J=JOBBD  L=Libraries  V=Validate  X=XREF

                                     Nxt BsP Chk RFP RFP RFP RFP RFP
                                     Lvl Lvl Out Rcv Sbm Apr Ins Snd
_ JRN  10  Journal Inspector                JRN10                Y  N  N  Y  Y  Y
_ OLY  10  Olympic Test Environment          OLY10                8  N  N  N  N  Y  N
_ OPER 10  Operations Environment            BLD10                20 Y  N  N  Y  N  Y

                                     Bottom
F3=Exit  F6=Add  F11=Output  F21=Sys Command

```

Screen Definitions:

Filters

Filter the list of Promotion Levels based on the values entered into the individual fields. For the Appl, Description, and Job Description filters, a Promotion Level will be listed if any part of the field matches the value entered in the filter.

Option

2=Edit – Change the parameters of a Promotion Level

3=Copy – Copy a Promotion Level's parameters to a new Promotion Level

4=Delete – Delete a Promotion Level

5=Display – Display the parameters for a Promotion Level

J=JOBBD – Display the job description for the Promotion Level

L=Libraries – view a list of all Object Libraries/Folders and Source Libraries that are defined as target libraries by attributes defined for the level. If authorized, a new value for the name of a library can be entered, which will be applied to all attributes in the level that use that library.

V=Validate – Create a validation report for the level. See section Promotion Level Validation Report for more details.

X=XREF – Navigate directly to the MDXREF Cross Reference build screen for the level. This is so that the information for the level can be added quickly for help with setting up attributes for the level.

Promotion Level Parameters:

Application

This is a 4 character abbreviation of an Application Group to be used by MDCMS. The Application Group must exist - see Application Group Maintenance.

Install Level

This is a 2-digit numeric identification of the Promotion Level. The levels are in sequential numeric order. The lowest numeric value represents the lowest Promotion Level and the highest represents the highest Promotion Level.

Example:

10 = Test

50 = Quality Control

90 = Production

Description

A brief statement to identify the Promotion Level.

Job Description

This is the Job Description used for compiling objects for an application installation. The Library List defined in the JOBD is used for the compile environment of objects. The User Profile defined in the JOBD becomes the default owner of all installed objects for a specific level.

Next Level

If objects that have been installed into this level are to be migrated to a higher level on the same system, then the number entered here identifies the level for the objects to be migrated to. If a migration from this level should not occur (either directly or indirectly), then the next level should remain blank.

Direct Migration

Y – The migration to the next level occurs directly from this level

N – If a Next Level value is defined, then after installation into this level, the objects are sent to a level on a different system and those objects are eventually sent back to this system directly to the next level.

This is typically used when the next level places the objects into the core (Production) libraries after having gone through user testing.

Provide Indirect Source

Y – If a Next Level value is defined and flag Direct Migration is set to N, Provide Indirect Source may be set to Y. This indicates to MDCMS that source will not be sent to a different system, but should be staged on this system for migration to the next level once the objects are sent back to this system.

This is typically used on a system prior to Production when source is not allowed on Production. Then, the core libraries on this system will contain the correct source version that correlates to the object in Production.

N – Source is not staged for indirect migration to the next level



Archive Generations

This is the number of archived copies to hold for a source member, or for an object that isn't compiled from source. If, for example, a level is set to 3 archived copies, then up to 3 iterations of change will be archived. When a specific source member or object is changed for the 4th time, the 1st change is removed from archive history and the cycle is continued. A maximum of 99 generations are possible.

Based on Level

If multiple versions of the same application are managed, they are to be identified by level. The Based on Level represents the application version that existed prior to this level. This provides 2 features:

- 1) When an object is checked out of the Install Level, but the source or object is not found in the chain for that level, MDCMS will then check if it exists in the chain for the Based on Level and then that level's Based on Level, etc. This allows for each new version of an application to be a delta of the prior version.
- 2) When an object is checked out of the Based on Level, MDCMS will prompt for resolution of the objects in the newer Level(s) to ensure that fixes in older versions of objects get pushed forward to newer versions.

For example:

Install Level = 10 and represents version 1.1.

Based on Level = 9 and represents version 1.0.

When object is requested for version 1.1 and isn't found, MDCMS looks in version 1.0.

When a fix is made in version 1.0, MDCMS prompts user for resolution of fix in version 1.1.

Resolution Required

Y – Before an RFP can be submitted, all new, modified or deleted objects that exist in newer version levels of the application must be resolved. Resolution prompting occurs when another level is based on this level and the object exists there as well, or it is a new object.

N – The programmer can submit the RFP for this level without resolving all version conflicts.

Allow Checkout

The Allow Checkout flag specifies if objects may be requested for modification in the Object Manager for this level. Only levels that are lower than the lowest "Next Level" are allowed a value of Y.

Y – Allow for the direct request to modify an object. This value is recommended to only be used on the development system.

N – Do not allow for the direct request to modify an object. Updates, recompiles and migrations from a lower level or a remote system are allowed.

Allow Receipt

The Allow Receipt flag specifies if objects may be received from another system into this level.

Y – Allow RFPs to be received for this level.

N – Do not allow RFPs to be received for this level.

Delta Object Level

The Delta Object Level flag specifies if only new or modified objects (delta objects) are intended for this level. Technically, a delta level consists of libraries that reside at the top of the library list at run-time and the lower libraries belong to the core permanent environment.

An entry of 'N' specifies that objects remain permanently in this level.

An entry of 'Y' will allow for the automatic deletion of objects. The objects will be deleted when all of the following requirements are filled:

- The exact same object (based on the internal MDCMS Object version ID) with the same MDCMS attribute is installed into a level with a higher level number than this level
- The attribute for the object at a later level in the migration path uses an Object Deletion Level template that includes this level

Delta Source Level

The Delta Source Level flag specifies if only new or modified source (delta source) are intended for this level.

An entry of 'N' specifies that source members remain permanently in this level.

An entry of 'Y' will allow for the automatic deletion of source members. The members will be deleted when all of the following requirements are filled:

- The exact same object (based on the internal MDCMS Object version ID) with the same MDCMS attribute is installed into a level with a higher level number than this level
- The attribute for the object at a later level in the migration path uses a Source Deletion Level template that includes this level

Emergency Level

The Emergency Level flag specifies if only temporary source/objects (emergency objects) are intended for this level and should be removed again when the objects are then installed into the standard levels. An entry of 'Y' will allow for the automatic deletion of source or objects. The source or objects will be deleted when all of the following requirements are filled:

- The Delta Object and/or Delta Source flags are set to Y depending on if emergencies pertain to Objects, Source or both
- An object with the same name and with the same MDCMS attribute is installed into a later level in the migration path. The internal MDCMS Object version ID does not need to match.
- When pertaining to objects, the attribute for the object at a later level in the migration path uses an Object Deletion Level template that includes this level.
- When pertaining to source, the attribute for the source at a later level in the migration path uses a Source Deletion Level template that includes this level.

An entry of 'N' specifies that source/objects remain permanently in this level or it is a standard Delta level.

Target OS Release

The value used for compile wildcard ##TGTRLS## to ensure that objects are created for the appropriate version for the target systems.

*DSTQ – the oldest defined release in the distribution queues for the application



Level Check Warnings

The Level Check Warnings flag specifies if MDCMS should compare the file level ID in programs submitted for installation with the file level ID in this level.

N – This validation process will be skipped for this level during the submission of an RFP.

Y – Each program in a promotion for this level will be checked for file level ID mismatches or missing files in the environment. If a problem is found, the RFP will be flagged as containing warnings and each warning is listed in the RFP log.

Auto Receipt

The Automatic RFP Receipt flag is used to specify if a Promotion sent from a Remote System will automatically be received and all objects to be received are automatically requested for this Level.

N – An authorized user must receive the Promotion using option 9 from the Main Menu.

Y – Submit the Receive job to batch the moment that the Promotion is finished being sent from a Remote System. If the user id of the sender exists on the local system, then the sender's user id will be used for the receipt. If not, then the user defined in the Job Description for the Promotion Level will be used.

Auto Submit

The Automatic RFP Submit flag is used to specify if a Promotion will automatically be submitted once it is successfully received or is installed into a lower level.

N – An authorized user must submit the Promotion

Y – The promotion will be submitted to batch the moment that the Promotion is finished being received onto the local System or the moment that a Promotion is finished being installed into a lower level for the same application. If errors are encountered during the previous process, then the Promotion will not be submitted.

W – The promotion will be submitted to batch the moment that the Promotion is finished being received onto the local System. Or, the submit will automatically occur the moment that a Promotion is finished being installed into a lower level for the same application and MDWorkflow acceptance has been completed for all objects for the prior Promotion into the lower level . If errors are encountered during the previous process, then the Promotion will not be submitted.

Auto Approval

The Automatic RFP Approval flag is used to specify if a Promotion Level requires an approval before objects are installed into an Application Environment.

N – An authorized user must approve the promotion before MDCMS will allow it to be installed. The approval step occurs after the Submit portion has completed successfully.

Y – Approval to install occurs automatically.

Example:

TEST Application Environments are commonly used by programmers - set flag to 'Y'

PRODUCTION Application Environments usually require approval - set flag to 'N'.

Auto Launch MDRapid

The Automatic Launch MDRapid flag is used to specify if data copies for modified files should commence immediately after install approval is granted. This flag is ignored if MDRapid isn't required for the promotion.

N – MDRapid must be launched by an authorized user

Y – MDRapid (pre-emptive data copying) will automatically begin as soon as Approval is granted.

Auto Install

The Automatic RFP Installation flag is used to specify when objects are installed into an Application Environment once the preparation and approval is complete.

N – An authorized user must submit the RFP for scheduled installation or the MDINSRFP API may be called to install the RFP.

R – The promotion will be installed as soon as approval is granted, if MDRapid is not required, but will wait for an authorized user to schedule the install if MDRapid is required.

Y – The promotion will be installed as soon as approval is granted (and MDRapid is complete, when applicable).

This flag is usually set to N for production environments. Then, when the compilation and error checking portion is complete, the programmer can schedule the installation to occur when no one is actively using the application.

Auto Send

The Automatic RFP Send flag is used to specify if a Promotion will automatically be sent to remote systems once an Installation is complete for this Level.

N – An authorized user must send the Promotion.

Y – The promotion will automatically be sent to all Distribution Queues for the Promotion Level where the Default Flag is set to 'Y'.

W – The promotion will automatically be sent to all Distribution Queues for the Promotion Level where the Default Flag is set to 'Y' once MDWorkflow acceptance has been completed for all objects for the prior Promotion into the lower level.

Auto Close Sent RFP

The Automatic Close Sent RFP flag is used to specify if a Promotion will automatically be closed in the Send listing once a certain status has been reached.

N – An authorized user must always manually close the Promotion in the Send list.

S – The Promotion will close once sent to all default queues

R – The promotion will close once successfully received on each of the default target locations. If a warning occurs during receipt, the promotion will remain open.

I – The promotion will close once successfully installed on each of the default target locations. If a warning occurs during installation, the promotion will remain open.



Function Keys:

F3=Exit

F4=Browse – Browse the defined application groups when the cursor is on the appl field or browse/maintain the job description when the cursor is on the job description field

F6=Add – Add a new Promotion Level

F11=Output – Display the MD Output panel and other spool files

F21=Sys Command – Command line prompt

3.2.1 Promotion Level Considerations

1. It is important to have a deployment life cycle defined for an application and to have the Promotion Levels set up to match the migration strategies of the Application.
2. The default for checking out source or objects for a development modification is based on the lowest level of an Application Group that allows checkout. MDCMS will automatically search up the chain of levels based on the next level values, followed by the chain of based on levels, if the source or object does not exist in the base level. Search templates can also be defined to look elsewhere for the components.
3. The Job Description for a level is very important to the installation process. The Library List and User Profile defined in the Job Description must be correct.
4. To save time, it is best to completely define all attributes and commands for the base promotion level. Afterwards, that level can be copied with Option 3 and all attributes and commands will also be copied to the other levels. Or, all attributes and commands can be sent to another partition using option 18 from the Setup menu.



3.2.2 Specify Library Names for Copied Levels

```

MDCIMPS                                COMPANY NAME                                9.01.13
SCRN3                                  Copy Attribute Settings                        20:00:13

From Application: TEST      To Application: TEST
      Level: 10              Level: 31      Attribute: *ALL

Type changes, press Enter.
*NONE=Skip Attr using Lib, *NOOBJ=No Obj for Attr, *NOSRC=No Source for Attr
*REQONLY=No Src for Obj Attr, Request Only for *SOURCE Attr

Object          Change to          Source          Change to
Libraries      Library           Libraries      Library
/test/JAVA/P   /test/JAVA/P     TSTSRC10      TSTSRC10
TSTOBJ10      TSTOBJ10         TSTSRC11      TSTSRC11
TSTOBJ11      TSTOBJ11

Enter=Confirm  F2=Full Name    F3=Exit       F4=Browse      F5=Refresh

Bottom

```

The left column for the Object Libraries lists the name of each distinct Object Library specified in the received Attribute(s).

The Change to column allows the user to modify the name of the Object or Source Library to be saved in the attribute(s) on the local system.

Special Object Library values:

- *NONE – do not copy the attributes using the object library
- *NOOBJ – change the Object Type to *SOURCE for attributes containing a source and object library. Do not copy the attributes containing only the object library.

Special Source Library values:

- *NONE – do not copy the attributes using the source library
- *NOSRC – remove the Source Library definition for attributes containing a source and object library. Do not copy the attributes containing only the source library.
- *REQONLY - remove the Source Library definition for attributes containing a source and object library. Change source file to *REQONLY for *SOURCE attributes.

Function Keys

- F2 – display/edit the full name of paths that exceed the length of the prompt field
- F3 – cancel the copy of the attributes
- F4 – browse the list of Libraries or IFS directories
- F5 – reset the library names to their original values



3.2.3 Promotion Level Validation Report

This report searches for potential problems in the attribute settings and objects for a promotion level. The report is requested by using option V for a Promotion Level in the Promotion Level listing.

```

MDLVLVL                               Company Name                22.05.12
SCRN1                                 Level Validation Report    20:41:32

Appl Lvl
ACCT 10 Accounting app

WARNING It is important that the cross-reference information for the
        Libraries impacted by the Level Attributes is up-to-date prior to
        creating this Report

Include Source Change Date Comparison . . Y  Y/N
Submit Report Job to Batch . . . . . Y  Y/N

Enter=Continue   F12=Cancel

```

The reporting process looks for the following issues:

- Non-existent Object Library or IFS Folder
- Non-existent Source Library
- Non-existent Source File or Message File
- Managed Library that hasn't been Cross-Referenced
- Object Types in Managed Library without a defined Attribute
- Source not found in target Source File or Search List for Object
- Source Change Date and maximum Record Date for Source Member does not match Object – this check can be excluded by entering N at the Include prompt

The generated output is available from the MD Output Panel (F11) and from there can be viewed, printed or exported.



Opt

2=Edit – Change the parameters of an attribute

3=Copy – Copy the parameters of an attribute to a new attribute

4=Delete – Delete an attribute

5=Display – Display the parameters of an attribute

C=Commands – Edit the default compile and installation commands for an attribute

L=Linked Checkouts – Edit the list of attributes that should be prompted to check out, when a programmer checks out an object for this attribute

Appl

This is a 4 character abbreviation of an Application Group to be used by MDCMS.

The Application Group must exist - see Application Group Maintenance.

Level

This is a 2-digit numeric identification of the Promotion Level as defined in the Promotion Level Maintenance.

Type

all IBMi object types	Standard IBMi object types (*PGM, *FILE, *CMD, etc...) that exist in standard QSYS libraries. These objects may be compiled from a source member or may be handled as an object only.
*DATA	A MDCMS object type to migrate some or all data records into a physical file while leaving the file description intact. All records in the file prior to the installation can be archived and rolled back if parameter Archive Prior Data is set to Y.
*DTAGRP	A MDCMS object type to define a collection of files (1 or more) with common key values for their records. The records for each file matching the requested value will be migrated. See the next section for more information. The specific data records impacted by the installation of a *DTAGRP object can be archived and rolled back if parameter Archive Prior Data is set to Y. NOTE: Robot/SCHEDULE data can also be managed within MDCMS using the *DTAGRP Attribute (see details in next section of this manual)
*DUMMY	A MDCMS object type to allow information to be migrated without any actual object being involved.
*IFS	A MDCMS object type to handle objects that are stored in the Integrated File System.
*MNUDDS	A MDCMS object type to handle all relevant objects and source for a DDS menu. This means that the display file, message file, menu object, display source, and command list source are all managed by a single reservation.
*MSGD	A MDCMS object type to handle individual message descriptions to be stored in a message file.
*REMOTE	A MDCMS object type to handle objects that reside on systems other than the IBMi. The MDOpen Plug-in is required to request the objects.
*SOURCE	A MDCMS object type to handle source-only items such as copybooks.
*SQLCST	An SQL Constraint using the SQL name for the constraint and SQL schema name for the Object Library. A post-installation command (typically RUNSQLSTM) must be defined for the attribute to create the constraint at



	installation time.
*SQLFUN	An SQL Function using the SQL name for the function and SQL schema name for the Object Library. A compile command (typically RUNSQLSTM) must be defined for the attribute to create the function at installation time.
*SQLIDX	An SQL Index using the SQL name for the index and SQL schema name for the Object Library.
*SQLMQT	An SQL Materialized Query Table using the SQL name for the table and SQL schema name for the Object Library. A compile command (typically RUNSQLSTM) must be defined for the attribute to create the table at installation time.
*SQLPRC	An SQL Procedure using the SQL name for the procedure and SQL schema name for the Object Library. A compile command (typically RUNSQLSTM) must be defined for the attribute to create the procedure at installation time.
*SQLSEQ	An SQL Sequence using the SQL name for the sequence and SQL schema name for the Object Library.
*SQLTAB	An SQL Table using the SQL name for the table and SQL schema name for the Object Library.
*SQLTRG	An SQL Trigger using the SQL name for the trigger and SQL schema name for the Object Library. A post-installation command (typically RUNSQLSTM) must be defined for the attribute to create the trigger at installation time.
*SQLVW	An SQL View using the SQL name for the view and SQL schema name for the Object Library.

Attribute

This field is used to uniquely identify each source or object attribute to be handled by MDCMS. Standard IBMi object attributes can be used or the user may define customized attributes.

Example:

1. Standard IBMi object attributes or source types are, for example, RPG, CBL, PF, LF, DSPF, PRTF.
2. User defined source types may look like RPG1. The definition in MDCMS could be for special compilers for RPG type programs using a specific application compiler or different RPG compiler defaults. It could also be to have the source or object placed in a different library than standard RPG programs.

Object Library

This field identifies where an application object resides for a specific Application, Level, Type, and Attribute. This is used when installing an object into an environment.

This is left blank for source-only items.

For *IFS and *REMOTE attributes, the directory path is to be entered here beginning with the root.

For *DATA and *DTAGRP attributes, the file library should be entered here.

For *SQL attributes (except *SQLPKG), the SQL name of the target library should be entered here.



Source File

This field identifies the source file for a specific Application, Level, Type, and Attribute. This is used when installing source into an environment.

For message descriptions, this is the name of the message file.

*IFS – use this value if the source is stored in IFS and enter the full path of the directory in the Source Library field

*REQONLY – use this value for *SOURCE attributes if source isn't stored at this level but the request records for *SOURCE requests should remain in the RFP. This is typically used on a production system where source isn't allowed and the copy of production on the development system then indirectly pulls the source from the delta development environment once the RFP is sent from production to development.

This field is left blank for object-only items.

Source Library

This field identifies the source library for a specific Application, Level, Type, and Attribute. This is used when installing source into an environment.

If the source is contained in source members, the library containing the source files is used.

If the source is stored in IFS, the value is the complete IFS path of the directory containing the source files.

For message descriptions (*MSGD), this is the library where the message file is located.

This field is left blank for object-only items.

Dft Source Naming

By default, the name of the source is the same as the name for the object and is defined as ++OBJNAM++. If source names for the attribute have different names as for the object, the naming pattern can be entered here. For example, use ++OBJNAM++.sql to automatically assign the suffix .sql to the end of the source name when checking out the object. Each object checked out can individually be assigned a different source and MDCMS retains this information for future checkouts of the object.

Server Location

The target server that *REMOTE objects for the given attribute should be deployed to. Press F4 to manage/select from the list of target servers. MDOpen must be used to check out *REMOTE objects and it is recommended to use MDOpen to manage the target server list.

*NONE can be used to indicate that the *REMOTE objects shouldn't be physically deployed to a remote server for this promotion level. The requests will merely travel with the RFP to the next level in the migration path.

Require Approval

Y – If an RFP contains a request for the given attribute, an authorized user must approve the RFP before it can be installed even if the Attribute's level is set to auto-approve RFPs.

N – The auto-approve flag for the Attribute's level determines if the RFP is auto-approved or not.



Compile Sequence

The compile sequence is used by MDCMS to sequence the order of object compiles during a request for promotion. The sequence is in ascending order.

The compile sequence is automatically set for all object types except *DTAGRP, *FILE, *MODULE and *SRVPGM.

***DTAGRP** - the compile sequence is by default 16, and the data records are only migrated after the installation is complete. If a lower compile sequence is entered, the records will be migrated during compile time based on the sequence, in case the compiler for other objects depends on that data. When the compile step for all objects in the RFP is complete, the data migration will be rolled back and re-migrated after the installation is complete.

***FILE** - Recommended compile sequence for files:

Reference file	= 3
Physical files	= 4
Logical files	= 5
Display/Printer files	= 6

***MODULE/*SRVPGM** - the compile sequence may be set to 11 or 12. When both types are set the same, MDCMS automatically sorts an RFP in the following sequence:

- 1) Modified Modules
- 2) Service Programs binding Modified Modules
- 3) Recompiled Modules
- 4) Service Programs binding Recompiled Modules

The sort subsequence for modules and service programs can still be used for a specific RFP, but is not carried over to future RFPs so that the sort can be automatically handled for each constellation.

Object Authority Template

The name of the template containing the Object Authority Definition to apply to objects for this template. This template is required for all object types except *SOURCE, *MSGD, *DATA, *DTAGRP and *DUMMY.

The template type must correspond to the object type:

IFS - *IFS object types
OS400 – OS/400 object types
REMOTE – *REMOTE object types



Object Replication Locs Template

When an installation occurs, an object using this attribute will always be deployed to the defined Object Library.

If that same object should be replicated to additional libraries for the same environment, then the name of the Object Replication Template that contains the list of locations should be entered.

Common Usage Examples:

- 1) The complete set of physical and logical files for production is also stored in Month-End and Year-End libraries. If the format for a file changes, then the format change could be replicated to the Month-End and Year-End libraries at the same time of the format change for production. The data for each library/file is mapped back appropriately.
- 2) Multiple web servers are used in the same environment for load balancing purposes. Replication can be used to deploy remote object changes to each of those servers at the same time.

Source Replication Locs Template

When an installation occurs, a source member using this attribute will always be deployed to the defined Source Library or Directory.

If that same source member or IFS file should be replicated to locations for the same environment, then the name of the Source Replication Template that contains the list of locations should be entered.

Object Search Locations Template

When checking out an object that doesn't contain source, the defined Object Library for the attribute and level will be checked for existence. If it doesn't exist in that location, MDCMS checks in the target locations for the higher levels on the local partition. If the object still isn't found, an Object Search Location template can be used to search additional libraries/directories for the object.

Source Search Locations Template

When checking out source, the defined Source Library/File for the attribute will be checked for existence. If it doesn't exist in that location, MDCMS check in the target locations for the higher levels on the local partition. If the source still isn't found, a Source Search Location template can be used to search additional libraries/directories for the source. In the case of source members, the source locations can be on remote systems if DDM is implemented.

Object Deletion Levels Template

If objects should be removed from delta or emergency levels after installation into this level, the Deletion Level template defining the list of levels can be entered here.

Source Deletion Levels Template

If source should be removed from delta or emergency levels after installation into this level, the Deletion Level template defining the list of levels can be entered here.

In the case of source members, the levels can be on remote systems if DDM is implemented.



MDRapid Usage Template

If MDRapid is licensed for the system and the attribute is a *FILE or *SQLTAB type, a MDRapid template can be applied to the attribute to indicate when and how MDRapid should be launched for files using that attribute.

Archive Prior Data

This flag is only relevant for *DATA or *DTAGRP attributes.

Y = the entire file (in the case of *DATA) or the specific impacted records (in the case of *DTAGRP) will be archived, providing the ability to view the prior state of the records or to roll back to the prior state if necessary. The archived records are copied to a stream file in IFS and then zipped to reduce storage requirements as much as possible.

N = the prior data is not archived and can't be rolled back at a later date. This is only recommended if disk space availability is minimal or if the data is otherwise saved prior to installations.

Retain Data Set for Migration to next Level

This flag is only relevant for *DATA or *DTAGRP attributes.

Y = when the data collection is prepared for deployment into the initial level, only records in that collection will migrate to higher levels regardless if changes or additions are made to the files in the initial level. For example, 2 records are migrated into level 10 which also has 10 other records matching the same filter criteria. Only the 2 records will continue on to level 20.

N = the data collection is freshly prepared at each level. For example, 2 records are migrated into level 10 which also has 10 other records matching the same filter criteria. All 12 records will continue on to level 20.

Function Keys:

F3=Exit

F4=Browse – Browse the list of valid values for a field.

F6=Add – Add an environment attribute

F9=Gen Dft Attr – Generate default attributes for a promotion level



3.3.1 *DTAGRP Attribute

*DTAGRP is a special MDCMS object type to define a collection of files (1 or more) with common key values for their records. The records for each file matching the requested value will be migrated.

For example, 3 files have a field containing the table ID. A user wishes to migrate all records in each file where the table ID = "ABC". The user simply requests object name "ABC" using a *DTAGRP attribute that describes the 3 files and relevant field for each file. MDCMS will then migrate the records to the next level(s).

If a rollback is performed for ABC, the record contents for table ID ABC will be restored to the state prior to the installation.

```

MDCATDG                                COMPANY NAME                                10/01/11
SCRN1                                  Generate Standard Attributes                                10:37:46

Appl: TEST  Lvl: 10  Attribute: CSSADD      Library: TESTOBJ10

Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=Display

Opt File      Field 1      Type 1  Field 2      Type 2  Field 3      Type 3  Opt Mnd
-  MDAINV     CSTNBR           7N
-  MDALIC     CSTNBR           7N  PRDCOD           3A  BILLYN       FIX     REP  Y

F3=Exit  F5=Refresh  F6=Add

Bottom

```

The list of files for a particular *DTAGRP attribute are maintained by pressing F8 from the attribute detail screen.

File

The name of the file that must exist in the object library defined for the attribute. Press F4 to browse using MDXREF.

Field

The name of the field to use as a record filter for the file. Up to 3 fields may be defined per file. Every record in the file where the value for these fields matches the value requested in the Object Manager will be included in the data set. Press F4 to browse the list of fields in the file. Alphanumeric or Numeric fields are allowed for use as the record filter.

Be certain that the ordering of the fields match the order for the other files in the Data Group.

If no fields are specified for the file, then all records will be included in the data set.

Starting Pos / Length

If the field is alphanumeric, a substring of the field can be used for the key value by specifying the starting position and length of the substring. If these 2 fields are left blank, then the entire field is used for the key value.



Fixed Value

Each defined field for the file may have a fixed value so that a value for that field doesn't need to be entered for each object request.

Blank – the value is entered as a variable in the object request name

*EMPTY – only records where this field is blank (or 0 for numeric fields) will be migrated

Value – only records where this field contains this value will be migrated

Record Option

*ADDNEW – any records that don't already exist in the table for the given field values will be added when migrated into this level. The file itself must be defined as uniquely keyed to use this feature.

*REPLACE – all records for the given field values will be replaced by the records being migrated. The *REPLACE option is permitted for any physical file, regardless of key definitions for the file.

*UPDADD – existing records with matching field values will be updated and new records will be added. The file itself must be defined as uniquely keyed to use this feature.

Records Mandatory

Y – 1 or more records must be available to migrate, otherwise the installation will fail

N – records with matching field values are not mandatory for this file

3.3.2 Requesting a *DTAGRP migration in the Object Manager

The records are requested using option M or N in the Object Manager. Enter the value for each variable field in the object name. If more than 1 field is defined for a file in the Data Group, separate the values with a comma. Trailing spaces should not be entered.

If the data already exists in the initial level, *NONE should be specified which signifies that the collection is taken from that level and is migrated from there to the rest of the levels. If the data does not already exist, then the Library containing the records for the various files should be specified.

Use option D to delete all records in the files where the keys equal the value of the object requested.

Example of Object Name

The example Data Group contains a variable alphanumeric field, a variable numeric field, and a fixed value field with value Y.

In the Object Manager, the programmer would enter the alphanumeric key value, a comma, and then the numeric key value:

EXAMPLE STRING, 75

When deploying the RFP, all records where field 1 = EXAMPLE STRING, field 2 = 75 and field 3 = Y would be migrated.



3.3.3 *DTAGRP for managing Robot/SCHEDULE data

Robot/SCHEDULE can also be managed within MDCMS using the *DTAGRP Attribute.

The purpose of this feature is for the migration of Robot/SCHEDULE job schedule data from a user's pre-production system that contains their test version of the Robot/SCHEDULE product to their production system that contains their Robot/SCHEDULE product version.

Setup

When setting up the *DTAGRP Attribute for managing Robot/SCHEDULE data, follow these steps:

Using the F6=Add from the Attribute Maintenance panel (MDCCMEM/SCRN1) fill in the parameters as shown here.

Application

Specify the Application Group code that the Attribute will be added for.

Level

Specify the Application Group code Level value that the Attribute will be added for.

Object Type

Specify a value of *DTAGRP

Object Attribute

Specify the name of the Attribute that will help you recognize it as being specific for Robot/SCHEDULE.

The remaining fields on the initial Attribute panel are irrelevant. Pressing ENTER on the Add Attribute Record panel will bring you to the Attribute Data Group Files panel. Use the **F6=Add** function key to add the following record:

File Name

Enter a File Name value of *ROBOT

The remaining field values will be set automatically by MDCMS.

Object Request and Migration

The user should use the standard method available within the Robot/SCHEDULE product for creating, changing, or deleting job schedule entries. MDCMS will be used to migrate those changes from the user's pre-production system to their production systems where the production version of Robot/SCHEDULE resides. The only function that MDCMS performs is the migration of the requested Robot/SCHEDULE jobs to the customer's production systems.

The name of the actual Robot/SCHEDULE job name will be used when requesting and migrating within the MDCMS Object Manager for either option M-Modify Object or option D-Delete Object.



When an object request is initiated on the pre-production system that contains the customers test version of Robot/SCHEDULE the **Copy Data from Library** parameter should be set to *NONE as it is not necessary to copy any data to the users development environment. When the object request is then added to an RFP it is done so for the purpose of sending the updated (or deleted) Robot/SCHEDULE job entry from the pre-production system to the user's production system. When the local RFP is processed for deployment to the target system, the Robot API RBTMRG is used with parameter DIRECTION (*EXPORT) to place all of the job information in library RBTMRGLIB. MDCMS then saves the library to a save file for the RFP package and sends it to the target system.

When the RFP arrives at the target system the Robot API RBTMRG is used with parameter DIRECTION(*IMPORT) to restore the Robot/SCHEDULE library RBTMRGLIB from the RFP save file and then migrate the job schedule information directly into the users production version of Robot/SCHEDULE.

When a delete is performed at installation time the Robot API RBTBCHDLT is used to remove the job entities from Robot/SCHEDULE.

IMPORTANT NOTES:

- When the scheduled job entry being imported had already existed within the target system, the job history will be deleted by the Robot API.
- The Robot API does not handle REACT jobs correctly. The Robot scheduled job should be sent to the target system without any REACT parameters defined and then the REACT parameters should be added to the scheduled job on the target system after the migration has been installed.



3.3.4 Generate Standard Attributes

In order to quickly define attributes and compile commands for a new promotion level, or for a new library within a promotion level, F9 may be pressed from the Attribute Maintenance screen.

```

MDCCMED                                COMPANY NAME                                04.09.06
SCRN1                                  Generate Standard Attributes                10:37:46

Application . . . . . _____
Level . . . . . _____

Object Library . . _____      Name
Source Library/Dir. _____
_____      Name, *NONE

Attribute Prefix . *NONE      Prefix, *NONE
Attribute Suffix . *NONE      Suffix, *NONE

F4=Browse   F12=Previous

```

The first screen is used to get the default settings for all common attributes that are to be generated. After Enter is pressed, a second screen is displayed where each individual attribute may be edited and selected.

Application

This is a 4 character abbreviation of an Application Group to be used by MDCMS. The Application Group must exist - see Application Group Maintenance.

Level

This is a 2-digit numeric identification of the Promotion Level as defined in the Promotion Level Maintenance.

Object Library

The name of the library where the objects are stored.

Source Library/Dir

The name of the library or IFS Directory where the source is stored. If there is no source code for the objects, enter *NONE.

Attribute Prefix

A set of characters to place at the beginning of each system attribute for the naming of MDCMS attributes. For example, 'AA' would result in the MDCMS attribute of AARPG for RPG programs. No prefix will be generated, if the value *NONE is entered.

Attribute Suffix

A set of characters to place at the end of each system attribute for the naming of MDCMS attributes. For example, 'AA' would result in the MDCMS attribute of RPGAA for RPG programs. No suffix will be generated, if the value *NONE is entered. You have the choice of a prefix or a suffix. Both simultaneously is not allowed.



```

MDCCMED                                COMPANY NAME                                04.09.06
SCRN2                                  Generate Standard Attributes                    10:37:46

Appl: ACCT  Lvl: 90  Source Library: TSTSRC10

Type options, press Enter.
  1=Select

      Object      System      MDCMS      Source
Opt Type  Attribute Attribute  Object Library  File      Cmd
-  *SQLSEQ  SQLSEQ  SQLSEQ  TSTOBJ10      QSQLSRC  Y
-  *FILE    PFREF   PFREF   TSTOBJ10      QDDSSRC  Y
-  *FILE    PF      PF      TSTOBJ10      QDDSSRC  Y
-  *FILE    PFSQL  PFSQL  TSTOBJ10      QSQLSRC  Y
-  *SQLTAB  SQLTAB  SQLTAB  TSTOBJ10      QSQLSRC  Y
-  *DATA    DATA  DATA  TSTOBJ10      N
-  *FILE    LF      LF      TSTOBJ10      QDDSSRC  Y
-  *FILE    LFSQL  LFSQL  TSTOBJ10      QSQLSRC  Y
-  *SQLIDX  SQLIDX  SQLIDX  TSTOBJ10      QSQLSRC  Y
-  *FILE    DSPF   DSPF   TSTOBJ10      QDDSSRC  Y
-  *FILE    PRTF   PRTF   TSTOBJ10      QDDSSRC  Y
                                          More...

Enter=Confirm  F4=Browse  F5=Refresh  F8=Edit Details

```

This screen lists each of the most common system and SQL attributes in a typical application. For each system attribute, a MDCMS attribute, object library and source library/file (or directory) is prepared for the definition based on the entries from the prior screen.

If the library is included in MDXREF database, selection option 1 will be automatically placed next to each attribute found in the library that isn't yet defined for the level. Additional attributes may be then individually selected or unselected.

If an attribute has default commands defined for it, the generate command flag (Cmd) may be set to Y.

Press enter to generate the selected attributes. For each attribute with the command flag set to Y, the compile and/or post-installation command will also be automatically generated.

Function Keys:

Enter=Confirm

F4=Browse – Browse the list of valid values for a field.

F5=Refresh

F8=Edit Details – Initially, all fields except for the option are protected. Press F8 to edit the values in the other fields.



3.3.5 Generate JDE World Attributes

The Standard Attribute Generator, described in the prior section, can also be used to generate the Data Group attributes for managing the reservation and deployment of common components for the JDE World product from Oracle.

In the Object Library field, specify the name of the data library containing the JDE environment's tables.

At the bottom of the Standard Attribute listing, the following attributes are available for selection:

Attribute	Description
JDAAI	Automatic Accounting Instructions
JDDAC	Default Accounting Constants
JDDAD	Data Dictionary
JDDDC	Default Depreciation Constants
JDDRM	Dream Writer
JDLGT	Ledger Type
JDMNI	Individual Menu Item
JDMNU	Entire Menu

Any other collection of tables within JDE World or any other product can be defined individually within the Attribute Maintenance screen using the *DTAGRP type.



3.3.6 Linked Attribute Checkout Definitions

When an object for a particular attribute is checked out in the Object Manager, the programmer can be prompted to check out other objects that frequently need to be changed at the same time. This is most commonly used for selecting all components for a 4GL, Case Tool or other Middleware process when a program is checked out. The list of linked attributes can be managed by entering option L for the parent attribute.

```

MDCLNKC                                COMPANY NAME                                19.04.13
SCRN1                                  Linked Checkout Definitions                    22:22:40

      Appl Lvl  Attribute  Library
      MD   10   RMCBL     MDREPT

Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=Display

Opt Attribute  Dft Rcmp Typ Pattern/Expression                                File
-   RFUN          N   N   SQL MDFUN                                MDDRFUN
-   RLBL          N   N   FIX ++OBJNAM++IO
-   RSCREEN      N   N   FIX ++OBJNAM++

                                                                 Bottom

F3=Exit   F5=Refresh   F6=Add

```

Opt

2=Change – Change the definition for a linked attribute

3=Copy – Copy the definition

4=Delete – Delete the definition

5=View – display the definition

Function Keys:

F5=Refresh

F6=Add – Add a new Linked Attribute Checkout Definition



Linked Attribute Checkout Definition Detail

MDCLNKC	COMPANY NAME	19.04.13
SCRN2	Edit Linked Checkout Definition	22:27:43
Appl: MD Lvl: 10 Attribute: RMCBL Definition Number: 2		
Linked Attribute .	<u>RFUN</u>	
Request by Dft . .	<u>N</u> Y/N	
Link for Recomp .	<u>N</u> Y/N	
Object Name Type .	<u>S</u> F=Fixed Name Pattern, S=SQL Column Expression	
Name Pattern or SQL Column Expression (value ++OBJNAM++ replaced at runtime)		
<u>MDFUN</u>		
SQL Input File . .	<u>MDDRFUN</u>	
Library	<u>MDREPT</u>	
Condition:		
<u>MDPGM = "++OBJNAM++"</u>		
Enter=Confirm F4=Browse F8=Test Definition F12=Previous		

Linked Attribute

Enter the name of an existing MDCMS attribute for the same application and level whose object should be prompted for checkout when an object for the parent attribute is checked out. Multiple definitions for the same linked attribute are allowed, as long as the resulting object names will be different.

Request by Dft

Y – The object will already be selected for checkout when the prompt screen is displayed
N – The object will be displayed but not already selected for checkout in the prompt screen

Link for Recomp

Y – The programmer will be prompted to check out the linked object even if the parent object is requested for recompile
N – The programmer will not be prompted to check out the linked object when the parent object is requested for recompile

Object Name Type

F – Fixed Name Pattern – a name pattern is provided to determine the name of the linked object
S – SQL Column Expression – an SQL column expression (as used in a SELECT statement), SQL Input file and an optional SQL condition will be used to determine the name of the linked object

Name Pattern or SQL Column Expression

If fixed naming is used for the definition, specify the constant value pattern to be used for the object name. The string ++OBJNAM++ can be used anywhere within the pattern and will be replaced with the name of the parent object at run-time.

If SQL naming is used, enter the name as a valid SQL expression for a column. The expression can be any combination of table field names and constants. ++OBJNAM++ can be used within the expression and will be replaced with the name of the parent object at run-time.



SQL Input File

If SQL naming is used for the definition, specify the name and library of the file that the object name will be derived from.

Condition

If SQL naming is used for the definition, optionally specify a valid SQL condition (without the WHERE clause) to appropriately limit the records in the file that would be used to provide the object name.

If more than 1 record exists for the file/condition, only the first record will be used to provide the object name.

Function Keys:

Enter=Confirm

F4=Browse – browse the list of possible fields, files or libraries when using SQL naming

F8=Test Definition – Immediately run a test to ensure that the definition correctly generates the object name

Linked Attribute Definition Test

```

MDCLNKC                                COMPANY NAME                                19.04.13
SCRN3                                  Edit Linked Checkout Definition          22:27:43

  Appl: MD      Lvl: 10  Attribute: RMCBL      Definition Number:  2

  Linked Attribute .  RFUN
  Linked Type . . .  *DTAGRP

Example Object Name of Parent Object
RC0102
-----
Result Object Name of Linked Object
C.RFP.DET

Enter=Execute Test   F12=Previous
  
```

Example Object Name of Parent Object

Enter a potential name for an object checked out for the parent attribute. Then, press Enter to have MDCMS generate the Linked Object name based on the Fixed Pattern or SQL definition.



3.4 Commands

The Attribute Command displays are used to define the command defaults that are used to compile and manage objects. Each Application Group/Level/Attribute that requires a default command should be defined here. Default commands may also be defined to run for each promotion of objects, regardless of the types of objects in the promotion package.

