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# New Features, Enhancements, and Corrections

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This document describes new features, enhancements, and corrections in Open M [DTM] Version 6.5. For a list of known problems, see the README file.

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## New Features, Enhancements, and Corrections

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# New Features and Enhancements

This section describes new features and enhancements in the current Open M [DTM] release.

## Open M [DTM] and Visual M

As of Version 6.5, Open M [DTM] for Windows is no longer a separate product. This is because Open M [DTM] is not available as a combined package with Visual M Version 7.0.

You can still use Open M [DTM] as a local server on the same computer with Visual M. However, you have to install Visual M separately. Visual M installation is no longer an optional part of Open M [DTM] installation.

For more information about Visual M Version 7.0, see the [Visual M Release Information](#).

## Open M NextGen Servers over DTM-NETBIOS

You can now use Open M NextGen for Windows 95 or Open M NextGen for Windows NT servers with Open M [DTM] clients through DTM-NETBIOS. See [Addendum A, Configuring a NextGen Server for an Open M \[DTM\] Net-BIOS Client](#) for more information.

## Language Enhancements and Changes

### The DTM Reverse Order (~) Operator Removed

Earlier versions of Open M [DTM] supported the reverse order operator (~). The effect of this operator was to reverse the byte order of a string. InterSystems has removed this operator in favor of the *ANSI M Language Standard* function \$REVERSE. The \$REVERSE function performs the same function as the reverse order operator.

### ZZJOBNAME Command

The ZZJOBNAME command allows a job to set its own job name from within the job. See [“ZZJOBNAME Command \(DTM\)” on page B-2](#) for more information.

### ZZUSERNAME Command

The ZZUSERNAME command allows a user process to set its own user name from within the process. See [“ZZUSERNAME Command \(DTM\)” on page B-3](#) for more information.

## \$ZZUSERNAME Special Variable

\$ZZUSERNAME returns the name of the current user process. See “[\\$ZZUSERNAME Special Variable \(DTM\)](#)” on page B-4 for more information.

## Common Journal File Format Conversion

InterSystems has implemented a new common format for journal files and developed a series of new utilities that convert journal files between their native format and the new common format. The new journal file conversion utilities for Open M [DTM] are:

<code>%jconvert</code>	Converts a DTM journal file to a common format file.
<code>%jread</code>	Restores from a common format file.

See the [Addendum C, Using Common-Format Journal Files](#) for details about the new common journal-file format.

## Network and Communication Enhancements

### Improved cpt Handling

In busy networks, the information Open M [DTM] stored on changed buffer pages would sometimes change too quickly for servers to be able to communicate accurate information to clients. In this case, the client's buffer pool would be flushed, at a great cost to performance. (This is reported in `%mnetstat` as a `cpt overflow`.)

Duplicate `cpt` entries are now purged if they duplicate an entry found in a user selectable number of prior entries. On a server, this “`cpt scan depth`” is performed while sending `cpt` entries to the client.

You specify the `cpt scan depth` for the server in the `.INI` file. In the `[NET-WORK]` section, enter the following to select a lookback depth of 20:

```
CPTSCAN = 20
```

The default setting is 0.

The table that tracks changed pages has been increased from 2048 bytes to 8192 bytes.

### Invalid NetBios Wake-Up Calls Intercepted

In some networks, a client disconnect triggered a network interrupt with an invalid netbios wake-up call to the Open M [DTM] server. This had unpredictable results.

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Open M [DTM] now screens out occasional inappropriate netbios wake-up calls to the DTM server that occur when a client disconnects. A new netlog entry indicate occurrences of this with the message code:

```
Invalid wakeup ignored
```

In general, you can ignore this message. However, frequent occurrences can indicate a problem in your underlying network.

### Retry Added When Opening SPX SAP Socket Fails

Previous versions of Open M [DTM] that were running on Windows 95 often received an SPX “socket error or hardware problem” message if file or printer sharing was enabled during network configuration. The first time DTM was started, the server process exited with a "socket error or hardware problem" message when Open M [DTM] attempted to open the SAP socket 452h to listen to connection queries from clients located on the same segment.

InterSystems has added a retry when opening socket 452h. In case of a failure, Open M [DTM] first closes the socket and then tries to re-open it. In most cases, Open M [DTM] is able to open the socket on the retry.