```

CMCCMST                COMPANY NAME                4.09.06
SCRN1                  MD Default Command Maintenance 7:39:30

      Appl  Lvl  Attribute  Type  Command
Filters: _____ - _____

Type options, press Enter.
  2=Change  3=Copy  4=Delete  5=View

Opt Appl Lvl Attribute Typ Seq Command
- ACCT 90 *RFP      1      CALL PGM(ACCTLIB/CHKUSERS)
- ACCT 90 CLP      C      CRTCLPGM PGM(##OBJLIB##/##OBJNAM##) SRCFILE(##
- ACCT 90 DSPF     C      CRTDSPF FILE(##OBJLIB##/##OBJNAM##) SRCFILE(##
- ACCT 90 LF      C      CRTLF FILE(##OBJLIB##/##OBJNAM##) SRCFILE(##S..
- ACCT 90 PF      C      CRTPF FILE(##OBJLIB##/##OBJNAM##) SRCFILE(##S..
- ACCT 90 PF      3      10 STRJRNP FILE(##OBJLIB##/##OBJNAM##) JRN(JRNL..
- ACCT 90 PRTF    C      CRTPRTF FILE(##OBJLIB##/##OBJNAM##) SRCFILE(##
- ACCT 90 RPG     C      CRTRPGPGM PGM(##OBJLIB##/##OBJNAM##) SRCFILE(..
- ACCT 90 RPG36   C      CRTS36RPG PGM(##OBJLIB##/##OBJNAM##) SRCFILE(..
                                          Bottom
F3=Exit  F4=Browse  F6=Add  F9=Gen RFP Commands  F10=Scripts

```

Option 4 Screen Definitions

Filters

Appl/Lvl

Enter a value here to limit the listing to a specific application or level.

Attribute

Enter part or all of an attribute to limit the listing. For example, enter C to list only commands with an attribute starting with C.

Type

Enter a value here to limit the listing to a specific command type. See the next section for detailed information about each type of command available within MDCMS.

Command

Enter a string here to limit the listing to commands containing that string. For example, enter SRC to list only commands containing the string SRC.

Opt

2=Change – Change the text and run-time attributes for the selected Command

3=Copy – Copy a command

4=Delete – Delete a command

5=View – display a command

Function Keys:

F4=Browse – Browse the list of valid values for a filter field.

F6=Add – Add a new Attribute Command



F9=Gen RFP Commands – Generate *RFP commands in order to notify users by email when specific events occur. When F9 is pressed, the first screen allows you to select one or more application levels that should contain the commands. The second screen then allows you to select each command type, or exit point, for when the MDMAILF command should run. MDCMS then generates the commands for each selected exit point for each selected level.

Once the commands are generated, further customization can be performed on the commands from the command settings. This is particularly necessary for the Waiting for RFP Approval command type, since the group or user responsible for approving the RFP will need to be entered into the appropriate parameter.

F10=Scripts – Manage scripts that are defined for *IFS and *REMOTE attributes.

3.4.1 Add or Change display

```

CMCCMST                      MD Demo System                      8.07.07
SCRN2                        MD Default Command Maintenance      22:52:00

Appl.....: OPER                      Run for Modifications: Y  Y/N
Lvl.....: 10                          Recompiles...: Y  Y/N
Attribute: BCLP          Attribute, *RFP      Deletes.....: N  Y/N
                                          Updates.....: N  Y/N
Type.....: C  Compilation              Ignore Errors.....: N  Y/N
Sequence.: ____                      Keep MD Libs in Libl.: N  Y/N
                                          Wildcards in SQL.....: N  Y/N

Command
CRTCBLPGM PGM(##OBJLIB##/##OBJNAM##) SRCFILE(##SRCLIB##/##SRCFIL##)
____
____
____
____
____

F4=Browse  F7=Insert Wildcard  F12=Previous
  
```

Screen Definitions:

Appl/Lvl

The Application Group and Level that the attribute resides in.

Object Attribute

This field is tied to the attribute defined in Source/Object Attribute Maintenance (see previous section).

*RFP may also be entered. A command with attribute *RFP will run once each time a promotion is run.

Run for Modifications

Flag stating if the command should run for new or changed objects.

Run for Recompiles

Flag stating if the command should run for recompiled objects.

Run for Deletes

Flag stating if the command should run for deleted objects.



Run for Updates

Flag stating if the command should run for updated objects.

Type

The Type value designates when a command should run

C	Compile	used to compile the object from source code or to create the ILE Program/Service Program
D	Data Copy	<ul style="list-style-type: none"> *FILE attributes – determines how the existing records in a physical file should be mapped to the new format when a physical file is installed. The default, when a D-command is not defined for an attribute, is by using the CPYF command with FMTOPT(*MAP *DROP). If, for example, the mapping should occur with CPYF command parameter FMTOPT(*NOCHK) for all files of a given attribute, then a D-command should be defined. All other keywords in the CPYF command are ignored. Only 1 command may be defined for *FILE mapping. <p>Other commands, such as RUNSQLSTM, may also be used for mapping the data in a changed file from the old format to the new format. If such a command is used, it is critical to use the ##OFF wildcards so that MDCMS can correctly provide the location of the old file format.</p> <ul style="list-style-type: none"> *DATA attributes – determines how and which data records should be copied from one environment to another. All keywords except FROMFILE and TOFILE are then used when the CPYF command is run. Only the CPYF command is permitted for *DATA attributes
U	Update	runs during the installation process for updates to existing objects. This command is mandatory for objects requested for update (*UPDATE). An example would be the UPDPGM command to update existing ILE programs without migrating or recreating the object. The Update Command may optionally also be used to update an existing object using the modified source. An example for this would be the CHGPF command to update the format of a physical file for a modified DDS source. In this case, the source would be checked out using the M (modify) option and at installation time, the Update command would be used (as long as a compile command is not defined for the attribute or an update command is defined for the object).
M	Object Request	runs when an object is requested (checked out)
L	Object Lock	runs during the compile or installation process when a required object or source is locked. Separate field Wait before Usage specifies the amount of time to wait before executing the command. Multiple commands can be defined in order to have a lock escalation process in place.
V	Pre-Submit Validation	runs when user selects to submit an RFP for promotion. Command MDCHKRFP must be used and this provides an organization with the ability to add custom validation rules before an RFP can be submitted. See section MDCHKRFP API for more information.
I	Pre-Compile	runs prior to compiling objects
P	Post-Compile	runs after all object compilations are successfully completed
E	Compile Error	runs when the compile phase of an RFP fails to complete successfully.
A	RFP Approved	runs after an RFP has been approved for installation
J	RFP Rejected	runs after an RFP has been reset from Waiting for Approval status
F	MDRapid Waiting	runs after an RFP has been approved and MDRapid is required for the RFP



	to Launch	
G	MDRapid Started	runs to indicate that MDRapid has begun copying data for changed files
H	MDRapid Completed	runs after all existing records in the changed files has been copied to inform the users that the installation can be started.
I	MDRapid Error	runs when the MDRapid Data Copy phase of an RFP fails to complete successfully.
2	Pre-Installation	runs prior to installing objects into the environment
3	Post-Installation	runs after the installation of objects is complete
4	Installation Error	runs when the installation phase of an RFP fails to complete successfully. This type could be used, for example, to send an email or SMS to the installer if a weekend Installation fails.
W	Installation Warning	runs if an RFP Installation completes, but with warnings. Warnings can occur if data cannot be copied or if a Post-Installation Command fails to run successfully.
S	RFP Test Status Accepted	runs if an RFP Test Status is Accepted in MDWorkflow
T	RFP Test Status Rejected	runs if an RFP Test Status is Rejected in MDWorkflow
5	Pre-Send	runs once prior to sending an RFP to one or more remote systems
O	Data Copy during Send	Available for *DATA attributes only. Determines which data records should be sent to a remote location based on the INCCCHAR and INCREL parameters of the CPYF command. The command is run separately for each target location. Wildcard ##SVFLOC## could, for example, be used to filter by the location ID, if a column in the table contains that value.
Q	Post-Send for a Location	Runs for each location after an RFP has been successfully sent to that location. Wildcards ##SVFTGT## (Target Address of Sent Savefile) and ##SVFNAM## (Sent Savefile Name) are applicable for this command type.
6	Post-Send	runs once, after an RFP has been successfully sent to one or more remote systems
7	Send Error	runs in case the send of an RFP fails to complete successfully
8	Post-Receive	runs after an RFP has been successfully received from a remote system
9	Receive Error	runs in case the receipt of an RFP fails to complete successfully
R	Receive Warning	runs in case the receipt of an RFP completes, but with warnings

Command Types **A, E, F, G, H, I, J, L, Q, R, V, W, S, T, 4, 5, 6, 7, 8, and 9** are only valid at the RFP Level (Usage Attribute = *RFP).

Ignore Errors

Y – Continue with RFP processing even if the command fails.

Flag will always be Y for types 3, 4, 6, 7, 8, 9, A, E, J, M, V and W.

N – Cease and Rollback RFP processing if the command fails

Sequence

The sort sequence of the command at run time, in case multiple commands for the same attribute and type are defined.

Keep MD Libs in Libl

N – The MD Libraries (MDCMS and MDXREF) are removed from the library list before the command is invoked. This assures that any MD Objects with the same name as your objects are not used.

Y – The MD Libraries are left in the library list. This is necessary when MD Objects, such as interface programs, MDMAIL or MDMAILF, are needed to process the command.





Frequency

O – The command will run for every object in the RFP that is assigned to the given Attribute.

R – The command will run for the first object in the RFP that is assigned to the given Attribute and then ignored for any additional objects for the same Attribute. This option is only possible for non-*RFP attributes with command type 1, P, 2 or 3.

Wildcards in SQL

N – The SQL member or IFS file used by a RUNSQLSTM command does not contain MDCMS wildcards – no conversion will occur

Y – The SQL member or IFS file used by a RUNSQLSTM command contains MDCMS wildcards – MDCMS will create a temporary copy of the script and convert the wildcards in the copy to the actual runtime values. This flag should also be set to Y when script is used to create SQL indexes, views, constraints or triggers, even if wildcard is not present, so that MDCMS can automatically qualify the object.

This flag is only relevant for object-related command types using the RUNSQLSTM command. The wildcards embedded in the SQL script may be delimited by ++ instead of ## to avoid code page issues.

Wait before Usage

If the command type is L (Lock Wait for Object), the number of seconds to wait before an object lock condition causes the command to be executed can be defined.

If multiple L commands are defined, each command waits the number of seconds defined for that command after the prior command has completed.

For example:

Command 1 waits 15 seconds before sending an email to the user that submitted the RFP.

Command 2 waits 300 seconds before sending an email to the entire operations group (plus the 15 seconds wait for command 1)

Command 3 waits 3600 seconds before rolling back the RFP (plus the 315 seconds from commands 1 and 2).

Command

The IBM i or user-defined command to be performed. Enter the name of the command and then press F4 to fill in the keywords.

Some wildcard parameter values may be used and are substituted by MDCMS at run-time. The wildcard value may be typed directly into the command or the cursor may be positioned in the command and F7 pressed to insert the value from a list.

For Lock Wait command types, special value *ROLLBACK can be used to automatically roll back an RFP if an Object Lock condition occurs.

Function Keys:

F4=Browse – Browse for values.

F7=Insert Wildcard – Insert wildcard value into command string at the location of the cursor

F12=Previous



3.4.2 Attribute Command Considerations

This function is directly related to the Source/Object Attribute Maintenance. The commands are used during the RFP compile and Installation processes and the defaults entered for a command will affect the object's attributes.

It is absolutely essential that the generic ## names are used within the compilation commands for the object library and name, and source library and name. Otherwise, the installation process will not work properly.

If a command is to run for every RFP for an Application/level and is not based on the installation of a specific object-type, use the attribute *RFP.

If a command is intended to be used only for a specific object or for a specific RFP, then define the command within the Command Override function in the Object Manager or RFP manager.

3.4.3 Command Wildcard Values

The wildcard parameters are:

Value	Type	Length	Title	Description of Value Origin
##OBJLIB##	CHAR	240	Object library	Retrieved from the Install Library attribute
##OBJNAM##	CHAR	80	Object name	Retrieved from the requested object name
##OBJTYP##	CHAR	7	Object type	Retrieved from the Object Type for the attribute
##SRCLIB##	CHAR	240	Source library	Retrieved from the Install Source Library attribute
##SRCFIL##	CHAR	10	Sourcefile name	Retrieved from the Install Sourcefile attribute
##SRCNAM##	CHAR	80	Source Name	Retrieved from the Source Name for the Object Request
##APPLIC##	CHAR	4	Application code	The Application Code of the RFP
##PROLVL##	INT	2	Promotion Level	The Promotion Level of the RFP
##ATTRIB##	CHAR	10	Attribute	The MDCMS Attribute code
##OBJREQ##	CHAR	10	Object Requester	The user that has requested the Object
##REQRSN##	CHAR	6	Request Reason	MODIFY, DELETE, RECOMP or UPDATE
##RFPNBR##	INT	7	RFP number	Retrieved from the promotion request #
##RFPDSC##	CHAR	160	RFP description	RFP description
##RFPPRG##	CHAR	10	RFP requester	Retrieved from the RFP User
##RFPAPR##	CHAR	10	RFP approver	Retrieved from the RFP Approver
##RFPINS##	CHAR	10	RFP installer	Retrieved from the RFP Installer
##RFPSEND##	CHAR	10	RFP sender	Retrieved from the User sending the RFP
##RFPRCV##	CHAR	10	RFP receiver	Retrieved from the User receiving the RFP
##PROJID##	CHAR	12	Project ID	Retrieved from first Project assigned to object
##PRJTIT##	CHAR	80	Project Title	Project Title
##PRJREQ##	CHAR	10	Project requester	Retrieved from Project requester
##PRJPRG##	CHAR	10	Project programmer	the designated programmer for the Project
##PRJAUT##	CHAR	10	Project Authorizer	user that authorized work to be done for project
##PRJAPR##	CHAR	10	Project Approver	user that approved the installation of Project
##SYSTIT##	CHAR	40	System Title	Title of system defined in System Settings
##ERRMSG##	CHAR	240	Error Message	The message text explaining why the RFP failed
##MODULE##	CHAR	2800	ILE Bound Modules	The list of bound modules for the creation of ILE Programs or Service Programs
##ENTMOD##	CHAR	23	ILE Entry Module	The bound module containing the Program Entry Procedure for the creation of ILE Programs



##SRVPGM##	CHAR	2800	ILE Bound Service Programs	The list of bound service programs for the creation of ILE Programs or Service Programs
##TGTRLS##	CHAR	8	Target Release	The target OS release for the compilation of modules and programs. The value used will be the lowest release defined for the distribution queues for the given Application.
##SVFLOC##	CHAR	10	Target Location ID of Sent Savefile	The Location ID that an RFP is sent to. This wildcard is only applicable for command type O or Q.
##SVFTGT##	CHAR	80	Target Address of Sent Savefile	The Location Address that an RFP is sent to. This wildcard is only applicable for command type O or Q.
##SVFNAM##	CHAR	80	Sent Savefile Name	The name of the savefile that has been sent to a location. This wildcard is only applicable for command type O or Q.
##OFFLIB##	CHAR	10	Old File Format File Library	The name of the library containing the old version of the file when mapping data to the new format for a file
##OFFNAM##	CHAR	10	Old File Format File Name	The name of the file containing the old version of the file when mapping data to the new format for a file
##OFFMBR##	CHAR	10	Old File Format File Member	The name of the file member containing data for the old version of the file when mapping data to the new format for a file
##FRMLIB##	CHAR	240	Object Library to Migrate from	The developer library that the object will be migrated from. Typically used at checkout to handle conversion routines.
##FRMSLB##	CHAR	240	Source Library to Migrate from	The developer library that the source will be migrated from. Typically used at checkout to handle conversion routines.
##FRMSFL##	CHAR	10	Source File to Migrate from	The developer source file that the source will be migrated from. Typically used at checkout to handle conversion routines.



3.4.4 MDCHKRFP API to Validate RFP prior to Submission

The Validate MDCMS RFP (MDCHKRFP) command provides the parameters necessary for MDCMS to invoke a custom validation program prior to the submission of an RFP.

A custom validation program can be used to provide an info, warning or error message to the developer when attempting to submit a specific RFP. To do so, this command must be defined for a specific RFP or for a *RFP attribute command using command type V=Pre-Submit Validation.

Command MDCHKRFP doesn't directly invoke a program. Instead, it uses the command parameters to know the name and location of a custom program to be directly called by MDCMS when an RFP is selected for submission.

The V command type can be repeated if more than one custom program should be called.

The custom program must contain exactly the following calling parameters with each parameter individually defined:

Custom Parameter Table

Description	Type	Length
MDCMS Application Code inputted to program	CHAR	4
MDCMS RFP Number inputted to program	PACKED-DECIMAL	7,0
Message Text outputted from program containing any information that the user should be notified about in regards to the RFP. Return blanks if a message shouldn't be displayed.	CHAR	360
Message Severity outputted from program. 10=informational message only 20=warning message, but user can continue with RFP 30=error message, RFP not allowed to be submitted	PACKED-DECIMAL	2,0

MDCHKRFP Parameter Table

KEYWORD	Description	Type	Length
PGMNAM	Program Name - The name of the Custom Program to be invoked in order to provide additional validation of the RFP beyond what is already performed by MDCMS.	CHAR	10
PGMLIB	Program Library - Specifies the library where the Custom Program resides. *LIBL - The program library resides in the library list at the time of execution.	CHAR	10
LIBL	The library list to use during execution to ensure any program dependencies are found. *RFP - the library list of the job description for the target level of the RFP *CURRENT - the current library list when the submit option is requested is used	CHAR	8



3.5 Scripts

The Attribute Script displays are used to define the scripts that are used for *IFS or *REMOTE attributes. Script Maintenance is invoked by pressing F10 from the Command Maintenance display.

```

MDCCMSS                                COMPANY NAME                                7.03.16
SCRN1                                  Attribute Scripts                                11:53:35

      Appl  Lvl  Attribute  Type  Script
Filters:  ___  _  _____  -  _____

Type options, press Enter.
 2=Edit   3=Copy   4=Delete   5=View   S=Script Content

Opt Appl Lvl Attribute  Typ Seq Script
-  CMP  32  IFS         3     /7.0/stop-test-glassfish.bat
-  CMP  52  IFS         3     /7.0/stop-test-glassfish.bat
-  MD   90  PATCH        3     /stop-global-warming.bat
-  TEST 10  IFS         3     /7.0/stop-test-glassfish.bat
-  TEST 10  PHP         3     /6.8.1/start-test-glassfish-2.bat
-  TEST 10  PHP-IFS     2     /zend/ifs/shutdown.sh
-  TEST 10  PHP-IFS     3     /zend/ifs/startup.sh
-  TEST 10  WINAPP      2     1 /7.4/windows-stop-tomcat.bat
-  TEST 10  WINAPP      3     1 /7.4/windows-start-tomcat.bat
-  TEST 30  IFS         2    366 /zend/ifs/config.sh
-  TEST 30  IFS         2    367 /zend/ifs/config.sh

More...

F3=Exit   F6=Add   F12=Previous

```

Screen Definitions

Filters

Appl/Lvl

Enter a value here to limit the listing to a specific application or level.

Attribute

Enter part or all of an attribute to limit the listing. For example, enter C to list only scripts with an attribute starting with C.

Type

Enter a value here to limit the listing to a specific script type. See the next section for detailed information about each type of script available within MDCMS.

Script

Enter a string here to limit the listing to scripts containing that string. For example, enter SRC to list only scripts containing the string SRC.

Opt

2=Edit – Change the properties for the selected Script

3=Copy – Copy a script definition

4=Delete – Delete a script definition

5=View – display a script definition

S=Script Content – view the contents of a script. Use MDOpen to edit the contents and an RFP to deploy to script to each level where it should be used.

Function Keys:

F6=Add – Add a new Attribute Script definition



3.5.1 Add or Change display

```

MDCCMSS                      MD T 74 6.1                      7.03.16
SCRN2                         Attribute Script Detail          12:14:01

Appl.....: CMP                      Run for Modifications: Y  Y/N
Lvl.....: 52                          Deletes.....: Y  Y/N
Attribute: IFS                        Ignore Errors.....: Y  Y/N
Type.....: 3  2=Pre-Install, 3=Post-Install  Replace Wildcards....: N  Y/N
Sequence.: _____
Frequency: R  O=Object, R=RFP

Submit Job . . . . . N                Y/N
Job Name . . . . . _____
Job User . . . . . *CURRENT
Job Queue . . . . . QSYSNOMAX
  Library . . . . . QSYS
Script Root Folder . . /MDCMS/SCRIPTS
Script Subfolder . . . /7.0
_____

Script File
Stop-test-glassfish.bat
_____

F3=Exit  F4=Browse

```

Screen Definitions:

Appl/Lvl

The Application Group and Level that the attribute resides in.

Attribute

The MDCMS attribute that the script will be tied to.
Only *IFS or *REMOTE attributes may use scripts.

Run for Modifications

Flag stating if the script should run for new or changed objects.

Run for Deletes

Flag stating if the script should run for deleted objects.

Ignore Errors

Y – Continue with RFP processing even if the script fails.
Flag will always be Y for type 3.
N – Cease and Rollback RFP processing if the script fails

Type

The Type value designates when a script should run

2	Pre-Installation	runs prior to installing objects into the environment
3	Post-Installation	runs after the installation of objects is complete

Replace Wildcards

N – The script doesn't contain wildcard values to be replaced by runtime values when executed
Y – Replace wildcard values in the script at run time



Sequence

The sort sequence of the script at run time, in case multiple scripts for the same attribute and type are defined.

Frequency

O – The script will run for every object in the RFP that is assigned to the given Attribute.

R – The script will run for the first object in the RFP that is assigned to the given Attribute and then ignored for any additional objects for the same Attribute.

Wait for Response

Y – MDCMS waits until the Remote server confirms completion of the script execution

N – MDCMS continues without waiting for a response from the remote server

Submit Job

Y – Submit the IFS Script execution to a separate job. MDCMS will not wait for a response in this case, but instead continue with RFP processing.

N – the ifs script execution runs within this job

Job Name

The name of the submitted job that will process the IFS script

Job User

The user profile of the submitted job that will process the IFS script

Job Queue

The name and library of the Job Queue to receive the submitted job

Script Subfolder

The relative path of the script, if it isn't directly located in the script root folder.

Script

The name of the script file located in IFS

Function Keys:

F4=Browse – Browse for values.

F12=Previous



3.6 Templates

Templates are distinct definitions for Object Authority, Replication, Search or Deletion that can be used for one or more Attributes across Applications and Levels. Additionally, the Data Copy Libraries template is used to define sets of From and Target Libraries for the copying of data.

3.6.1 Object Authority Templates

An Object Authority Template defines the authorities applied to objects when they are installed into a promotion level. A template must be assigned to every attribute that has an object library or folder defined for it (except attributes of type *DATA, *DTAGRP and *DUMMY).

```

MDCTMOA                                COMPANY NAME                                25.11.12
SCRN1                                  Object Authority Templates                    12:17:57
Filters:                               *PUBLIC                                       Used by:
Type  Owner  Obj Auth  Auth List  User  Appl Lvl  Library
-----
Type options, press Enter.
2=Edit 3=Copy 4=Delete 5=View 7=Rename A=Attributes
Opt Template  Atr  Type  Obj Owner  Obj Auth  Auth List  Group  Other
- *DFTIFS      IFS  *JOB  *JOBREF  *NONE
- *DFTRMT      REMOTE *FTP  *NONE  *NONE
- *DFT400      OS400 *JOB  *CHANGE *NONE
- IFS1         Y     IFS  *JOB  *OBJEXIST + TLIST1
- IFS2         Y     IFS  *SAME  *SAME  *SAME  *SAME  1
- OS4A         Y     OS400 *JOB  *AUTL  TLIST1  MDPGP  1
- OS4B         Y     OS400 MMORGAN *USE  *NONE  *SAME  1
- OS4C         Y     OS400 *SAME  *SAME  *SAME  *SAME  1
- OS40000003  OS400 MRDATA *USE  *NONE  *NONE
- RMT00001    Y     REMOTE *FTP  *NONE  *NONE
Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F10=Attributes  F21=Sys Command

```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of records which contain the values of those filters.

Used By

Only templates that are used by attributes for the entered Application, Level or Object Library will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template



Function Keys

F3=Exit

F4=Browse – Browse the list of valid values for a filter field.

F5=Refresh

F6=Add – Add a new Template Definition

F10=Attributes – List all attributes to be able to view and change the usage of the Templates

Fields

Template

A 10-Character name for the template definition. The templates *DFTIFS, *DFTRMT and *DFT400 are automatically created by MDCMS at installation time with the most common object authority definitions for each type. The definitions may be modified to meet the requirements of the majority of your objects.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Template Type

IFS – Object Authority definition for objects residing in IFS

REMOTE – Object Authority definition for objects residing on other system than the IBMi

Apply Template

Flag available for OS400 objects to determine when template should be applied to a deployed object.

A – Always apply template

N – Only apply template for new objects. A modified object will retain the same authority as the object it replaced.

Obj Owner

The value entered here is the owner of the objects for the specified Attribute. It may be any valid user profile on your IBMi system. The default value of *JOBDD will set the object ownership to be the value of the application level job description 'USER' value.

The value *SAME may also be given. If *SAME is used for a new object the owner is based on user running the compile phase of an RFP for compiled objects or based on the from object for copied objects. If *SAME is used for an existing object, the current object's ownership will be transferred to the object replacing it.

Auth List

If you are maintaining authorities on your system through authorization lists, enter the name of the authorization list here. Otherwise, it may be left blank.

The value *SAME may also be given. If *SAME is used for a new object, the authorization list is based on the compile at install time for compiled objects or based on the from object for copied objects. If *SAME is used for an existing object, the authorization list will be transferred to the object replacing it.



Users with Authority to Object

- *PUBLIC – the authority granted to any user that is not specified in the list for the Template
- Primary Group – the name of the Primary Group for an OS400 or IFS object. Press F9 from the Template Edit screen to add a Primary Group to a Template definition.
- *OWNER – the Owner authority for a remote object
- *GROUP – the Group authority for a remote object
- Other Users – the IBMi user profiles to be granted specific authority for the Template. Press F6 from the Template Edit screen to add a user profile to a Template definition.

OS400 Authorities

Possible Single Values

*ALL	All authority
*CHANGE	Change authority
*EXCLUDE	No Authority
*SAME	The authority of the existing object is applied for the user to the authority for the object replacing it
*USE	Usage authority

OR

Possible Multiple Values (1 or more in the list applied for the same user)

*ADD	Authority to add entries to Object
*DLT	Authority to remove entries from an Object
*EXECUTE	Authority to run program or locate the object
*OBJALTER	Object Alter Authority
*OBJEXIST	Object Existence Authority
*OBJMGT	Object Management Authority
*OBJOPR	Object Operational Authority
*OBJREF	Object Reference Authority
*READ	Authority to get contents of an entry
*UPD	Authority to change contents of an entry

IFS Object Authorities

Possible Single Values

*ALL	All authority
*NONE	No Object Authority
*SAME	The authority of the existing object is applied for the user to the authority for the object replacing it

OR

Possible Multiple Values (1 or more in the list applied for the same user)

*OBJALTER	Object Alter Authority
*OBJEXIST	Object Existence Authority
*OBJMGT	Object Management Authority
*OBJREF	Object Reference Authority



IFS Data Authorities

*EXCLUDE	no data or object authority
*NONE	no data authority
*R	Read authority
*RW	Read/Write authority
*RWX	Read/Write/Execute authority
*RX	Read/Execute authority
*SAME	The authority of the existing object is applied for the user to the authority for the object replacing it
*W	Write authority
*WX	Write/Execute authority
*X	Execute authority

Remote Object Authorities

*NONE	no data authority
*R	Read authority
*RW	Read/Write authority
*RWX	Read/Write/Execute authority
*RX	Read/Execute authority
*W	Write authority
*WX	Write/Execute authority
*X	Execute authority



3.6.2 Object Replication Templates

An Object Replication Template defines the list of locations that an object should be deployed to in addition to the location defined for the object's attribute.

```

MDCTMOR                                COMPANY NAME                                25.11.12
SCRN1                                  Object Replication Templates                    13:19:30
Filters:
Type  Library/Folder                    Server                                Used by:
-----
Type options, press Enter.
2=Edit 3=Copy 4=Delete 5=View 7=Rename A=Attributes

Opt Template Atr Type  Replication Locations
- FILE MJ Y OS400 TSTOBJ10M, TSTOBJ10Y
- FOLDERS IFS /transfer/5_4, /transfer/6_0, /transfer/6_7_5, /transfe >
- ORT2 Y OS400 DD01000020, DSAV000006
- ORT222 Y OS400 IT000764, MDADMT, MDAPI
- T_FOLDER Y IFS /T_Folder/IT/BU1, /T_Folder/IT/BU2
- TSTPUB OS400 TSTPUB
- WEB Y REMOTE MD Web Server:/dev/testenv/T1_alt1, MD Web Server:/dev/ >

Bottom
F3=Exit F4=Browse F5=Refresh F6=Add F10=Attributes F21=Sys Command

```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of records which contain the values of those filters.

Used By

Only templates that are used by attributes for the entered Application or Level will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template

Function Keys

- F3=Exit
- F4=Browse – Browse the list of valid values for a filter field.
- F5=Refresh
- F6=Add – Add a new Template Definition
- F10=Attributes – List all attributes to be able to view and change the usage of the Templates



Fields

Template

A 10-Character name for the template definition.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Template Type

IFS – Object Replication definition for objects residing in IFS

REMOTE – Object Replication definition for objects residing on other system than the IBMi

OS400 – Object Replication definition for standard IBMi objects

SQL – Object Replication definition for SQL Objects

Library

The list of libraries that OS400 objects will be replicated to at installation time

Folder

The list of folders that IFS or REMOTE objects will be replicated to at installation time

Schema

The list of SQL Schemas that SQL objects will be replicated to at installation time

Server

The list of servers that REMOTE objects will be replicated to at installation time

Existing Objects Only

N – any object will be replicated to this library

Y – an object will only be replicated to this library if it already exists in the library

Object Auth. Template

*SAME – the same Object Authority Template for the Attribute library will be used for the replication library.

Template name – the entered Template will be used for the application of Object Authorities to the Replication Library

Reference Libraries to include in LIBL at deployment

Up to 5 Libraries that will be added to the top of the library list when a logical file (including SQL indexes or views) is created at installation time to access the correct physical file libraries for the replication library.



3.6.3 Source Replication Templates

A Source Replication Template defines the list of files that a source member, IFS source or message description should be deployed to in addition to the location defined for the object's attribute.

```

MDCTMSR                                COMPANY NAME                                25.11.12
SCRN1                                  Source Replication Templates                13:28:34
Filters:
  Type  Library      File                                Used by:
  _____          _____          _____          Appl Lvl
  _____          _____          _____          _____

Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=View  7=Rename  A=Attributes

Opt  Template Atr  Type  Replication Locations
_   MSGS      Y  MSG  TSTOBJ10/MSGFD, TSTOBJ10/MSGTD, TSTSRCREP1, TSTSRCREP1/ >
_   REPS      Y  SRC  TSTSRCREP1, TSTSRCREP2
_   REPS2     Y  SRC  MDADMP, MDADMT/QCBLSRC

                                                                 Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F10=Attributes  F21=Sys Command
  
```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of records which contain the values of those filters.

Used By

Only templates that are used by attributes for the entered Application or Level will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template

Function Keys

- F3=Exit
- F4=Browse – Browse the list of valid values for a filter field.
- F5=Refresh
- F6=Add – Add a new Template Definition
- F10=Attributes – List all attributes to be able to view and change the usage of the Templates



Fields

Template

A 10-Character name for the template definition.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Template Type

IFS – Source Replication definition for source residing as files in IFS

MSG – Message Description Replication definition for messages in Message Files

SRC – Source Member Replication definition for members residing in Source Files

Library/File

The list of IFS directories, message files, or source files to replicate to at installation time



3.6.4 Object Search Templates

An Object Search Template defines the list of libraries or IFS directories that should be searched when checking out an object.

During check-out, MDCMS searches for objects (that don't have a source member defined for the attribute) in the following sequence:

- 1) The target library for the attribute
- 2) If the promotion level is a delta level, the higher levels will be checked in ascending order
- 3) If the level is based on another level, the based-on level and its higher levels are checked in ascending order
- 4) The search libraries in the search template in sequential order

```

MDCTMOS                                COMPANY NAME                                25.11.12
SCRN1                                  Object Search Templates                    13:51:23
Filters:                                Used by:
Type  Library/Folder                    Appl Lvl
-----
Type options, press Enter.
2=Edit 3=Copy 4=Delete 5=View 7=Rename A=Attributes

Opt Template  Atr Type  Search Locations
- FINDASO     Y OS400  SIVQRY, LIVQRY
- FINDASO12   OS400  WIVQRY, ZIVQRY
- FINDIFS     Y IFS    /T_Folder/IT/javamail-1.4.3, /T_Folder/IT/javamail-1.4. >
- SEARCH003   Y IFS    /T_Folder/SIT, /T_Folder/Prod
- SEARCH004   OS400  TSTOBJ30, TSTOBJ70

Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F10=Attributes  F21=Sys Command

```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of records which contain the values of those filters.

Used By

Only templates that are used by attributes for the entered Application or Level will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.



Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template

Function Keys

- F3=Exit
- F4=Browse – Browse the list of valid values for a filter field.
- F5=Refresh
- F6=Add – Add a new Template Definition
- F10=Attributes – List all attributes to be able to view and change the usage of the Templates

Fields

Template

A 10-Character name for the template definition.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Template Type

- IFS – Object Search definition for objects residing in IFS
- OS400 – Object Search definition for standard IBMi objects

Sort Sequence

A number indicating the sort sequence for the location, in ascending order

Library

The list of OS/400 libraries that will be searched at check-out time

Folder

The list of IFS folders that will be searched at check-out time

Display Warning

If set to Y, MDCMS will always check if the object is in this library, even if found sooner elsewhere, and display a warning screen that the object was found in the location specified by the template.

This provides the ability to warn about an object already in another location when attempting to check it out.



3.6.5 Source Search Templates

A Source Search Template defines the list of source files or IFS directories that should be searched when checking out source.

During check-out, MDCMS searches for source in the following sequence:

- 1) The target source file/directory for the attribute
- 2) If the promotion level is a delta level, the higher levels will be checked in ascending order
- 3) If the level is based on another level, the based-on level and its higher levels are checked in ascending order
- 4) The source locations in the search template in sequential order

```

MDCTMSS                COMPANY NAME                25.11.12
SCRN1                   Source Search Templates     21:21:42
Filters:                Used by:
Type  Library/Folder   File      System   Appl Lvl
-----
Type options, press Enter.
2=Edit 3=Copy 4=Delete 5=View 7=Rename A=Attributes

Opt Template  Atr  Type  Search Locations
-  IBMODP     Y   MBR   PROIB
-  IFSSEARCH  Y   IFS   /test/30
-  MBRSEARCH  Y   MBR   SQLLIBSRC

Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F10=Attributes  F21=Sys Command

```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of records which contain the values of those filters.

Used By

Only templates that are used by attributes for the entered Application or Level will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template



Function Keys

F3=Exit

F4=Browse – Browse the list of valid values for a filter field.

F5=Refresh

F6=Add – Add a new Template Definition

F10=Attributes – List all attributes to be able to view and change the usage of the Templates

Fields

Template

A 10-Character name for the template definition.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Template Type

IFS – Source Search definition for source residing in IFS

MBR – Source Search definition for source members residing in Source Files

Sort Sequence

A number indicating the sort sequence for the location, in ascending order

Library

The name of a Library containing source files

File

The name of a source file

*SRCFILE – the name of the target source file for the attribute

System

The address of the remote system containing the source file to be searched. The addresses are defined in the OS/400 Locations.

*LOCAL – the library resides on the same system partition

Display Warning

If set to Y, MDCMS will always check if the source is in this library, even if found sooner elsewhere, and display a warning screen that the source was found in the location specified by the template.

This provides the ability to warn about source already in another location when attempting to check it out.



3.6.6 Object Deletion Level Templates

An Object Deletion Level Template defines the list of levels containing Delta or Emergency objects that should be deleted when those objects are installed into the current level.

For example, the template could be assigned to attributes in the production level to delete the objects from the development and test levels.

In order for the deletion to occur, the level to delete from must have the Delta Object Level flag set to Y. If the Emergency Level flag is set to Y, and the object is found in the level, it will be deleted regardless of version. If the Emergency Level flag is set to N, the object will only be deleted if the version in the delta level is the same as the version in the level being installed into. This insures that new work in progress won't be deleted from delta libraries.

If an Object Deletion Level Template is assigned to a *DATA attribute, MDCMS will delete the entire file from the delta level if MDCMS also automatically created the file to contain the data and no additional deployments or changes have been made to the file since that creation occurred.

```

MDCTMOD                                COMPANY NAME                29.07.14
SCRN1                                  Object Deletion Templates    21:20:10
Filters:                                Used by:
  Lvl                                    Appl Lvl
  —                                     ————
Type options, press Enter.
  2=Edit 3=Copy 4=Delete 5=View 7=Rename A=Attributes

Opt Template Atr Deletion Levels
— T30         Y   10, 20
— T50         Y   30

Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F10=Attributes  F21=Sys Command

```

Screen Definitions:

Filters

The entry of a value into the level filter fields will result in a subsetted list of records which contain that level.

Used By

Only templates that are used by attributes for the entered Application or Level will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template

Function Keys

F3=Exit

F4=Browse – Browse the list of valid values for a filter field.

F5=Refresh

F6=Add – Add a new Template Definition

F10=Attributes – List all attributes to be able to view and change the usage of the Templates

Fields

Template

A 10-Character name for the template definition.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Level

The list of levels from which to delete objects

3.6.7 Source Deletion Level Templates

The usage and handling of Source Deletion Level Templates is identical to that of Object Deletion Level Templates described in the previous section.

The one additional feature for Source Deletion Levels is that the deletion level may exist on a remote system. Use *LOCAL as the System value to delete from a level on the local system. Otherwise, enter the OS/400 location to delete the source from that system when the source is installed into the current level on the local system.



3.6.8 MDRapid Usage Templates

An MDRapid Usage Template defines the Mimix Promoter runtime job parameters as well as the minimum record count needed to require the use of MDRapid for a file or SQL table.

The usage of MDRapid permits all data to be copied from the old format of a changed file to the new format while the application is still in use, thus substantially reducing the amount of downtime. Once the original records are copied, Mimix Promoter continues to mirror transactions to the new format of the file until such time that the install should occur.

```

MDCTMRP                                COMPANY NAME                29.07.14
SCRN1                                  MDRapid Usage Templates      14:19:24
                                         Used by:
                                         Appl Lvl
                                         _____

Type options, press Enter.
 2=Edit  3=Copy  4=Delete  5=View  7=Rename  A=Attributes

Opt Template  Atr  Mimix Lib  Mimix Sbs  Mimix Jobd  Minimum Rcd Cnt
_  TEST      Y    MIMIX     MIMIXSBS  *MIMIXUSR   10

                                         Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F10=Attributes  F21=Sys Command

```

Screen Definitions:

Used By

Only templates that are used by attributes for the entered Application or Level will be listed.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template; all attributes using the template will automatically be updated
- A – List all attributes using the template

Function Keys

- F3=Exit
- F4=Browse – Browse the list of valid values for a filter field.
- F5=Refresh
- F6=Add – Add a new Template Definition
- F10=Attributes – List all attributes to be able to view and change the usage of the Templates



Fields

Template

A 10-Character name for the template definition.

Atr

Y – The template is assigned to 1 or more MDCMS attributes

Mimix Library

The library containing the Mimix Promoter product from Vision Solutions. This defaults to MIMIX.

Mimix Subsystem and Library

The subsystem to use for the Mimix Promoter batch jobs that copy the data. This defaults to MIMIXSBS in library MIMIXQGPL.

Mimix Jobd and Library

The job description to use for the Mimix Promoter batch jobs that copy the data. This defaults to *MIMIXUSR.

Minimum Rec Count

The minimum number of records that have to exist in the current version of the file (across all members) in order for that file to be included in the MDRapid process.



3.6.9 Attributes for Templates

In order to see where templates are used, and to assign templates to many attributes at once, the list of attributes can be displayed for each type of template.

From the maintenance screen for a type of template, press F10 to view all attributes or enter option A for a specific template to see the attributes using that template.

```

MDCTAOA                                COMPANY NAME                                25.11.12
SCRN1                                  Attributes for Object Authority Templates    21:34:40
      Appl Lvl  Type   Attribute   Object Lib       Template       Temp Type
Filters:  _____  _____  _____  _____  _____  _____

Type options, press Enter.
1=Assign Attribute to Template: _____

Opt Appl Lvl  Type   Attribute   Object Lib       Template
-   TEST 11  *DTAARA DTAARA      TSTOBJ11        OS4A
-   TEST 10  *FILE   DSPF        TSTOBJ10        *DFT400
-   TEST 11  *FILE   DSPF        TSTOBJ11        *DFT400
-   TEST 30  *FILE   DSPF        TSTOBJ30        OS4A
-   TEST 70  *FILE   DSPF        TSTOBJ70        *DFT400
-   TEST 10  *FILE   LF          TSTOBJ10        *DFT400
-   TEST 11  *FILE   LF          TSTOBJ11        *DFT400
-   TEST 30  *FILE   LF          TSTOBJ30        OS4B
-   TEST 70  *FILE   LF          TSTOBJ70        *DFT400
-   TEST 10  *FILE   PF          TSTOBJ10        *DFT400
-   TEST 11  *FILE   PF          TSTOBJ11        *DFT400
-   TEST 30  *FILE   PF          TSTOBJ30        OS4B
More...

F3=Exit   F4=Browse   F5=Refresh   F13=Repeat Opt
  
```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetting list of records which contain the values of those filters.

Options

1 – Assign Attribute to Template – enter a valid template name in the field above the list and then place a 1 next to each attribute that should have that template assigned to it. The Template Type must be compatible with the object type.

Function Keys

F3=Exit

F4=Browse – Browse the list of valid values for a filter field or the Template field.

F5=Refresh

F13=Repeat the assign option for all compatible attributes



3.6.10 Data Copy Libraries Templates

A Data Copy Libraries Template defines a set of libraries for the copying of data from one environment to another. This is typically used to refresh test libraries with the data located in production libraries, without losing format and object changes made in the test environment.

```

MDCTMDC                      MD Production 6.1                      2.11.13
SCRN1                        Data Copy Templates                17:52:41
Filters:
  From Library  Target Library
  _____  _____

Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=View  7=Rename  X=Execute

Opt Template  Libraries
  _  TEST1    ACCTLIBPA->ACCTLIBTA, ACCTLIBPB->ACCTLIBTB

                                                                    Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F11=View Output  F21=Sys Command

```

Screen Definitions:

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of records which contain the values of those filters.

Position to Template

A value can be entered into the field above the Template column to position the cursor to the first entry in the list greater than or equal to the value.

Options

- 2 – Edit an existing Template definition
- 3 – Copy the definition for a Template to a new Template name
- 4 – Delete a Template definition
- 5 – Display all details of the Template definition
- 7 – Rename the Template
- X – Execute the copy of data between the libraries defined for this Template

Function Keys

- F3=Exit
- F4=Browse – Browse the list of valid values for a filter field.
- F5=Refresh
- F6=Add – Add a new Template Definition
- F11=View Output – view/export report output, including Data Copy Log Reports
- F21=Sys Command – access a command line



Fields

From Library

A library containing data in physical files or data areas that will be copied. The from library doesn't need to exist at the time of adding it to the template. Often, such libraries reside permanently on another system and will temporarily be restored to this system for processing the copy.

Target Library

The name of the library that contains physical files or data areas to be updated with data from the From Library. The Target Library must exist at the time of adding it to the Template.

Target Objects

Option T can be entered for a combination of From Library and Target Library.

The resulting list is all physical files and data areas in the Target Library based on the information in MDXREF.

Omit

N - (default) – the data in the Target Library object will be updated with the data from the object with the same name in the From Library, if it exists in the From Library.

Y – the object will be omitted from the list of objects to be updated at copy time



3.6.11 MDCPYDATA Command – Copy Library Data

The MDCPYDATA command is provided to run a Data Copy Libraries Template from a command line or scheduler.

Parameter	Description
Data Copy Template	The name of the Data Copy Libraries Template defined in the previous section
Logging Level	A log report can optionally be generated. The report is made available from the MD Reports screen, which is accessible with F11 from most MD screens. 0 – nothing is logged 1 – logs any files that could not be copied due to errors 2 – log level 1 + any files that required *MAP/*DROP due to a different record format 3 – log level 2 + all copied files 4 – log level 3 + all files not copied because they are on the omit list
Submit Job	*YES – the copy process will be submitted as a new batch job *NO – the copy process will run immediately within the same job
Job queue	The name of the job queue to submit the job to, if requested
Job queue Library	The location of the job queue to submit the job to, if requested
Environment ID	The name of the MDCMS instance (or suffix) - *DFT refers to MDCMS being used in library MDCMS. For a different library suffix, this would be entered for the environment ID.

For each Target object that is not omitted and exists in both the From Library and the Target Library, the following occurs:

- 1) Automatically increase maximum number of members if less than current number of members in From Library
- 2) Adds or Removes members as necessary if the From File has <> 1 member
- 3) Automatically increase maximum number of records if less than current number of records in From Library
- 4) if the target file has a different record format, *MAP/*DROP will be used
- 5) clear member if from member is empty



3.7 OS/400 Locations

The OS/400 Locations define all locations where MDCMS should connect to for the distribution of settings promotions or for data connections to synchronize project and MDWorkflow information and perform remote retrieval of source or MDXREF information.

MDCMS utilizes the DDM (Distributed Database Management) features of the IBMi system for executing the data connections. MDSEC can be used to manage the security and logging of DDM usage.

For the distribution of promotions, a variety of methods are available.

```

MDCRLOC                COMPANY NAME                04.09.15
SCRN1                  OS/400 Locations            22:37:07
Filters
  Loc ID      Description      Address      Group      Push Pul St Mtd A W C E
-----
Type options, press Enter.
2=Edit 3=Copy 4=Delete 5=Display 7=Rename C=Src Comp G=Groups
S=Sync U=User Mapping

          Sort Push Pull      Dst      Src
Opt Loc ID  Description      Seq Job Job Stg Mtd Act WF Cmp Err
- *LOCAL   MD 6.1                1  1      N  FTP  Y  Y  Y  N
- MD71     MD 7.1                2  2      1  N  FTP  Y  Y  N  N
- SFF      Full Save file        N  SFF  Y  N  N  N
- SFO      Clean Save file        N  SFO  Y  N  N  N

                                          Bottom
F3=Exit F5=Refresh F6=Add F8=Sort by Seq F9=Pending Data F21=Sys Command
  
```

Screen Definitions:

Opt

2=Edit – Edit the parameters for a location

3=Copy – Copy the parameters of an existing location to a new location

4=Delete – Delete a remote location from the list.

7=Rename – Rename a remote location id.

C=Src Comp – Define the Level residing at the location for source to be compared to when that source is checked out on the local system.

G=Groups – View the Location Groups that the location belongs to. Additionally, manage the Location Groups. Location Groups are used to provide a means of filtering a list of Locations in the Distribution screens by any definition necessary for the organization. Multiple locations can belong to a location group and multiple location groups can contain the same location.

S=Sync – Provide project information from the local system to the target system. If the target system contains the MDWorkflow repository, then additional object and promotion information is provided. If the local system contains the MDWorkflow repository, it should also be synced initially to load the local information into the MDWorkflow tables.

U=User Mapping – Map the User IDs of Sending Users on the local system to the corresponding User IDs on the target system, if the target system uses different naming patterns.

Special Function Keys

F9-Pending Data – View a count of pending data transactions waiting to be delivered to each target system via DDM.



3.7.1 Location DDM Settings

Location settings span up to 3 pages per location. The first page defines the DDM settings for the location.

Location ID

A unique ID for the location. This ID must match the Location ID entered in the system settings on the target system.

Additionally, there is the special value of *LOCAL to maintain MDWorkflow and source comparison settings for the local system.

Description

A free-format description of the location

Address

The network host name or IP address of the target OS/400 partition

Database Name

The name of the DB/400 database containing MDCMS at the remote location. To easily find the name of the database, enter command STRSQL at a command line on the remote system. The database name will be displayed.

DRDA Port

The port number used on the remote system for handling DDM service requests. *DRDA is the default port number, which is correct in most circumstances.

Loc Active

A flag indicating if connections should be attempted to this location

Data Push Job#

If the local system can connect to the location via DDM, a queue number between 1 and 9 should be specified. This number corresponds to the MDPUSH job to push asynchronous data to the location.

If there are only a couple of locations to push information to, it is recommended to only use 1 push job. However, if there are many locations, then it is recommended to split the locations across several MDPUSH jobs in parallel.

Data Pull Job#

If the local system can connect to the location via DDM, but the location can't connect to the local system, then a queue number between 1 and 9 should be specified. This number corresponds to the MDPULL job to pull asynchronous data from the location.

If there are only a couple of locations to pull information from, it is recommended to only use 1 pull job. However, if there are many locations, then it is recommended to split the locations across several MDPULL jobs in parallel.

In general, it is better to be able to push rather than pull for performance and administration reasons. However, if a firewall only allows one-way DDM connections, then the pull process will enable this to be technically possible.



Stage Data

If the local system can't connect to the location via DDM, but the location can connect to the local system, then the local system can stage the data and the remote location can use an MDPULL job to retrieve the staged data.

MDWorkflow Rep

Set this value to Y if this location contains the repository that the MDWorkflow web application connects to. This indicates to the local system that additional information needs to be distributed to the location so that all necessary data appears in MDWorkflow.

If the local system contains the repository, then set this parameter to Y for location *LOCAL.

MDWorkflow Sort#

If the local system contains the MDWorkflow repository, then set the sort sequence for each location to be viewed from within MDWorkflow.

Remote User

The user id to be used on the remote IBMi in order to process synchronizations or source retrieval. The password for the user on the remote system must also be entered.

UTC Offset

The difference in time between the local time of the location and UTC standard time. The 5-character field has the following format:

shhmm, where s=sign (+/-), hh=hours (00-24) and mm=minutes (00-59)

Special Function Keys:

F10=Test DDM Connection – test the DDM connection to the remote location based on the current settings for the location



3.7.2 Location Distribution General Settings

Location settings span up to 3 pages per location. The 2nd page defines the general Distribution settings for the location.

Dist. Method

The method to send an RFP or Settings from this partition to another partition

Value	Description	Distribution Address Value
CDR	IBM Connect:Direct	C:D Node
FTP	Native File Transfer Protocol	Hostname/IP
GOA	Linoma GoAnywhere Director	GA Project ID
OPT	Optical Device	Device Name
SFF	Save File with Full RFP Information for manual distribution to other systems that use MDCMS. In order to receive the file into a target system, place it in folder /MDCMS/SEND/(instance) on that system and use command MDRCVIFS to process it.	IFS Folder including Path
SFO	Save File with Source/Objects only for manual distribution to other systems that don't use MDCMS	Library Name OR IFS Folder including Path
SNA	IBM Systems Network Architecture	SNA Queue
TAP	Tape Device	Device Name
XCM	CA XCOM Data Transport	XCOM Remote System

Dist. Address

The value of the address based on the method in the table above. Special value *LOCADR can be used if the DDM address is the same as the distribution address.

Target Release

The operating system that is currently installed on the destination system. This value can be overridden for each Distribution Level.

*CURRENT – the default indicating that the OS versions are equal between the 2 systems

*PRV – the destination system runs on the previous OS version

VxRxMx – the exact version number of the destination system (e.g. V5R4M0)



Dft Selection

Determines, in combination with the RFP Auto Send Flag for a Promotion Level, when and whether to send an RFP to the Queue. This value can be overridden for each Distribution Level.

RFP Auto Send	Default to Send	Result
Y	Y	RFP sent automatically and immediately to queue
Y	M	RFP must be sent manually, automatically selected in list
Y	N	RFP must be sent manually, not automatically selected in list
W	Y	RFP sent automatically once accepted in MDWorkflow
W	M	RFP must be sent manually, automatically selected in list
W	N	RFP must be sent manually, not automatically selected in list
N	Y	RFP must be sent manually, automatically selected in list
N	M	RFP must be sent manually, automatically selected in list
N	N	RFP must be sent manually, not automatically selected in list

Send Objects for Attributes containing Source

Y – Source will not be compiled on the target system, so send the object (Option O or B)
N – Source will be compiled on the target system, so only send the source (Option S)

Send Objects for Attributes not containing Source

Y – Objects should be sent to target system (Option O)
N – Objects should not be sent – target system intended for source only (Option N)

Send Source

Y – Source is permitted on the target system (Option S or B)
N – Source is not permitted on the target system (Option O)

If not sending Source, Send Request for *SOURCE Objects

Y – *SOURCE types will send only the request records (Option R)
N – *SOURCE types will not be sent (if Send Source is set to N) (Option N)

Send *DATA or *DTAGRP attributes

Y – *DATA and *DTAGRP attributes will be sent to target system (Option O)
N – *DATA and *DTAGRP attributes will not be sent to target system (Option N)

The above Send rules can be overridden for the distribution levels and for each attribute in a distribution level.



3.7.3 Additional Distribution Settings for Connect:Direct

Connection User

The optional Connect:Direct local profile that will be used to execute the transfer

Password

The optional Connect:Direct password for the local execution profile (optional)

3.7.4 Additional Distribution Settings for FTP

Connection User

The profile on the remote IBMi to use for the FTP connection.

It is recommended to create a user profile specifically for FTP use in MDCMS. The keywords USRCLS(*USER) INLMNU(*SIGNOFF) and PWDEXPTV(*NOMAX) are recommended. The user will need *CHANGE authority to library MDCMS and *ALL authority to file MDCMS/MDDFTP.

Password

The password for the user on the remote system.

Remote ASP Device

The ASP device on the remote system containing the MDCMS instance

- *DFT – The device attributed to the connection user on the remote system
- The alphanumeric device ID for the ASP

Server Port

The FTP Port number on the remote system.

- *DFT – Port 21
- *SECURE – Port 990 for FTP using SSL
- 1 - 65535

Secure Connect

The security mechanism to protect the user/password and possibly data information transferred via FTP.

- *DFT - If the PORT parameter specifies *SECURE or 990, *IMPLICIT is used; otherwise, *NONE is used.
- *IMPLICIT – immediately attempt to use SSL when connecting to the server
- *SSL – use a SSL protected session after the connection has been made
- *NONE – no encryption used

Data Protection

The type of data protection used during the FTP transfer

- *DFT – protection is based on the connection type
- *PRIVATE – the data is encrypted
- *CLEAR – the data is not encrypted

Toggle Ext. PASV

Specifies whether or not to toggle the use of Extended Passive mode within the FTP session. Only potentially necessary for OS V6R1M0 or higher.

Toggle PASV

Specifies whether or not to toggle the use of Passive mode within the FTP session



Toggle Ext. PORT

Specifies whether or not to toggle the use of Extended Port mode within the FTP session. Only potentially necessary for OS V6R1M0 or higher.

3.7.5 Additional Distribution Settings for SFO

Object Owner

The Owner of the Temporary Library and Objects that are saved into the Save File

Public Authority

The object authority granted to *PUBLIC for the objects saved into the Save File

- *ALL - All Authority
- *AUTL - Authority defined by Authorization List
- *CHANGE - Change Authority
- *EXCLUDE - No Authority
- *SAME - The authorities are same as in local environment
- *USE - Usage Authority

Authorization List

- *NONE – Objects in Save File not protected by an Authorization List
- Name of Authorization List existing on local system that would also be required to exist when library is restored on target systems

Prompt for Name

- Y – For each RFP that is sent manually from the Send Promotions list using method SFO, the name of the Library containing the Objects, the name of the Save File, and, if relevant, the name of the IFS File can be optionally provided custom names.
- N – the Library, Save File and IFS File names will be generated by MDCMS and have the format MD0nnnnnnn



3.7.6 Using GoAnywhere™ to Distribute MDCMS Promotions and Settings

GoAnywhere™ is a managed file transfer (MFT) solution from Linoma Software that allows organizations to secure and automate the exchange of data with their trading partners, customers, employees and internal systems.

For MDCMS, GoAnywhere™ can be used to transfer promotions and settings via FTP, FTPS, SFTP or SCP.

Steps necessary to use GoAnywhere™ within MDCMS:

- 1) Separately purchase and Install GoAnywhere™ from Linoma Software
- 2) If GoAnywhere™ is installed to a library with a name other than GOANYWHERE, then change the value of Data Area MDCMS(instance)/MDGOALIB
- 3) Define a FTPS, SFTP, or SCP Server resource for the remote partition that MDCMS must deploy to
- 4) Define a IBM i Server resource for the remote partition that MDCMS must deploy to
- 5) Save the following XML code shown below to a file. Replace --your FTPS Resource-- by the name of your Transmission resource. If using SFTP or SCP, the task element will need to be renamed from ftps to scp or sftp
- 6) Import the XML file into the Projects list
- 7) Define a Distribute Queue where the Distribution Queue name is the name of the GoAnywhere™ project, including the relative path. For example /MDCMS_SEND_1. The Distribution Queue Method must be set to GOA.
- 8) Repeat steps 3 – 7 for each additional remote partition

Project XML

```
<?xml version="1.0" encoding="UTF-8"?>
<project name="MDCMS_SEND_1" mainModule="Main" version="1.0" logLevel="debug"
  onError="abort">
  <module name="Main" logLevel="debug">
    <ftps label="FTPS" resourceId="--your FTPS Resource--" version="1.0"
      logLevel="debug">
      <put label="Put Savefile" sourceFile="{ifsSavefile}"
destinationFile="{ifsSavefile}._.{user}._.{sys}._.{agp}._.{lvl}._.{rfp}"
      type="binary" />
    </ftps>
  </module>
  <description>Send MDCMS RFP/Settings to Remote Server 1</description>
</project>
```



3.7.7 Source Comparison Settings

```

MDCSCMP                COMPANY NAME                04.09.06
SCRN1                   Source Comparison Settings   10:37:42

Location: MD71         MD 7.1 Partition

For each Appl Level where a Source Comparison should occur, enter the Level
of the Environment that the checked out source should be compared to.

Appl  Level  Description                                Compare to Level
HUBI   12    Custom Company Dev 12                            31
TEST   10    Test 10                                             50
CMP    12    Custom Company Dev 12                            ---
HUBI   13    Custom Company Dev 12                            ---
TEST   11    Test 11                                             ---
TEST   12    Test 12                                             ---
TEST   25    Emergency for v10                                  ---

F3=Exit  F5=Refresh

Bottom

```

This screen is displayed when a 'C', for Source Comparisons, is requested for the *LOCAL location or a Remote Location within the OS/400 Locations listing.

Appl/Level

Each Application Level that is defined in MDCMS on the local System that allows checkout. If a Compare to Level at another remote location has been defined for an Application's Level, then that Level will not be displayed for the selected remote location. Only levels that are available to the selected remote location will be displayed in the list.

Compare to Level

The level number for the Application at the Remote Location that should be compared to, when checking out source from the selected level on this System.

If the Compare to Level number is higher than 0, then every time that source is checked out on this system for the selected level, the source will be compared to the source residing within the specified level on the Remote System. If the source versions are different, a warning screen will be presented to the programmer.



3.7.8 Location User Mapping

```

MDCDSTU                COMPANY NAME                1/22/14
SCRN1                   Distribution User Mapping    10:37:59

Location: MD71         MD 7.1

Filter by Local User: _____ Desc: _____ Target User: _____

Type options, press Enter.
 2=Edit 3=Copy 4=Delete 5=View

Opt Local User Description                Target User
-  *DFT      Default Target User          *SAME
-  MMORGAN   Michael Morgan                MMORGANBU

Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F11=View Output  F21=Sys Command

```

This screen sets the mapping of User IDs from the user sending the RFP on the local system to the user receiving the RFP on the target system. This provides the ability to use automated receipt on the target system even when the naming patterns for the users are different compared to the local system or when responsibility of the RFPs should be handed off to a different person on the target system.

Local User

*DFT – the target user mapping to invoke for any profile that is not explicitly defined in this list. If *DFT is not defined and the user is not defined, the target User ID will remain the same

User ID – the name of a valid User ID on the local system

Target User

*SAME – the target user ID is the same as the local user ID

User ID – the name of a valid User ID on the target system

Function Keys:

F3=Exit

F4=Browse – Browse the list of valid values for a field

F5=Refresh – Refresh the list view

F6=Add – Add a new mapping entry to the list

F11=Output – Display the MD Output panel and other spool files

F21=Sys Command – displays the IBMi command entry screen so that IBMi commands may be run without the need to exit MDCMS.



3.8 Distribution Levels

The Distribution Level Maintenance function defines the target levels for the distribution of promotions or settings to remote systems. Multiple target levels are permitted for a given combination of Application, Level and Location.

It is also possible to distribute to a local level by setting the FTP parameters for location *LOCAL. In this case, the target address should be localhost.

The settings for a Distribution Level are inherited from the Location. The following settings can then be overridden per target level:

- Default to Send
- Target Release
- Target Attribute Rules

3.8.1 Distribution Level Listing

```

MDCDSTQ                                COMPANY NAME                                1/22/14
SCRN1                                  Distribution Levels                                18:35:03
      Appl Lvl  Location  Tgt Lvl  Dft  Release  Method  Group
Filters:  _____  _____  _____  _____  _____  _____  _____

Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=Display  A=Attributes  T=Test

Opt Appl Lvl Location  Description                                Tgt  Target
      Lvl Dft Release Method
-   TEST 10  MD71     MD 7.1                                20  Y  *CURRENT FTP
-   TEST 10  SFF      Full Save file                            10  N  *CURRENT SFF
-   TEST 10  SFO      Clean Save file                            10  Y  *CURRENT SFO
-   TEST 25  *LOCAL   MD 6.1                                50  Y  *CURRENT FTP

                                                                 Bottom

F3=Exit  F4=Browse  F6=Add  F8=Settings

```

Filters

The entry of values into one or more of the filter fields will result in a subsetted list of distribution levels which exactly match those filters. For example, enter '10' in the lvl filter to see only distribution levels for level '10'.

Opt

- 2=Edit** – Edit the override parameters for a distribution level
- 3=Copy** – Copy the override parameters of an existing distribution level to a new target level
- 4=Delete** – Delete a distribution level
- 5=Display** – Display the override parameters for a distribution level
- A=Attributes** – State whether or not each type of source or object is to be sent to the target level.
- T=Test** – Test if a connection can be made to the specified level on the target system.



3.8.2 Add Distribution Levels to List

Press F6 from the Distribution Levels listing to add one or many levels at once.

Once F6 is pressed, a list of all defined promotion levels is displayed. This list can be filtered by application, level or level description.

By default, the target level on the remote locations will be the same number as the local level. This can be changed for each individual row by entering a different value for that row, or it can be applied to all filtered rows by entering a value in the Default Target Level field.

Place a 1 in front of each Promotion Level that should have a target level added for it and press Enter.

The 2nd listing displays all locations that have a distribution method defined. This list can be filtered by location, description, address, method or locations belonging to a location group.

Place a 1 in front of each location that should have the promotion levels added to it and press Enter.

The result is a Distribution Level for every combination of select Promotion Level and Location. If a particular combination already existed, it is left as is.



3.8.3 Specifying the Source/Object types to send to a Target Level

```

MDCDSTQ                                COMPANY NAME                                9.01.13
SCRN2                                  Specifications for Target Attributes          09:34:47

  Appl: TEST  Lvl: 30  Location: MD71          Target Lvl: 20

Filter by Option: _  Attribute: _____  Type: _____

Type options, press Enter.
  S=Source  O=Object  B=Both  N=Neither  R=Request Only

Opt Attribute  Type  Object Library          Source Lib  Source File
  O  CBL        *PGM  TSTOBJ30                TSTSRC30  QCBLSRC
  O  CBLE31     *PGM  TSTOBJ31                TSTOBJ31  QCBLLESRC
  O  CBLMOD     *MODULE TSTOBJ30                TSTSRC30  QCBLLESRC
  O  CBLMOD31  *MODULE TSTOBJ31                TSTOBJ31  QCBLLESRC
  O  CBL31     *PGM  TSTOBJ31                TSTOBJ31  QCBLSRC
  O  CLLE31    *PGM  TSTOBJ31                TSTOBJ31  QCLSRC
  O  CLMOD31  *MODULE TSTOBJ31                TSTOBJ31  QCLSRC
  O  CLP       *PGM  TSTOBJ30                TSTSRC30  QCLSRC
  O  CLP31    *PGM  TSTOBJ31                TSTOBJ31  QCLSRC
                                          More...

F5=Refresh  F12=Previous

```

This screen is displayed when option A for Attributes is requested for a Distribution Level. The screen lists each attribute that is defined within MDCMS (Option 3 –Attributes) and what is to be sent to the target system for that attribute.

Filter Fields

Filter the listing, limiting it to rows with matching values. For the Attribute filter, all rows containing the same prefix as the filter value will be listed.

Opt

S – Send only the source. The target system will compile the source if an object library is defined.

O – Send only the object. The object does not contain source, or the target system does not permit source.

B – Send both the source and the object. The source and object are expected on the target system, but a compile of the source will not occur.

N – Send nothing for this attribute.

R – Request Only. Only send the request record as no source will be migrated to the target system.

This option is only valid for *SOURCE Object types (such as copy books or SQL statements). This option is used when source is not permitted on the target system, but the source will be indirectly migrated to the next level on this system once the Request record returns in an RFP for the next level.

Function Keys:

F3=Exit

F5=Refresh – Refresh the listing

F8=Settings – View/Maintain the Location Settings



3.9 System Settings

MDCSYSI	System Settings	04.09.08
SCRN1		10:37:42
Location Title	<u>COMPANY NAME</u>	
Location ID	<u>COMPl</u> (0-9, A-Z)	
Send Prefix	<u>6</u> 0-9, A-Z	
Java Connect User Profile . .	<u>MDCONNECT</u> *NONE, Profile	
Sign Objects	<u>Y</u> Y/N	
Default CCSID	<u>1148</u>	
Temporary Library Prefixes:		Example
RFP Backup	<u>SAV</u>	SAV123456
RFP Installation	<u>CMS</u>	CMS123456
RFP Receipt	<u>MD0</u>	MD01123456
RFP Rollback	<u>MDR</u>	MDRB123456
MD Build Date	4.11.10	
MD Installation Date	4.11.10	
F3=Exit F4=Browse		

Location Title

The title to be displayed at the top of nearly all MD Product screens to help the user identify which system they are currently working on.

Location ID

A 10-Character ID to uniquely identify this system. The ID for this system must match the ID defined in the OS/400 location settings for any partition that will be connecting to this system.

Send Prefix

A 1-Character ID to uniquely identify distributions from this system. This is used to avoid conflicts in case multiple systems send Promotions to the same remote system. The temporary receiving library on the remote system will use this character in the 4th position of the library name.

Java Connect User Profile

The technical user profile on this system to be used to run MDCMS java modules.

Java is used in MDCMS for Excel and PDF report generation, FTP of objects to other platforms, sending emails, signing objects, and Zip compression. F4 may be used to browse user profiles.

*NONE – java modules should not be used on this system. Recommended only if a JVM with minimum version of 1.4 is not present on the system.

Sign Objects

Y – Sign Objects as they are being installed to ensure that they are not manually changed during the promotion process

N – Do not sign objects. Recommended only if the necessary IBM Java Encryption Libraries are not present on the system.



Default CCSID

The Coded Character Set to use by default when communicating with this system using MDOpen or MDWorkflow. This ensures that characters are displayed in the form and order that is expected for the user's locale within those clients. If certain users require a different CCSID, that value can be defined for the user in MDSEC. F4 may be used to browse the list of CCSIDs defined for use in MDCMS.

Temporary Library Prefixes

The prefix string to add to the front of each type of temporary library in MDCMS. The prefix may be changed so that conflicts can be avoided when multiple instances of MDCMS exist on the same system.

MD Build Date

The date that this version of MDCMS was built by Midrange Dynamics

MD Install Date

The date that this version of MDCMS was installed onto this system

3.9.1 Setting the JVM to be used for MDCMS Java Modules

MDCMS uses Java for various processes relating to Excel generation, FTP, Object Signing, PDF generation, SMTP, and Zipping. In order to carry out these processes, a JVM (minimum 1.4) must be installed on each system partition where MDCMS will be used. If PDF generation will be utilized, the JVM must be a minimum of 1.5.

Data area MDSEC(instance)/MDJAVAHOME designates which installed JVM is to be used.

The valid values for this data area are:

*DFT – use the default JVM

*PROFFILE – load the JVM based on the settings in property file /mdcms/JAVA/mdcms.properties
A pathname pointing to a JVM (for example: /QOpenSys/QIBM/ProdData/JavaVM/jdk50/32bit)

If a JVM is not available on the system, *NONE can be specified for the Java Connect User in the System Settings (Setup Menu Option 10). This will disable all java-related functionality, while still allowing all MDCMS core functionality to be performed.



3.10 Email Settings

MDCSMTP	COMPANY NAME	04.09.08
SCRN1	Email Settings	10:37:42
SMTP Hostname . . .	<u>mail.company.com</u>	
SMTP Port	<u>25</u>	
SMTP User	<u>as400@company.com</u>	
Password	<u> </u>	
Repeat Password .	<u> </u>	
email Address . .	<u>as400@company.com</u>	
SMTP Auth Reqd .	<u>Y</u> Y/N	
SMTP Logging . .	<u>Y</u> Y/N	
Use SMTPS	<u>N</u> Y/N	
ZIP Attachments .	<u>300</u> *ALWAYS, *NEVER, minimum size in KB	
MDWorkflow URL .	<u>http://company.com:8080/mdWorkflow</u>	
F3=Exit	F8=Addresses	F10=Log

SMTP Hostname

The IP address or domain name of the SMTP server which will send emails to recipients

SMTP Port

The SMTP server Port number, which normally is 25 for SMTP and 465 for SMTPS

SMTP User

The ID of the user to connect to the SMTP server

Password

The password for the SMTP user

email Address

The sender address to use for the system

SMTP Auth Reqd

Y – The SMTP Server requires user authorization to occur

N – The SMTP Server does not require user authorization to occur

SMTP Logging

Y – A QPRINT console log will be kept for the MDMAIL SMTP client job

N – A console log will not be kept

Use SMTPS

Y – Connect to the SMTP Server using SMTP Secure (SSL)

N – Connect to the SMTP Server in unsecured mode

ZIP Attachments

*ALWAYS – attached files will be always be zipped to reduce the size of the emails

*NEVER – attached files will never be zipped

n KB – an attached file will only be zipped if it is larger than the entered number of Kilobytes



MDWorkflow URL

The context path for links to the MDWorkflow application. This must include http or https, the server address, port number if not 80 and the name of the web application.

This URL is used within MDMAILF email bodies to allow the user to navigate directly to a specific RFP and is used when generating Project, Task or Subtask mails out of MDWorkflow.

3.10.1 Email Addresses

The email addresses of the recipients can be maintained by pressing F8 from the Email Settings screen. If DDM connections are defined, the updates will be synced to all locations.

User ID

The user profile of the user. If the user does not have a profile on the system, any other ID of up to 10 characters can be used.

Name

The Name to be recipient to be displayed in the mail header

Address

The email address of the recipient

3.10.2 Email Log

Each time the MDMAIL job is used to send an email, a log entry will be written to MDSEC file MDDEMLL with the following information:

- Date
- Time
- Job
- Recipients
- Subject
- Attachments
- Error Message

F10 can be pressed from the Email Settings screen to view/search log entries



3.10.3 MDSTRMAIL - Running MDMAIL SMTP Client

In order for MDWorkflow, the MDMAIL API or the MDMAILF API to send an email, the MDMAIL SMTP client must be running. This will happen automatically if the MDMAIL service is set to start automatically. Alternatively, command MDSEC(Instance)/MDSTRMAIL can be added to a scheduled job for a fixed starting time.

MDSTRMAIL Parameters

Environment ID	The name of the MDCMS instance (or suffix) - *DFT refers to MDCMS being used in library MDCMS. For a different library suffix, this would be entered for the environment ID.
Submit Job	*YES – a job named MDMAIL(instance) will be submitted to the entered Job Queue *NO – the MDMAIL process will run within the current job
Job Queue	*DFT – submit to the queue defined for the MDMAIL service *JOBDEF – submit to the default queue for the running job profile The name of the job queue to submit MDMAIL to
Job Queue Library	The library of the job queue to submit MDMAIL to or *LIBL if the job queue is located in the current library list
Time of Day to auto-end Job	*DFT – end at the time defined for the MDMAIL service *NEVER – the MDMAIL job shouldn't end automatically – it should run until the job is forcibly ended or command MDENDMAIL is invoked. A specific time to end in format HH:MM:SS

3.10.4 MDENDMAIL - Ending MDMAIL SMTP Client

The MDMAIL job can be set to end automatically at a certain time, or it can be ended at any time using command MDSEC(Instance)/MDENDMAIL. Once MDENDMAIL is run, MDMAIL will cleanly stop within 30 seconds.

MDENDMAIL Parameters

Environment ID	The name of the MDCMS instance (or suffix) - *DFT refers to MDCMS being used in library MDCMS. For a different library suffix, this would be entered for the environment ID.
----------------	--



3.10.5 MDMAIL Command

This command, which resides in the MDSEC(instance) library, can be used to send a plain text mail to one or more recipients.

MDMAIL Parameters

Email Address of Recipient (ADDR)	A specific email address
User Group of Recipients (GRPN)	A Workflow Group to send the email to Possible values are *NONE, *RFP or a user defined Group Name. The value *RFP is used in conjunction with parameter Group Type (GRPT) to send the email to all involved groups of given group type for the projects included in the RFP.
User ID of Recipient (USER)	The user id to send the email to. This email address is maintained within MDWorkflow settings
Message Subject (SUBJ)	The text to display in the subject of the email.
Body Text (BODY)	A free format string to be used as the mail body. MDCMS Wildcards may be used, if using the command from an RFP exit point.
Attachment 1 (ATT1)	Attachment #1
Attachment 2 (ATT2)	Attachment #2
Delete Attachments after Send (DELA)	Should Attachments for this email be deleted after sending. *YES to delete the Attachment and *NO to retain the Attachment.
MDCMS Instance (INST)	The MDCMS Instance to be used for this email.
Application (APPLIC)	The wildcard value of ##APPLIC## can be used to include the MDCMS Application Group when the command is used by an RFP exit point.
Level (PROLVL)	The wildcard value of ##PROLVL## can be used to include the MDCMS Application Promotion Level when the command is used by an RFP exit point.
RFP Number (RFPNBR)	The wildcard value of ##RFPNBR## can be used to include the RFP number when the command is used by an RFP exit point.
Group Type of Recipients (GRPT)	When the value of *RFP is used for the User Group of Recipients (GRPN) this value will specify the type of group to send to. Possible values are: a user defined group type *ACCGRP (default) – all Acceptance Groups for all Projects for the RFP, *TECGRP – all Technical Groups for all Projects for the RFP *TSKASN – all assigned groups/users for all tasks for the RFP *TSKREQ – all creators for all tasks for the RFP *TSKTST – all test groups/users for all tasks for the RFP



3.10.6 MDMAILF Command

This command, which resides in the MDSEC(instance) library, can be used to send a pre-formatted plain text or HTML mail to one or more users. The mail body to be used must be stored in IFS. The body may contain wildcard values which are replaced by the actual MDCMS values at runtime. The wildcards within the mail body can be delimited by ## or ++.

HTML body templates for each of the primary RFP exit points are available in IFS folder /MDCMS/MAIL.

MDMAILF Parameters

Email Address of Recipient (ADDR)	A specific email address
User Group of Recipients (GRPN)	A Workflow Group to send the email to Possible values are *NONE, *RFP or a user defined Group Name. The value *RFP is used in conjunction with parameter Group Type (GRPT) to send the email to all involved groups of given group type for the projects included in the RFP.
User ID of Recipient (USER)	The user id to send the email to. This email address is maintained within MDWorkflow settings.
Message Subject (SUBJ)	The text to display in the subject of the email.
Body File including Path (BODY)	The IFS path, including file name, which contains the body to use in the email.
Body File Type (BTYP)	Specify if the email should be in HTML or TEXT format.
Attachment 1 (ATT1)	Attachment #1
Attachment 2 (ATT2)	Attachment #2
Delete Attachments after Send (DELA)	Should Attachments for this email be deleted after sending. *YES to delete the Attachment and *NO to retain the Attachment.
MDCMS Instance (INST)	The MDCMS Instance to be used for this email.
Use Wildcards (WCRD)	If any MDCMS wildcards that will need to be specifically referenced in the command string for the RFP exit point, this value must be set to *YES. IMPORTANT: Any of the following wildcard values that will be used within the email body must be visible on the command line. This can be done from the command prompt by typing over a character of the parameter with the same character. Since the length of a command string is limited, only include wildcards that will actually be used by the email body.
Application (APPLIC)	The MDCMS Application Group represented by the wildcard value of ##APPLIC##.
Level (PROLVL)	The MDCMS Application Promotion Level represented by the wildcard value of ##PROLVL##.
RFP Number (RFPNBR)	The RFP number for this promotion represented by the wildcard value of ##RFPNBR##.
Group Type of Recipients (GRPT)	When the value of *RFP is used for the User Group of Recipients (GRPN) this value will specify the type of group to send to. Possible values are: a user defined group type *ACCGRP (default) – all Acceptance Groups for all Projects for the RFP, *TECGRP – all Technical Groups for all Projects for the RFP



	*TSKASN – all assigned groups/users for all tasks for the RFP *TSKREQ – all creators for all tasks for the RFP *TSKTST – all test groups/users for all tasks for the RFP
RFP Description (RFPDSC)	The description of the RFP represented by the wildcard value of '##RFPDSC##'.
RFP Programmer (RFPPRG)	The programmer assigned to the RFP represented by the wildcard value of ##RFPPRG##.
RFP Approver (RFPAPR)	The party responsible for the approval of the RFP represented by the wildcard value of ##RFPAPR##.
RFP Installer (RFPINS)	The person who installed the RFP represented by the wildcard value of ##RFPINS##.
Project (PROJID)	The Project ID represented by the wildcard value of '##PROJID##'.
Project Title (PRJTIT)	The Project ID description represented by the wildcard value of '##PRJTIT##'.
Project Requester (PRJREQ)	The Project Requester represented by the wildcard value of ##PRJREQ##.
Project Programmer (PRJPRG)	The Project Programmer represented by the wildcard value of ##PRJPRG##.
Project Authorizer (PRJAUT)	The person who Authorized the Project represented by the wildcard value of ##PRJAUT##.
Project Approver (PRJAPR)	The person who Approved the Project represented by the wildcard value of ##PRJAPR##.
Object Library (OBJLIB)	The Object Library represented by the wildcard value of '##OBJLIB##'.
Object Name (OBJNAM)	The name of the object represented by the wildcard value of '##OBJNAM##'.
Object Type (OBJTYP)	The IBMi object type represented by the wildcard value of ##OBJTYP##.
Source Library (SRCLIB)	The source library name represented by the wildcard value of ##SRCLIB##.
Source File (SRCFIL)	The source file name represented by the wildcard value of ##SRCFIL##.
Source Name (SRCNAM)	The source name represented by the wildcard value of ##SRCNAM##.
Attribute (ATTRIB)	The MDCMS Attribute represented by the wildcard value of '##ATTRIB##'.
Object Requester (OBJREQ)	The person who requested the object represented by the wildcard value of ##OBJREQ##.
Request Reason (REQRSN)	The reason for the object request represented by the wildcard value of ##REQRSN##.
Object Library to Migrate from (FRMLIB)	The developer library containing the object to migrate from represented by the wildcard value of ##FRMLIB##
Source Library to Migrate from (FRMSLB)	The developer library containing the source to migrate from represented by the wildcard value of ##FRMSLB##
Source File to Migrate from (FRMSFL)	The developer source file containing the source to migrate from represented by the wildcard value of ##FRMSFL##
Target of Sent Savefile (SVFTGT)	The Location Address that an RFP has been sent to. This wildcard is only applicable for command type Q.
Sent Savefile Name (SVFNAM)	The name of the savefile that has been sent to a location. This wildcard is only applicable for command type Q.
Error Message (ERRMSG)	The error text explaining why an RFP failed. This is represented by the wildcard value of ##ERRMSG##



Mail Body Wildcard Parameters that are not part of MDMAILF Command

##SYSTIT##	The System Title that displays at the top of each MDCMS screen. This title is set per system in the System Settings
##WFLURL##	The URL to the MDWorkflow web application. This is set in the email settings
##WFLLOC##	The MDWorkflow System Location ID. This is set automatically in the Synchronization Settings.

3.10.7 MDUPDEMLA Command

This command, which resides in the MDCMS(instance) library, can be used to systematically add or change the email address for a user. If DDM connections are defined, the updates will be synced to all locations.

MDUPDEMLA Parameters

User ID (USER)	Specifies the user ID under which to store the name and email address. The user ID does not have to be defined in MDSEC and can be any value of up to 10 characters.
User Name (NAME)	Specifies the name of the user that will be used as the recipient name when emails are sent to the user ID.
Email address (MAIL)	Specifies the Email address that will be used for the recipient when emails are sent to the user ID.
Environment ID (ENV)	The name of the MDCMS instance (or suffix) - *DFT refers to MDCMS being used in library MDCMS. For a different library suffix, this would be entered for the environment ID.



3.11 MDCMS Services

```

MDCSVCL          MD T 74 6.1          12.03.16
SCRN1            MDCMS Services       15:42:22

Type options, press Enter.
  2=Edit  5=Display  S=Start Jobs  E=End Jobs

Opt Service  Description              Aut  Default  Runtime Window  Dft# Act#
           Str Job Queue  Str Time End Time  Jobs Jobs
-  MDFTP     *REMOTE FTP Clients  Y  QFTP     05:30:00 23:30:00  2   0
-  MDMAIL    SMTP Client          Y  QMAIL    05:30:00 23:30:00  1   0
-  MDPULL    Pull Data from MD Locs N  QSYSNOMAX *ANY *NEVER    1   0
-  MDPUSH    Push Data to MD Locs Y  QSYSNOMAX 07:00:00 23:30:00  2   0
-  MDRCVIFS  Receive RFPs from IFS N  QSYSNOMAX *ANY  23:00:00  1   0
-  MDRCVSNA  Receive RFPs from SNA N  QSYSNOMAX *ANY  *NEVER    1   0
-  MDSIGN    Source/Object Signing Y  QSYSNOMAX *ANY  23:30:00  1   0
                                           Bottom
F3=Exit  F5=Refresh  F21=Sys Command
  
```

The Services list provides an overview of all possible persistent batch jobs that run in the background to carry out MDCMS processes. The job name for a service is the same as the service name + the environment ID.

Special Options

S=Start Jobs – Start the default number of jobs for the service

E=End Jobs – End any jobs running for that service

Auto-Start Jobs

Y – the jobs will begin the moment they are needed by MDCMS, if within the Runtime Window.

N – the jobs will be started manually or using the starting command for the service from a scheduled job.

Only, MDFTP, MDMAIL, MDPUSH and MDSIGN can be started automatically by MDCMS

Default Job Queue

The default job queue name and library to submit the jobs to when started. This value can be overridden when using the starting command for the service.

Start of Runtime Window

The time of day that an auto-start job may begin. Not applicable for a job started manually

*ANY – the job is permitted to start whenever needed

Default End Time

The time of day that a running job will end. This value can be overridden when using the starting command for the service.

*NEVER – don't end automatically. Only end when manually requested.

Default # Parallel Jobs

MDFTP, MDPULL and MDPUSH can have up to 9 jobs actively running in parallel.

Default Delay Interval

MDRCVIFS and MDRCVSNA allow for setting the number of seconds between RFP checking.

Default SNA User

The default SNADS user id to check for RFPs received via SNA.



3.12 Logging

```

MDCLOGM                MD T 74 6.1                12.03.16
SCRN1                  MDCMS Log Maintenance        16:00:20

Type options, press Enter.
2=Edit  P=Purge

Opt Log File  Library  Description  Purge  Age
- MDDALRL    MDCMST74  RFP Send Log Target Problems  Y      45
- MDDAREQ    MDCMST74  MDADDREQ API Log              Y     365
- MDDCLOG    MDCMST74  Object Creation Log           Y      30
- MDCRTOBJ   MDCMST74  MDCRTOBJ API Log              Y      30
- MDDEMLL    MDSECT74  Email Log                      Y      30
- MDDFLOG    MDCMST74  RFP Send FTP Log              Y      45
- MDDILOG    MDCMST74  Automatic Installation Log     Y      30
- MDDRFPJ    MDCMST74  RFP Installation Log Joblog Entries  Y      90
- MDDRFPPL   MDCMST74  RFP Installation Log           Y     365
- MDDRLOG    MDCMST74  RFP Receive Log               Y      30
- MDDSLOG    MDCMST74  RFP Send Log                  Y      30
- MDDSLPB    MDCMST74  RFP Send Problems             Y      30
More...