## Utility Enhancements

### Running the %jshadow Utility from a Terminal

Under Open M [DTM] Version 6.5, the %jshadow utility can run from a terminal as well as from the console.

### Improved %mhaltsys Behavior

In previous releases, %mhaltsys would sometimes fail to bring down M when a user process ran with an artificially high priority. Processes can occasionally get into this state without the user having specifically requested it. Once in such a condition, a process cannot be terminated normally.

The %mhaltsys utility has been changed to handle this problem. Now, %mhaltsys gives all user processes up to 60 seconds to terminate after which it terminates them.

### Control Characters with %gsave and %gload

In previous releases, you were not able to save and recover control characters (such as carriage return/line feed) in globals. The %gsave and %gload utilities have been changed to handle control characters. You can now save control characters in globals with %gsave. You can restore the globals with the control characters intact with %gload.

## Corrections

This section describes problems in previous Open M [DTM] releases that are corrected in the current release. Corrections are cumulative: later releases contain all corrections from prior releases.

- Because DTM uses interrupts to service COM devices and because 80x86 protected mode used in Windows interferes with the operation of interrupts, DTM COM devices 100-131 do not operate properly under MS Windows. InterSystems recommends that you use an intelligent serial port device instead.
- In previous releases, `$$zusername` would come into conflict with global keys which approached the length limit of 252. This problem has been corrected. Global references that use a key of approximately 200 bytes no longer overwrite a name set by `$$zusername`.
- The use of `$(10)` in a subscript has been corrected. M now properly handles a `$(10)` embedded in a subscript for an indirect reference.
- In heavily loaded environments, routines could incorrectly return a "Bad syntax" error when a routine page had moved out from under an extrinsic call in an indirect reference. This problem has been corrected.
- The in-memory server did not explain why it failed to start properly if the DTWX.386 Vxd wasn't loaded. The error code has been changed from 65535 to a more meaningful code with appropriate text.
- In previous releases, various Open M [DTM] utilities would incorrectly report the amount of free space on some very large disk drives. This problem has been corrected internally. Open M [DTM] utilities now give a correct accounting of free space on large disk drives.
- Under Open M [DTM] Version 6.4, a `$ORDER` operation could occasionally terminate prematurely in a networked environment. Open M [DTM] Version 6.5 has fixed this problem.
- Under past releases of Open M [DTM], a Visual M thin client would sometimes lose small amounts of free memory (32 bytes at a time). This problem occurred most frequently when there were multiple connections from multiple machines and often only after a connection failure of some kind had occurred.

Open M [DTM] Version 6.5 corrects this problem. Visual M thin clients no longer suffer memory loss with multiple connections from multiple machines, whether or not there has been a connection failure.

- Open M [DTM] Version 6.5 corrects a problem in which code to refresh a routine page after a DO would behave incorrectly in an "Illegal argument" error. The code to refresh a routine page after a DO now behaves correctly.
- Under Open M [DTM] Version 6.5, the shadow process correctly restarts automatically after M halt and restart.

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- Under Open M [DTM] Version 6.5 has corrected a problem in the %gsave utility. The %gsave utility no longer writes a carriage-return/line feed in the output file. Therefore, you can now properly use the Open M NextGen %GO utility to convert a gsaved output file.
- Under Open M [DTM] Version 6.5, the %mnetspxs server job no longer fails when jobs are remotely started into a hierarchical namespace (like /TST/USER).
- Under Open M [DTM] Version 6.5, the valid syntax MAP ^\* is no longer rejected as having "Map statements out of order."
- Under Open M [DTM] Version 6.5, use of ZZDOS on a Windows 95 platform no longer crashes the system if there are more than 20 DOS file handles in use.
- Under Open M [DTM] Version 6.5, erroneous references in %dsbackup1 no longer can cause "Undefined label" errors.
- Under Open M [DTM] Version 6.5, %gedit no longer fails with a subscript error if the subscript contains an embedded quote.

## Documentation Notes

This section discusses the following topics:

- The Open M [DTM] documentation set
- Corrections to the Open M [DTM] documents

### The Open M [DTM] Documentation Set

In addition to this Release Information, you need the following documents to work successfully with Open M [DTM]. To obtain any of these documents, contact your InterSystems sales representative.