F3=Exit  F10=Purge All  F21=Sys Command

```

The Logging list (Setup Menu option 14) provides an overview of all log files that are written by MDCMS or MDSEC.

Options

2=Edit – edit the Purge settings for the Log File

P=Purge – immediately delete all log records for the Log File that are older than the defined number of days

Purge Records

Y – automatically delete all log records that are older than the minimum age for the Log File. The automatic purge occurs during the first RFP to run for a particular day. Purging doesn't occur on days that an RFP doesn't run.

N – retain the log records indefinitely, or until a manual purge occurs from this screen

Minimum Age before Purge

The number of days that must pass since the creation of a log record before it is allowed to be deleted.



3.13 User Groups

```

MDCGRPN                MD T 74 6.1                24.04.16
SCRN1                   MD User Groups             15:13:19

Filters
Pos: _____ Desc: _____ Type: _____ User: _____

Type options, press Enter.
 2=Edit  3=Copy  4=Delete  U=Users

Opt  Group      Type      Description                      Users
-   MARK-CH    MARKETING Marketing in Switzerland          1
-   MD INTERN  SALES     MD Internal (Michael & Stephan)  2
-   NORAM      SALES     Sales North America              3
-   PGMR 1     PROGRAMMER Programmer Group 1                2
-   PGMR 2     PROGRAMMER Programmer Group 2                6
-   RMCH       RLSMGR    Release Manager CH                2
-   TEST 1     TESTER    Test Group 1                      3

Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F9=Acceptance Group Types per Level

```

The User Group list (Setup Menu option 15) provides the ability to create and manage collections of users that can be used for sending emails, project assignments and MDWorkflow.

Options

2=Edit – edit the group details

3=Copy – create new group with information for existing group pre-filled in the parameters

4=Delete – delete the group

U=Users – View/Maintain the list of users that belong to the group. A user may belong to a group if the user is defined in MDSEC.

Group Type

The type or category to assign to the group. Press F4 to view/manage the group types.

If MDWorkflow is used, group types can be assigned to promotion levels to indicate which category of groups must accept an RFP before that RFP can continue to the next step in a migration path. Multiple user groups can belong to the same group type, so that project groups can vary based on regional or application requirements.



3.13.1 Acceptance Group Types per Level

If MDWorkflow is licensed, F9 can be pressed from the User Group or User Group Type screens to define the Acceptance Group Types per Level on this partition,

For each MDCMS Promotion Level, between 0 and n types of groups can be designated to be responsible for the acceptance of an installed RFP into that level. This means that each time an RFP, which is a package of objects, is installed into a specific level, 1 person from a group for each required group type must accept the results of the installation before that object package will be allowed to move on to the next step in the Workflow process.

The actual groups containing the users for any given group type are assigned to the project(s) that are impacted by the RFP. So, different projects could use different groups of users for any given group type.

Example:

MDCMS Promotion Level 50 is defined as the User Acceptance Environment level. When objects are installed into this level, business users and IT management must test the environment before those objects are allowed to be installed into the Production Environment level. To ensure that this occurs, group types BUS_USER and IT_MGMT are specified as Required Acceptance Group Types for level 50. Then, whenever an RFP is installed into level 50, a user within a group of type BUS_USER and a user within a group of type IT_MGMT must accept the RFP before it can be sent to Production.

```

CMC264                      MD T 74 6.1                      24.04.16
SCRN1                        Acceptance Group Types per Level 15:31:15

Filter by Appl: ____ Lvl: __ Group Type: _____

Type options, press Enter.
4=Delete

Opt  Appl  Lvl  Description                      Group Type
-    TEST  10  Vendor Trunk                      TESTER
-    TEST  30  Test 30                          MARKETING
-    TEST  30  Test 30                          TESTER

F3=Exit  F6=Add

Bottom

```

In order to add or remove an acceptance group type to a promotion level, you must have authority to MDSEC code 73 for that promotion level's application.

When F6 is pressed to add group types, you first select one or many promotion levels and then press Enter. Then, you select one or many group types and press Enter. MDCMS then creates the list of all combinations of the selected levels and group types.



3.14 Push Settings Data to Locations

MDCMS and MDXREF settings can be pushed (copied) to any defined Location that allows DDM connectivity. To define and execute the push of settings to another location, select option 17 from the MDCMS Setup Menu.

```

MDCPSET                      MD T 74 6.1                      12.03.16
SCRN1                        Push Settings Data - Definitions  17:19:18

      Appl Lvl Attribute Tgt Lvl RFP Cnds Status
Filters:

Type options, press Enter.
 2=Edit  3=Copy  4=Delete  5=View  L=Locations

                                Last Push
Opt Appl Lvl Attribute Tgt Lvl RFP Cnds  Upd Del Env  Date   Time  Stat
-  *ALL *ALL                Y      Y  Y T74  13.01.16 15:37:22 DONE
-  *ALL 10 *LF                Y      Y  Y T74  13.01.16  3:38:07 DONE
-  *ALL 10 *RPG*              Y      Y  Y T74   5.01.16 14:29:11 DONE
-  *ALL 10 LF*                 N      Y  Y T74  13.01.16  3:17:01 DONE
-  CMP   *ALL                Y      Y  Y T74  20.01.16 10:45:01 DONE
-  CMP   PNLGRP              Y      Y  Y T74  20.01.16 10:59:30 DONE
-  TEST 10 *ALL                20     Y  Y T74   1.02.16 18:01:46 DONE
-  TEST 10 *LF                33     Y  Y T74  13.01.16 15:21:22 DONE

                                Bottom

Enter=Continue  F4=Browse  F5=Refresh  F6=Add  F12=Previous

```

The initial screen lists any existing Push definitions. Use F6 to add a new definition or the standard options to maintain an existing definition.

Definition Parameters

Application

- *ALL – all applications
- an application

Level

- 0 – all levels
- a level

Attribute

- *ALL – All attributes
- *NONE – attribute settings should not be sent
- *generic* – use * as a placeholder to filter the attributes by a name pattern
- an attribute

Target Level

- 0 – the same value as the local level
- the level number to apply on the remote system

Update Existing Data

- Y – any matching entries already on the remote system will be updated with the new values
- N – only new entries will be added



Delete Undefined Data

- Y – if value *ALL is used for the attribute, then all attributes on the target system that aren't on the local system are deleted.
If value Y is used for Include RFP Commands, then all RFP commands on the target system that aren't on the local system are deleted.
Attribute commands that aren't defined locally will be deleted
If all levels are sent, then remote levels that aren't defined locally will be deleted
- N – unmatched settings will remain on the target system

Target MD Environment

The instance of MDCMS on the target system.

- *DFT – the instance that doesn't include a suffix for the product libraries is the target
- an MDCMS instance

Once a definition is created, use option L to select one or more DDM Locations to push the information to.

After the locations are selected, press Enter to submit the job to batch. The job queue and library can be modified at the top of the location listing screen.



3.15 Send Settings to Remote System

Attributes, including command and authority information, can be sent to Remote Locations using the distribution methods, such as FTP, that are defined for the locations. If *ALL attributes are selected for an Application/Level, then the definitions for the Application and Level, including the Level's Job Description, will also be exported.

Before settings can be sent to a remote system, a Distribution Level for the local Application/Level must be defined (MDCMS Setup Menu Options 6 & 7).

```

MDCEXPS                                COMPANY NAME                                11/23/11
SCRN1                                  Send Settings to Remote System                10:37:35

                                           Application: _____
                                           Level:      _____

                                           Attribute: *ALL_____ *ALL, *RFP, *generic*, Attribute

F3=Exit  F4=Browse  F8=FTP Log

```

Screen Definitions:

Application / Level

The local Application and Level that contains the Attribute(s) to be sent to Remote System(s).

Attribute

- a specific Attribute to send only that Attribute
- a portion of the Attribute name with a wildcard, i.e. R*, to send all matching Attributes that begin with an 'R'
- *ALL to send all defined Attributes for the Application/Level. If *ALL is selected, then the entire definition of the Application and Level, including the Level's Job Description and *RFP commands will be sent.
- *RFP to send only the Application Level's *RFP command types

Function Keys:

F3=Exit

F4=Browse – Browse the list of valid values for a field

F8=FTP Log – If one or more of the selected Distribution Queues use method FTP, the F8 key will be enabled after the attempt to send the settings has finished. If the send failed, the log can be viewed in order to better troubleshoot the connection problem. The log is also available when successful.

Once the selections have been made, press Enter. Then, the list of Distribution Queues for the selected Application and Level are displayed. Select 1 or more Distribution Queues to send the settings to.



3.16 Receive Settings from Remote System

```
MDLIMPS                                COMPANY NAME                                04.09.06
SCRN1                                  Receive Settings from Remote System          10:37:22

      MD Filename: _____

Transmitted via: 1                    1=SNA
                                           2= FTP/Other
                                           3=Tape
                                           4=Optical Device

Netfile User: QPGMR_____

Enter=Confirm   F4=Browse   F12=Cancel
```

Screen Definitions:

MDCMS settings sent from remote systems are received using the above display, which is option 13 from the MDCMS Settings Menu.

Settings may be sent via SNA, FTP, GoAnywhere, XCOM, tape, or optical device. MDCMS remembers which method was used the last time that a promotion or setting was received. It is best to set the Transmitted via parameter (if incorrect) before entering the other information.

MD Filename

Enter the name of the file containing the Settings. MD setting packages are always named 'MDAS' + the 2-digit Host ID of the sending IBMi + a 4-digit sequence number. Press **F4** to browse the list of outstanding setting packages.

Netfile User

If the setting package was sent via SNA, a specific netfile user was entered (default is QPGMR). The same user id must be entered here to receive the settings.

If the setting package is transmitted via tape or optical device, you will also be prompted for the Device Description. It is required for receiving the setting package or for browsing the MD setting packages that exist on the medium.

Function Keys:

Enter=Confirm

F4=Browse – Browse the list of valid values for a field

F12=Cancel



3.16.1 Select Application/Level for Receipt of Attributes

```
MDCIMPS                                COMPANY NAME                                04.09.06
SCRN1                                   Receive Settings from Remote System          10:37:05

Received
  Application: OPER
    Level: 30
    Attribute: CMD

Copy to
  Application: ____
    Level:  __

F3=Exit  F4=Browse
```

Enter the Application and Level on the local system to copy the attribute(s) into. Press F4 to select from a list.

Press Enter.

If the attribute(s) already exist in the selected Application and Level, they will be overwritten with the information received from the remote system.



3.16.2 Specify Application/Level Definitions for Received Settings

If the Application or Level on the local system does not yet exist, and all (*ALL) attributes were sent from the remote system, then the user will be prompted for the descriptions of the Application or Level as well as the name and location of the Job Description.

```

MDCIMPS                COMPANY NAME                04.09.06
SCRN2                  Copy Level Settings         10:37:00

Received:
Application . . . . . OPER Operations
Level . . . . . 30 Test environment for Operations
Attribute . . . . . *ALL

Job Description . . . OPER30
Library . . . . . QGPL

Copy to:
Application . . . . . OPER Operations
Level . . . . . 90 Test environment for Operations

Job Description . . . OPER30 name, *NONE
Library . . . . . QGPL

Enter=Confirm   F3=Exit

```

If the Application is new, the default description may be modified.

The description for the Level may be modified.

The name and library of the job description to be used for the local Application/Level can be modified. If *NONE is specified, the Job Description will not be copied.

Press Enter to copy the definitions, or press F3 to cancel the receipt of the settings.



3.16.3 Specify Library Names for Received Attributes

```

MDCIMPS                                COMPANY NAME                                9.01.13
SCRN3                                  Copy Attribute Settings                            20:00:13

From Application: TEST      To Application: TEST
      Level: 10                Level: 31          Attribute: *ALL

Type changes, press Enter.
*NONE=Skip Attr using Lib, *NOOBJ=No Obj for Attr, *NOSRC=No Source for Attr
*REQONLY=No Src for Obj Attr, Request Only for *SOURCE Attr

Object Libraries          Change to          Source Libs Change to
/test/JAVA/P              /test/JAVA/P      TSTSRC10  TSTSRC10
TSTOBJ10                  TSTOBJ10          TSTSRC11  TSTSRC11
TSTOBJ11                  TSTOBJ11

Enter=Confirm   F2=Full Name   F3=Exit   F4=Browse   F5=Refresh

Bottom

```

The left column for the Object Libraries lists the name of each distinct Object Library specified in the received Attribute(s).

The Change to column allows the user to modify the name of the Object or Source Library to be saved in the attribute(s) on the local system.

Special Object Library values:

- *NONE – do not copy the attributes using the object library
- *NOOBJ – change the Object Type to *SOURCE for attributes containing a source and object library. Do not copy the attributes containing only the object library.

Special Source Library values:

- *NONE – do not copy the attributes using the source library
- *NOSRC – remove the Source Library definition for attributes containing a source and object library. Do not copy the attributes containing only the source library.
- *REQONLY - remove the Source Library definition for attributes containing a source and object library. Change source file to *REQONLY for *SOURCE attributes.

If the attribute is for object type *MSGD, *SQLCST, *SQLFUN, *SQLPRC or *SQLTRG, the attribute will still be received with the library and source file of the sending system even when *NOSRC or *REQONLY are used. This is because these types require source to be used.

Additionally, if the object type is *SOURCE and the attribute contains a post-installation command that performs a RUNSQLSTM, this is also received because SQL scripts are typically migrated across systems to perform updates to table data.

Function Keys

- F2 – display/edit the full name of paths that exceed the length of the prompt field
- F3 – cancel the copy of the attributes
- F4 – browse the list of Libraries or IFS directories
- F5 – reset the library names to their original values



3.17 Create Config Deployment Settings

Setup Menu option 20 provides command **MDCRTSET** to generate an Application to manage the MDCMS product, including the deployment of new versions, patches, license keys and settings. The command has the following parameters:

Application Code (APPL)	<p>The Application code to use for MDCMS product administration.</p> <p>Defaults to value MD</p> <p>If the application code already exists, any existing settings will not be updated, but any new attributes will be added.</p> <p>If the code doesn't exist yet, MDCRTSET creates it.</p>
Level (LVL)	<p>The Application level number to use for MDCMS product administration. Defaults to value 90. Typically, only one level is necessary per instance of MDCMS on a specific system.</p> <p>If the level already exists, any existing settings will not be updated, but any new attributes will be added.</p> <p>If the level doesn't exist yet, MDCRTSET creates it and sets the flags to allow checkout and receipt and to automatically process an RFP. The flag values can be modified as necessary afterwards.</p>
Job Description (JOBQ)	<p>Specifies the name of the job description to be applied to the level definition, if the level doesn't yet exist.</p> <p>Defaults to value MD90</p> <p>If the job description doesn't exist, MDCMS will create it automatically and set the parameters to commonly used values.</p>
Job Description Library (JBDL)	<p>Specifies the library of the job description to be applied to the level definition, if the level doesn't yet exist.</p> <p>Defaults to value QGPL</p> <p>The library must already exist on the system.</p>
Job Queue (JOBQ)	<p>Specifies the name of the job queue to be defined in the job description, if the job description doesn't yet exist.</p> <p>Defaults to value QBATCH</p> <p>The job queue must already exist</p>
Job Queue Library (JBQL)	<p>Specifies the library of the job queue to be applied to the job description, if the job description doesn't yet exist.</p> <p>Defaults to value QGPL</p> <p>The library must already exist on the system.</p>



MDCRTSET generates the following attributes:

Type	Attribute	Description
*DTAGRP	APP	Deploy a specific application code. Only the code itself is deployed – use the other attributes to deploy the contents of an application
*DTAGRP	APPLVL	Deploy a specific level by specifying <APPL value>, <Level value> as the object name. The level settings and MDXREF library list are deployed – use the other attributes to deploy the contents of the level
*DTAGRP	ATR	Deploy a specific attribute by specifying <APPL value>, <Level value>, <ATTRIBUTE name> as the object name. The attribute settings, commands and scripts are deployed for that attribute.
*DTAGRP	ATRALL	Deploy all attributes for a level by specifying <APPL value>, <Level value> as the object name. The attribute settings, commands and scripts are deployed for all attributes for the level.
*DTAGRP	CMDRFP	Deploy all *RFP commands for a level by specifying <APPL value>, <Level value> as the object name.
*DTAGRP	SECALL	Deploy all User Groups and Users defined in MDSEC. Any value can be used for the object name, since all records are included automatically.
*DTAGRP	SECGRP	Deploy the authorities for a specific User Group by specifying the group id as the object name. The users in the group are not deployed.
*DTAGRP	SECUSR	Deploy the authorities for a specific User by specifying the user id as the object name. The group definitions that the user belongs to are not deployed.
*DTAGRP	TMPDTACPY	Deploy a Data Copy template by specifying the template ID
*DTAGRP	TMPOBJAUT	Deploy an Object Authority template by specifying the template ID
*DTAGRP	TMPOBJDEL	Deploy an Object Delete template by specifying the template ID
*DTAGRP	TMPOBJREP	Deploy an Object Replication template by specifying the template ID
*DTAGRP	TMPOBJSEA	Deploy an Object Search template by specifying the template ID
*DTAGRP	TMPRAPID	Deploy an MDRapid template by specifying the template ID
*DTAGRP	TMPSRCDEL	Deploy a Source Delete template by specifying the template ID
*DTAGRP	TMPSRCREP	Deploy a Source Replication template by specifying the template ID
*DTAGRP	TMPSRCSEA	Deploy a Source Search template by specifying the template ID
*IFS	INSTALL	<p>Deploy a new build of the MDCMS products and then automatically install that build.</p> <p>Each of the 4 IFS save files (MDCMS.savf, MDREP.savf, MDSEC.savf and MDXREF.savf) should be requested using this attribute. The easiest way to do so is in MDOpen using the Import Local Objects option.</p> <p>If the install (MDINSSAVF) shouldn't be automatic, then disable the post-install command or create a copy of the attribute that doesn't contain the post-install command.</p>
*IFS	LICENSE	Deploy the MDLICENSE.savf to update the license keys and execute the update
*IFS	PATCH	Deploy a patch (mdupdateyyyymmdd.savf) and then automatically apply the patch



Task/Subtask

The Task, or Subtask, associated with the Project value. Tasks and Subtasks enable the user to further define and subset the work being done for the Project. An Object Request may be assigned to one or more Projects, Tasks or Subtasks. This enables MDCMS to filter and track objects by Project, Task and Subtask. Entries in these fields will filter the display to only include objects assigned to the selected Project, Task and Subtask. An entry here will also be used as the default value for any new requests so that the programmer does not need to enter it for each object.

RFP Number

An RFP is a Request for Promotion. When an object or a group of objects are ready to be installed into an application environment, an RFP is required to track and to group an installation. The RFP is Application Group and Promotion Level specific. The system requires a brief explanation of the promotion request. This explanation is stored in the system and a number is assigned. This number is used to group objects to be installed. An entry in this field will filter the display to only include objects assigned to the selected RFP number.

Promo Lvl

An entry in this field will filter the display by the Promotion Level that has been entered. An entry here is also the default value for new requests. If left blank, the lowest level for the application that allows checkouts will be used by default.

Request Status

The first of 3 status filter fields. As each object is processed through the MDCMS system, a status is applied to the object record to track the modification and installation progress. If this field is left blank, the system will include object records with any active status. An entry in this field will filter the display to only include objects that match the Status selected.

Status values:

- RP** – The request for the promotion level is pending MDWorkflow acceptance in the prior level.
- UL** – The request is currently unlocked so that others can work with the same object.
- 00** - Object has been requested for modification and a RFP has not been assigned.
- 01** - An RFP number has been assigned to the requested object.
- 02** - Approval Pending - an RFP approval is required before the installation process can continue.
- CP** – File waiting for MDRapid to be launched to copy the data to the new format for the file
- CR** – MDRapid is currently copying the Data
- 03** - Installation Pending - The object is ready for installation and requires an RFP installation release.
- 04** - RFP has been submitted to batch for an installation.

Creation/Copy Status

A value, when applicable, is displayed to the right of the Request Status to indicate the Creation or Copy Status of the object. The value is updated with a creation status when option 8 is used to compile the object into the Developer's library or during the compile and installation of the object as part of an RFP. The value is updated with a copy status when MDRapid is used to copy a file's data from the current format to a new format prior to installation.

Status values:

- C** – The object was successfully created or copied
- E** – An error occurred during the creation or installation of the object
- L** – RFP blocked due to lock on the Object or Source member
- 00-99** – the maximum % of data that has been copied during the MDRapid process



Additionally, value N can be used in the filter to only list objects for which no creation or copy has been attempted.

Conflict Status

A value, when applicable, is displayed to the right of the Creation/Copy Status to indicate status of Conflict Resolution when multiple versions of an application are managed.

Status values:

- O** – Conflict Resolution open – other versions have not been resolved
- L** – Conflict ignored for this level, but will be open again when RFP continues to next level
- I** – Conflict ignored for all levels for this request
- R** – Conflict has been resolved for all other versions for request

Additionally, value N can be used in the filter to only list objects for which Conflict Resolution is not necessary.

Cmd

- Y** – Filter the object requests to show only those requests that contain commands defined for the specific object.
- N** – Filter the object requests to show only those requests that don't contain commands defined for the specific object.

Script

- Y** – Filter the object requests to show only those requests that contain scripts defined for the specific object.
- N** – Filter the object requests to show only those requests that don't contain scripts defined for the specific object.

Attribute

An attribute is the identifier for the handling of each type of object. The attribute is defined in Option 3 of the System Settings and specifies source/object locations, compile handling, etc. An entry in this field will filter the display to only include objects assigned to the selected attribute. An entry here is also the default value for new requests. The wildcard character * can be used as a generic prefix or suffix for the value.

Object

An entry in this field will limit the display to requests for matching object names. The wildcard character * can be used as a generic prefix or suffix for the value.

Assign RFP

The RFP number to use when assigning request records to a promotion grouping.

Using option 'A' in front of individual unassigned object requests, will then immediately apply the Assign RFP value to those requests (if for same Application and Level as RFP number).

Using F10 will assign the RFP number to all unassigned requests in the filtered list for the same Application and Level.



4.2 The Request Record fields

Object

For object requests the object value is as follows:

Object Type	Object Value
OS/400 Objects	system object name
*DATA	system name of physical file containing the data
*DTAGRP	record key values
*DUMMY	free text
*IFS	IFS file or directory name
*MSGD	message description ID
*SOURCE	source member name
*SQLxxx	SQL long name

When selecting to perform a library migration, the object value is the name of the library or IFS directory path.

If the name is longer than 10 characters, press F2 to view/modify the complete value.

Attribute

The Attribute is the MDCMS Source or Object code that is used during the Retrieval and Installation processes to define the behaviour of the object. If left blank, MDCMS will use the attribute last used for the object name specified. If left blank and multiple object types exist for the same object name, MDCMS will prompt for the selection of the type before applying an attribute.

Appl

The Application Group is used to retrieve Promotion Level and Environment information required for source retrieval and installing object and source.

Lvl

The Promotion Level is used to define the library that compiled objects are to be installed into and the library of the application's source files. If the promotion level is not entered, or if the object is new, the level will be automatically set to the lowest level that allows checkout for the application environment.

Project

The Project(s) that the object request is assigned to. If the object is assigned to more than one Project, or is assigned to a Projects Task or Subtask, a plus sign(+) will be displayed to denote additional information is available. Enter an option '5' or '6' to see all Projects, Tasks, or Subtasks for an Object.

RFP

The Request for Promotion number is required for installing an object to an application environment. An RFP is Application Group and Promotion Level specific. MDCMS edits the assignment process and will not allow assignments across Application Groups and Levels. When the RFP is submitted for installation, all objects that are assigned to it will be installed.



Sts

The line Status shows the current status of the request record. It is a display only field.

Status values:

- RP** – The request for the promotion level is pending MDWorkflow acceptance in the prior level.
- UL** – The request is currently unlocked so that others can work with the same object.
- 00** – Object has been requested for modification and a RFP has not been assigned.
- 01** – An RFP number has been assigned to the requested object.
- 02** – Approval Pending - an RFP approval is required before the installation process can continue.
- CP** – File waiting for MDRapid to be launched to copy the data to the new format for the file
- CR** – MDRapid is currently copying the Data
- 03** – Installation Pending - The object is ready for installation and requires an RFP installation release.
- 04** – RFP has been submitted to batch for an installation.

The 3rd and 4th positions of the Status shows the Creation, Copy or Lock Status. The possible values are:

- C** – The object was successfully created or copied
- E** – An error occurred during the creation, copy or installation of the object
- L** – RFP blocked due to lock on the Object or Source member
- 00-99** – the % of data that has been copied during the MDRapid process

C

Y – Commands are attached to this specific object request and will run at install time.

S

Y – Scripts are attached to this specific object request and will run at install time.

From Lib

The library name that corresponds to the From Library associated with the Application level indicated on the Object Request line or the library name of a Library Migration request. This will normally be a named library except when a request is for the recompile, delete or update of an object which will be indicated by the corresponding values of *RECOMPILE, *DELETE and *UPDATE. Value *REQONLY indicates that a request record exists for a *SOURCE type, but source will not physically be migrated on this system.

Function Keys:

F2=Full Name - Edit or display the full name of an Object, when the name is too long to fit on this screen.

F3=Exit

F4=Browse - Display list of valid values for a field. For fields such as Project, Task, Subtask or RFP, the fields may also be maintained from the F4 screen.

F5=Refresh

F6=Messages – Display message queue of user.

F7=Promote RFP - Prompts the user to submit a RFP for installation.

F8=Submitted Jobs – Work with jobs submitted by user

F9=RFP Control - Used to select and maintain an RFP Assignment number for the **F10** process or the 'A' option.

F10=Assign RFP - Automatically assigns an RFP number to all displayed request records that have a status of '00' and match the application environment and level for the RFP. The RFP number used is retrieved from the RFP Assignment field in the header of the display.

F11=Output – Display the MD Output panel and other spool files

F12=Previous



- F15=Print List** - Prints a list of every active Project record that matches the current set of filter values.
- F17=Top** – Position the cursor to the top of the request list.
- F18=Bottom** – Position the cursor to the bottom of the request list.
- F20=Assign Proj** - Automatically assigns a selected open Project/Task/Subtask to all displayed requested records not yet assigned to a Project. The Project Selection display is provided in order to select the Project/Task/Subtask or cancel the Assign process before the process is performed.
- F21=Sys Command** – displays the IBMi command entry screen so that IBMi commands may be run without the need to exit MDCMS.
- F24=More keys** – Displays the additional Function Keys that do not appear on initial panel.



4.3 Requesting a change to an Object

4.3.1 M – Modify Object

The 'M' option is a request to modify an existing object. If the request is successful, MDCMS will copy the requested source to a development library and create a Request record in Lock Mode.

The Object Selection Process

- 1) position cursor to a blank line in the object manager
- 2) Enter the name of the object or press F4 to select object from list. A portion of the object name may be entered before pressing F4 to position the cursor to that name in the list. It is permitted to select multiple objects from the list. If more than 1 object is selected, each additional selection will be placed on its own new row within the Object Manager listing and the option, application and RFP for the initial row will be replicated to the additional rows for rapid check-out of multiple objects.
- 3) Enter the name of the MDCMS attribute or press F4 to select the attribute from list. If left blank, the default value entered at the top of the screen will be used. If this value is also blank, MDCMS will use the attribute that was used for the object the last time that the object was installed. The attribute specifies the location of the source and object as well as how the source is compiled and which authorities are assigned to the object.
- 4) Enter the name of the application in which the object exists or press F4 to select the application from list. If left blank, the default value entered at the top of the screen will be used.
- 5) Enter the Level number for the application or press F4 to select the level from a list. If left blank, the default value entered at the top of the screen will be used. If this is also blank, then the lowest level for the application will be used.
- 6) Enter the Project ID or press F4 to select the Project, Task or Subtask from the Project Listing panel. If left blank, the default value entered at the top of the screen for Project, Task and Subtask will be used. It is not required that a Project is selected at request time. More than 1 Project may be selected for the same object request.
- 7) Enter the RFP number or press F4 to select the RFP from list. If left blank, the default value entered at the top of the screen will be used. It is not required that a RFP is selected at request time.
- 8) Press Enter.

MDCMS checks to see if another user already has the object requested. If so, the newly entered request is declined and a screen is displayed which shows all relevant information pertaining to the existing request. From the screen, the user has the option to press F10 in order to request the object in Unlock Mode.

MDCMS then checks if the source/object already exists in the destination library that is defined for the entered attribute. If not, it searches the locations on the local system in the higher levels for the attribute. If still not found, it searches for the source or object based on the search template definition for the attribute.



```
CMC180                               T Dev                               29.07.14
SCRN1                                Source Member Copy Options        22:15:14

Appl Lvl Type      Attribute  Object
TEST 10 *PGM      CLP          ACOBJ1

Copy From
Location . . .    *LOCAL
Source File . .  QCLSRC
Library . . .    TSTSRC10
Member Name . .  ACSRC1                Name, *NONE

Copy To
Dev Source File  QCLSRC
Library . . .    MMORGAN
Member Name . .  ACSRC1

Dev Object Library MMORGAN

Enter=Confirm   F4=Browse   F5=Refresh   F12=Cancel
```

This screen is then displayed where the user chooses where to copy the source from and where to copy the source to. Modifications are then made to the copy of the source, rather than the original source to protect the installed version of the source.

If the source already exists in the programmer's library, the programmer will be prompted as to whether or not the existing source should be overwritten.

If the library or source file does not yet exist in the programmer's library, the programmer will be prompted to create them.

The name of the source can differ from the name of the object and the source library may be different than the object library.

Source Comparison

If Source Comparison Checking is defined for the application level in the OS/400 Location settings (MDCMS Settings Menu Option 8), then the version of the source that is to be copied into the programmer's library will be compared with the version of the source that is residing in the comparison level on the local or a remote system.

If the versions are different, a warning screen will be displayed to the programmer. F8 can be pressed to view the differences in the 2 versions of the source code. If the programmer has authority to request source from a different location (MDSEC Code 33 for the application), the programmer then has the option of copying the remote version of the source rather than the local source.

If the versions are different and the programmer that made the prior change to the source is different than the current programmer, the current programmer can only check out the source if they have authority to change programmer for object request (MDSEC Code 32).



Emergency Checkout Warning

If the Object was most recently checked out for deployment to an Emergency level, and the new request is for a standard level, a warning screen will be displayed to the programmer informing them of the level, user and Project involved in order to help resolve the merging of the changes made for the emergency deployment.

Location Warning

When requesting source or objects, MDCMS can be configured to automatically notify the user if the source or object is found in specific locations. This can be helpful to make the user aware of potential conflicting versions of the object, such as in vendor libraries. To automatically search and notify, apply search templates with the libraries to be checked to the attributes to be monitored.

4.3.2 N – New Object

This option is used to reserve an object name. The steps followed are identical to those for the modification of an object. The new object name may not already exist in the destination library for the attribute. If for new source, the user is then prompted for an existing source to copy from (as a template). The copy is optional.

If an existing source member is copied to a new member, or if the copy from value of *GEN is used to generate a new source member in the programmer library, the programmer is then prompted to provide the source attribute and description of the new member.

If the member to copy from doesn't exist in the default source library, F16 can be pressed to have MDCMS search for the source in the level chain and based on levels.

4.3.3 D – Delete Object

This option is used to delete an object and the source for the object. The steps followed are identical to those for the modification of an object. When the promotion occurs that causes the deletion, the source or object is archived prior to deletion (if archiving is turned on for the level.) Any cross-reference information about the object is also removed at promotion time.

To delete an IFS file or directory, enter the attribute for the IFS entity before pressing F4 to select it from a list. If a directory is selected, and that directory contains files or sub-directories, MDCMS will automatically create deletion reservations for those entities too.

4.3.4 R – Recompile Existing Source

This option is used to recompile an object from the existing source at the requested level. This can be requested even when work is in progress for the source. The steps followed are otherwise identical to those for the modification of an object.

If multiple objects of different names share the same source, the initial object can be checked out as Modify and the other objects can be checked out as Recompile.

4.3.5 U – Update Existing Object

This option is used to update an existing object without modifying any source or migrating the Object from a lower level. An Update command must be defined for the object or attribute. An example of an Update command would be the UPDPGM command for updating existing ILE programs. The Update option may be requested even when work is in progress for the source or object. The steps followed are otherwise identical to those for the modification of an object.



4.3.6 L – Library Migration

Often, a temporary library will be sent from a vendor (or some other source) with the intent that the objects in this library are to be migrated into your application. The 'L' option can be used to easily request the objects for migration.

To do this, enter the name of the library at the object prompt. Also enter the Application code. Leave the attribute field blank. Press Enter. A list of all objects in the library is then displayed.

```

CMC125                                COMPANY NAME                                10/18/11
SCRN1                                  Library Objects Request                            15:44:34
Library.: LIV12121
Appl/Lvl: TEST 10  RFP: _____ Project: SAP001      Task/Subtask: _____
Filters (* = generic*)
  Object*: _____ Type: _____ *Sys Attr*: _____ *Desc*: _____
                                           Created from: _____ to: _____

Type options, press Enter.
M=Migrate  D=Object Description  S=Source Members  5=View Request Details

Opt Object      Type      CMS Attr  Created  Description
M  COHDRL1     *FILE    LF        10/01/11 XYZ CO HDR file by costs
-  COHDRL2     *FILE    LF        10/01/11 XYZ CO HDR file by cocst
-  COHDRL3     *FILE    LF        10/01/11 XYZ CO HDR file by copsts
M  CO001D      *FILE    DSPF      10/01/11 XYZ Customer Order Maint
M  CO002D      *FILE    DSPF      10/01/11 XYZ Customer Order Browse
M  CO002R      *PGM     RPG        10/01/11 XYZ Customer Order Browse
-  CO006D      *FILE    DSPF      10/01/11 XYZ Customer Order Print
M  CO007P      *FILE    PRTE      10/01/11 XYZ Customer Order Print

More...
F4=Browse  F8=Today  F9=Dft Attribute  F13=Repeat Opt  F14=Repeat Attribute

```

This display lists all objects that exist in the library.

RFP

The RFP number to assign to the selected objects in the library. Press F4 to create a new RFP and/or select an RFP from the list of open RFPs.

Project/Task/Subtask

The Project ID to assign to the selected objects in the library. Press F4 to create a new Project and/or select a Project from the list of open Projects. If the assignment needs to be for a task or subtask within the Project, those values can be entered as well.

Filters

The list of objects may be filtered by Object, Type, System Attribute, Description or range of Creation Dates.

The object name filter value can use the suffix * to filter the objects based on the value preceding the *. The system attribute and description filters allow the * wildcard before and after the generic value.

The filters are not case sensitive.



Opt

M=Migrate – Migrate the object from the selected library into the lowest application level on the system. A request will then be created for that object. The request can then be handled like all other requests in the Object Manager.

D=Object Description – Display the object description using the IBM Display Object Description command(DSPOBJD) using a Detail parameter value of *FULL. The information on the Display Object Description panel can aid in analysing objects prior to migration.

S=Source Members – View the list of source members in a source file. This option is only valid for source files. The members may then be individually requested.

5=View Request Details – View the details of an already requested object.

Attribute

MDCMS makes a best guess as to what the attribute should be. Enter a different value or press F4 to select from list, if necessary.

Function Keys:

F4=Browse – Display list of valid values for a field.

F8=Today – Creates a filtered view of all objects that were created with today's date.

F9=Dft Attribute – Set default Attribute to be used for new objects with same system attribute.

F13=Repeat Opt – Repeat an option until end of list. For example, if 'M' was entered on the 4th line of the list and F13 was then pressed, lines 5 through the end would also have 'M' entered.

F14=Repeat Attribute – Repeat an attribute. Place cursor on line for attribute to be repeated and press F14. For every object with a matching object type, this attribute will be inserted.



4.3.7 L – IFS Directory Migration

Option L can also be used to migrate files or entire directories that exist in IFS.

To specify a Directory Migration rather than a Library Migration, place a “/” at the beginning of Object field before pressing Enter.

```

CMC126                                COMPANY NAME                                10/18/11
SCRN1                                  IFS Object Migration Request          12:55:23

Directory: /transfer

Type options, press Enter.
M=Migrate S=Set Root Directory 5=View

Object Filter: _____

Opt      Object                                Date Modified      Attribute      Req'd By
-      DIR downloads                          2011-08-25 14.33.24 _____
-      DIR patch070315                         2011-08-25 14.33.25 _____
-      DIR patch070326                         2011-08-25 14.33.26 _____
-      DIR patch070420                         2011-08-25 14.33.27 _____
-      DIR patch070427                         2011-08-25 14.33.28 _____
-      DIR patch070620                         2011-08-25 14.33.29 _____
-      DIR saved070211                        2011-08-25 14.33.30 _____
-      DIR savem070407                        2011-08-25 14.33.31 _____
More...

F2=Full Name  F3=Exit  F4=Browse  F12=Up  F13=Repeat Opt  F14=Repeat Attr

```

This display lists all sub-directories and files that exist in a specified directory.

Object Filter

The list of objects may be filtered by object name. All values are interpreted as generic strings. For example, enter TCH in the object filter to see all objects with tch somewhere in the name. The filter is not case sensitive.

OPT

M – Migrate the object from the specified directory into the lowest application level on the system. A request will then be created for that object. The request can then be handled like all other requests in the Object Manager. If the object is a directory, and the directory contains files or sub-directories, you will be prompted with the choice to automatically migrate all files and/or directories as well. You can also limit the migration to include only directories/files that have been modified since a specific date/time.

S – Set the Root Directory for the Migration. Afterwards, you can use option 5 to drill down into the directory and its sub-directories and select to migrate specific files or directories, while retaining the path starting with the root directory.
For example: an Attribute is defined that specifies that an IFS object is to be installed into directory /tomcat. You could then use option S to set the root directory for the migration as directory webapps, which resides in directory /delivery. Afterwards, option 5 is used to select a file in directory /delivery/webapps. When the file is migrated, it will be moved from directory /delivery/webapps to directory /tomcat/webapps. This way, you only need to create an attribute for the uppermost directory of commonly changed objects in IFS.



5 – If the object is a file, then the contents of the file will be displayed. If the object is a directory, then this display will change to show all objects residing in the directory.

Attribute

MDCMS makes a best guess as to what the attribute should be. Enter a different value or press F4 to select from a list of IFS attributes, if necessary. If a Root Directory has been set, then the Attribute for the Root Directory will be used.

Function Keys:

F2=Full Name – Display the full name of an IFS Object or Directory. Place the cursor on the field before pressing F2.

F12=Up – Go up 1 directory in the path. If the currently displayed path is /, then MDCMS returns to the Object Manager.

F13=Repeat Opt – Repeat an option until end of list. For example, if 'M' was entered on the 4th line of the list and F13 was then pressed, lines 5 through the end would also have 'M' entered.

F14=Repeat Attr – Repeat an attribute. Place cursor on line for attribute to be repeated and press F14. For every object with a matching object type, this attribute will be inserted.



4.3.8 Request Linked Objects for Attribute

If the object just requested was for an attribute that contains Linked Checkout definitions, then MDCMS will automatically present a list of linked objects to be considered for checkout.

```

CMC123                                COMPANY NAME                20.04.13
SCRN1                                Request Linked Objects for Attribute  21:41:56

Object: RC0300                        Appl: MD                    Project: V7
Type: *PGM                            Attr: RMCBL                 Lvl: 10    RFP Nr.:

Type options, press Enter.
D=Delete  M=Modify  N=New  R=Recompile  U=Update  5=View Request

Opt Object                                Type  Attribute  Description
-  C.OBJ.LST                            *DTAGRP RFUN
-  RC0300                                *DTAGRP RSCREEN
-  RC0300IO                              *SOURCE RLBL          Screen Definition Copybook

                                                                 Bottom

F2=Full Name  F3=Exit  F13=Repeat Opt

```

Opt

- D=Delete – Create a Request to delete the Object
- M=Modify – Create a Request to modify an existing object
- N=New – Create a Request to create a new object
- R=Recompile – Create a Request to recompile an existing object
- U=Update – Create a Request to update an existing object
- 5=View Request – View the details of an already requested object.

Object

MDCMS automatically generates the name of the linked object, based on the name of the parent object in combination with the Naming Pattern definition for the linked attribute. The object names can be modified before pressing Enter to request them.

Function Keys:

- F2=Full Name** – Place cursor on an Object field and press F2 to view/edit the complete value
- F13=Repeat Opt** – Repeat an option until end of list. Place cursor on line for option to be repeated (including a blank option) and press F13. Every line after the line containing the cursor will receive the same option.



4.4 Process Request Records

4.4.1 2 – Edit Request Details

An entry of '2' for an existing request will allow the user to change the request parameters.

```

CMC100                                COMPANY NAME                                4.09.06
SCRN3                                  Edit Request Details                            10:37:02

Appl/Lvl: TEST 10  RFP:                Object: JAVAXREF
Project.:                                     Type: *SQLTAB
Reason..: *MODIFY

Attribute . . . SQLTABIFS
Programmer . . . MMORGAN
Sort Sequence.
Source Name . . . JAVAXREF.sql

From Lvl . . .
From Obj Lib . . . MMORGAN
From Src Lib . . . /home/mmorgan
Data Origin . . . *SAME Name, *SAME, *MIGRATE, *NONE
Data Member . . . Name, *ALL, *FIRST
MDRapid Pgm . . . *DEFAULT Name, *DEFAULT, *NONE
Automatically Reapply Y/N:
  Journaling: Y Constraints: Y Triggers: Y

Enter=Confirm  F2=Full Name  F4=Browse  F8=Edit Projects for Request

```

Attribute

The MDCMS attribute may be changed, as long as the new attribute is of the same Object Type as the old attribute, and the target source or object for the attribute isn't already locked by another request.

Programmer

The programmer can be changed to a different user registered in MDSEC.

Sort Sequence

Object Requests are sorted by attribute compile sequence, sort sequence and object name. The sort sequence for the individual object can be entered here in case other objects of the same attribute compile sequence are dependent on this object.

Source Name

The source name may differ from the object name and can be modified here

From Lvl

If more than one level migrates to the request level, a different level to migrate from can be selected

From Obj Lib/Src Lib/Src File

If the request is from the lowest level, the from location for the object (and source when applicable) can be changed.

Data Origin

When the request is for a file, existing data will by default be copied from the old version of the file to the new version of the file.

The origin can be one of the following:

*MIGRATE – the data in the file is migrated with the changed format for the file. This is the equivalent of having a *FILE request and a *DATA request in the same RFP.

*NONE – any existing data will not be retained. *NONE is required when changing the system attribute from PF to LF or from LF to PF.

*SAME (default) – any existing data in the file being replaced will be mapped to the new format for the file.

The system or SQL name of the file containing the data to copy from. The file must exist in the same target library as the file being modified.

Data Member

When the request is for a file, and the Data Origin is a different file, the member in the other file can be defined to copy from. This is particularly helpful when converting an existing multi-member DDS file to several new SQL tables, since SQL only allows for one member per table.

The member can be one of the following:

*ALL – all members in the file will be copied. This is only valid if the requested file is a DDS file.

*FIRST – the first member in the file will be copied.

The name of the member to copy from the Data Origin to the requested file.

MDRapid Pgm

The service program for Mimix Promoter to use when mapping existing data to the new format for the file. This is only applicable for files or SQL tables assigned to an MDRapid Template.

The name can one of the following:

*DEFAULT – the default Mimix Promoter service program will be used, which provides standard *MAP/*DROP functionality.

*NONE – don't use MDRapid for this file, even if it has enough records in it

The name of the service program to use for mapping the data. See the Mimix Promoter user manual for more information about writing this program.

Automatically Reapply Journaling

Whether or not Journaling for a file should be automatically reapplied when the file is modified.

Automatically Reapply Constraints

Whether or not constraints for a file should be automatically reapplied when the file is modified.

Automatically Reapply Triggers

Whether or not system (non-SQL) triggers for a file should be automatically reapplied when the file is modified. Any SQL triggers that should be re-applied should be requested for recompile and placed on same RFP as the file.

Automatically Reapply LF Members

Whether or not existing members for a logical file should be automatically recreated when the file is modified.



4.4.2 4 – Delete Object Request

An entry of '4' will delete the request for an object modification. This is only allowed if the Status of the request record is currently '00 or '01', which means that the installation of the request is not yet in progress. A confirmation screen is displayed before the request is deleted.

If the request is for the lowest level on the system, the user may choose to delete the source and object from the programmer library. This allows for a cleaner developer environment.

4.4.3 5 – Display Request Details

The Option '5' will display all relevant information pertaining to the object request.

4.4.4 6 – Edit Projects for Request

An entry of '6' allows the user to change the list of Projects, Tasks, or Subtasks that the Request is assigned to. If the user has enough authority, they can also edit the details of the projects or add new Projects, Tasks or Subtasks.

4.4.5 7 – Rename Object Request

An entry of '7' will prompt the user for a new name for the requested object. The user may also let MDCMS automatically rename the source and object residing in the programmer's library. Renaming is only allowed for new objects.

4.4.6 8 – Create Object

An entry of '8' will prompt the user to compile the object into their own library from the checked out source. This is useful for validating the source or for unit testing prior to submitting the RFP. This is only valid for object attributes defined with a source and object location or for ILE programs/service programs. The source must be checked out as New, Modify or Recompile from a level allowing check-out.

The compile process uses the Pre-Compile, Compile and Post-Compile commands defined for the attribute or specific object so that the object is created in exactly the same way as during a deployment.

In the case of SQL Constraints or Triggers, the Post-Installation commands are used instead of the Compile commands.

If compiling a physical file, any logical files over the physical that exist in the developer library will be automatically deleted. However, logical files in other libraries must be handled manually.

Library List

- 1 – The library list defined for the Job Description assigned to the Application Level is used
- 2 – The current library list for the job is used

Include Dev Library

- Y – The developer object library for the request is added to the top of the library list to reference any objects in that library that may also have changed.
- N – The developer object library is not added to the library list. If it is already in the library list, it will remain at the position it is in.



Object Exists

Y – The object already exists in the developer library and will be automatically deleted prior to the create process.

N – The object doesn't yet exist in the developer library

Show Create Log

The Create Log consists of job log entries and compile log entries written during the create process. In order for compile log entries to be written, the CRTxxxx command must include the option *EVENTF, if that option is available for the command.

The following options determine when the create log will be shown directly after processing the pre-compile and compile-commands:

E – if command exceptions occurred or the object didn't get created

Y – always

N – never

When the Create Log is displayed, the minimum severity can be set to filter out lower severity messages than the filter value.

4.4.7 9 – View Spooled File

An entry of '9' will display the most recent spooled file for the object. The spooled file will have been created during the compile of the object into the developer's library using option 8 or during the compile of the object during RFP processing.

4.4.8 A – Assign RFP

An 'A' entry in the option field will assign the RFP number entered in the RFP field to the Object Request record. The Status of the Request record must currently be 00 or UL. If the RFP is blank, the system will transfer the display to the RFP Select Display so that the user may add and/or select an RFP.



4.4.9 B – Bound Objects for Program

An entry of 'B' will allow the programmer to configure the list of Bound Modules and Service Programs for an ILE Program or Service Program.

This information will then be used when the program is created, assuming a compile command is defined for the attribute or object with the wildcards ##MODULE##, ##SRVPGM## and ##ENTMOD## (for programs).

If this option is not used before a program is created during installation, then MDCMS will use the current definition for the object in the migration library.

```

MDCCMSB                MD Test Environment                11.03.08
SCRN1                   Bound Modules                    17:18:30

  Program: ILEXREF      Type: *PGM          Attribute: ILEPGM

Type options, press Enter.
M=Modify   4=Remove from List   E=Entry Module

Opt Module      Library  PEP Attribute  Description
-  MDCDATR      TSTLIBMOD  CBLLE      MDXREF: calculate date range
-  MDCDIRL      TSTLIBMOD  Y CBLLE      MDCMS - view/select directory contents
-  MDCIFSE      TSTLIBMOD  CBLLE      MD Check access of IFS object
-  MDCIFST      TSTLIBMOD  CBLLE      MD Check type of IFS object
_____        *LIBL
_____        *LIBL
_____        *LIBL

Bottom
F3=Exit   F4=Browse   F8=Service Programs   F10=Create in Programmer Lib
  
```

Opt

M=Modify – Request the Module or Service Program for modification. The requested element will automatically be assigned to the same RFP and Project as the Program binding it.

4=Remove from List – Remove a Module or Service Program from the list

E=Entry Module – Designate a specific module to contain the PEP (Program Entry Procedure)

Module [or Service Program]

The name of a Module or Service Program to add to the list

Library

The current location of the Module or Service Program. MDCMS looks first in the developer library and then in the library list for the Level.

Attribute

The MDCMS attribute to use if requesting to modify the Module or Service Program

Function Keys:

F3=Exit

F4=Browse

F8=Service Programs – toggle the listing between Modules and Service Programs

F10=Create in Programmer Lib – create the program in the developer library, based on the currently defined list of bound modules and service programs. MDCMS will use the version of each module or service program based on the found library location. It is not necessary to create a program in the check-out library, but it can be useful for testing purposes.



4.4.10 C – Commands/Scripts for Object

An entry of 'C' activates the MD Detail Command Maintenance function for a specific object. This function is used to define IBMi commands that can be executed during the installation of objects into an application level. This function is also used to override the default compile, data, and update commands defined at the attribute level.

```

CMC192                                COMPANY NAME                                4.09.06
SCRN1                                Commands for this Object                        15:54:04

Appl/Lvl: ACCT 10  Object: ACRPT01

Type options, press Enter.
2=Edit  3=Copy  4=Delete  5=View

Opt Type Seq  Command String
-   1   10   OVRDBF FILE (ACCTPF1) TOFILE (PRODLIB/ACCTPF2)
-   3   10   RMVM PRODLIB/ACCTPF1 XXXTEST

F3=Exit  F6=Add  F12=Previous

Bottom

```

Type

C – Compile Command. Will be used to compile the object from source code. The C command override uses the compilation command as defined in the System Settings for the attribute as a default model. The command can then be changed for the compile process. This override will then be used to compile the specific object rather than the default compile command for the attribute.

D – Data Copy Command

- *FILE object type – determines how the existing records in a physical file should be mapped to the new format when a physical file is installed. The default, when a D-command is not defined, is by using the CPYF command with FMTOPT(*MAP *DROP). If, for example, the mapping should occur with CPYF command parameter FMTOPT(*NOCHK), then a D-command should be defined. All other keywords in the CPYF command are ignored. Only 1 command may be defined for *FILE mapping.

Other commands, such as RUNSQLSTM, may also be used for mapping the data in a changed file from the old format to the new format. If such a command is used, it is critical to use the ##OFF wildcards so that MDCMS can correctly provide the location of the old file format.

- *DATA object type – determines how and which data records should be copied from one environment to another. All keywords except FROMFILE and TOFILE are then used when the CPYF command is run. Only the CPYF command is permitted for *DATA attributes

U – Update Command. The U command override will be used to update the existing object rather than the U commands defined at the attribute level. An example would be the UPDPGM command to update existing ILE programs. The Update Command may also be used to update an existing object using the modified source. An example for this would be the CHGPF command to update the format of a physical file for a modified DDS source. In this case, the source would be checked out using the M (modify) option and at installation time, the Update command would be used.

1 – Pre-Compile Command runs prior to compiling objects



P – Post-Compile Command runs after compiling objects
2 – Pre-Installation Command runs prior to installing objects into the environment
3 – Post-Installation Command runs after the installation of objects is complete.
O – Data Copy during Send runs for *DATA requests only during the copy of data to send to a remote location, determining which data records should be sent to a remote location based on the INCCCHAR and INCREL parameters of the CPYF command. The command is run separately for each target location. Wildcard ##SVFLOC## could, for example, be used to filter by the location ID, if a column in the table contains that value.

Sequence

The sort sequence of the command at run time, in case multiple commands for the same type are defined.

Ignore Errors

Y – Continue with RFP processing even if the command fails. Flag will always be Y for type 3.
N – Cease and Rollback RFP processing if the command fails

Keep MD Libs in Libl

N – The MD Libraries (MDCMS and MDXREF) are removed from the library list before the command is invoked. This assures that any MD Objects with the same name as your objects are not used.
Y – The MD Libraries are left in the library list. This is necessary when MD Objects, such as interface programs, MDMAIL or MDMAILF, are needed to process the command.

Reuse Command

Y – The next time that this same object is checked out, this command will be reapplied to the request
N – This command is intended to be used only once for this object

Location to run Cmd

The location that the command should be run, allowing for commands to be run only for certain environments. Enter a valid Location ID or press F4 to select a location from the list.

Otherwise, select from one of the following special values:

- *ALL – run the command on every level in the migration path
- *LOCAL – run the command on any level on this system
- *LOCLVL – run the command only for this level
- *REMOTE – run the command on any level everywhere but this system

Wildcards in SQL

N – The SQL member or IFS file used by a RUNSQLSTM command does not contain MDCMS wildcards – no conversion will occur
Y – The SQL member or IFS file used by a RUNSQLSTM command contains MDCMS wildcards – MDCMS will create a temporary copy of the script and convert the wildcards in the copy to the actual runtime values.

This flag is only relevant for RUNSQLSTM commands. The wildcards embedded in the SQL script may be delimited by ++ instead of ## to avoid code page issues.



Command

The IBM i or user-defined command to be performed. Enter the name of the command and then press F4 to fill in the keywords.

Some wildcard parameter values may be used and are substituted by MDCMS at run-time. The wildcard value may be typed directly into the command or the cursor may be positioned in the command and F7 pressed to insert the value from a list. The full list of values are in this manual in the Attribute Command section.



Scripts

If the MDCMS object type for an object is *IFS or *REMOTE, then scripts can be applied to the object to be run before or after the object is deployed to IFS or a remote server.

To manage the scripts for an object, use option C for Commands/Scripts from the object manager and press F10 from the command listing.

```

CMC171                                COMPANY NAME                                4.09.15
SCRN1                                  Scripts for this Object                                15:54:04

Appl/Lvl: ACCT 10  Object: webApp.war

Type options, press Enter.
2=Edit  3=Copy  4=Delete  5=View  S=Script Content

Opt Type Seq Script
-   2   _1  /ifs-stop-tomcat.sh
-   3   _1  /ifs-start-tomcat.sh

F3=Exit  F6=Add  F12=Previous

Bottom
  
```

Type

The Type value designates when a script should run

2	Pre-Installation	runs prior to installing objects into the environment
3	Post-Installation	runs after the installation of objects is complete

Sequence

The sort sequence of the script at run time, in case multiple scripts for the same type are defined.

Ignore Errors

- Y – Continue with RFP processing even if the script fails.
Flag will always be Y for type 3.
- N – Cease and Rollback RFP processing if the script fails

Reuse Script

- Y – The next time that this same object is checked out, this script will be reapplied to the request
- N – This script is intended to be used only once for this object

Replace Wildcards

- N – The script doesn't contain wildcard values to be replaced by runtime values when executed
- Y – Replace wildcard values in the script at run time

Loc. to run Script

The location that the command should be run, allowing for commands to be run only for certain environments. Enter a valid Location ID or press F4 to select a location from the list.

Otherwise, select from one of the following special values:

- *ALL – run the command on every level in the migration path
- *LOCAL – run the command on any level on this system
- *LOCLVL – run the command only for this level
- *REMOTE – run the command on any level everywhere but this system



Wait for Response

Y – MDCMS waits until the Remote server confirms completion of the script execution
N – MDCMS continues without waiting for a response from the remote server

Submit Job

Y – Submit the IFS Script execution to a separate job. MDCMS will not wait for a response in this case, but instead continue with RFP processing.
N – the ifs script execution runs within this job

Job Name

The name of the submitted job that will process the IFS script

Job User

The user profile of the submitted job that will process the IFS script

Job Queue

The name and library of the Job Queue to receive the submitted job

Script Subfolder

The relative path of the script, if it isn't directly located in the script root folder.

Script

The name of the script file located in IFS

4.4.11 D – MDRapid Data Copy Status

A 'D' entry in the option field will result in seeing the copy status of all physical and logical files that require MDRapid processing once copy is pending until such time that the RFP is installed. The status can also be viewed from the RFP after installation to check the amount of time that was required for the copy.

4.4.12 H – Installation History

An 'H' entry in the option field will result in directly navigating to the Installation History listing for the object. This option is available for new or existing request records in the display.

4.4.13 I – Include Related Objects

This option is used to request objects that 1) are dependent upon a requested file, ILE module, Service Program, or copybook or 2) invoke a requested program, command, query, function, procedure or menu. **MDXREF** is used to identify the objects.

Example 1: the length of a field in file COHDRP needs to be changed. The user would first select COHDRP for modification. Then, the user would place an 'I' in front of the request record so that all of the objects that use COHDRP (or other files that use COHDRP, such as logical files) can be selected for modification, deletion, or recompilation.

Example 2: the linkage section of a COBOL program needs to be changed. The user would first select the program for modification. Then, the user would place an 'I' in front of the request record so that all of the objects that invoke the program can be selected for modification, deletion, or recompilation.



```

CMC120                               Source and Object Control          11/20/11
SCRN1                               Request Objects using File      07:10:24

Object: COHDRP                       Type: *FILE                   Appl: ACCT   Project: VAT      +
                                     Attr: PF                       Lvl: 10     RFP Nr.: 22371

Type options, press Enter.
D=Delete   M=Modify   R=Recompile   U=Update   S=View Source   5=View Request

Opt Object      Type      Attribute  Req'd By  Description
R COHDRL1      *FILE     LF         _____ XYZ CO HDR file by costs
R COHDRL2      *FILE     LF         _____ XYZ CO HDR file by cocst
R COHDRL3      *FILE     LF         _____ XYZ CO HDR file by copsts
R CO001D       *FILE     DSPF       _____ XYZ Customer Order Maint
R CO002D       *FILE     DSPF       _____ XYZ Customer Order Browse
S CO002R       *PGM      RPG        _____ XYZ Customer Order Browse
R CO003D       *FILE     DSPF       _____ XYZ Customer Order Maint
D CO006D       *FILE     DSPF       _____ XYZ Customer Order Print
R CO007P       *FILE     PRTF       _____ XYZ Customer Order Print
                                                More...
F3=Exit   F4=Browse   F9=Dft Attribute  F13=Repeat Opt  F14=Repeat Attribute

```

This display lists all objects that somehow reference a selected file or invoke a selected object.

OPT

D=Delete – Delete the object and source for the object. When the promotion occurs that causes the deletion, the source or object is archived prior to deletion (if archiving is turned on for the level.) Any cross-reference information about the object is also removed at promotion time.

M=Modify – Modify the object (and source used to create object).

R=Recompile – Recompile an object from the existing source at the requested level. This can be requested even when work is in progress for the source.

U=Update – Update the existing object

S=View Source – View the source code for the object.

5=View Request – View the details of an already requested object.

Function Keys:

Enter=Confirm – Process the Request selections for the currently listed Application. If other Applications are linked to the Base Application and references to the Object are found, a list references for each Linked Application will be displayed. A separate RFP can be selected for each Application by changing the number at the upper right of the screen.

F3=Exit

F4=Browse

F9=Dft Attribute – Default Attribute will be set to be used for new objects with same system attribute.

F13=Repeat Opt – Repeat an option until end of list. For example, if 'R' was entered on the 4th line of the list and F13 was then pressed, lines 5 through the end would also have 'R' entered.

F14=Repeat Attribute – Repeat an attribute. Place cursor on line for attribute to be repeated and press F14. For every object with a matching object type, this attribute will be inserted.

4.4.14 L – Lock Object Request

The Option 'L' will lock a requested object so that other users are unable to install a different request of the same object. A lock will only be granted to the request if the object is not already locked by another request.

4.4.15 M – Merge Source Updates

The Option 'M' for checked out source provides the ability to compare and merge source code from another member.

Member Selection Fields:

Location

*LOCAL – the other member is located on the same system

Synchronization Location – The location of a remote system containing the other member

Source File

*TGTFIL – the source file name is identical to the name of the source file of the checked out member

Source File – The name of the source file containing the other member

Library

*TGTLIB – the source library name is identical to the name of the source library of the checked out member

Source Library – The name of the source library containing the other member

Member

*TGTMBR – the source member name is identical to the name of the checked out member

Source Member – The name of the other member

Compare/Merge Screen:

If the 2 members are identical, a message is returned stating this and the code is not displayed.

If they are different, the top half of the screen displays the checked out member and the bottom half displays the other member. The code will be positioned to the first difference between the 2 members and the difference will be highlighted.

Press F14 to merge all differences from the other member into the checked out member.

Press F15 to merge only the highlighted difference from the other member into the checked out member.

Press F16 to position the source code to the next difference

4.4.16 P – PDM/IFS-links

The Option 'P' will begin the Work with Members[or Objects] Using PDM display for the specific source member or, for the specific object (when source is not applicable).

This option is valid as long as the source/object is requested for modification and has not yet been submitted for installation.

For IFS objects, the Work with Object Links display is presented.

4.4.17 R – Remove Object from RFP

An entry of 'R' will remove the assigned RFP number from the object. This is only allowed if the Status of the request record is currently '01', which means that the request has been assigned a promotion number that is not yet in progress. A confirmation screen is displayed before the RFP number is removed.



4.4.18 S – View/Edit Source

Option 'S' will open the IBM editor for the source based on the type and attribute of the source.

For IFS – The Stream file editor will be opened

For Message Descriptions, S will start a WRKMSGF session for the file that the message description resides in.

For Source Members, the Source Entry Utility (SEU) is invoked for the editor based on the source member attribute.

A user may edit the source if it is requested for modification by that user and if the request is for a level flagged as a Check-out level. Otherwise, the user will only be allowed to view the contents of the source.

4.4.19 U – Unlock Object Request

The Option 'U' will unlock a locked object request, which allows another user to request the same object.

4.4.20 V – Version Conflict Resolution

This option is used to manage resolution of objects belonging to multiple versions of the same Application. Conflict Resolution is automatically prompted for an object when it is checked out for New, Modify or Delete from a level that other levels are based on. In the case of Modify or Delete, the prompt is only given when the object also exists in at least one of the dependant levels.

Since Resolution may not be possible immediately when an object is checked out, or to view/change the status of Resolution, it can be managed at any time by using option V for an object showing a Resolution Status in Object Manager or by using option V for an RFP to see all relevant objects in the RFP in one view.



```

CMC175                                COMPANY NAME                17.03.15
SCRN1                                Version Conflict Resolution  20:58:07

Appl: TEST  Lvl: 30  RFP: 2000018 Plex import

                                           Auto-Gen/Assign RFP: Y Y/N

Type options, press Enter.
5=Details  B=Bind  C=Clr  D=Delete  I=Ignore  L=Ignore Lvl  M=Modify  R=Recomp
U=Update

Opt Object          Type      Rsn Status  Lvl Lvl Lvl Attribute  Fnd Bnd Rsn      RFP
-  MDAPAR          *FILE    M  Open    31  31  31 PF          N   N
-  MDAPAR          *FILE    M  Reslvd  32  32  32 PF          Y   Y   M  2000024

                                           Bottom

F3=Exit  F5=Refresh  F13=Repeat Opt

```

This display lists all objects that somehow reference a selected file or invoke a selected object.

OPT

- 5=Details – View extensive details about this request and the Object in the depending version
- B=Bind – Resolve the conflict by binding this request to an existing request for the depending version
- C=Clr – Clear the Resolution Status, which returns the status to Open
- D=Delete – Request to Delete the Object in the depending version. MDCMS automatically binds the new Delete request to this request and sets the status to Resolved.
- I=Ignore – Ignore the Conflict between this Object and the depending version for entire migration path. MDSEC authority to code 36 for application required.
- L=Ignore Lvl – Ignore the Conflict between this Object and the depending version for this level only. Status will return to Open for next level in migration path. MDSEC authority to code 36 for application required.
- M=Modify – Request to Modify the Object in the depending version. MDCMS automatically binds the new Modify request to this request and sets the status to Resolved.
- R=Recomp – Request to Recompile the Object in the depending version. MDCMS automatically binds the new Recompile request to this request and sets the status to Resolved.
- U=Update – Request to Update the Object in the depending version. MDCMS automatically binds the new Update request to this request and sets the status to Resolved.

Auto-Gen/Assign RFP

When an object for a depending version is requested for Modify, Delete, Recompile or Update, it can be automatically assigned to an RFP for that level with the same description as the RFP description as this request. If an open RFP for the level and description is not found, it is automatically created. This is only applicable if this request is assigned to an RFP.

Status

- Ignore – Conflict ignored between this object and the depending version of the object and will continue to be ignored throughout the migration path.
- Implgn - Conflict ignored between this object and the depending version of the object, but will be reset to Open status at next level.



Open - Conflict Resolution has not yet occurred for this version. If the Level requires resolution, the RFP cannot be submitted until Resolution occurs.
Reslvd - Conflict Resolution is completed for this version.

Ins Lvl

The level number of the other version

Obj Lvl

The level number where the object for the other version was found. MDCMS first searches in that level, then in the chain for that level, then in the chain of levels it is based on. This helps to indicate if the object already exists for that version when delta levels are used.

Src Lvl

The level number where the source for the other version was found. MDCMS first searches in that level, then in the chain for that level, then in the chain of levels it is based on. This helps to indicate if the object already exists for that version when delta levels are used.

Attribute

The MDCMS attribute for the object

Request Fnd

If an active request for the object in the depending level already exists.

Request Bnd

If an active request for the object is bound to this request

Function Keys:

F3=Exit

F13=Repeat Opt – Repeat an option until end of list. For example, if 'R' was entered on the 4th line of the list and F13 was then pressed, lines 5 through the end would also have 'R' entered.

4.4.21 X – MDXREF Information

The Option 'X' will result in directly navigating to the MDXREF Cross-Reference screen with the search criteria pre-filled with the object name, application and level.



4.5 MDADDREQ API to Generate Object Request Records

MDCMS is delivered with a command-based API that allows external tools or applications to create Object Requests within MDCMS.

The MDCMS command is named **MDADDREQ** and is located in library MDCMS. It is not necessary to have the MD libraries in the library list prior to using this command. If you are unable to invoke a command from your tool, you can also directly call program **MDLAREQ** in library MDCMS. In this case, be certain that the parameter order and formats sent to the program exactly match the parameters in command MDADDREQ.

All MDADDREQ API transactions are logged to file MDCMS/MDDAREQ.

4.5.1 MDADDREQ Parameter Table

KEYWORD	Description	Type	Length
APPL	Application	CHAR	4
LVL	Level	INTEGER	2
OBJT	Object Type	CHAR	7
ATTR	MDCMS Attribute	CHAR	10
OBJN	Object Name	CHAR	80
RPTH	Object Relative Path	CHAR	240
SRCN	Source Name	CHAR	80
RSN	Request Reason	CHAR	10
USER	Programmer	CHAR	10
FOLB	From Object Library	CHAR	240
FSLB	From Source Library	CHAR	240
FSFL	From Source File	CHAR	10
COPY	Copy from Env	CHAR	4
PROJ	Project	CHAR	12
TASK	Task	INTEGER	5
STSK	Subtask	INTEGER	5
ARFP	Assign RFP	CHAR	4
RFP	RFP Number	INTEGER	7
RFPD	RFP Description	CHAR	160
LOCK	Lock Request	CHAR	4
CSQO	Compile Subsequence	INTEGER	5
DATA	Data Origin	CHAR	60
DMBR	Data Member to Copy	CHAR	10
RPGM	MDRapid Program	CHAR	10
RJRN	Reapply Journals	CHAR	4
RCST	Reapply Constraints	CHAR	4
RTRG	Reapply Triggers	CHAR	4
RLFM	Reapply LF Members	CHAR	4
DIR	Is IFS Directory	CHAR	4
ENV	MDCMS Environment ID	CHAR	4
VREF	Vendor Reference ID	CHAR	20
EMSG	Exception Message	CHAR	7



4.5.2 Detailed Description of MDADDREQ Parameters

Application (APPL)

The target MDCMS Application code for the request
This is a required parameter.

Level (LVL)

The target MDCMS Promotion Level for the request that allows check-outs
This is a required parameter.

Object Type (OBJT)

The System or MDCMS Object Type code for the Object. For example: *PGM for a program or *IFS for an IFS file.
This is a required parameter.

MDCMS Attribute (ATTR)

The MDCMS Attribute code that identifies the behaviour and target locations for the requested object.
This is a required parameter.

Object Name (OBJN)

The name of the Object to be requested.
For *SOURCE, this would be the name of the member
For *MSGD, this would be the name of the Message ID
For *DTAGRP, this would be the value of the record key(s)

This is a required parameter.

Relative Path (RPTH)

Specifies the relative portion of an IFS path, starting with /, that will be deployed with the object.
For example, if the *IFS attribute has a target fixed directory defined as /srv/dev and this object should be deployed to /srv/dev/app1/dist, then the value of RPTH should be /app1/dist.

Member/IFS File Name (SRCN)

Specifies the name of the Source Member or IFS Source File to be requested. This parameter is ignored if attribute defined as having no source.

*OBJ - The name of the source is the same as the name of the object

Request Reason (RSN)

The reason for the object request

*MIGRATE - a source and/or object will be migrated into the selected application level

*DELETE - an existing object will be deleted

*RECOMPILE - an object will be recompiled based on the currently active source for that environment without the source being modified

*UPDATE - this is intended for ILE programs to bind the current modules and service programs to the program. A U command (such as CHGPGM) must be defined for the attribute.

Programmer (USER)

Specifies the user profile to be indicated as the programmer for the request. If this command generates an RFP, the owner of the RFP will also be this user

*USER - the current user profile of the job invoking this command is the user

From Object Library/Path (FOLB)

Specifies the library or IFS path that contains the object to be migrated to the specified level. The library should be a developer or team library that is not managed by MDCMS. If the attribute contains source only, then enter the library/path containing the source. If the object resides in IFS, provide the entire directory path starting with /.

*USER - the library name is the same as the user defined for parameter USER

From Source Library/Path (FSLB)

Specifies the library or IFS path that contains the source for the object that is to be migrated to the specified level. The library should be a developer or team library that is not managed by MDCMS. This parameter is ignored if attribute is defined as having no source.

*OBJLIB - the library containing the source is the same library that contains the object

From Source File (FSFL)

Specifies the source file containing the source member to be migrated. This parameter is ignored if attribute defined as having no source.

*ATR - the Source File to migrate from has the same name as the source file defined for the attribute.

Copy Source/Object from Env (COPY)

Specifies if the source or object should be copied from the target environment to the library from which to be migrated from. This parameter is only considered for Reason *MIGRATE.
If the attribute defines a source and object location, only the source will be copied.
If the source or object already exists in the From Library, it will not be replaced by the source or object in the target environment.

*NO - the Source or Object will be manually placed in the From Library prior to migration.

*YES - MDCMS will copy the Source or Object from the Target Environment to the From Library, if it doesn't already exist in the From Library.

Project (PROJ)

Specifies the Project to assign to the Request. The project, if entered, must already exist and be in an open status. If the project is not yet authorized, then the user must have MDSEC authority to authorize the Project and then MDCMS will do so automatically.

Task (TASK)

Specifies the Project Task to attribute to the Request. The task, if entered, must already exist and be in an open status.

Subtask (STSK)

Specifies the Subtask to attribute to the Request. The Subtask, if entered, must already exist and be in an open status.

Assign Request to RFP (ARFP)

Specifies if the request should be immediately assigned to an RFP and the method of determining the RFP.

*NO - The request will be created without being assigned to an RFP

*YES - The request will be assigned to the RFP number based on parameter RFP

*AUTO - MDCMS searches for an open RFP matching the Application, Level, User and Description values entered for this command. If an RFP is found the Request will be assigned to that RFP. If an RFP is not found, a new RFP will be created.

*NEW - A new RFP will be created for the Application, Level, User and Description values entered for this command.

Existing RFP Number (RFP)

Specifies the RFP to assign to the Request. Will only be used if parameter ARFP is set to *YES.

RFP Description (RFPD)

The description to be used for a new RFP or to search for an existing RFP. Will only be used if parameter ARFP is *AUTO or *NEW.



Lock Request (LOCK)

Specifies whether or not the Request will be placed in Locked status

*YES - The Source/Object will be locked for check-out by this request. The Source or Object may not already be locked by another request for this Request to be created.

*NO - The Request will be created in Unlocked status. Other requests for the same Source or Object may exist.

Compile Subsequence (CSQO)

Specifies the sequence for compiling (lowest first) for objects in same RFP that have the same primary sort sequence in order to handle potential dependency issues. This parameter is not relevant for *IFS Objects.

Data Origin for Physical Files or SQL Tables (DATA)

Specifies the origin of the data that should be copied into a new or modified physical file/SQL Table

*SAME - The data is mapped from the old format of the modified file to the new format of the file of the same name/target library.

*MIGRATE - The data is migrated with the file from the check-out location to the target library.

*NONE - The data is not migrated. The new file format will be empty. *NONE is required for a logical file if it is replacing a physical file.

character-value - Specify the name of the file from which to migrate the data. The data origin file must exist in the same library as the target file at the time of installation.

Data Member to Copy (DMBR)

Specifies the member(s) to copy to the new version of a physical file/SQL Table or to migrate from the prior environment.

*ALL - All existing members are included for the copy. If the target is an SQL Table, only the first member will be copied.

*FIRST - The first member in the originating file is copied. Any other members are omitted.

character-value - The name of the specific member to be copied from the originating file. Any other members are omitted.



MDRapid Program (RPGM)

Specifies the name of the MDRapid program or service program to manage the copy of data from the originating file to the new file.

Note - this parameter is only valid when the file qualifies for MDRapid processing.

**DEFAULT* – The default MIMIX Promoter service program is used to copy the data to the new version of the file.

**NONE* – MDRapid will not be used for the file, even if would qualify for MDRapid processing.

character-value – The name of the specific program or service program that will manage the copy of the data.

Automatically Reapply Journaling (RJRN)

Specifies if the new version of a table or access path should have the journaling attributes applied to it that belonged to the file that it replaced.

**DFT* - The default defined for the Application is used

**YES* - If journaling was used on the prior version of the file, it will be applied to the new version.

**NO* - Journaling will not be automatically reapplied. Commands run during the installation, or external processes, will determine the definition.

Automatically Reapply Constraints (RCST)

Specifies if the new version of a table should have the constraints applied to it that belonged to the table that it replaced.

**DFT* - The default defined for the Application is used

**YES* - If constraints were used for the prior version of the table, they will be applied to the new version.

**NO* - Constraints will not be automatically reapplied. Commands run during the installation, or external processes, will determine the definition.

Automatically Reapply Triggers (RTRG)

Specifies if the new version of a table should have the system (non-SQL) triggers applied to it that belonged to the table that it replaced.

**DFT* - The default defined for the Application is used

**YES* - If SQL triggers were used for the prior version of the table, they will be applied to the new version. Any SQL triggers that should be re-applied should be requested for recompile and placed on same RFP as the file.

**NO* - Triggers will not be automatically reapplied. Commands run during the installation, or external processes, will determine the definition.

Automatically Reapply Logical File Members (RLFM)

Specifies if the new version of a logical file should have the members added to it that belonged to the logical file that it replaced.

*DFT - The default defined for the Application is used

*YES - Any members that existed for the prior version of the logical file will be added to the new version.

*NO - Members will not be automatically reapplied. Commands run during the installation, or external processes, will determine the definition.

IFS Object is a Directory (DIR)

Specifies whether or not the Request of an object of type *IFS is a directory.

*NO - The Requested Object is not an IFS Directory

*YES - The Requested Object is an IFS Directory

Environment ID (ENV)

Specifies the MDCMS environment that should be used to place the Request. The ID correlates to the suffix of the MDCMS library name. For example, TEST correlates to library MDCMSTEST.

*DFT - The default environment will be used. This correlates to library MDCMS.

Vendor Reference ID (VREF)

Specifies the Vendor Generated Identifier in order for an external process to easily identify the transaction record in the MDDAREQ table. Any value up to 20 characters in length can be used.

Exception Message Returned (EMSG)

Specifies if and to what extent an exception message should be returned to the calling program. An exception message occurs when an input parameter value is invalid, causing the addition of the request to fail.

*DIAG - A diagnostic message will be placed in the calling program's message queue in the following format:

MDADDREQ Exception. Object=<OBJN>, Vendor Reference=<VREF>, Reason=<the error reason>

If the Vendor Reference isn't passed to MDADDREQ, it won't be included in the diagnostic message.

*ESCAPE - The full diagnostic message as described above will be placed in the calling program's message queue and then followed by escape message CPF0001 for which the calling program can monitor.

*NONE - An exception message will not be returned to the calling program's message queue.



4.5.3 MDDAREQ EXAMPLE for invoking API and retrieving exception details

This example is a snippet of CL source that tries to create a new request for an SQL Table and add the request to an auto-generated RFP based on the description. The CL then monitors for an exception and retrieves the details of the exception for the diagnostic message.