- *DTM System Manager's Guide*, Version 6.3—This guide serves the needs of the system manager, providing guidance on maintaining Open M [DTM] under MS-DOS. It discusses such topics as:
  - Operation of Open M [DTM] in single- and multi-user environments.
  - Configuration of the database, memory, and devices used by Open M [DTM].
  - Using the dataset utilities for backups, repairs, and so forth.
  - Creating datasets and namespaces.
  - Controlling user login and security.

(See [“Corrections to the Open M \[DTM\] documents” on page 8.](#))

- *DTM Programmer's Guide*, Version 6.3—This guide is directed at the application developer. It covers:
  - Editors
  - Debuggers
  - Device control functions
  - Routine management utilities
  - Global management utilities
  - Library utilities

(See [“Corrections to the Open M \[DTM\] documents” on page 8.](#))

- *DTM Network Configuration Guide*, Version 6.3—This guide describes DT Network, the network support component of *Open M [DTM]*. It describes the selection, installation, and maintenance of networks compatible with *Open M [DTM]*.

(See [“Corrections to the Open M \[DTM\] documents” on page 8.](#))

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- *M Language Reference*—This book describes both ANSI Standard language features and Open M [DTM] language extensions.
- *M Quick Reference*—This document serves as a pocket guide to the M language. It also describes the Open M [DTM] language extensions.
- *DTM Master Index, Version 6.3*—Each volume in the Open M [DTM] documentation set contains an index in its back matter covering that volume. However, InterSystems also provides this Master Index that covers all volumes in the set.

All of these documents (except for the *M Quick Reference*) are included on the InterSystems Technical Information CD-ROM. The Technical Information CD-ROM is available by subscription through InterSystems.

## Corrections to the Open M [DTM] documents

The following is a list of corrections to the Open M [DTM] documentation. This list is cumulative. That is, the list includes all corrections to the documentation set made in prior releases.

### ***Open M for DOS Version 6.3 Release Information***

#### **Page A-1:**

Replace the search expression:

```
string?(1"A",1"B")
```

with:

```
string?1(1"A",1"B")
```

### ***DTM Network Configuration Guide Version 6.3***

#### **Page 3-41:**

Replace the sentence:

“DDP volume sets available on the server are defined by declaring a namespace in the format XXX\_YYY, where XXX is the node name and YYY is the volume set/UCI.”

with the following sentence:

“DDP volume sets available on the server are defined by declaring a namespace in the format XXX\_YYY, where XXX is the volume and YYY is the volume set/UCI.”

**Page 3-43 and 3-44:**

Replace the following syntax example and table under the heading: **Terminate and Stay Resident Programs:**

When executing the TSR, the command line may have three parameters, as summarized in the following statement:

```
ISDDP.EXE IRQ gGlobalBuffers
```

The variable portions of this command-line syntax are:

Variable	Description
IRQ	Interrupt number used to communicate with the packet driver or the FTP kernel. Expressed in hexadecimal, this number must be between 60 and 7F. You may use any free interrupt in this range.
gGlobalBuffers	Number of "global buffers" expressed as a decimal number with a "g" (upper- or lowercase) prefixed to it. ISNET's DDP implementation never uses more than 20 global buffers, although UDP and raw Ethernet usually need more than 20.  Assume a minimum of 4 global buffers per network job. If you try to start more jobs than GlobalBuffers/4, you will receive an error message (something like: "too many jobs for this number of global buffers"), and those jobs will not start. For optimal performance, try to have at least 10 global buffers per network job. More is better, if you have the memory available.

With the following syntax example and table:

When executing the TSR, the command line may have three parameters, as summarized in the following statement:

```
ISDDP.EXE INT gGlobalBuffers
```

The variable portions of this command-line syntax are:

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Variable	Description
<i>INT</i>	Interrupt number used to communicate with the packet driver or the FTP kernel. Expressed in hexadecimal, this number must be between 60 and 7F. You may use any free interrupt in this range.
<i>gGlobalBuffers</i>	<p>Number of “global buffers” expressed as a decimal number with a “g” (upper- or lowercase) prefixed to it. ISNET’s DDP implementation never uses more than 20 global buffers, although UDP and raw Ethernet usually need more than 20.</p> <p>Assume a minimum of 4 global buffers per network job. If you try to start more jobs than <i>GlobalBuffers</i>/4, you will receive an error message (something like: “too many jobs for this number of global buffers”), and those jobs will not start. For optimal performance, try to have at least 10 global buffers per network job. More is better, if you have the memory available.</p>

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### Page 3-53:

Replace the example under the heading **Multiprotocol Startup**:

```
DTM.INI [GENERAL]
NET = ON
ZCALLS = DTNBIOS
```

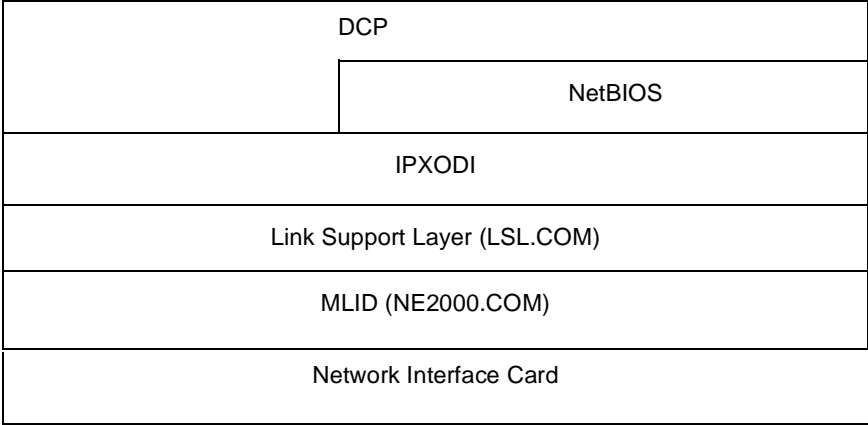
with the following example:

```
DTM.INI [GENERAL]
NET = ON
ZCALLS = DTNBIOS,DTTCP
```

### Page B-5

Replace the following figure and introductory text found under the heading **Building an ODI Protocol Stack**:

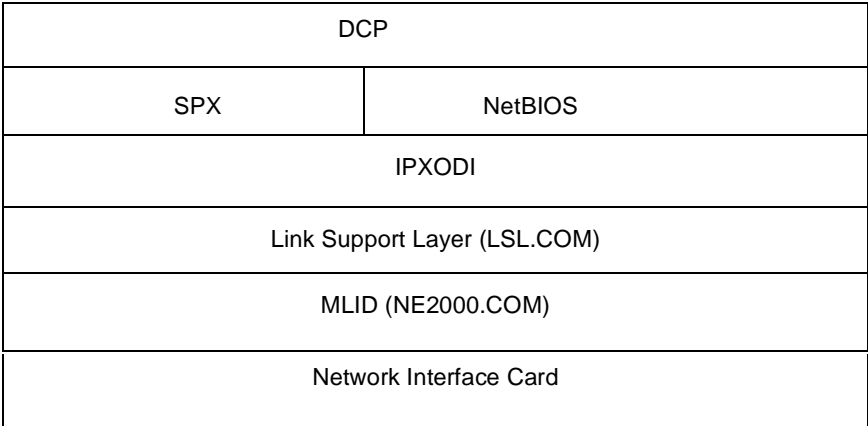
The figure shows an example of a protocol stack running NetBIOS and IPX. DT Network's Distributed Cache Protocol (DCP) can interface at the IPX layer *directly* or at the NetBIOS (over IPX) layer.



**Figure B-3: ODI Architecture**

With the following figure and introductory text:

The figure shows an example of a protocol stack running NetBIOS and IPX. DT Network's Distributed Cache Protocol (DCP) can interface to NetBIOS over IPX or to SPX.



**Figure B-3: ODI Architecture**

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### *DTM Programmer's Guide Version 6.3*

#### **Page 11-11:**

Replace the device parameter:

ESCAPETIMEOUT

with:

ESCTIMEOUT

#### **Page 11-9:**

The following sentence is incorrect:

“Except for the CLASS parameter, all of these attributes can be modified via the OPEN and USE commands.”

The LFA parameter produces an error when included in the OPEN command.

#### **Page 11-43:**

The second line from the top of the page in the FileDemo example should read:

```
set $ZTRAP="NoOpen^FileDemo"
```

### ***M Language Reference***

#### **Page 2-104**

The following paragraph describes the TERM parameter on the USE command for DTM:

“Use the *TERM* parameter to dynamically change the READ command termination characters. For example, to cause a READ command to terminate whenever you enter a line-feed, carriage return, escape or uppercase “A”, issue this command:

```
USE 0:TERM=$C(10,13,27,65) ”
```

This paragraph should include the following sentence after the example:

“However, be aware that you can only use the TERM parameter with the console device.”