```
DCL VAR(&KEY) TYPE(*CHAR) LEN(4)
DCL VAR(&MSG) TYPE(*CHAR) LEN(132)

MDADDREQ APPL(TEST) LVL(10) OBJT(*SQLTAB) ATTR(SQLTABIFS) +
        OBJN('CUSTOMER_TABLE') SRCN('CUSTOMER_TABLE.sql') +
        USER(MMORGAN) FSLB('/home/mmorgan/source') PROJ(MODERNIZE) +
        ARFP(*AUTO) RFPD('modernize customer table') DATA(CUSTTAB) +
        VREF(A123CX) EMSG(*ESCAPE) EMSG(*ESCAPE)
MONMSG MSGID(CPF0001) EXEC(DO)
        RCVMSG MSGTYPE(*LAST) RMV(*NO) KEYVAR(&KEY)
        RCVMSG MSGTYPE(*PRV) MSGKEY(&KEY) RMV(*NO) KEYVAR(&KEY) MSG(&MSG)
ENDDO
```

4.6 MDADDCMD API to Add Command to Object Request

MDCMS is delivered with a command-based API that allows external tools or applications to add object-level commands to existing Object Requests within MDCMS.

The MDCMS command is named **MDADDCMD** and is located in library MDCMS. It is not necessary to have the MD libraries in the library list prior to using this command. If you are unable to invoke a command from your tool, you can also directly call program **MDLACMD** in library MDCMS. In this case, be certain that the parameter order and formats sent to the program exactly match the parameters in command MDADDCMD.

All MDADDCMD API transactions are logged to file MDCMS/MDDACMD.

To match the command to the object request, the APPL, LVL, OBJT, ATTR, OBJN and USER values must be identical. The RPTH, RFP, RFPD or REQN parameters can be used to uniquely identify the request in case multiple requests for the same object name and type could exist.

4.6.1 MDADDCMD Parameter Table

KEYWORD	Description	Type	Length
APPL	Application	CHAR	4
LVL	Level	INTEGER	2
OBJT	Object Type	CHAR	7
ATTR	MDCMS Attribute	CHAR	10
OBJN	Object Name	CHAR	80
CMD	Command	CHAR	600
CMDT	Command Type	CHAR	1
CMDO	Command Option	CHAR	7
IGNE	Ignore Errors	CHAR	4
KEEP	Keep MD Libs in Libl	CHAR	4
REUS	Reuse Command	CHAR	4
WCRD	Wildcards in SQL Script	CHAR	4
RLOC	Location to Run Command		
USER	Programmer	CHAR	10
RPTH	Object Relative Path	CHAR	240
RFP	RFP Number	INTEGER	7
RFPD	RFP Description	CHAR	160
REQN	Request Number	INTEGER	11
ENV	MDCMS Environment ID	CHAR	4
VREF	Vendor Reference ID	CHAR	20
EMSG	Exception Message	CHAR	7

4.6.2 Detailed Description of MDADDCMD Parameters

Application (APPL)

The target MDCMS Application code for the request
This is a required parameter.

Level (LVL)

The target MDCMS Promotion Level for the request that allows check-outs

This is a required parameter.

Object Type (OBJT)

The System or MDCMS Object Type code for the Object. For example: *PGM for a program or *IFS for an IFS file.

This is a required parameter.

MDCMS Attribute (ATTR)

The MDCMS Attribute code that identifies the behaviour and target locations for the requested object.

This is a required parameter.

Object Name (OBJN)

The name of the requested Object.

This is a required parameter.

Command (CMD)

The command string that is to be added to the Object Request.

This is a required parameter.

Command Type (CMDT)

The Command Type, which specifies at which point in the deployment process that the command is invoked.

C - Compile - the command will be used to compile or create the Object

1 - Pre-Compile - the command will be run prior to compilation. For example to override a database file or add a library to the library list.

P - Post-Compile - the command will run after compiling is finished but before approval is granted

2 - Pre-Install - the command will run immediately prior to installing the object to the target location.

U - Update - the command will be used to update an object in place. For example to update an ILE program to refresh bindings.

D - Data Copy - the command will be used to map data from the old format of a table or physical file to the new format of a table or physical file.

3 - Post-Install - the command will run after the installation of the object is complete

Command Option (CMDO)

The Command Option determines what should happen to any commands that are already defined for the same object and command type.

Note - Only one Data Copy command is permitted per Object.
All other types allow up to 999 commands.

*ADD - The command will be appended to the end of the list of commands that will run for the object and command type, so that the command runs after any already defined command.

*REPLACE - The command will replace any commands already defined for the object and command type. Commands defined for a different command type will not be removed.

Ignore Errors (IGNE)

Specifies if the RFP process should continue if an error occurs during the execution of the Object command.

Note - Data Copy and Post-Install command errors are automatically ignored because the installation is already complete. A warning will be generated, though.

*YES - any error that occurs will cause a warning condition to occur, but the RFP will continue with the deployment process.

*NO - MDCMS will end processing and roll back the RFP to the state it was in prior to beginning of the deployment step.

Keep MD Libs in Libl (KEEP)

Specifies if the MD libraries (MDCMS, MDXREF, and MDSEC) should remain in the library list during the execution of the command.

*NO - the libraries will be removed from the library list to avoid allocation of MD objects that are named the same as objects in your application.

*YES - The libraries will remain in the library list, which is important if the command is an MD command.

Reuse Command (REUS)

Specifies if the command should automatically reattach to the object the next time that the object is requested for the same application and level.

*YES - The command should be reused for future versions of the object

*NO - The command is to be used this time only

Wildcards in SQL Script (WCRD)

Specifies if MDCMS should inspect the SQL script for wildcards and replace them with the runtime execution values.

This flag is relevant when the command RUNSQLSTM is used and the SQL script is stored in either a source member or in an IFS file.

*NO - The script doesn't contain wildcards or the command isn't RUNSQLSTM

*YES - The RUNSQLSTM command is defined and wildcards need to be replaced in the script.

Location to Run Command (RLOC)

Specifies which locations the command should be on, at the time that an RFP containing the command runs at that location.

*ALL - The command should run at every location that the RFP containing the command deploys to.

*LOCAL - The command should only run on this system and will not be distributed to other locations.

*LOCLVL - The command should only run on this system for this level and nowhere else.

*REMOTE - The command should not run on this system, but should for every system that the RFP is distributed to.

location - The Location ID of a specific system that the command should run on when the RFP is deployed on that system.

Programmer (USER)

Specifies the user profile assigned to the existing request.

*USER - the current user profile of the job invoking this command is the user

Relative Path (RPTH)

Specifies the relative portion of an IFS path, starting with /, that will be deployed with the object. For example, if the *IFS attribute has a target fixed directory defined as /srv/dev and this object should be deployed to /srv/dev/app1/dist, then the value of RPTH should be /app1/dist.

This is optional and is only used to help uniquely identify the object request

Existing RFP Number (RFP)

Specifies the RFP assigned to the Request.

This is optional and is only used to help uniquely identify the object request

RFP Description (RFPD)

The description used for the RFP assigned to the object request.

This is optional and is only used to help uniquely identify the object request



Request Number (REQN)

The internal request number of the object request, which can be retrieved from the MDDAREQ log, if MDADDREQ was used to add the request.

This is optional and is only used to help uniquely identify the object request

Environment ID (ENV)

Specifies the MDCMS environment that should be used to place the Request. The ID correlates to the suffix of the MDCMS library name. For example, TEST correlates to library MDCMSTEST.

*DFT - The default environment will be used. This correlates to library MDCMS.

Vendor Reference ID (VREF)

Specifies the Vendor Generated Identifier in order for an external process to easily identify the transaction record in the MDDACMD table. Any value up to 20 characters in length can be used.

Exception Message Returned (EMSG)

Specifies if and to what extent an exception message should be returned to the calling program. An exception message occurs when an input parameter value is invalid, causing the addition of the request to fail.

*DIAG - A diagnostic message will be placed in the calling program's message queue in the following format:

MDADDCMD Exception. Object=<OBJN>, Vendor Reference=<VREF>, Reason=<the error reason>

If the Vendor Reference isn't passed to MDADDCMD, it won't be included in the diagnostic message.

*ESCAPE - The full diagnostic message as described above will be placed in the calling program's message queue and then followed by escape message CPF0001 for which the calling program can monitor.

*NONE - An exception message will not be returned to the calling program's message queue.

4.7 MDCRTOBJ API to Create Object in Dev Library

MDCMS is delivered with a command-based API that provides external tools or applications the ability to create an object in the Developer Library for currently checked out source.

When invoked, MDCMS uses either the current library list or the library list defined for the job description of the request's Application and Level.

Optionally, the developer library itself can be included at the top of the library list when depending on other checked out objects that have already been created.

The creation process uses the pre-compile and compile commands defined for the Object or Attribute so that the developer is certain that the result mirrors what would occur during the actual submission of the request in an RFP.

In the case of SQL Constraints or SQL Triggers, the pre-compile and post-install commands are used to create the entity, since these types use Post-Install commands rather than Compile commands.

The MDCMS command is named **MDCRTOBJ** and is located in library MDCMS. It is not necessary to have the MD libraries in the library list prior to using this command. If you are unable to invoke a command from your tool, you can also directly call program **MDLCRTO** in library MDCMS. In this case, be certain that the parameter order and formats sent to the program exactly match the parameters in command MDCRTOBJ.

All MDCRTOBJ API transactions are logged to file MDCMS/MDDCRTO.

To find the object request, the APPL, LVL, OBJT, ATTR, OBJN and USER values must be identical. The RFP, RFPD or REQN parameters can be used to uniquely identify the request in case multiple requests for the same object name and type could exist.

4.7.1 MDCRTOBJ Parameter Table

KEYWORD	Description	Type	Length
APPL	Application	CHAR	4
LVL	Level	INTEGER	2
OBJT	Object Type	CHAR	7
ATTR	MDCMS Attribute	CHAR	10
OBJN	Object Name	CHAR	80
USER	Programmer	CHAR	10
LIBL	Library List	CHAR	8
INCL	Include Dev Lib in LIBL	CHAR	4
REPL	Replace existing Object	CHAR	4
RFP	RFP Number	INTEGER	7
RFPD	RFP Description	CHAR	160
REQN	Object Request Number	INTEGER	11
ENV	MDCMS Environment ID	CHAR	4
VREF	Vendor Reference ID	CHAR	20
EMSG	Exception Message	CHAR	7



4.7.2 Detailed Description of MDCRTOBJ Parameters

Application (APPL)

The target MDCMS Application code for the request
This is a required parameter.

Level (LVL)

The target MDCMS Promotion Level for the request that allows check-outs
This is a required parameter.

Object Type (OBJT)

The System or MDCMS Object Type code for the Object. For example: *PGM for a program or *IFS for an IFS file.
This is a required parameter.

MDCMS Attribute (ATTR)

The MDCMS Attribute code that identifies the behaviour and target locations for the requested object.
This is a required parameter.

Object Name (OBJN)

The name of the requested Object.
This is a required parameter.

Programmer (USER)

Specifies the user profile assigned to the existing request.

*USER - the current user profile of the job invoking this command is the user

Library List (LIBL)

Specifies the library list to use during the creation process.

*JOB - the library list of the job description for the Application Level will be used

*CURRENT - the current library list for the job will be used

Include Dev Lib in LIBL (INCL)

Specifies if the developer library should be placed at the top of the library list to use any objects it is dependent on that have already been created.

*YES - the compile-time library list will include the developer library at the top.

*NO - the developer library won't be added to the top of the list

Replace Existing Object (REPL)

Specifies if the prior version of the object should be replaced, if it already exists.

*YES - an existing object will be replaced

*NO - MDCMS will not replace the object if it exists, and will generate an exception message.

Existing RFP Number (RFP)

Specifies the RFP assigned to the Request.

This is optional and is only used to help uniquely identify the object request

RFP Description (RFPD)

The description used for the RFP assigned to the object request.

This is optional and is only used to help uniquely identify the object request

Object Request Number (REQN)

The internal request number of the object request, which can be retrieved from the MDDAREQ log, if MDADDREQ was used to add the request.

This is optional and is only used to help uniquely identify the object request

Environment ID (ENV)

Specifies the MDCMS environment that should be used to place the Request. The ID correlates to the suffix of the MDCMS library name. For example, TEST correlates to library MDCMSTEST.

*DFT - The default environment will be used. This correlates to library MDCMS.

Vendor Reference ID (VREF)

Specifies the Vendor Generated Identifier in order for an external process to easily identify the transaction record in the MDDCRT0 table. Any value up to 20 characters in length can be used.

Exception Message Returned (EMSG)

Specifies if and to what extent an exception message should be returned to the calling program. An exception message occurs when an input parameter value is invalid, causing the addition of the request to fail.

*DIAG - A diagnostic message will be placed in the calling program's message queue in the following format:

MDCRTOBJ Exception. Object=<OBJN>, Vendor Reference=<VREF>, Reason=<the error reason>

If the Vendor Reference isn't passed to MDCRTOBJ, it won't be included in the diagnostic message.

*ESCAPE - The full diagnostic message as described above will be placed in the calling program's message queue and then followed by escape message CPF0001 for which the calling program can monitor.

*NONE - An exception message will not be returned to the calling program's message queue.



5 RFP Manager

5.1 RFP Listing

```

CMC228                                COMPANY NAME                                10/18/11
SCRN1                                Request For Promotion Number Listing          07:06:37
Filters:
  Appl Status Lvl      RFP T Assigned  Description Text  Project      Task  STask
  _____ _ _ _ _  _____ _  _____
  _____ _ _ _ _  0 _____ _  MMORGAN _____
Type options, press Enter.
  1=Select  2=Edit  3=Copy  5=View  7=Reset  9=Close  C=Cmd/Scrp D=Rapid Sts
                L=Log   M=Merge O=Objects P=Projects S=Spools V=Versions
  Appl      RFP Sts Lvl Assigned  Description
  _ ACCT      3  01 10  PGMR1    TEST PROMOTION OF DATABASE CHANGES 2
  _ ACCT      4  01 10  PGMR1    TEST PROMOTION OF DATABASE CHANGES 3
  _ ACCT      7  01 10  PGMR2    TEST PROMOTION OF GL Transactions
  _ ACCT      9  01 10  PGMR2    TEST PROMOTION OF DISPLAY FILES
  _ ACCT     10  01 10  PGMR1    NEW AP SYSTEM
  _ ACCT     10  00 10  PGMR1    MODIFICATIONS TO ADJUSTMENTS
  _ ACCT     12  01 10  PGMR2    VENDOR MASTER FILE CHANGES
  _ ACCT     31  01 10  PGMR2    TEST PROMOTION OF DATABASE CHANGES
                                           Bottom
F4=Browse  F6=Add  F7=Submit  F8=Approve  F9=Install  F10=Manage  F17/18=T/B

```

The RFP (Request for Promotion) Manager is accessed with option 3 from the Main Menu or by pressing **F9** from the Object Manager panel. It may also be accessed by pressing **F4** while the cursor is positioned on an RFP Number field.

Filters

The Request For Promotion Number Listing can be filtered by any of the following fields at the top of the display.

Appl – Application

RFP Status – If the Sts filter is set as a blank, only open RFP numbers will be displayed. Enter a Sts of 09 to see closed RFPs or press F10=Comp RFPs to see installed RFPs.

Exception Status – if warnings or errors have occurred for an RFP

Test Status – the state of MDWorkflow acceptance for an installed RFP

Lvl – Application Level

RFP – Request for Promotion number

T – RFP Type – used in conjunction with the RFP number filter

C – number of current RFP

F – number of prior RFP in migration path

O – number of original RFP in migration path

Assigned – The Programmer assigned to the RFP

Description Text – The RFP Description. The description filter will list all RFPs that have matching text in the short description. For example, enter PRINT to list only RFPs with print somewhere in the short description. The Description filter is not case sensitive.

Project – The Project associated with the RFP

Task – The Project Task associated with the RFP

Subtask – The Projects Task and Subtask associated with the RFP



RFP Status

- RP** – Request pending – the RFP is waiting for MDWorkflow acceptance of an RFP in the prior level before the new RFP can be used.
- 00** – Open, no request records assigned to RFP
- 01** – Open, one or more request records assigned to RFP
- SP** – RFP has been scheduled for submission and is waiting for the MD Submission service to submit the RFP
- YY** – RFP Submission currently in Job Queue
- XX** – RFP Submission in progress
- 02** – RFP is waiting for approval
- CP** – MDRapid Data Copy process is pending launch
- CJ** – MDRapid Data Copy process has been submitted to a job queue
- CR** – MDRapid Data Copy is in process
- 03** – RFP is waiting to be installed
- IP** – Installation Pending - RFP has been scheduled for installation and is waiting for the MD Installation service to install the RFP
- 04** – Installation in JOBQ
- XY** – RFP Install in progress
- 05** – RFP is installed
- 09** – RFP Closed/No Install

Exception Status

- E** – RFP Error has occurred, causing the processing of the RFP to be rolled back
- W** – Warnings occurred during the processing of the RFP

Option L=Log can be used for extensive details about any warnings or errors that occurred.

Options

- 1=Select** – Select, Enter and return the RFP number back to the requesting process.
- 2=Edit** – Edit the RFP's detail information.
- 3=Copy** – Copy the RFP's detail information to a new RFP. If a completed RFP (status 05) is copied, the user can also choose to re-request some or all of the objects in the RFP.
- 5=View** – View the RFP's detail information.
- 7=Reset** – Reset the RFP. This function causes the following based on the current RFP Status:
 - 01 – All requests assigned to the RFP are removed from the RFP and may optionally be deleted.
 - 02 – Installation Package waiting for Approval is deleted and the status is returned to 01.
 - CP – RFP is returned to status 02 or 01, depending on whether or not Approval is automatic
 - CR – MDRapid Data Copy is stopped and the RFP returns to status CP
 - 03 – If Approval is required at the RFP's level, the status returns to 02, otherwise the Installation Package waiting for Installation is deleted and the status returns to 01.
 - XX/04/XY – MDCMS checks if the submitted RFP job is still active. If the job is no longer active, the status returns to 01 or 03 depending on the last completed installation step.
- 9=Close** – Close the RFP (status set to '09').
- A=Accept Test** – View/Manage the MDWorkflow Acceptance of an installed RFP
- C=Cmd/Scrp** – Define commands or scripts to run for this specific RFP.
- D=Rapid Sfs** – the MDRapid Copy Status of all physical and logical files that require MDRapid processing are displayed. This option is available once the RFP has at least reached Copy Pending status.
- L=Log** – view all steps that have occurred during the processing of the RFP. For each step, the job log entries can be viewed for additional information. The steps, the job log, or a combination of both can be exported to an excel report.



M=Merge – Merge 2 or more RFP Packages into 1 RFP. Enter an M for at least 2 RFP packages of the same application and level and then press Enter. A confirmation screen is shown where the target RFP number can be selected and the description of the merged package can be edited. All objects (and commands) of the selected RFPs will be merged into the target RFP. The other specified Packages will be emptied and closed once the merge is complete. Duplicate objects and commands will be eliminated automatically.

O=Objects – Display all objects that are contained within the RFP.

P=Projects – Display all projects that are contained within the RFP.

R=Rollback – Select to rollback some or all objects in a completed RFP.

S=Spools – Display the spooled files for the most recent submission of the RFP

V=Versions – Display the Conflict Resolution Status for dependent versions of object requests in this RFP. See the section on option V from Object Manager for additional details.

Function Keys:

F3=Exit

F4=Browse – Browse list of valid values for the filter fields.

F5=Refresh

F6=Add – Add a new RFP.

F7=Submit/Manage – Toggle between RFP Submit and RFP Manage modes

F8=Approve/Manage – Toggle between RFP Approve and RFP Manage modes

F9=Install/Manage – Toggle between RFP Install and RFP Manage modes

F10=History/Manage – Toggle between RFP History and RFP Manage modes

F17=Top – Position cursor to the top of the RFP listing.

F18=Bottom – Position cursor to the bottom of the RFP listing.



5.2 RFP Details

```

CMC228                                COMPANY NAME                                11.03.16
SCRN2                                Request For Promotion Number Details          16:44:31

Application.: TEST                                User                                Date      Time
RFP Level...: 30                                Assigned.: MMORGAN                   10.03.16 18:25:15
RFP Number..: 1217                               Submitted: MMORGAN                   10.03.16 18:30:06
From RFP....: 1011  Loc: *LOCAL                 Approved.: MMORGAN                   10.03.16 18:30:09
Original RFP: 2022  Loc: MD71                   Installed: MMORGAN                   10.03.16 18:30:20
Status.....: 05-Installed                       RFP Cnds.: Y                         Scripts: Y
Test Status.: 0-Ongoing
RFP Description
Change to main accounting report
-----
                                     Upon COMPLETION of RFP
Delete Source from Programmer Library: Y (Y/N)
Delete Objects from Programmer Library: Y (Y/N)
Delete Job Log when no Warnings occur.: Y (Y/N)
Generate Requests for the Next Level..: Y (Y/N)
Assign new RFP to Next Level Requests.: Y (Y/N)
Place RFP in Send Promotion List.....: Y (Y/N)

F4=Browse   F12=Previous   F15=Print

```

The Request for Promotion Number Details display is where the Promotion number details are entered.

Application

The Application that objects will be promoted into.

RFP Level

The Application level for this RFP.

RFP Number

The assigned number of the RFP.

From RFP

The number of the RFP that was installed one step prior in the migration path. If the path started at the current level, then this will be blank.

From Loc

The location ID of the RFP that was installed one step prior in the migration path. If the path started at the current level, then this will be blank. Special value *LOCAL will be displayed if the prior level was on the same system as this RFP.

Original RFP

The number of the initial RFP in the migration path. If the path started at the current level, then this will be blank.

Original Loc

The location ID of the initial RFP in the migration path. If the path started at the current level, then this will be blank. Special value *LOCAL will be displayed if the prior level was on the same system as this RFP.



Status

The status of the RFP.

Test Status

The state of MDWorkflow acceptance for an installed RFP.

Blank – MDWorkflow not applicable for RFP

0 – MDWorkflow acceptance is ongoing – any further steps are blocked at this time

1 – MDWorkflow provisionally accepted – waiting for confirmation from authorized user

2 – MDWorkflow acceptance complete – next step in process for RFP is freed, as long as all objects in RFP aren't waiting for acceptance in another RFP

8 – MDWorkflow provisionally rejected – waiting for confirmation from authorized user

9 – MDWorkflow rejection complete – next step in process for RFP has been deleted. Corrections must be brought up to this level to allow objects to continue.

Assigned

The programmer that the request changes are assigned to. More than one programmer may be included in a request, but only one programmer may be entered on this display (includes the Date and Time of assignment).

Submitted

The user who submitted the RFP (includes the Date and Time of submission).

Approved

The user who approved the RFP (includes the Date and Time of approval).

Installed

The user who installed the RFP (includes the Date and Time of installation).

Upon COMPLETION of RFP:

Delete Source from Programmer library

Y – Delete the source from the programmer library after the successful installation of the RFP. This is only permitted when installing into the lowest level for the Application.

N – Leave a copy of the source in the programmer library

Delete Objects from Programmer library

Y – Delete the objects from the programmer library after the successful installation of the RFP. This is only permitted when installing into the lowest level for the Application.

N – Leave a copy of the objects in the programmer library

Delete Job Log when no Warnings occur

Y – Delete the job log for the RFP installation job once it has successfully finished and no warnings occurred.

N – Retain the job log even if there were no errors or warnings

Generate Requests for the Next Level

Y – If a next level on the same system is defined for this level, automatically create request records for all objects in this RFP for migration from this level to the next level.

N – Do not create request records for the next level



Assign new RFP to Next Level Requests

Y – If object requests are to be generated for the next level, then also create a new RFP number to assign to those requests. The description and user will be copied from this RFP.

N – Do not assign object requests to a new RFP

Place RFP in Send Promotion List

Y – If a distribution queue is defined for this level, automatically place the RFP in the send queue.

N – Do not place the RFP in the send queue.

Function Keys:

F4=Browse – Browse the Assigned field.

F12=Previous - Cancel any changes.

F15=Print – Print the details of the RFP to a spooled file.



5.3 RFP Commands

An entry of 'C' for an RFP activates the MD Detail Command Maintenance function for a specific RFP. This function is used to define IBMi commands that can be executed during the processing of the specific RFP.

```

CMC192                                COMPANY NAME                                4.09.06
SCRN1                                  Commands for this RFP                               15:54:04

Appl/Lvl: ACCT 10  RFP: 1031 demo 42

Type options, press Enter.
2=Edit  3=Copy  4=Delete  5=View

Opt Type Seq  Command String
_   1   10  OVRDBF FILE (ACCTPF1) TOFILE (PRODLIB/ACCTPF2)
_   3   10  RMVM PRODLIB/ACCTPF1 XXXTEST

F3=Exit  F6=Add  F10=Scripts

Bottom

```

Type

L	Object Lock	runs during the compile or installation process when a required object or source is locked. Separate field Wait before Usage specifies the amount of time to wait before executing the command. Multiple commands can be defined in order to have a lock escalation process in place.
V	Pre-Submit Validation	runs when user selects to submit an RFP for promotion. Command MDCHKRFP must be used and this provides an organization with the ability to add custom validation rules before an RFP can be submitted. See section MDCHKRFP API for more information.
I	Pre-Compile	runs prior to compiling objects
P	Post-Compile	runs after all object compilations are successfully completed
E	Compile Error	runs when the compile phase of an RFP fails to complete successfully.
A	RFP Approved	runs after an RFP has been approved for installation
J	RFP Rejected	runs after an RFP has been reset from Waiting for Approval status
F	MDRapid Waiting to Launch	runs after an RFP has been approved and MDRapid is required for the RFP
G	MDRapid Started	runs to indicate that MDRapid has begun copying data for changed files
H	MDRapid Completed	runs after all existing records in the changed files has been copied to inform the users that the installation can be started.
I	MDRapid Error	runs when the MDRapid Data Copy phase of an RFP fails to complete successfully.
2	Pre-Installation	runs prior to installing objects into the environment
3	Post-Installation	runs after the installation of objects is complete
4	Installation Error	runs when the installation phase of an RFP fails to complete successfully. This type could be used, for example, to send an email or SMS to the installer if a weekend Installation fails.
W	Installation Warning	runs if an RFP Installation completes, but with warnings. Warnings can occur if data cannot be copied or if a Post-Installation Command fails to run successfully.
S	RFP Test Status Accepted	runs if an RFP Test Status is Accepted in MDWorkflow
T	RFP Test Status	runs if an RFP Test Status is Rejected in MDWorkflow



	Rejected	
5	Pre-Send	runs once prior to sending an RFP to one or more remote systems
Q	Post-Send for a Location	Runs for each location after an RFP has been successfully sent to that location. Wildcards ##SVFTGT## (Target Address of Sent Savefile) and ##SVFNAM## (Sent Savefile Name) are applicable for this command type.
6	Post-Send	runs once, after an RFP has been successfully sent to one or more remote systems
7	Send Error	runs in case the send of an RFP fails to complete successfully
8	Post-Receive	runs after an RFP has been successfully received from a remote system
9	Receive Error	runs in case the receipt of an RFP fails to complete successfully
R	Receive Warning	runs in case the receipt of an RFP completes, but with warnings

Sequence

The sort sequence of the command at run time, in case multiple commands for the same type are defined.

Ignore Errors

Y – Continue with RFP processing even if the command fails. Flag will always be Y for type 3.
N – Cease and Rollback RFP processing if the command fails

Keep MD Libs in Libl

N – The MD Libraries (MDCMS and MDXREF) are removed from the library list before the command is invoked. This assures that any MD Objects with the same name as your objects are not used.
Y – The MD Libraries are left in the library list. This is necessary when MD Objects, such as interface programs, MDMAIL or MDMAILF, are needed to process the command.

Location to run Cmd

The location that the command should be run, allowing for commands to be run only for certain environments. Enter a valid Location ID or press F4 to select a location from the list.

Otherwise, select from one of the following special values:

- *ALL – run the command on every level in the migration path
- *LOCAL – run the command on any level on this system
- *LOCLVL – run the command only for this level
- *REMOTE – run the command on any level everywhere but this system

Command

The IBM i or user-defined command to be performed. Enter the name of the command and then press F4 to fill in the keywords.

Some wildcard parameter values may be used and are substituted by MDCMS at run-time. The wildcard value may be typed directly into the command or the cursor may be positioned in the command and F7 pressed to insert the value from a list. The full list of values are in this manual in the Attribute Command section.



5.4 RFP Scripts

An entry of 'C' for an RFP activates the MD Detail Command Maintenance function for a specific RFP. Then, F10 can be pressed to access the list of scripts to be executed for this specific RFP.

```

CMC171                                COMPANY NAME                                4.09.15
SCRN1                                  Scripts for this RFP                               15:54:04

Appl/Lvl: ACCT 10  RFP: 1031 demo 42

Type options, press Enter.
2=Edit  3=Copy  4=Delete  5=View  S=Script Content

Opt Type Seq Script
  _   2   _1 /ifs-stop-tomcat.sh
  _   3   _1 /ifs-start-tomcat.sh

                                           Bottom

F3=Exit  F6=Add  F12=Previous

```

Type

The Type value designates when a script should run

2	Pre-Installation	runs prior to installing objects into the environment
3	Post-Installation	runs after the installation of objects is complete

Sequence

The sort sequence of the script at run time, in case multiple scripts for the same type are defined.

Ignore Errors

Y – Continue with RFP processing even if the script fails.

Flag will always be Y for type 3.

N – Cease and Rollback RFP processing if the script fails

Attribute for Settings

The name of the MDCMS attribute containing the IFS or server connection settings to be used during the execution of the script.

Replace Wildcards

N – The script doesn't contain wildcard values to be replaced by runtime values when executed

Y – Replace wildcard values in the script at run time

Loc. to run Script

The location that the command should be run, allowing for commands to be run only for certain environments. Enter a valid Location ID or press F4 to select a location from the list.

Otherwise, select from one of the following special values:

*ALL – run the command on every level in the migration path

*LOCAL – run the command on any level on this system

*LOCLVL – run the command only for this level

*REMOTE – run the command on any level everywhere but this system



Wait for Response

Y – MDCMS waits until the Remote server confirms completion of the script execution

N – MDCMS continues without waiting for a response from the remote server

Submit Job

Y – Submit the IFS Script execution to a separate job. MDCMS will not wait for a response in this case, but instead continue with RFP processing.

N – the ifs script execution runs within this job

Job Name

The name of the submitted job that will process the IFS script

Job User

The user profile of the submitted job that will process the IFS script

Job Queue

The name and library of the Job Queue to receive the submitted job

Script Subfolder

The relative path of the script, if it isn't directly located in the script root folder.

Script

The name of the script file located in IFS

5.5 Promoting an RFP

Once 1 or more objects are assigned to an RFP, the Request for Promotion may be submitted. This is done by pressing **F7** from the Object Manager or **F7** from the RFP Manager.

The list of all RFPs in status 01 (Open, one or more request records assigned to RFP) is displayed. The filter and command handling of this list is identical to the RFP Control list.

Enter a '1' for one or more RFP numbers to promote them.

MDCMS then immediately runs the following series of checks on the contents of the RFP:

- 1) Are any of the requested recompiles missing the source in the target location?
- 2) Are any of the requested objects currently unlocked?
- 3) Are any of the requested object updates missing the object in the target location?
- 4) Are any MDOpen IFS or Remote Requests from a local workspace not yet committed to the MDCMS repository?
- 5) Are delete requests for IFS files/directories missing for the delete of a parent directory?
- 6) Are related objects missing for a requested file?
- 7) Are related programs missing for a requested copy book?
- 8) Are related ILE programs and service programs missing for a requested Module?
- 9) Are related ILE programs and service programs missing for a requested Service Program?
- 10) Are objects to be migrated older than the existing objects in the target location?
- 11) Are conflicting object requests active for the promotion level following this level?
- 12) Are objects for the next level requested from a different level?
- 13) Are objects already in the send queue for the requested level?
- 14) Are object requests missing a Project?
- 15) Are there objects in the RFP that cannot be allocated to a particular object group in MDWorkflow?
- 16) Are there objects in the RFP that are pending MDWorkflow acceptance in another RFP?
- 17) Are there objects in the RFP that are in the process of being installed in another RFP?
- 18) Are there objects in the RFP that were most recently deployed to an Emergency level?
- 19) Are there objects in the RFP that still require Conflict Resolution with other object versions?
- 20) Are there objects in the RFP that have been installed into the target level by another RFP since they were originally checked out for this RFP?

If any of the listed conditions are true, a screen will appear for each warning or error allowing for the correction or confirmation of the issue.

CAUTION: The **WARNING, "Missing Dependencies for Modified Files"**, can be set to allow users to bypass the warning or require them to include dependent objects. This control is done by the MDSEC code **35 Ignore Requirement to Request Related Objects**. Granting this security code to the user, or group, will enable the user to bypass the Warning panel and not include dependent objects, revoking this MDSEC code will require users to include related objects before being allowed to continue.



Once all errors have been corrected, the following confirmation screen will appear with the default submission parameters, based on the job description for the promotion level.

CML400	COMPANY NAME	4.09.06
SCRN1	Submit Confirmation and Override	07:06:37
	Parameters	Override
Jobname	CMS001894	
Job Description	MD30	
Library	QGPL	
Submission Date	*CURRENT	_____ *CURRENT, Date
Submission Time	*CURRENT	_____ *CURRENT, Time
Installation Date	*CURRENT	_____ *CURRENT, Date
Installation Time	*CURRENT	_____ *CURRENT, Time
Place in Job Queue	*YES	_____ *YES, *NO
Job Queue	QBATCH	_____
Library	QGPL	_____
Hold in Job Queue	*NO	_____ *YES, *NO
Delay Delete Prior Obj..	*NO	_____ *YES, *NO
Enter=Confirm F12=Cancel		

Submission Date

*CURRENT – submit the RFP today

date – schedule the submission for the entered date. If the job is immediately placed in the job queue, be certain that an IPL does not occur between now and the scheduled date

Submission Time

*CURRENT – submit the RFP at this time

time – schedule the submission for the entered time

Installation Date

If the level for the RFP allows for automatic approval and installation, the date and time of the installation can also be controlled when performing the initial submission.

*CURRENT – install the RFP on the same day that the bundling process is complete

date – schedule the installation for the entered date.

Installation Time

*CURRENT – install the RFP as soon as the bundling process is complete

time – schedule the submission for the entered time

Place in Job Queue

*YES – the job will be submitted immediately to the job queue and scheduled for the entered date/time

*NO – the job is intended to be submitted no sooner than the scheduled date/time by the MDSBMRFP process. The status of the RFP is changed to SP for Submission Pending.

Job Queue

The name and library of the job queue to use if placed in a job queue

Hold in Job Queue

*YES – the job will be placed in the job queue in hold status so that something can release the job at a later time

*NO – the job will be placed in the job queue in released status for automatic processing



Delay Delete Prior Obj

*YES – the temporary library holding the prior version of the installed objects will not be deleted until the following day. This allows active jobs to continue using the prior version of programs that were already invoked by those jobs.

*NO – the temporary library will be deleted as soon as the installation is complete

5.6 The RFP Installation Process

Once a request for promotion has been submitted, the actual process of installing the new or modified source and objects takes place. Listed below are the steps that this process goes through and the result of each step.

5.6.1 The Source/Object Preparation Steps

Temporary MDCMS libraries (naming based on system settings for temp libraries + the RFP number) are created to handle the entire process so that no permanent changes take place until MDCMS is certain that all is ready.

Pre-Steps:

- 1- Process Pre-Compile commands for *RFP attributes
- 2- Process Pre-Compile commands for this RFP

Object Steps processed in full for each object before continuing to next object:

- 1- The source or non-compiled object is checked for existence.
- 2- If new or modified source is to be compiled, the existing source is copied to a backup library and the new version of the source is copied to the target source file/ifs path
- 3- Process Pre-Compile commands for object or attribute
- 4- Process Compile commands for object or attribute
- 5- Process Post-Compile commands for object or attribute
- 6- Validate that object has been created into temporary packaging library

Post-Steps:

- 1- Process Post-Compile commands for this RFP
- 2- Process Post-Compile commands for *RFP attributes
- 3- Sign source and objects, if enabled for system, to ensure that manual changes are detected
- 4- Warn about any level check issues, if enabled for level

If a failure occurs during these steps, a message will be sent to the user that submitted the job describing why the failure occurred and the Compile Error exit point will be triggered. For additional detail, the RFP log and the spooled files for the job should be reviewed. The RFP will remain at status 01 and can be re-requested from the RFP Manager. If the RFP is not in status 01, it will need to be reset using option 7 in the RFP Manager.



5.6.2 Source and Object Signing

MDCMS uses an SHA-1 encryption algorithm with a HMAC key unique to each distinct object migration chain to create a 1-way signature for each source and object that has been prepared to be installed. The initial signature is applied when it is installed into the initial promotion level and this signature is compared to the newly generated signature at higher levels.

If the signature does not match, then this indicates that the source or object was manually modified since installation in the prior level. MDCMS will then require that an authorized user approves the installation before the installation steps will be started.

MDCMS uses a java program running under job name MDSIGN(instance) to perform the signature process. The job queue to be used for this job is, by default, the same as for the RFP. If this job should be submitted to a different queue, it can be defined in Data Area MDCMS/MDSTRSIGN whereby characters 1-10 contain the job queue name and characters 11-20 contain the job queue library. The default value of *JOBQ will cause the job to be submitted to the job queue defined for the job description.

If the signing job does not function, troubleshooting can be performed by running command MDTESTSIGN from a command line within MDCMS.

Command MDENDSIGN can be used to cleanly end MDSIGN.

5.7 Approving a Promotion

An RFP is first submitted for promotion which prepares the source and objects for deployment in a temporary library. If there are no errors, the installation process checks the Promotion Level parameters and if the Automatic RFP Approval flag is set to 'N', or the RFP contains attributes that require approval, the RFP status is set to '02' - Approval Pending. An authorized user must then approve the promotion before it can be installed. To do this, toggle to the Approve list using F8 in the RFP Manager.

The list of all RFPs in status 02 are displayed.

Enter a '1' for a RFP number to approve it. If the auto-install flag is set to 'Y' for the promotion level, then a confirmation screen will be displayed for the submission of the installation of the promotion.

The user must have authority to MDSEC code 42 for the application if the RFP was submitted by someone else.

The user must have authority to MDSEC code 52 for the application if the RFP was submitted by that same user.

Enter a '7' to remove the temporary promotion library and to set the RFP back to status '01'.



5.8 Launching MDRapid

Once approval is granted, and the RFP contains one or more files that should have their data copied prior to installation, the installation process checks the Promotion Level parameters and if the Automatic Launch MDRapid is set to 'N' the RFP status is set to 'CP' - Copy Pending. An authorized user must then launch MDRapid to begin the Copy process. To do this, toggle to the Install list using F9 in the RFP Manager.

The list of all RFPs in status CP or 03 are displayed.

Enter a '1' for a RFP number with status CP to launch it. A confirmation screen with the following fields is displayed:

Auto-Install Objects when Data Copy Complete

Y – Yes, the install steps should begin automatically once all data has been copied

N – No, an authorized user must schedule the installation

W – Yes, auto-install if the data copy finishes within the Time Window

Time Window for Auto-Install

The minimum and maximum Date/Time that the Copy process must finish within in order for the RFP to auto-install. If the RFP finishes outside of the window, then an authorized user must schedule the installation. Exit point commands can be defined for the level to notify the group when the Data Copy is finished.

Once Enter is pressed, the Mimix Promoter jobs are started in the subsystem defined by the MDRapid template and MDCMS monitors the progress. Once a physical file has completed the copy process, MDCMS builds the dependent logical files. Once all files are prepared for installation, the status of the RFP is switched to 03.

5.9 Installing a Promotion

Once any compile, approval and MDRapid steps are complete, the installation process checks the Promotion Level parameters and if the Auto-Install flag is set to 'N', the RFP status is set to '03' – Waiting to Install. An authorized user must then select the promotion for installation before the objects are actually installed into an application. To do this, toggle to the Install list using F9 in the RFP Manager.

The list of all RFPs in status CP or 03 is displayed.

Enter a '1' for a RFP number with status 03 to install it. A confirmation screen will be displayed for the submission of the installation of the promotion. If the RFP installation job is not placed in the Job Queue, then the status is changed to IP for Installation Pending and will wait until the RFP Installer API (MDINSRFP) submits the RFP.

The user must have authority to MDSEC code 44 for the application if the RFP was approved by someone else.

The user must have authority to MDSEC code 53 for the application if the RFP was approved by that same user.

Enter a '7' to remove the temporary promotion library and to reset the RFP back to status '01'.



5.9.1 The Installation Steps

Pre-Steps:

1. Process Pre-Installation commands for *RFP attributes
2. Process Pre-Installation commands and scripts for this RFP
3. Process Pre-Installation commands and scripts for objects and object attributes
4. If MDRapid is running, lock target files and end MDRapid processing

Object Steps processed in full for each object before continuing to next object:

1. Backup prior version of source and object
2. Move new version of source and object to target locations
3. Set object authorities

Post-Steps

1. All prior members for modified physical files are copied to the new file with option *map/*drop (unless an overriding data copy command is specified)
If MDRapid was used for a file, then this step already occurred prior to installation, so only a simple move is required.
2. All constraints, journals and system (non-SQL) triggers are reapplied (if the file flags indicate to do so). If a logical file is being replaced, all prior members of the file are created for the new file (if the file flag indicates to do so).
3. Process Post-Installation commands and scripts for objects and object attributes
4. Process Post-Installation commands and scripts for this RFP
5. Process Post-Installation commands for *RFP attributes
6. Update MDXREF information for the installed source and objects

If an exception occurs during the Pre-Steps or Object Steps, any completed portion of the installation is automatically rolled back, a message will be sent to the user that submitted the job describing why the failure occurred, and the Install Error exit point will be triggered. The RFP will be set back to status 03 and can be reselected for Installation.

If a warning occurs, or an exception occurs during the Post-Steps, the RFP will continue, but will be flagged with a warning exception status and the Install Warning exit point will be triggered.

5.9.2 The Archiving/Cleanup Steps

1. All replaced source is archived. Replaced objects will be zip compressed and archived to the MDCMS IFS path, if they are not compiled from source.
2. If the installation occurred at a checkout level and the RFP is defined to remove the source or objects from the programmer's library, the removal is performed at this time.
3. Delta Source and Objects are removed from other levels based on the templates assigned to the object attributes in this RFP.
4. Installation History records are created for each object.
5. The finished Request detail records are removed.
6. The temporary libraries and spool files are deleted unless the parameters specify to keep them.



5.9.3 The Next Level Preparation Steps

1. If a Distribution Level is defined for the RFP's promotion level, the RFP is placed in the send list. If Auto-Send is set to Y for this Level, the RFP will immediately be sent to all Target Levels where the Default flag is set to Y.
2. New Request records are created for the next level on the same system, if direct migration is defined and the object attribute exists further up the chain.
3. A new RFP number is generated and automatically assigned to the new Request records.
4. If an object is already requested for the next level, a Request record will not be created and a warning condition will be generated.
5. If Auto-Submit is set to Y for the next level, and no errors exist at the next level, and Workflow acceptance of this RFP is not required, the new RFP is submitted to batch.



5.10 MDWorkflow Acceptance of Installed Promotion

If MDWorkflow Acceptance Group Types are defined for the RFPs promotion level, then the groups assigned for acceptance for the Projects contained in the RFP must sign off on the installed changes before the RFP may continue to the next step. A next step would be submission to the next level on this system and/or sending to target levels on other systems.

To perform MDWorkflow acceptance, either use the MDWorkflow web application or use option A=Acpt Test from the RFP listing for the installed RFP.

```

CMC263                MD T 74 6.1                24.04.16
SCRN1                 RFP Test Status            18:14:47

Appl/Lvl: TEST 30 Test Status: 0-Ongoing
RFP:      1061 data areas

Type options, press Enter.
A=Accept C=Comments G=Group Info I=In Progress R=Reject U=Undo

Opt Project      Group Type Group      User      Status      Date      Time      Cmt
- LIBRARYPROJ   MARKETING  MARK-CH
- LIBRARYPROJ   TESTER     TEST 1     MMORGAN   Accepted 23.04.16 18:03:15 Y

F3=Exit  F5=Refresh

Bottom

```

Options

A=Accept – accept the RFP for the project entry. You must belong to the defined group for the project to perform acceptance or rejection. Every entry must be accepted before acceptance confirmation can be granted.

C=Comments – view/edit comments for the project entry

Group Info – If a group isn't yet defined for the project, and you have authority to edit projects, the group (and optionally user) can be selected. If a group is already defined, the information about the group is displayed.

I=In Progress – specify that you are testing the results for the project entry. The entry is then reserved for you.

R=Reject – reject the RFP for the project entry. If any entry is rejected, the entire RFP can be confirmed for rejection.

U=Undo – Undo the provisional acceptance or rejection of a project entry. This also frees the entry to be worked on by another member of the group, if not for a specific user for the project.

Confirm Acceptance/Rejection

Once all entries are accepted, or any entry is rejected, F10 must then be pressed by an authorized user (MDSEC code 46 for the RFPs Application). This then confirms the status for the RFP, which will either of the following:

2 - MDWorkflow acceptance complete – next step in process for RFP is freed, as long as all objects in RFP aren't waiting for acceptance in another RFP

9 – MDWorkflow rejection complete – next step in process for RFP has been deleted. Corrections must be brought up to this level to allow objects to continue.



5.11 RFP Installer API

MDCMS is delivered with a command-based API that allows external processes, such as End-of-Day, to install some or all RFPs. An RFP must have status 03 (Ready for Installation) and/or status IP (Installation Pending) in order to be considered by the API. The API does not fail if no RFPs are currently waiting to be installed. This allows a business to cleanly embed the MDCMS Installation process into its nightly or weekend batch processing so that conflicts are avoided.

The MDCMS command is named **MDINSRFP** and is located in library MDCMS*. The MD libraries for the intended product instance must be in the library list prior to using this command.

If the installation of an RFP is not successful, its status returns to 03 and the objects in the environment remain the same as they were prior to the installation. This API allows the option of automatically rolling back all RFPs that were installed prior to the RFP which failed.

MDINSRFP Parameter Table

Name	Type	Length	Description
APPL	CHAR	4	Application Code or *ALL for any application
FROMLVL	INTEGER	2	Minimum Application Level to consider
TOLVL	INTEGER	2	Maximum Application Level to consider
FROMRFP	INTEGER	7	Minimum RFP Number to consider
TORFP	INTEGER	7	Maximum RFP Number to consider
PEND	CHAR	4	Include Pending Installs *YES = RFPs with status IP are also considered *NO = only RFPs with status 03 are considered *ONLY = only RFPs with status IP are considered
SCHDT	CHAR	8	Pending until Scheduled Date *CURRENT = include RFPs with a scheduled date that is not greater than the current date Or, enter a date in YMD format to designate the maximum allowed scheduled date
PROJ	CHAR	12	Project Filter – only install RFP if one or more Objects in the RFP are requested for the Project
TASK	INTEGER	5	Task Filter – only install RFP if one or more Objects in the RFP are requested for the Project Task
STSK	INTEGER	5	Subtask Filter – only install RFP if one or more Objects in the RFP are requested for the Project Subtask
USER	CHAR	10	The User Profile ID to be displayed in Installation History. *APPROVER = same user that approved RFP for Installation *USER = same user that called the API A specific User Profile
CONT	CHAR	4	Continue Installing RFPs if an Installation Fails *YES = any further RFPs will be installed *NO = this API stops Installing RFPs
ROLLBACK	CHAR	4	Rollback any RFPs that were already installed by the API prior to the RFP that has failed. *YES = The prior RFPs will be rolled back (only valid if CONT=*NO) *NO = The prior RFPs remain installed



5.12 RFP Submitter API

MDCMS is delivered with a command-based API similar to the Installer API. The difference with the Submitter API is that RFPs will be submitted when they have status 01 (Objects assigned to RFP) and/or status SP (Submission Pending). This API allows external processes, such as End-of-Day, to submit some or all RFPs for promotion.

The Object Checking and Compilation portion of a Promotion will be performed for the selected RFP(s). If no problems are encountered, the Auto-Approve and Auto-Install flags for the Promotion Level will be checked. If one of the flags is set to N, the process stops, otherwise the RFP will be installed. The API does not fail if no RFPs are currently waiting to be submitted.

This allows a business to embed the MDCMS Submission process into its remote systems for clean, hands free processing.

The MDCMS command is named **MDSBMRFP** and is located in library MDCMS*. The MD libraries for the intended product instance must be in the library list prior to using this command.

If the submission of an RFP is not successful, its status returns to 01 and the objects in the environment remain the same as they were prior to the submission.

MDSBMRFP Parameter Table

Name	Type	Length	Description
APPL	CHAR	4	Application Code or *ALL for any application
FROMLVL	INTEGER	2	Minimum Application Level to consider
TOLVL	INTEGER	2	Maximum Application Level to consider
FROMRFP	INTEGER	7	Minimum RFP Number to consider
TORFP	INTEGER	7	Maximum RFP Number to consider
PEND	CHAR	4	Include Pending RFPs *YES = RFPs with status SP are also considered *NO = only RFPs with status 01 are considered *ONLY = only RFPs with status SP are considered
SCHDT	CHAR	8	Pending until Scheduled Date *CURRENT = include RFPs with a scheduled date that is not greater than the current date Or, enter a date in YMD format to designate the maximum allowed scheduled date
PROJ	CHAR	12	Project Filter – only submit RFP if one or more Objects in the RFP are requested for the Project
TASK	INTEGER	5	Task Filter – only submit RFP if one or more Objects in the RFP are requested for the Project Task
STSK	INTEGER	5	Subtask Filter – only submit RFP if one or more Objects in the RFP are requested for the Project Subtask
USER	CHAR	10	The User Profile ID to be displayed in Installation History. *CREATOR = same user that created the RFP number *USER = same user that called the API A specific User Profile
CONT	CHAR	4	Continue Submitting RFPs if a RFP Fails *YES = any further RFPs will be submitted *NO = this API stops submitting RFPs



5.13 RFP Rollback API

MDCMS is delivered with a command-based API that allows an external CL program, such as a program within End-of-Day, to rollback a specific RFP. An RFP must have already been installed in order to be considered by the API.

The MDCMS command is named **MDRBRFP** and is located in library MDCMS*. The MD libraries for the intended product instance must be in the library list prior to using this command.

NOTE: This API process runs outside of the interactive MDSEC Security Framework. Because of this, the command MDRBRFP and program MDRBRFP are delivered with public authority set to *EXCLUDE, so that standard users cannot rollback promotions without sufficient permission. *USE authority will need to be granted to the user profiles that will be using this API. Also, to further limit abuse of this command as well as to be able to provide a return code, the command can only be invoked from a CL program or ILE CL module.

MDRBRFP Parameter Table

Name	Type	Length	Description
APPL	CHAR	4	Application Code
RFP	INTEGER	7	RFP Number
USER	CHAR	10	The User Profile ID to be displayed in Installation History. *INSTALLER = same user that installed the RFP *USER = same user that called the API A specific User Profile
RC	CHAR output	1	Return Code 0 = RFP Rollback successful 1 = RFP Rollback failed



5.14 RFP Deletion API

MDCMS is delivered with a command-based API that allows an external CL program, such as a program within End-of-Day, to delete a specific RFP. If the RFP has already been installed, or a job is currently compiling or installing the RFP, it will not be considered by the API. Deletion is allowed for promotions with the following status: 00, 01, 02, or 03.

The MDCMS command is named **MDDELRF** and is located in library MDCMS*. The MD libraries for the intended product instance must be in the library list prior to using this command.

NOTE: This API process runs outside of the interactive MDSEC Security Framework. Because of this, the command MDDELRF and program MDDELRF are delivered with public authority set to *EXCLUDE, so that standard users cannot delete promotions without sufficient permission. *USE authority will need to be granted to the user profiles that will be using this API. Also, to further limit abuse of this command as well as to be able to provide a return code, the command can only be invoked from a CL program or ILE CL module.

MDDELRF Parameter Table

Name	Type	Length	Description
APPL	CHAR	4	Application Code
RFP	INTEGER	7	RFP Number
RC	CHAR output	1	Return Code 0 = RFP Deletion successful 1 = RFP Deletion failed – RFP Submission/Installation in process 2 = RFP Deletion failed – RFP already Installed



6 RFP History

The RFP History screen lists all RFPs that have completed installation in descending order. The screen is identical to the RFP Manager screen. The RFPs can be toggled on this screen between historical and active using **F10**.

6.1 Rolling back a Promotion from within RFP History

To rollback part or all of an RFP from Object History, enter option R in front of any installed RFP.

A list of all objects assigned to the RFP will be displayed. Each object which still has the prior version of the source or object, or each object that is new, will have the ability of being rolled back. Enter a *T=Select for Rollback* in front of each object to rollback or press *F13=Select all available* to select all available objects.

A new RFP will be automatically generated and all selected objects will be assigned to it. The Submit Confirmation and Override panel will then appear for the promotion or scheduling of the Rollback RFP. The promotion will delete new objects, recreate deleted objects, bring modified objects back to the prior version, and recompile objects that were originally set as *RECOMPILE. As with a normal RFP, a rollback RFP will also archive the source/objects it replaces.

6.2 Target Locations for Installed RFP

Option T can be used from RFP History to view the send status for each of the defined target levels based on the promotion level of the installed RFP. If the RFP in the Send List is still open, the RFP can also be sent directly from this screen.



7 Object History / Archive

Historical information is kept in MDCMS for every object that is promoted. The Installation History / Archive process is used to view the history of installed or deleted objects and to retrieve or rollback prior versions of objects.

```

CMC540                                COMPANY NAME                                10/19/11
SCRN1                                Installation History/Archive Retrieval        6:02:01
Filters:
  Appl Lvl   RFP Attribute   Programmer Project           Task STask   Rsn Installed
  _____
Type options, press Enter.
  5=Details  C=Compare Src  R=RFP   7=Get Prior Src  8=Get Prior Obj  9=Rollback
                                     Pri
  Object    Installed Appl/Lvl Attribute Programmer   RFP Project   R S O
  _ ACCTPG01  8/21/96  MD2K 10  RPG      MMUCKLEY    20028 VAT     R
  _ ACCTPG02  9/28/96  MD2K 10  CBL      MMORGAN     20017 VAT     + M Y
  _ ACCTPG02  9/03/96  MD2K 10  CBL      MMUCKLEY    20058 P288394 M Y
  _ ACDRHDL   9/03/96  MD2K 90  CLP      MMUCKLEY    20059 P293823 D Y Y
  _ PKT1037   8/17/96  ACCT 10  PRTF_WIDE MMUCKLEY    20010 VAT     M Y
  _ MTU553    6/06/96  MD2K 10  DSPFSE   MMORGAN     20008 A382KS9  M Y
  _ SENTPGM   8/11/96  MD2K 10  CMD      MMORGAN     20007 VAT     M Y
                                     More...
  F2=Full Name  F4=Browse  F8=Audit Reports  F11=View Output  F15=Print
  
```

All of the previously installed objects are displayed and subsetted using the filters at the top of the display.

If the promotion of an object results in the change or deletion of previously existing source, the previous version of the source will be archived. Installation History stores up to 99 generations of the source for each object at each promotion level. If an object is not compiled from source code, then the object itself is compressed and archived in the IFS directory MDCMS/ARCHIVE. The number of generations to store is set within the promotion level maintenance function.

Options

5=Details – Display the Installation History Detail.

C=Compare – Place this option in front of 1 entry containing archived source to compare that source to the source that currently exists in the source file for the attribute.

Place this option in front of 2 entries containing archived source to compare those 2 versions to each another.

R=RFP – Toggle to the RFP History, filtered to the selected RFP, in order to view additional information about the RFP or the objects in that RFP.

7=Get Prior Src – Prompt the user for a location for the archived source to be copied to. The source can be copied to any library that is not managed by MDCMS or to a spooled file.

8=Get Prior Obj – Prompt the user for a location for the archived object to be copied to. The object can be copied to any library (or folder for IFS objects) that is not managed by MDCMS.

9=Rollback – Rollback selected object and/or other objects for same RFP as selected object.



Filters:

Entering a value into one of the filters fields will cause the list to be re-displayed and subsetted to show only archive records that match the entered filter field values.

Appl –Application.

Lvl – Application Level.

RFP – Request for Promotion number.

Attribute – The object Attribute used for the promotion.

Programmer – The Programmer assigned to the Object Request.

Project – The Project associated with the Object Request.


Task – The Project Task associated with the Object Request.

Subtask – The Project Subtask associated with the Object Request.

Rsn – The Reason for the Object Request. Possible values are M=Modify, R=Recompile, U=Update and D=Delete

Installed – the date that the promotion was installed

Position to:

The Position to field appears as  above the Object column. Entering a value into the Position to field will position the contents of the subfile to the first record in the current list of archived records that is greater than, or equal to, the entered value.

Function Keys:

F2=Full Name – Displays full name of object when F2 is pressed when cursor is within the Object name field. This can be useful for IFS object names that exceed the length of the Object field within the display.

F3=Exit

F4=Browse – Browse a list of available filter entries depending upon which filter the cursor is positioned to. For example, to browse the RFP list, place cursor on RFP filter field and press **F4**.

F8=Audit Reports – MDCMS Audit Reports menu. Generate customizable audit reports for what has been installed either within, or outside of, MDCMS.

F11=View Output – Display the MD Output panel and other spool files.

F15=Print – Print a list of promotion records to a spooled file based on filters in current display.

7.1 Rolling back a Promotion from within Object History

To rollback part or all of an RFP from Object History, enter option 9 in front of any installed object that is part of the RFP.

A list of all objects assigned to the RFP will be displayed. Each object which still has the prior version of the source or object, or each object that is new, will have the ability of being rolled back. Enter a *1=Select for Rollback* in front of each object to rollback or press *F13=Select all available* to select all available objects.

A new RFP will be automatically generated and all selected objects will be assigned to it. The Submit Confirmation and Override panel will then appear for the promotion or scheduling of the Rollback RFP. The promotion will delete new objects, recreate deleted objects, bring modified objects back to the prior version, and recompile objects that were originally set as *RECOMPILE. As with a normal RFP, a rollback RFP will also archive the source/objects it replaces.



7.2 Installation History Audit Report

To generate a report over promoted objects from within MDCMS, press **F8** from the Installation History screen and select **option 1 MDCMS Installation History** from the MDCMS Audit reports menu. The following prompt screen is then displayed:

```

CMC541                                COMPANY NAME                                10/19/11
SCRN3                                 Installation History Report                    6:02:01

Select and sequence fields and record filters, press Enter.
Use F7 to load a definition, F9 to save a definition

Seq Field                Minimum      Maximum      Sort
 10 Install Date         *PM          _____  YYYYMMDD, *PY, *PM, *Pn D, *CY, *CM  A
 20 Application          _____  _____  _____  A
 30 Level                 80          90          _____  A
  ___ Programmer         _____  _____  *gen*eric*  A
  ___ Approver           _____  _____  *gen*eric*  A
  ___ Approval Date     _____  _____  YYYYMMDD, *PY, *PM, *Pn D, *CY, *CM  A
  ___ Installer         _____  _____  *gen*eric*  A
  ___ Install Time      _____  _____  HHMMSS      A
  ___ RFP Number        _____  _____  _____  A
  ___ Project           _____  _____  *gen*eric*  A
  ___ Task              _____  _____  _____  A
  ___ Subtask           _____  _____  _____  A
  ___ Object Name       _____  _____  *gen*eric*  A
  ___ Object Type       _____  _____  _____  A
                                                    More ...

F3=Exit   F4=Browse   F5=Refresh   F7=Load Def   F9=Save Def   F11=View Output

```

This screen allows you to define your own report. The report may consist of any or all of the listed fields and any or all promotion records may be selected and sorted as you choose. The report definitions may then be saved and used again in the future from this screen or from a command line.

Seq

Each field with a sequence number > 0 will be included in the report. The columns of the report are ordered by the sequence number. The sorting of the records is also based on the order of the sequence fields.

Minimum

The smallest value that the corresponding field may contain, unless the value is a special value or a generic value.

Special Values:

- *PY – the date must fall within the previous year (only valid for date fields)
- *PM – the date must fall within the previous month (only valid for date fields)
- *Pn – all object changes occurring during the previous n (1-9) days (only valid for date fields)
- *CY – the date must fall within the current year (only valid for date fields)
- *CM – the date must fall within the current month (only valid for date fields)
- M – the object must have been selected for a modification request (only valid for reason)
- D – the object must have been selected for a deletion request (only valid for reason)
- R – the object must have been selected for a recompile request (only valid for reason)
- U – the object must have been selected for an update request (only valid for reason)



Generic Values:

The wildcard value * may be used multiple times anywhere within a string to limit records to occurrences where the field contains the string. For example, *3XJ* will select all records where the value 3XJ is contained somewhere within the field string. *XJ will select all records where the value XJ is contained at the end of the field string. Wildcards may be used for all alphanumeric fields, except Object Type and Reason.

Maximum

The largest value that the corresponding field may contain. This field must be left blank if a special or generic value was entered in the Minimum field.

Sort

A – Sort this field in ascending (A->Z) order.

D – Sort this field in descending (Z->A) order.

NOTE: Only the first 10 columns will be considered for sorting.

Function Keys:

F3=Exit – Exit the prompt screen.

F4=Browse – Browse the list of available entries depending upon which field the cursor is positioned.

F5=Refresh – Reset the definition back to the initial settings

F7=Load Def – Load a definition from the list of saved definitions

F9=Save Def – Save the entered configuration as a report definition. The saved definition may then be reused anytime in the future from within MDCMS or from a command line. See the chapter on MDRUNRPT for more information about running reports from a command line.

F11=View Output – Display the MD Output panel and other spool files.

When the report runs, optimized SQL routines are used against the MDCMS tables so that the report is created very quickly, even if several years of data are to be inspected.



7.3 Audit Report of Object Changes outside of MDCMS

7.3.1 Designing/Running Audit Report from Online Generator

To generate an audit report of object changes that have occurred outside of MDCMS, press **F8** from the Installation History screen and select option 2 from the report menu. The following prompt screen is then displayed:

```

CMC542                                COMPANY NAME                                09/04/05
SCRN1                                Modifications outside of MDCMS Report        10:37:52

Select and sequence fields and record filters, press Enter.
Use F7 to load a definition, F9 to save a definition

Seq Field                Minimum      Maximum      YYYYYMDD, *PM, *Pn D, *CM, *CD      Sort
 10 Date                  _____  _____  _____                          A/D
 20 Time                  _____  _____  HHMMSS                              A
 30 User                  _____  _____  *gen*eric*                          A
 40 Object Library       _____  _____  *gen*eric*                          A
 50 Object Name          _____  _____  *gen*eric*                          A
 60 Object Type          _____  _____  _____                              A
 70 Program              _____  _____  *gen*eric*                          A
 80 Job                  _____  _____  *gen*eric*                          A
 90 Reason               _____  _____  CREATE, DELETE                       A
Application              _____  _____
Level                   _____  _____

                                                                    Bottom
F3=Exit   F4=Browse   F5=Refresh   F7=Load Def   F9=Save Def   F11=View Output
  
```

This screen allows you to define your own report. The report may consist of any or all of the listed fields and any or all object changes may be selected and sorted as you choose. The only exceptions are the application and level fields. These fields may not appear in the report, as they are only used as selection criteria. If records are limited to a specific application or level, then only object libraries used by attributes in the application/level are evaluated.

The report configurations may then be saved as definitions and used again in the future from this screen or from a command line.

Seq

Each field with a sequence number > 0 will be included in the report. The columns of the report are ordered by the sequence number. The sorting of the records is also based on the order of the fields.

Minimum

The smallest value that the corresponding field may contain, unless the value is a special value or a generic value.



Special Values:

- *PM – all object changes occurring during the previous month (only valid for date fields)
- *Pn – all object changes occurring during the previous n (1-9) days (only valid for date fields)
- *CM – all object changes occurring during the current month (only valid for date fields)
- *CD – all object changes occurring during the current day (only valid for date fields)
- CREATE – report only created objects (only valid for reason)
- DELETE – report only deleted objects (only valid for reason)

Generic Values:

The wildcard value * may be used multiple times anywhere within a string to limit records to occurrences where the field contains the string. For example, *3XJ* will select all records where the value 3XJ is contained somewhere within the field string. *XJ will select all records where the value XJ is contained at the end of the field string. Wildcards may be used for all alphanumeric fields, except Object Type and Reason.

Maximum

The largest value that the corresponding field may contain. This field must be left blank if a special or generic value was entered in the Minimum field.

Sort

- A – Sort this field in ascending (A->Z) order.
- D – Sort this field in descending (Z->A) order.

Function Keys:

F3=Exit

F4=Browse – Browse the list of available entries depending upon which field the cursor is positioned.

F5=Refresh – Reset the definition back to the initial settings

F7=Load Def – Load a definition from the list of saved definitions

F9=Save Def – Save the entered configuration as a report definition. The saved definition may then be reused anytime in the future from within MDCMS or from a command line. See the chapter on MDRUNRPT for more information about running reports from a command line.

F11=View Output – Display the MD Output panel and other spool files.

7.3.2 Troubleshooting the Audit Report

In order for the audit report of object changes to be accurate, it is important that the following system settings are in place:

- 1) The system value for Auditing control (WRKSYSVAL QAUDCTL) must be set to at least *AUDLVL. It is also recommended that the value *OBJAUD is included.
- 2) The system values for Security auditing level (WRKSYSVAL QAUDLVL) must be set to at least *CREATE and *DELETE.
- 3) The journal object QAUDJRN must exist and a journal receiver must be attached.
- 4) The current chain of journal receivers that exist on the system need to cover the time frame for the desired reporting range.
- 5) Objects will only be considered for the report if they reside in libraries or IFS-directories that are designated as Object Libraries in the MDCMS Attributes settings. If a desired library/directory is not reported, then create at least one attribute for that library/directory in the MDCMS Setup Menu option 3. This requirement exists to avoid excessive reporting of temporary libraries and directories.



8 Project Manager

8.1 Project Listing

```

CMC227                                COMPANY NAME                                10/18/11
SCRN1                                  Project Listing                                12:22:20
FILTERS
Appl:  _____ Requester.: _____ Description.....: _____
Pri.:  _   Sts:  _   Assn User:  _____ Pos to Project : _____

Type options, press Enter.
  1=Select 2=Edit 3=Copy 4=Cancel 5=Display 9=Close 0=Objects T=Tasks
                                Create Exp. Comp.
Opt Project      Appl  Requester  Programmer  Pri  Sts   Date      Date      T
-  VAT           ACCT  MMORGAN    MMORGAN    2   3    28.01.07  14.02.07  Y
-  Version 6.0
-  SAVERESTORE   OPER  MMORGAN    MMORGAN    3   5    11.02.07  31.03.07  Y
-  Save and Restore functions

                                                                Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F8=Reports  F9=Closed Projects
F10=Sort by Comp. Date  F11=View Output  F17=Top  F18=Bottom

```

The Project Listing display is accessed by pressing **F4** from the Object Manager when the cursor is on a Project field.

This display is also accessed via option 6 from the Main Menu.

NOTE: Not all functions of the Project Management system are available within the 5250 UI. Refer to the MDWorkflow web application documentation for those features available within MDWorkflow.

Filters

The Project Listing is filtered by the fields at the top of the display. If the Status (Sts) filter is left blank, only Projects of status '1' thru '5' (not completed) will be displayed. Press F9 to display closed Projects.

The description filter will list all Projects that have matching text in the title. For example, enter PRINT to list only Projects with print somewhere in the title. The description filter is not case sensitive.



Options

1=Select – Return the selected Project back to the requesting process. This option will only appear when using F4=Browse in the Project field of the Object Manager panel.

2=Edit – Edit the Project's detail information.

3=Copy – Copy the details of a Project to a new Project ID.

4=Cancel – Cancel the Project. This option is only valid if no Installations have occurred for the Project.

5=Display – View the Project's detail information.

6=Reopen – Reopen a closed Project. This option is only valid from the Closed Projects view (F9=Closed Projects).

G=Groups – Acceptance and Technical Groups assigned to project. Option only available when MDWorkflow is licensed.

9=Close – Close a completed Project. **NOTE:** A Warning will be given when attempting to close a Project that still has open Tasks or Subtasks. The user can bypass the Warning by pressing Enter and all Tasks and Subtasks will also be closed.

O=Objects – View a list of objects that are or were modified for the selected Project.

T=Tasks – Review the tasks for a Project.

Function Keys:

F3=Exit

F4=Browse – Browse list of valid values for the Filter fields.

F5=Refresh

F6=Add – Add a new Project.

F8=Reports – Define or run a Project or Task Report.

F9 – Toggles display between **Active Projects** and **Closed Projects**.

F10 – Toggles display between **Sort by Comp. Date** and **Sort by Project**.

F11=View Output – Display the MD Output panel and other spool files

F17=Top – Position cursor to top of list.

F18=Bottom – Position cursor to bottom of list.



Priority

- 1 - Critical
- 2 - High
- 3 - Medium
- 4 - Low
- 5 - Optional

Exp. Completion

The date the project is expected to be complete

Status

- 1 - Project Opened
- 2 - Project Authorized
- 3 - Work in Process
- 4 - Ready for Testing
- 5 - Changes Approved
- 6 - Project Complete
- 9 - Project Cancelled

If MDWorkflow is utilized, additional status codes may be created and used.

Requested by

Authorized by

Work Started

Test Ready

Approved by

Closed by

For all these fields it will list the User that set each status and the date that the status was set.

Project Title

A brief description of the Project.

Project Description

A full description of the Project.

Function Keys:

F3=Exit

F4=Browse – Browse list of valid values for available fields.

F11=View Output – Display the MD Output panel and other spool files



8.2.1 Project Task Listing

```

CMC224                                COMPANY NAME                                10/18/11
SCRN1                                  Task Listing                                12:37:15
FILTERS
Proj: PROJNAME                        Requester.: MMORGAN                        Description: _____
Pri : _   Sts: _                       Assn User.: ROGERS                        Task Type : _____
                                           Pos to Task: _____

Type options, press Enter.
 1=Select  2=Edit  3=Copy  4=Cancel  5=Display  9=Close  0=Objects  S=Subtasks
                                           Create

Opt  Task  Type      Requester  Assign to  Pri  Sts  Date   Due Date  STsks
   1  INT_FIX  MMORGAN    ROGERS     3    1    8/18/11 10/01/11  12
   Fix accounting program ACT001.
   2  DEL_FIX  MMORGAN    ROGERS     3    1    9/22/11          5
   Delete obsolete program ACT009.
   3  DOC CHANGE MMORGAN    ROGERS     3    1    9/22/11
   Change documentation for tasks 1 and 2.

                                           Bottom

F3=Exit  F4=Browse  F5=Refresh  F6=Add  F9=Closed Tasks
F10=Sort by Due Date  F11=View Output  F17=Top  F18=Bottom

```

All Project Task information can be created, edited or displayed from this screen. In addition, a Tasks Subtasks can be accessed using the S=Subtasks option.

The Project Task Listing display is accessed by pressing **F4** from the Object Manager when the cursor is on a Project field or via option 6 from the MDCMS Main Menu.

NOTE: Not all functions of the Project Management system are available within the 5250 UI. Refer to the MDWorkflow web application documentation for those features available within MDWorkflow.

Proj

A 12 character field that identifies the Project for Tasks in the listing.

FILTERS

Requester

Filter the listing by the Tasks Requester or leave blank to see all tasks for all Requesters.

Description

Filter the listing by a Tasks Description.

Pri - Priority

Filter listing by available Priority values.

- 1 - Critical
- 2 - High
- 3 - Medium
- 4 - Low
- 5 - Optional



Sts - Status

Filter listing by available Status values.

- 1 - Created
- 2 - Modified
- 3 - Email Sent
- 4 - Work in Progress
- 5 - Ready to Test
- 6 - Testing in Progress
- 7 - Testing Complete
- 8 - Closed
- 9 - Cancelled

If MDWorkflow is utilized, additional status codes may be created and used.

Assn User

Filter the listing by the primary programmer assigned to the task.

Task Type

Filter the listing by the Task Type.

Pos to Task

Position the listing to the selected Task.

Options

1=Select – Return the selected Task (and Project) back to the requesting process. This option will only appear when using F4=Browse in the Project field of the Object Manager panel.

2=Edit – Edit the Tasks detail information.

3=Copy – Copy the details of a Task to a new Task.

4=Cancel – Cancel the Task. This option is only valid if no Installations have occurred for the Task.

5=Display – View the Tasks detail information.

9=Close – Close a Task. **NOTE:** A Warning will be given when attempting to close a Task that still has open Subtasks. The user can bypass the Warning by pressing Enter and all Subtasks will also be closed.

O=Objects – Display requested objects for Task.

S=Subtasks – Display a list of Subtasks for the selected Task.

Function Keys:

F3=Exit

F4=Browse – Browse list of valid values for available fields.

F5=Refresh

F6=Add – Add a Task to the selected Project.

F9=Closed Tasks – Display a listing of closed Tasks for selected Project.

F10=Sort by Due Date – Sort the Task listing by the value of Due Date.

F11=View Output – Display the MD Output panel and other spool files

F17=Top – Position the display to the Top.

F18=Bottom – Position the display to the Bottom.



8.2.2 Project Subtask Listing

```

CMC225                                COMPANY NAME                                10/18/11
SCRN1                                  Subtask Listing                                12:37:15
FILTERS
Task: TASK001                          1 Requester.: MMORGAN                      Description: _____
Pri : _  Sts: _                          Assn User.: ROGERS                          Task Type : _____
                                           Pos to Task: _____

Type options, press Enter.
1=Select 2=Edit 3=Copy 4=Cancel 5=Display 9=Close 0=Objects
                                           Create

Opt  Task  Type      Requester  Assign to  Pri  Sts  Date  Due Date
    1  INT_FIX  MMORGAN   ROGERS    3    1    8/18/11  10/01/11
Subtask #1
    2  DEL_FIX  MMORGAN   ROGERS    3    1    9/22/11
Subtask #2
    3  DOC CHANGE MMORGAN   ROGERS    3    1    9/22/11
Subtask #3

                                           Bottom

F3=Exit  F4=Browse  F5=Refresh  F6=Add  F9=Closed Tasks
F10=Sort by Due Date  F11=View Output  F17=Top  F18=Bottom

```

All Subtask information can be created, edited or displayed from this screen.

The Task's Subtask Listing display is accessed by pressing **F4** from the Object Manager when the cursor is on a Project field or via option 6 from the MDCMS Main Menu.

NOTE: Not all functions of the Project Management system are available within the 5250 UI. Refer to the MDWorkflow web application documentation for those features available within MDWorkflow.

Task

A 12 position field to identify the Project and a 5 character field that identifies the Project's Task for the Subtask listing.

Filters

Requester

Filter the listing by the Subtasks Requester or leave blank to see all Subtasks for all Requesters.

Description

Filter the listing by a Subtasks Description.

Pri - Priority

Filter listing by available Priority values.

- 1 - Critical
- 2 - High
- 3 - Medium
- 4 - Low
- 5 - Optional



Sts - Status

Filter listing by available Status values.

- 1 - Created
- 2 - Modified
- 3 - Email Sent
- 4 - Work in Progress
- 5 - Ready to Test
- 6 - Testing in Progress
- 7 - Testing Complete
- 8 - Closed
- 9 - Cancelled

If MDWorkflow is utilized, additional status codes may be created and used.

Assn User

Filter the listing by the primary programmer assigned to the Subtask.

Task Type

Filter the listing by the Task Type.

Pos to Task

Position the listing to the selected Subtask.

Options

1=Select – Return the selected Subtask value (including Project and Task) back to the requesting process. This option will only appear when using F4=Browse in the Project field of the Object Manager panel.

2=Edit – Edit the Subtasks detail information.

3=Copy – Copy the details of a Subtask to a new Subtask.

4=Cancel – Cancel the Project. This option is only valid if no Installations have occurred for the Project.

5=Display – View the Subtasks detail information.

9=Close – Close a Subtask.

O=Objects – Display requested objects for Subtask.

Function Keys:

F3=Exit

F4=Browse – Browse list of valid values for available fields.

F5=Refresh

F6=Add – Add a Subtask to the selected Task.

F9=Closed Tasks – Display a listing of closed Subtasks for selected Task.

F10=Sort by Due Date – Sort the Subtask listing by the value of Due Date.

F11=View Output – Display the MD Output panel and other spool files.

F17=Top – Position the display to the Top.

F18=Bottom – Position the display to the Bottom.



8.2.3 Project Groups

```

CMC261                      MD T 74 6.1                      24.04.16
SCRN1                        Project Group Listing           17:45:51

Project: DEMO                Demo project

Type options, press Enter.
 2=Edit  4=Delete  G=Group Info

Opt  Role          Type      Req  Group      User
-    Acceptance    MARKETING  Y    MARK-CH
-    Acceptance    RLSMGR     Y
-    Acceptance    TESTER     Y    TEST 1     MMORGAN
-    Technical     PROGRAMMER PGMR 1
-    Technical     PROGRAMMER PGMR 2     MMORGAN

F3=Exit  F5=Refresh  F6=Add  F9=Save as Default

Bottom

```

If a valid MDWorkflow license exists for the partition, option G can be used from Project Listing to view/manage all acceptance and technical groups for a project.

Role

A - Acceptance/Test – The role is used to perform acceptance testing on RFPs that impact the project once the RFP is installed for a level requiring MDWorkflow acceptance before the RFP can continue to the next step in the migration path.

T – Technical – The role is used to carry out work on behalf of the project.

Type

The User Group Type assigned to the role

Req

Whether or not the Group Type is required for the Project in order to be able to deploy an RFP all the way to production.

Group

A user group of the given group type. A group is mandatory for an Acceptance role entry, but is optional for technical roles.

Multiple user groups can be added to a project for the same group type. During RFP acceptance, members of any included group for same project can accept or reject an RFP.

User

If the group is blank, any user registered in MDSEC can be added to a project for a technical role. If the group is entered, the user field can be blank to mean that any member of the group can be involved with the project. Otherwise, the user must belong to the group and then the project is intended for that specific user.

Multiple entries of specific users can be added for the same user group to a project.



Options

2=Edit – change the group or user for a group type entry

4=Delete – remove a group or user from the project

G=Group Info – Display the User Group listing positioned to the entry selected

Function Keys:

F3=Exit

F5=Refresh

F6=Add – Add a group and/or user to the project

F9=Save as Default – Save the current list of groups and users to your profile. When you create a new project, the list will automatically be applied to that project.



8.3 Project Report Generator

To generate a report over Projects from within MDCMS, press **F8** from the Project Listing screen select option 1 for Project Reports. The following prompt screen is then displayed:

```

CMC285                                COMPANY NAME                                10/18/11
SCRN1                                  Project Report                                17:01:13

Select and sequence fields and record filters, press Enter.
Use F7 to load a definition, F9 to save a definition

Seq Field          Minimum          Maximum          Sort
___ Project        _____      _____      *gen*eric*      A
___ Title          _____      _____      *gen*eric*      A
___ Exp. Completion _____      _____      YYYYMMDD, *PY, *PM, *CY, *CM A
___ Priority        _____      _____
___ Status         _____      _____
___ Application    _____      _____      *gen*eric*      A
___ Requester      _____      _____      *gen*eric*      A
___ Date Created   _____      _____      YYYYMMDD, *PY, *PM, *CY, *CM A
___ Assigned Group _____      _____      *gen*eric*      A
___ Assigned User  _____      _____      *gen*eric*      A
___ Test Group     _____      _____      *gen*eric*      A
___ Test User      _____      _____      *gen*eric*      A
___ Closed by User _____      _____      *gen*eric*      A
___ Date Closed    _____      _____      YYYYMMDD, *PY, *PM, *CY, *CM A
                                                    Bottom
F3=Exit   F4=Browse   F5=Refresh   F7=Load Def   F9=Save Def   F11=View Output
  
```

This screen allows you to define your own Project Report. The report may consist of any or all of the listed fields and any or all Projects may be selected and sorted as you choose. The report definitions may then be saved and used again in the future from this screen or from a command line.

Seq

Each field with a sequence number > 0 will be included in the report. The columns of the report are ordered by the sequence number. The sorting of the records is also based on the order of the sequence fields.

Minimum

The smallest value that the corresponding field may contain, unless the value is a special value or a generic value

Special Values:

- *PY – the date must fall within the previous year (only valid for date fields)
- *PM – the date must fall within the previous month (only valid for date fields)
- *CY – the date must fall within the current year (only valid for date fields)
- *CM – the date must fall within the current month (only valid for date fields)

Generic Values:

The wildcard value * may be used multiple times anywhere within a string to limit records to occurrences where the field contains the string. For example, *3XJ* will select all records where the value 3XJ is contained somewhere within the field string. *XJ will select all records where the value XJ is contained at the end of the field string.



Maximum

The largest value that the corresponding field may contain. This field must be left blank if a special or generic value was entered in the Minimum field.

Sort

A – Sort this field in ascending (A->Z) order.

D – Sort this field in descending (Z->A) order.

Function Keys:

F3=Exit

F4=Browse – Browse the list of available entries depending upon which field the cursor is positioned.

F5=Refresh – Reset the definition back to the initial settings

F7=Load Def – Load a definition from the list of saved definitions

F9=Save Def – Save the entered configuration as a report definition. The saved definition may then be reused at anytime in the future from within MDCMS or from a command line. See the chapter on MDRUNRPT for more information about running reports from a command line.

F11=View Output – Display the MD Output panel and other spool files.



8.4 Task Report Generator

To generate a report over Project Tasks from within MDCMS, press **F8** from the Project Listing screen select option 2 for Task Reports. The following prompt screen is then displayed:

```

CMC285                                COMPANY NAME                                10/18/11
SCRN1                                  Project Report                                17:01:13

Select and sequence fields and record filters, press Enter.
Use F7 to load a definition, F9 to save a definition

Seq Field                               Minimum           Maximum           Sort
___ Project                             _____        _____        *gen*eric*       A
___ Task                                 _____        _____        1-99999          A
___ Subtask                              _____        _____        1-99999          A
___ Due Date                             _____        _____        YYYYMMDD, *PY, *PM, *CY, *CM A
___ Due Time                             _____        _____        HHMMSS           A
___ Priority                             _____        _____        _____         A
___ Status                               _____        _____        _____         A
___ Task Type                            _____        _____        *gen*eric*       A
___ Internal Ref                         _____        _____        *gen*eric*       A
___ Date Created                         _____        _____        YYYYMMDD, *PY, *PM, *CY, *CM A
___ Time Created                         _____        _____        HHMMSS           A
___ Requester                            _____        _____        *gen*eric*       A
___ Assigned Group                       _____        _____        *gen*eric*       A
___ Assigned User                        _____        _____        *gen*eric*       A
                                          More...

```

This screen allows you to define your own Task Report. The report may consist of any or all of the listed fields and any or all Tasks may be selected and sorted as you choose. The report definitions may then be saved and used again in the future from this screen or from a command line.

Seq

Each field with a sequence number > 0 will be included in the report. The columns of the report are ordered by the sequence number. The sorting of the records is also based on the order of the sequence fields. The only exception is the Description field, which is not part of the sort.

Minimum

The smallest value that the corresponding field may contain, unless the value is a special value or a generic value

Special Values:

- *PY – the date must fall within the previous year (only valid for date fields)
- *PM – the date must fall within the previous month (only valid for date fields)
- *CY – the date must fall within the current year (only valid for date fields)
- *CM – the date must fall within the current month (only valid for date fields)

Generic Values:

The wildcard value * may be used multiple times anywhere within a string to limit records to occurrences where the field contains the string. For example, *3XJ* will select all records where the value 3XJ is contained somewhere within the field string. *XJ will select all records where the value XJ is contained at the end of the field string.

Maximum

The largest value that the corresponding field may contain. This field must be left blank if a special or generic value was entered in the Minimum field.



Task Description Field

Minimum – Tasks can be filtered by a generic value entered in the minimum field

Maximum – The maximum length of the description that will be in the report. The default length is 160 characters and a length of up to 600 characters is permitted.

Sort

A – Sort this field in ascending (A->Z) order.

D – Sort this field in descending (Z->A) order.

Function Keys:

F3=Exit

F4=Browse – Browse the list of available entries depending upon which field the cursor is positioned.

F5=Refresh – Reset the definition back to the initial settings

F7=Load Def – Load a definition from the list of saved definitions

F9=Save Def – Save the entered configuration as a report definition. The saved definition may then be reused at anytime in the future from within MDCMS or from a command line. See the chapter on MDRUNRPT for more information about running reports from a command line.

F11=View Output – Display the MD Output panel and other spool files.

8.5 Project Updater API

MDCMS is delivered with a command-based API that allows external tools or applications to create and update Projects within MDCMS. This allows a business to continue using its existing Project Management tool, while being able to synchronize the data in the tool with the Project Manager that is embedded in MDCMS.

The MDCMS command is named **MDUPDPROJ** and is located in library MDCMS. It is not necessary to have the MD libraries in the library list prior to using this command. If you are unable to invoke a command from your Project Management tool, you can also directly call program **MDUPDPROJ** in library MDCMS. In this case, be certain that the parameters sent to the program exactly match the parameters in command MDUPDPROJ.

All MDUPDPROJ API transactions are logged to file MDCMS/MDDUPRJ.

NOTE: If Location Synchronization is used (MDCMS Settings option 6), the API will only need to be invoked for 1 system. The other partitions or physical systems will automatically be synchronized.

If a parameter value is not provided and the Project already exists, the existing value for the parameter will remain in place.

MDUPDPROJ Parameter Table

Name	Type	Length	Valid Values and Format
Project ID	CHAR	12	unique ID
Primary Appl	CHAR	4	MDCMS Appl
Assigned to Group	CHAR	10	Valid User Group
Assigned to User	CHAR	10	Specific User in Group or Valid user in MDSEC when group left blank
Priority	INTEGER	1	1 – 5
Expected Completion	INTEGER	8	YYYYMMDD
Status	CHAR	1	Unique ID
Project Title	CHAR	80	free format
Modification User	CHAR	10	IBMi USRPRF
MDCMS Instance	CHAR	5	Specifies the MDCMS environment that should be used for the API. The ID correlates to the suffix of the MDCMS library name. Special values: *DFT – default instance (no suffix) *SAME – the current instance based on the library list
Extended Description	CHAR	4000	



8.6 Project Group Updater API

MDCMS is delivered with a command-based API that allows external tools or applications to add or remove an involved User Group from an existing Project in MDCMS.

The MDCMS command is named **MDUPDPRJG** and is located in library MDCMS. It is not necessary to have the MD libraries in the library list prior to using this command. If you are unable to invoke a command from your Project Management tool, you can also directly call program **MDUPDPRJG** in library MDCMS. In this case, be certain that the parameters sent to the program exactly match the parameters in command MDUPDPRJG.

Successful MDUPDPRJG transactions are logged in file MDCMS(ENV)/MDDTHST and visible from the Full History listing in the MDWorkflow web application.

NOTE: If Location Synchronization is used (MDCMS Settings option 6), the API will only need to be invoked for 1 system. The other partitions or physical systems will automatically be synchronized.

If the target Project is closed or if the Group or User aren't defined in MDCMS, the entry will not be processed.

MDUPDPRJG Parameter Table

Name	Type	Length	Valid Values and Format
Project ID	CHAR	12	unique ID - Required
Group ID	CHAR	10	Valid User Group – Required
User ID	CHAR	10	A specific user that is a member of the group that will be involved with this project. Leave this parameter blank if any user that is a member of the group may be involved.
Role	CHAR	1	A - The role of Acceptance/Test will be applied. This indicates that the group/user will be responsible for accepting RFPs that have been installed in a level requiring acceptance before being allowed to migrate to the next level. T - The role of Technical will be applied. This indicates that the group/user will be responsible for carrying out work on behalf of the project.
Option	CHAR	7	*ADD - Add the provided Group/User combination for the given Role to the Project. If the combination already exists, execution will be ignored. *REMOVE - Remove the provided Group/User combination for the given Role from the Project. If the combination doesn't exist, execution will be ignored.
MDCMS Instance	CHAR	5	Specifies the MDCMS environment that should be used for the API. The ID correlates to the suffix of the MDCMS library name. Special values: *DFT – default instance (no suffix) *SAME – the current instance based on the library list



8.7 Task Updater API

MDCMS is delivered with a command-based API that allows external tools or applications to create and update Tasks within MDCMS. This allows a business to continue using its existing Project Management tool, while being able to synchronize the data in the tool with the Project Manager that is embedded in MDCMS.

The MDCMS command is named **MDUPDTASK** and is located in library MDCMS. It is not necessary to have the MD libraries in the library list prior to using this command. If you are unable to invoke a command from your Project Management tool, you can also directly call program **MDUPDTASK** in library MDCMS. In this case, be certain that the parameters sent to the program exactly match the parameters in command MDUPDTASK.

All MDUPDTASK API transactions are logged to file MDCMS/MDDUTSK.

NOTE: If Project Synchronization is used (MDCMS Settings option 8), the API will only need to be invoked for 1 system. The other partitions or physical systems will automatically be synchronized.

If a parameter value is not provided and the Task or Subtask already exists, the existing value for the parameter will remain in place.

MDUPDTASK Parameter Table

Name	Type	Length	Valid Values and Format	Required
Project ID	CHAR	12	unique ID	always
Task Number	INTEGER	5	0 for new Task, > 0 for update	for update
Subtask Number	INTEGER	5	0 for new Subtask (and new Subtask parameter set to *YES), > 0 for update	for update
New Subtask	CHAR	4	*NO – Call is relevant for a Task or to update an existing Subtask *YES – Create a new Subtask	always
Task Type	CHAR	10	Valid Task Type code	for insert
Primary Appl	CHAR	4	MDCMS Appl	
Internal Ref Code	CHAR	20	Internal Reference Code	
Priority	INTEGER	1	1 – 5	for insert
Status	CHAR	1	Valid Task Status	
Due Date	INTEGER	8	YYYYMMDD	
Due Time	INTEGER	6	HHMMSS	
Assigned to Group	CHAR	10	Valid User Group	
Assigned to User	CHAR	10	Specific User in Group or Valid user in MDSEC when group left blank	
Test Group	CHAR	10	Valid User Group	
Test User	CHAR	10	Specific User in Group or Valid user in MDSEC when group left blank	
Modification User	CHAR	10	IBMi USRPRF	
MDCMS Instance	CHAR	5	Unique ID *DFT – default instance (no suffix) *SAME – the current instance based on the library list	
Extended Description	CHAR	4000		for insert



9 MDXREF

MDXREF is a tool used to view the inter-relationship between objects. This includes what and how programs use files, what and how files relate to one another, the complete process flow of applications, etc. See the *MDXREF* User Manual for instructions and more information.



10 Send Promotion to Remote System

```

MDRLWSD                                COMPANY NAME                                11/20/11
SCRN1                                  Send Promotion to Remote System          10:37:41
Filters:
Appl: TEST   Rcvd: _   Project: _____   Object: _____
Lvl.: 10     Inst: _   Task...: _____   User...: _____
Stat: _      Prob: _   Subtask: _____   RFP...: _____
                                   Cmd/Scr: _ / _   Desc...: _____

Type options, press Enter.
1=Send 2=Edit 7=Reset 9=Close C=Cmd/Scrp H=History M=Merge O=Objects
S=Spools T=Target Locs

  Appl   RFP   Lvl User           Installed St R I P Description
-  ACCT  20368  90 MMORGAN       3/14/97 01      Fix to receivables process
-  ACCT  20594  90 MMORGAN       3/16/97 02 P   W Euro Currency preparation
-  ACCT  20643  90 BTERRELL      3/16/97 01      Decimal data problem
-  ACCT  20653  90 MMORGAN       4/09/06 03      Load workfiles with info

                                           Bottom
F3=Exit  F4=Browse  F5=Refresh  F6=Add  F8=Sort by Date  F10=History

```

It is possible to control applications across IBMi systems or logical partitions via MDCMS, as long as a licensed copy of MDCMS exists on each of the systems involved.

The first step for specifying what is to be sent where is to define the distribution levels (see the sections for OS/400 Locations and Distribution Levels for instructions).

If a promotion is installed into an Application/level, the RFP with all of its installed objects and commands will appear in the list as long as:

- 1) the application/level has at least 1 defined distribution level
- 2) the flag, Place RFP in Send Promotion List, is set to Y for the RFP

For each entry, the application, RFP number, application level, RFP Manager, date installed, and description of promotion are listed.

The following additional columns are shown:

St

The send status of the RFP across all target levels.

- RP – The installed RFP is pending MDWorkflow acceptance. Until acceptance occurs, none of the objects in the RFP can be sent to other locations.
- 00 – The RFP is empty – no objects assigned to RFP
- 01 – The RFP is ready, but not yet sent to any locations
- 02 – The RFP has been sent to some of the defined locations
- 03 – The RFP has been sent to all defined locations that normally expect to be sent to
- 04 – The send process is currently running for the RFP
- 05 – The RFP is closed in the Send List



R

If the receipt of the sent RFP has occurred for some or all of the locations. There must be a defined DDM push or pull connection defined between this location and a target location for this information to be available.

- Blank – Receipt of RFP hasn't occurred or isn't known
- P – the RFP has been received on a portion of the locations that it has been sent to
- C – the RFP has been received on every location that it has been sent to

I

If the installation of the sent RFP has occurred for some or all of the locations. There must be a defined DDM push or pull connection defined between this location and a target location for this information to be available.

- Blank – Installation of RFP hasn't occurred or isn't known
- P – the RFP has been installed on a portion of the locations that it has been sent to
- C – the RFP has been installed on every location that it has been sent to

P

If warnings or errors occurs during processing of the RFP on the target systems. There must be a defined DDM push or pull connection defined between this location and a target location for this information to be available.

- Blank – problems haven't occurred or isn't known
- W – warnings have occurred
- E – errors have occurred

The entries may be filtered by large number of criteria. For most of the filters, F4 can be used to list and select a filter value.

The following options are available for each entry in the list:

1=Send – send the promotion package to remote systems. Any default send locations that haven't been ignored or already sent to will be pre-selected to send

2=Edit – edit the description or user of the promotion package

7=Reset – reset the status from 04=running back to 01 or 02. This can only be used if a send job ended abnormally.

9=Close – remove RFP from list.

A confirmation screen will be displayed before the promotion would actually be removed.

Closed RFPs can be reopened in the Send History screen.

If default target levels haven't been processed yet for the RFP, the user must be authorized to MDSEC function code 54 in order to be able to close the RFP.

C=Cmd/Scrp – add or edit RFP-Level commands and scripts for the promotion package.

H=History – View the Send History for the RFP

M=Merge – Merge 2 or more RFP Packages into 1 RFP. Enter an M for at least 2 RFP packages of the same application and level and then press Enter. A confirmation screen is shown where the target RFP number can be selected and the description of the merged package can be edited. All objects (and commands) of the selected RFPs will be merged into the target RFP. The other specified Packages will be emptied and closed once the merge is complete. Duplicate objects and commands will be eliminated automatically.

O=Objects – View/edit the objects contained in the promotion package. Specific objects (and commands) may be added or removed.

S=Spools – View any spool files from the most recent attempt to send the RFP.

T=Target Locs – view the send status for the target locations and individually send the promotion package if the status allows it.



Function Keys:

F3=Exit

F4=Browse – Browse list of valid values for a field (place cursor on appropriate field)

F5=Refresh – Refresh listing display

F6=Add – Manually add a promotion package to send

F8=Sort by Date/Appl – toggle the sort sequence for the listing between Appl/RFP ascending and Install Date descending

F10=History – View the Send History for all promotions

10.1 Promotion Objects Display

```

MDRLWSO                COMPANY NAME                10/19/11
SCRN1                   Promotion Objects           10:37:03

Appl: TEST Lvl: 30 RFP:      4 Desc: Load workfiles with info

Type options, press Enter.
  2=Edit  3=Copy  4=Delete  5=View  C=Cmd/Scrp  P=Projects

Opt Object      Attribute  Type    C/S  Project      User      Rsn
-  CALCAC1      CBL      *PGM   Y    VAT          + MMORGAN  M
-  CALCAC2      CBL      *PGM   Y    VAT          MMORGAN  D

F3=Exit  F5=Refresh  F6=Add  F17=Top  F18=Bottom

Bottom
  
```

This display, which is accessed by taking option O=Objects against an RFP on Send Promotion to Remote System panel, lists all source or objects within a promotion package that would be sent to a remote system. The reason for the promotion is listed with each entry. The reason may be M for a modification, R for a recompile, U for an Update or D for a deletion.

The following options are available for each entry in the list:

2=Edit – Edit the request parameters for the object. The parameters are equivalent to those that can be changed in the Object Manager – see Section 2 - Edit Request Details in the Object Manager chapter for more information.

3=Copy – add an object request to the RFP using the parameters for selected object as initial values

4=Delete – Remove the object from the promotion package

5=View – View the details of the object

C=Cmd/Scrp – Display and edit the commands and scripts to be sent with the object

P=Projects – Display and edit the projects that the object is assigned to

F3=Exit

F5=Refresh – refresh the list

F6=Add – add an additional object to the promotion package

F17=Top – position cursor to the top of the list

F18=Bottom – position cursor to the bottom of the list



10.2 Send Promotion Display

```

MDCLWSD                                COMPANY NAME                                10/19/15
SCRN3                                  Send Promotion to Remote System          10:37:38

Appl: ACCT  RFP: 20653  Lvl: 30  Desc: Load workfiles with info

Install Date: *CURRENT TimeZone  Loc.: _____  Lvl: ___  Desc: _____
Install Time: *IMMED             T    User: _____  Fmt: ___  Addr: _____
                                      Stat: _____  Prb: _  Group: _____

Type options, press Enter.
  1=Send  F=FTP Log  H=History  I=Ignore  P=Problems

Opt Location  Description                                Lvl Stat Prb  Send / Ignore  Fmt
  1 MD71      MD 7.1                                20 SERR Y    Date  User
  1 SFO      Clean Save file                          10 NONE
  - SFF      Full Save file                          10 INST  10/18/15 MMORGAN  GOA

Bottom
F3=Exit  F4=Browse  F5=Refresh  F8=Settings  F9=View Addr  F13=Unselect All

```

This is the confirmation screen for sending a promotion to one or more remote systems. This panel appears when option 1=Send or T=Target Locs is selected for an RFP on the Send Promotion to Remote System panel or from RFP History.

Install Date

The date that the install should take place on the target systems.

Set this value prior to using option 1 to process the send to the systems that should be installed at that time.

If the target level is set to automatic, it will be received, submitted and approved for installation immediately on the target system. Then a 2nd batch job will be submitted to batch that will be scheduled for the date/time provided.

If the target level is set to manual, then a user will need to carry out the manual steps, but the install date/time will default to the value provided in this screen.

*CURRENT - the installation will be scheduled for the same day that the submission completes on the target system.

Install Time

The time that the install should take place on the target systems.

*IMMED – the installation will begin as soon as installation approval is complete on the target system.

TimeZone

Indication of which location the entered Install Date/Time refers to.

L – schedule the date/time based on the time zone of the local (sending) system. If the target system is in a different time zone, the scheduled date/time will be adjusted accordingly. So, if the RFP is scheduled to install at 9pm EST because the local system is in New York, it will be installed at 6pm PST if the target system is in Los Angeles.



T – schedule the date/time based on the time zone of the target system. The scheduled date/time used on the SBMJOB command will match the value entered exactly. So, if the RFP is sent to 3 different locations and scheduled for 9pm, it will install at 9pm of the time zone of each of those systems.

Loc

Filter by the Location ID of the target system. Press F4 to select from a list.

User

Filter by the User ID that sent the RFP or Ignored a Location. Press F4 to select from a list.

Stat

Filter by the Status of the distribution for a Location. Press F4 to select from a list. The full description of possible status codes are available in section Send Status Values.

Lvl

Filter by the Level on the target system

Fmt

Filter by the Distribution Method. Press F4 to select from a list.

Prb

Whether or not problems have occurred during the send, receive or install of the RFP for the target level. Use Y to filter to only targets where problems occurred. Use N to filter to only targets where problems haven't occurred.

Desc

Filter by the Location Description. Any row will be displayed that contains the value anywhere within the description for its location.

Addr

Filter by the Location Address. Any row will be displayed that contains the value anywhere within the target address for its location.

Group

Filter by a Location Group. Press F4 when cursor is on the Group field to select and manage the Location Groups. Location Groups are used to provide a means of filtering a list of Locations by any definition necessary for the organization. Multiple locations can belong to a location group and multiple location groups can contain the same location.

Options

T – Send the RFP to one or more target locations

F – View the FTP Log for the most recent attempt of sending by FTP to the selected location

H – View the Send History for the selected location

I – Ignore the target level for this RFP. If ignored, the auto-close function won't consider this level and will proceed with closing the RFP once the other default levels have been processed or ignored. The authority to ignore a target level is based on MDSEC function code 54.

P – View a list of any problems that have occurred during the send, receive or install of the RFP

Special Function Keys

F8 – View/Manage the Distribution Level settings

F9 – toggle the listing between viewing the location description and the target address

F13 – select or unselect all rows with option 1=Send



10.3 Manually add Promotion for Send

```
MDRLWSD                                COMPANY NAME                                10/19/11
SCRN5                                  Manually add Promotion for Send          10:37:03

      Application: _____
             Level:  _____

Existing RFP:  _____
              or
New RFP Desc:  _____
_____
_____

F3=Exit   F4=Browse
```

One or more objects may be selected to be sent to a remote system without the prerequisite that the objects are first promoted. This panel is accessed by pressing **F6=Add** from the Send Promotion to Remote System display.

The above display will then be given. Enter the application and level (or press **F4=Browse** to browse the list of applications and their levels).

If the objects to send were promoted, enter the RFP number (or press **F4=Browse** to browse the list of RFP numbers from Installation History).

If the object or objects were not part of a promotion, leave the RFP number blank and enter a brief description of the promotion package.

Press **Enter** once the information is entered.



10.4 Add Object to Promotion

```

MDRLWSD                                COMPANY NAME                                10/19/11
SCRN6                                  Add Object to Promotion                        10:37:03

  Appl: CSL   RFP:   1299   Lvl: 30   Desc: ACPRPT 501000 -> 500001

Reason . . . _      D=Delete, M=Modify, R=Recompile, U=Update

Object...: _____
_____

Attribute   .  _____
Project    . .  _____
Task/Subtask _____

Rel. Path   .  _____

Enter=Confirm   F4=Browse   F12=Cancel
  
```

An object may be selected to be sent to a remote system without the prerequisite that the object is first promoted. Press **F6=Add** from the Promotion Objects display to add an object to an existing promotion package. This display will also be shown after a promotion is manually added.

Enter the reason, object name, object (or source) attribute and Project ID. Press **F4=Browse** to browse the list of objects, attributes, or projects. If the attribute is left blank, MDCMS will assign the last used attribute for the object.

Press **Enter** once the information is entered

10.6 Send Status Values

The following status values are possible for a distribution of an RFP to a specific target level and is visible from the Target Location screen or from Send History.

Status Values generated on Local System prior to, or during, Send Process:

NONE	Send not attempted
IGN	Target Ignored by user
SPND	Send has been submitted for processing and is waiting to begin
SPRG	Send in progress to target location
SENT	RFP has been successfully sent
SERR	An error occurred while trying to send the RFP

Status Values generated for distributed RFP on Target System and logged locally using DDM:

RCVD	RFP has been successfully received
RWRN	RFP has been received, but warnings occurred
RERR	An error occurred while trying to receive the RFP
SBMP	RFP has been submitted for the compile/bundle steps and is waiting to begin
SBM	RFP submission (compile/bundle steps) in progress
SBME	An error occurred while trying to bundle the RFP
APND	RFP is waiting for installation approval
APRV	RFP has been approved for installation
RAP	MDRapid data mapping in progress
IPND	RFP has been submitted for installation and is waiting to begin
IPRG	RFP Installation in progress
INST	RFP has been successfully installed
IWRN	RFP has been installed, but warnings occurred
IERR	An error occurred while trying to install the RFP



11 Receive Promotion from Remote System

MDLLWR1	Company Name	11/19/11
SCRN1	Receive Promotion from Remote System	10:37:31
MD Filename: _____		
Job Queue: *JOB_____		
Library: _____		
Transmitted via: <u>1</u> 1=SNA		
2=FTP/Other		
3=Tape		
4=Optical Device		
Netfile User: QPGMR_____		
Enter=Confirm F4=Browse F10=Log F11=Output F12=Cancel F21=Sys Command		

If the automatic receipt of Promotions is not used (see Promotion Level settings and API's MDRCVIFS or MDRCVSNA), then MDCMS promotions sent from remote systems are received using the above display, which is option 9 from the MDCMS Main Menu.

Promotion packages may be received here via SNA, FTP, GoAnywhere, XCOM, tape, or optical device. MDCMS remembers which method was used the last time that a promotion was received. It is best to set the Transmitted via parameter (if incorrect) before entering the other information

MD Filename

Enter the name of the file containing the promotion. MD promotion packages are always named 'MD' and the 1-character Host ID of the sending system and the 6-digit RFP number. Press **F4=Browse** to browse the list of outstanding promotion packages.

Job Queue/Library

The actual receive job is submitted to batch. The subsystem job queue/library may be specified for the receive job.

Netfile User

If the promotion package was sent via SNA, and a specific Netfile user was entered (default is QPGMR) then that same user id must be entered here to receive the promotion.

If the promotion is transmitted via tape or optical device, an additional parameter for Tape Device and Optical Device will prior to confirmation. These parameters are required for receiving the promotion or for browsing the MD promotion packages that exist on each media.

Press **Enter** to submit the receive job.

The submitted job creates a temporary library with the same name as the file. All source and objects related to the promotion are placed in this temporary library. After the objects are installed, the temporary library is deleted.



New MDCMS request records are written for the source/objects and a new RFP number is generated for the received items. The Promotion will then be ready to be installed into the lowest level for the application, unless a higher target level was specified when the Promotion was sent.

If Auto-Submit for the Promotion Level is set to Y, then the compilation portion of the installation will begin as soon as the receipt has completed.

Common Receive Exceptions

- 1) Promotion Level not defined for the sent application and target level. The Promotion Level will need to be defined (or the settings sent from another system).
- 2) The job description assigned to the level is corrupt (missing library, job queue, user, authority, etc.). Verify the parameters of the job description.
- 3) If a sent object is already requested on this system, and the object is in the process of being installed (Status 02 or higher), then a new request record will not be written for the object and report MDRCVERR is generated. Receive Error Commands, if defined for the Promotion Level, will be processed.
- 4) If the attribute for a sent object is not defined on this system, then a new request record will not be written for the object and report MDRCVERR is generated. Receive Error Commands, if defined for the Promotion Level, will be processed.
- 5) If a sent object is already requested on this system from a different RFP, and the object is only in reserved status (Status 00 or 01), then the existing request will be modified to migrate the source/object from the temporary library of this promotion at installation time and a warning will be generated. Receive Warning Commands, if defined for the Promotion Level, will be processed.
- 6) If the same RFP is resent to this location and objects from the prior send are already requested in reserved status (Status 00 or 01), then the existing RFP will be deleted entirely and replaced by the resent RFP. A warning will be generated. Receive Warning Commands, if defined for the Promotion Level, will be processed.

11.1 RFP Receive Log

F10 can be pressed from the Receive Promotion screen to view a log of all attempts to automatically or manually receive an RFP onto this system.

For each attempt, any warnings or exceptions can be viewed.

If an RFP was successfully sent, and should have been automatically received, but doesn't appear in the receive log, then perform DSPMSG QSYSOPR to see the reason why the receive job couldn't be submitted.



11.2 Promotion Receiver for IFS API

When RFP's are received via a GoAnywhere™ (GOA) or manual Save File (SFF) deployment from another system, they must be staged in IFS Folder /MDCMS/SEND/(instance).

Service **MDRCVIFS - MDCMS Receive RFPs in IFS** is then used to check for, and process, those RFP files. MDRCVIFS can be started from the Service List in the MDCMS Setup Menu, but is recommended to be started from a scheduled job using command MDRCVIFS.

MDRCVIFS Parameters

Environment ID	The name of the MDCMS instance (or suffix) - *DFT refers to MDCMS being used in library MDCMS. For a different library suffix, this would be entered for the environment ID.
Submit Job	*YES – a job named MDRCVIFS will be submitted to the entered Job Queue *NO – the MDRCVIFS process will run within the current job
Job Queue	*DFT – submit to the queue defined for the MDRCVIFS service *JOBQ – submit to the default queue for the running job profile The name of the job queue to submit MDRCVIFS to
Job Queue Library	The library of the job queue to submit MDRCVIFS to or *LIBL if the job queue is located in the current library list
Delay between Checks	*DFT – the default number of seconds between checking the IFS folder for candidates that is defined for the MDRCVIFS service The number of seconds to wait between checks (1-9999)
Time of Day to auto-end Job	*DFT – end at the time defined for the MDRCVIFS service *NEVER – the MDRCVIFS job shouldn't end automatically – it should run until the job is forcibly ended. A specific time to end in format HH:MM:SS



11.3 Promotion Receiver for SNA API

If promotions are sent via FTP, then MDCMS can automatically receive them without any additional processes. However, if promotions are sent via SNA, then an external process needs to be invoked, if hands-free automatic receipt of Promotions is desired.

Service **MDRCVSNA - MDCMS Receive RFPs via SNA** is then used to check for, and process, those RFP files. MDRCVSNA can be started from the Service List in the MDCMS Setup Menu, but is recommended to be started from a scheduled job using command MDRCVSNA.

MDRCVSNA Parameters

SNA Netfile User	*DFT – the default SNADS user queue that the RFPs were sent to that is defined for the MDRCVSNA service A valid SNADS user profile
Environment ID	The name of the MDCMS instance (or suffix) - *DFT refers to MDCMS being used in library MDCMS. For a different library suffix, this would be entered for the environment ID.
Submit Job	*YES – a job named MDRCVSNA will be submitted to the entered Job Queue *NO – the MDRCVSNA process will run within the current job
Job Queue	*DFT – submit to the queue defined for the MDRCVSNA service *JOBQ – submit to the default queue for the running job profile The name of the job queue to submit MDRCVSNA to
Job Queue Library	The library of the job queue to submit MDRCVSNA to or *LIBL if the job queue is located in the current library list
Delay between Checks	*DFT – the default number of seconds between checking the SNADS queue for candidates that is defined for the MDRCVSNA service The number of seconds to wait between checks (1-9999)
Time of Day to auto-end Job	*DFT – end at the time defined for the MDRCVSNA service *NEVER – the MDRCVSNA job shouldn't end automatically – it should run until the job is forcibly ended. A specific time to end in format HH:MM:SS



12 Reporting

Reports (MD Output) generated within MDSEC, MDXREF and MDCMS can be viewed, printed, exported or emailed by pressing **F11** from most screens.

MDCOUTF				MD Production 6.1					10.03.12
SCRN1				MD Output					17:47:05
	User	Report	Object						
Filter by:	MMORGAN								
Type options, press Enter.									
	3=Copy to PF	4=Delete	5=Display	6=Print	E=Export				
Opt	User	Date	Time	Report	Object	Library	Length	Width	
—	MMORGAN	24.02.11	17:36:18	PGMSRCH	MDDCLWD	MDCMST	107	80	
—	MMORGAN	31.03.11	9:10:05	RFPHIST			142	92	
—	MMORGAN	14.04.11	21:34:18	LIBCOMP	MDCMS	MDCMST	28	120	
—	MMORGAN	23.05.11	20:50:20	COMPARE	MDDCMSE	MDCMST	121	315	
—	MMORGAN	23.05.11	20:53:01	JOURNAL	MDACST	MDADM	15	643	
—	MMORGAN	23.05.11	21:01:39	PGMSRCH	MDDCMSD	MDCMST	200	80	
—	MMORGAN	29.09.11	9:23:16	PROJECT			25	92	
—	MMORGAN	15.11.11	22:27:49	FLDLIST	MDDTASK	MDCMST	56	112	
—	MMORGAN	22.02.12	13:42:05	JOURNAL	MDAINV	MDADM	41	130	
—	MMORGAN	5.03.12	16:03:41	RFPHIST			27	92	
									Bottom
F3=Exit	F4=Browse	F5=Refresh	F7=Spooled Output	F17=Top	F18=Bottom				

Filters

Enter a value into a filter field to limit the listing to items matching the filter(s). Possible values may be selected by pressing **F4=Browse** while the cursor is positioned on the filter field.

Options

3=Copy to PF – Copy the detail contents of the report into a formatted table (DDS Physical File). This provides a simple means to extract information out of the MD database for use in SQL, Queries or programs.

4=Delete – permanently delete the report

5=Display – view the report contents directly in the screen

6=Print – print the report contents to a spooled file

E=Export – Export the report to a CSV, PDF, TXT or XLS formatted file. The file can be placed in IFS or emailed to one or more recipients. See the parameters for command MDRUNRPT for more information.

Function Keys:

F4=Browse – Browse possible values for a filter field

F5=Refresh

F7=Spooled Output – Display and manage spooled files

F17=Top – Position Cursor to the first entry in the list

F18=Bottom – Position Cursor to the last entry in the list



12.1 MDRUNRPT – Run MD Report command

Certain reports within MDSEC, MDXREF and MDCMS allow for saved report definitions to be run directly from a command line. This gives the users the ability to schedule reports to be run on a periodic basis and to have the output automatically printed or exported. This is also helpful during Project testing to allow the same parameters to be quickly used after each phase of a test.

The following screen is displayed to get the report run parameters.

```

                                Run MD Report (MDRUNRPT)

Type choices, press Enter.

Report Name . . . . . _____ COMPARE, JOURNAL, MDSEC...
User Profile . . . . . _____ User Profile
Report Definition . . . . . _____

-----
MDCMS Instance . . . . . *DFT          *DFT, *SAME, Instance
Print result to spooled file . . *NO          *YES, *NO
Copy result to physical file . . *NO          *YES, *NO
Export result to IFS file . . . . *NO          *YES, *NO
Email result . . . . . *NO          *YES, *NO
Filename . . . . . _____

-----
Append Timestamp to filename . . *YES         *YES, *NO
Directory . . . . . _____

-----
Report Format . . . . . XLS          CSV, PDF, TXT, XLS
csv Field Delimiter . . . . . ', '   Field Delimiter
Address to receive Email . . . . *NONE

-----
User to receive Email . . . . . *NONE   User ID
Group to receive Email . . . . . *NONE   Group ID

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Use **F9=All parameters** to see all available parameters for command.

Report Name

- COMPARE – the MDXREF Data Comparison Report
- JOURNAL – the MD Journal Analysis Report
- MDSEC – the MDSEC Authorization Report
- NOTCMS – the MDCMS Audit Report listing object changes made outside of MDCMS
- PROJECT – the MDCMS Project Report
- PRJTASK – the MDCMS Project Task Report
- RFPHIST – the MDCMS Audit Report listing object changes made within MDCMS

User Profile

The name of the user profile that defined the report definition

Report Definition

The name of the report definition

Print result to spooled file

- *NO – the resulting report will not be automatically printed to a spooled file
- *YES – the resulting report will be automatically printed to a spooled file

Copy result to physical file

- *NO – the resulting report will not be automatically exported to a physical file
- *YES – the resulting report will be automatically exported to a physical file (table)

Export result to IFS file

- *NO – the resulting report will not be automatically exported to an IFS file
- *YES – the resulting report will be automatically exported to an IFS file

Email result

- *NO – the resulting report will not be automatically emailed to recipients
- *YES – the resulting report will be automatically emailed to recipients

Copy to Physical file

The name of the physical file (table) to contain the detail contents of the report. Each column in the report will be placed in a separate formatted field. If the file already exists, it will be replaced.

Copy to Library

The IBM i library that is to contain the Physical file

Filename

If the results are to be exported or emailed, this is the name of the IFS file to receive the results. The file type (.CSV, .PDF, .TXT or .XLS) will be automatically appended to the end of the name.

Timestamp

- *NO – a timestamp will not be appended to the file name
- *YES – a timestamp in the format of YYYYMMDD_HHMMSS will be appended to the file name

Directory

If the results are to be exported, this is the name of the IFS directory to receive the results. The directory path should begin with the root character “/”.

Report Format

CSV – the exported report will be placed in a comma separated value file which can then be opened in Microsoft excel or similar spreadsheet programs.

PDF - the exported report will be converted to PDF. JVM 1.5 or higher is required

TXT – the exported report will be placed in a text file with the same layout as the on-line report.

XLS – the exported report will be converted to the excel format. JVM 1.4 or higher is required

csv Field Delimiter

The character to be used to separate fields in a csv file

Address to receive Email

A specific email address to receive the report

User to receive Email

A user id to receive the report - the address for the user will be retrieved from the MDCMS email address table.

Group to receive Email

All users for the entered group id to receive the report – this parameter requires MDWorkflow groups to be present.



12.2 MDEXPFILE – Export Data command

The MDEXPFILE command provides the functionality to export the contents of any physical file to an Excel file.

The following screen is displayed to get the parameters.

```

                                MD Export File (MDEXPFILE)

Type choices, press Enter.

File Name . . . . . _____ File
Library . . . . . *LIBL          *LIBL, Library
File Member . . . . . *FIRST      *FIRST, Member
Report Header . . . . . *FILETEXT

-----

Reorganize File . . . . . *YES          *YES, *NO
MDCMS Instance . . . . . *DFT          *DFT, Instance
Export result to IFS file . . . *NO          *YES, *NO
Email result . . . . . *NO           *YES, *NO
Filename . . . . .

-----

Append Timestamp to filename . . *YES          *YES, *NO
Directory . . . . .

-----

Format . . . . . XLS              CSV, XLS
csv Field Delimiter . . . . . ', '    Field Delimiter
Address to receive Email . . . . *NONE

-----

User to receive Email . . . . . *NONE          User ID
Group to receive Email . . . . . *NONE          Group ID

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=Hot to use this display
F24=More keys

```

Use **F9=All parameters** to see all available parameters for command.

File Name

The name of a physical file

Library

The location of the file or *LIBL to search the library list for the file

File Member

The name of the file member or *FIRST to use the first member in the file

Report Header

The title to place in the header of the excel file and in the subject line of the email. *FILETEXT will use the object description for the file.

MDCMS Instance

A 1-4 character string of the suffix for an existing instance of MDCMS or *DFT to use MDCMS

Export result to IFS file

*NO – the resulting report will not be automatically exported to an IFS file

*YES – the resulting report will be automatically exported to an IFS file

Email result

*NO – the resulting report will not be automatically emailed to recipients

*YES – the resulting report will be automatically emailed to recipients

Filename

If the results are to be exported or emailed, this is the name of the IFS file to receive the results. The file type (.csv or .xls) will be automatically appended to the end of the name.

Timestamp

*NO – a timestamp will not be appended to the file name

*YES – a timestamp in the format of YYYYMMDD_HHMMSS will be appended to the file name

Directory

If the results are to be exported, this is the name of the IFS directory to receive the results. The directory path should begin with the root character “/”.

Report Format

CSV – the exported report will be placed in a comma separated value file which can then be opened in Microsoft Excel or similar spreadsheet programs.

XML – the exported report will be converted to the excel format. JVM 1.4 or higher is required

csv Field Delimiter

The character to be used to separate fields in a csv file

Address to receive Email

A specific email address to receive the report

User to receive Email

A user id to receive the report - the address for the user will be retrieved from the MDCMS email address table.

Group to receive Email

All users for the entered group id to receive the report – this parameter requires MDWorkflow groups to be present.



12.3 MDEXPSPLF – Export Spooled File command

The MDEXPSPLF command provides the functionality to export any spooled file to a text or PDF file.

The following screen is displayed to get the parameters.

```

MD Export Spool File (MDEXPSPLF)

Type choices, press Enter.

Spool Name . . . . . _____ Spool Name
Job Name . . . . . *CURRENT *CURRENT, Job Name
Job Number . . . . . _____ Job Number
Job User . . . . . _____ Job User
Spooled file number . . . . . *LAST *LAST, 1-999999
MDCMS Instance . . . . . *DFT *DFT, Instance
Format . . . . . PDF PDF, TXT
File Name . . . . . _____

-----

Append Timestamp to filename . . *YES *YES, *NO
Report Title . . . . . _____

-----

Page Layout . . . . . *DFT *DFT, AUTOMATIC, LANDSCAPE...
Page Size . . . . . *DFT *DFT, A3, A4, A5, B5...
Add Page Number to each Page . . *NO *YES, *NO
Export result to IFS file . . . *NO *YES, *NO
Email result . . . . . *NO *YES, *NO
Directory . . . . . _____

-----

Address to receive Email . . . . *NONE

-----

User to receive Email . . . . . *NONE User ID
Group to receive Email . . . . . *NONE Group ID

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display

```

Use **F9=All parameters** to see all available parameters for command.

Spool Name

The name of a spooled file

Job Name

The name of the job that generated the spooled file or *CURRENT to look for the spooled file in the current job

Job Number

The number of the job that generated the spooled file

Job User

The user profile of the job that generated the spooled file Report Header

Spooled File Number

The number of the spooled file within the job or *LAST to use the most recently generated spooled file of the given name for the given job.



MDCMS Instance

A 1-4 character string of the suffix for an existing instance of MDCMS or *DFT to use MDCMS

Format

PDF – the spooled file will be converted to the PDF format. JVM 1.5 or higher is required

TXT – the spooled file will be converted to a text file

File Name

If the results are to be exported or emailed, this is the name of the IFS file to receive the results. The file type (.pdf or .txt) will be automatically appended to the end of the name.

Append Timestamp

*NO – a timestamp will not be appended to the file name

*YES – a timestamp in the format of YYYYMMDD_HHMMSS will be appended to the file name

Report Title

The title to place in the header of the PDF file and in the subject line of the email

Page Layout

Values for PDF format:

*DFT – the layout defined in data area MDSEC(instance)/MDPDFLOUT

AUTOMATIC – the layout is determined automatically based on the width of the spooled file

LANDSCAPE – the paper is rotated so that the wide edge is horizontal

PORTRAIT – the paper is rotated so that the wide edge is vertical

Page Size

Values for PDF format:

*DFT – the size defined in data area MDSEC(instance)/MDPDFSIZE

A3, A4, A5, B5, LEGAL, LETTER

Add Page Number to each Page

*NO – a page number will not be added to each page

*YES – a page number will be added to each page in the bottom right corner

Export result to IFS file

*NO – the resulting report will not be automatically exported to an IFS file

*YES – the resulting report will be automatically exported to an IFS file

Email result

*NO – the resulting report will not be automatically emailed to recipients

*YES – the resulting report will be automatically emailed to recipients

Directory

If the results are to be exported, this is the name of the IFS directory to receive the results. The directory path should begin with the root character “/”.

Address to receive Email

A specific email address to receive the report

User to receive Email

A user id to receive the report - the address for the user will be retrieved from the MDCMS email address table.



Group to receive Email

All users for the entered group id to receive the report – this parameter requires MDWorkflow groups to be present.



13 MDCLEAR – Clear all MDCMS Activity

Command MDCLEAR can be used to clear all activity (object requests, installation history, project information, etc...) for an instance while leaving all settings intact. This can be useful in testing a version of MDCMS and then clearing the test results before using the version in Production.

In order to run this command, the user must have MDSEC authority to application md/code 3.

After entering the command the following confirmation screen is displayed:

```

MDCCLRA                               Company Name                               11/19/11
SCRN1                                  Clear ALL MDCMS Activity                               21:39:44

WARNING!!! Pressing F10 will cause all of the following Files to be
              Cleared. The included files contain all information relating
              to Projects, RFPs, Object Requests and History.
              Settings are not cleared.

Library      File      Description
MDCMS        MDDCLWD  MDCMS - Send objects
MDCMS        MDDCLWDM MDCMS - Send Projects per Request
MDCMS        MDDCLWH  MDCMS - Request for Promotion header
MDCMS        MDDCLWM  MDCMS - Send Project description
MDCMS        MDDCLWO  MDCMS - Send Object commands
MDCMS        MDDCLWP  MDCMS - Manual Send Promotion number
MDCMS        MDDCMSB  MDCMS Install Bound Objects - Reqn
MDCMS        MDDCMSD  MDCMS Install Detail - Reqn
MDCMS        MDDCMSDM MDCMS - Projects per Request
MDCMS        MDDCMSDP MDCMS Pending Object Requests
MDCMS        MDDCMSH  MDCMS - Request for Promotion
MDCMS        MDDCMSM  MDCMS - Request for Modification

F3=Exit      F10=Clear Activity

More...

```

Function Keys:

F3=Exit – Leave screen without clearing the activity

F10=Clear Activity – Clear the contents of all listed files