Creo Elements/Direct Drafting DWG/DXF Translator

Creo Elements/Direct Drafting 20.2.4.0

Copyright © 2021 PTC Inc. and/or Its Subsidiary Companies. All Rights Reserved.

User and training guides and related documentation from PTC Inc. and its subsidiary companies (collectively "PTC") are subject to the copyright laws of the United States and other countries and are provided under a license agreement that restricts copying, disclosure, and use of such documentation. PTC hereby grants to the licensed software user the right to make copies in printed form of this documentation if provided on software media, but only for internal/personal use and in accordance with the license agreement under which the applicable software is licensed. Any copy made shall include the PTC copyright notice and any other proprietary notice provided by PTC. Training materials may not be copied without the express written consent of PTC. This documentation may not be disclosed, transferred, modified, or reduced to any form, including electronic media, or transmitted or made publicly available by any means without the prior written consent of PTC and no authorization is granted to make copies for such purposes. Information described herein is furnished for general information only, is subject to change without notice, and should not be construed as a warranty or commitment by PTC. PTC assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

The software described in this document is provided under written license agreement, contains valuable trade secrets and proprietary information, and is protected by the copyright laws of the United States and other countries. It may not be copied or distributed in any form or medium, disclosed to third parties, or used in any manner not provided for in the software licenses agreement except with written prior approval from PTC.

UNAUTHORIZED USE OF SOFTWARE OR ITS DOCUMENTATION CAN RESULT IN CIVIL DAMAGES AND CRIMINAL PROSECUTION.

PTC regards software piracy as the crime it is, and we view offenders accordingly. We do not tolerate the piracy of PTC software products, and we pursue (both civilly and criminally) those who do so using all legal means available, including public and private surveillance resources. As part of these efforts, PTC uses data monitoring and scouring technologies to obtain and transmit data on users of illegal copies of our software. This data collection is not performed on users of legally licensed software from PTC and its authorized distributors. If you are using an illegal copy of our software and do not consent to the collection and transmission of such data (including to the United States), cease using the illegal version, and contact PTC to obtain a legally licensed copy.

Important Copyright, Trademark, Patent, and Licensing Information: See the About Box, or copyright notice, of your PTC software.

UNITED STATES GOVERNMENT RIGHTS

PTC software products and software documentation are “commercial items” as that term is defined at 48 C.F. R. 2.101. Pursuant to Federal Acquisition Regulation (FAR) 12.212 (a)-(b) (Computer Software) (MAY 2014) for civilian agencies or the Defense Federal Acquisition Regulation Supplement (DFARS) at 227.7202-1(a) (Policy) and 227.7202-3 (a) (Rights in commercial computer software or commercial computer software documentation) (FEB 2014) for the Department of Defense, PTC software products and software documentation are provided to the U.S. Government under the PTC commercial license agreement. Use, duplication or disclosure by the U.S. Government is subject solely to the terms and conditions set forth in the applicable PTC software license agreement.

PTC Inc., 121 Seaport Blvd, Boston, MA 02210 USA

Contents

About this Manual 4

Product Overview 5
- DWG/DXF Translator Fileset 7

Using the DWG/DXF Translator 8
- Before You Translate 10
- Running the DWG/DXF Translator 10
- Main Menu Options 12
- Using the DWG/DXF Command Options 16
- Checking the Translation 18
- Transferring the Files 18

Configuration File 19
- Introduction 20
- Listing of the Configuration File 20

Log File 26
- Description of a Log File: DXF Translation 27
- Description of a Log File: DWG Translation 29

Batch File 31
- Description of a Batch File 32
- Creating a Batch File 32

Batch Log File 34
- Description of a Batch Log File 35

Output File 36
- Introduction 37
- Listing of an MI Output File 37
- Listing of a DXF Output File 38

DXF to MI Entity Mappings 40

MI to DXF Entity Mappings 49

Appendix A.Hints and Tips for Translating DXF/DWG to MI 58

Appendix B.Hints and Tips for Translating MI to DXF/DWG 63

Appendix C.Loading DXF External Reference Parts 67

Index 68

About this Manual

This manual covers operation of the DWG/DXF Translator on platforms supported by Creo Elements/Direct Drafting. Differences between platforms are indicated by the following conventions:

Windows-Based Systems Only: Refers to systems running Microsoft Windows.

1

Product Overview

DWG/DXF Translator Fileset 7

The DWG/DXF Translator supports the DWG and DXF format of AutoCAD®. The DWG/DXF Translator can translate in both directions:

- From MI (used by Drafting and Modeling) to DWG/DXF format.
- From DWG/DXF to MI format.

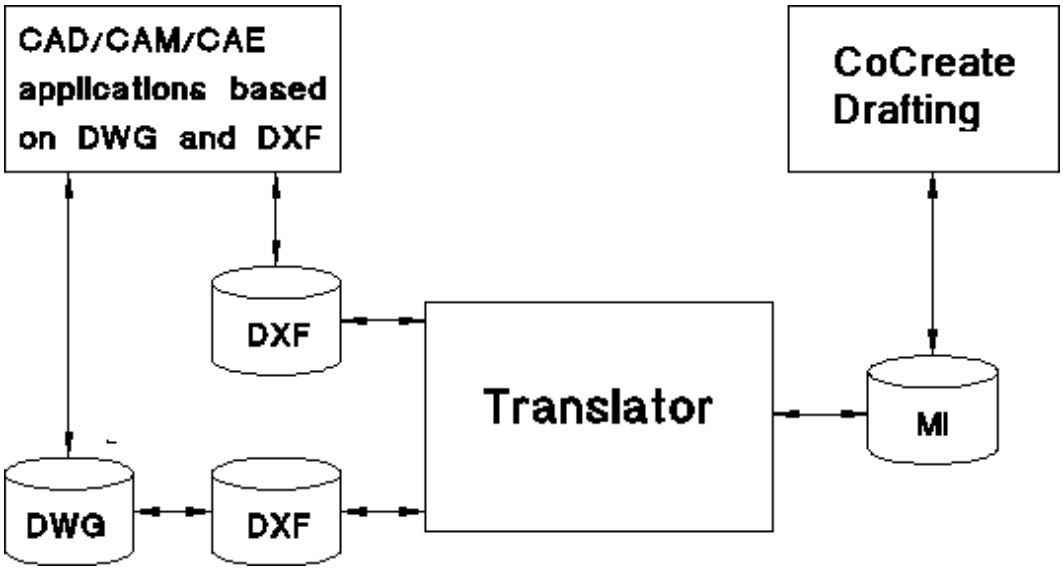
The translator also supports Scalable Vector Graphics (1.0) of World Wide Web Consortium®. Translation goes in only one direction.

- From MI to SVG.

Note

Compressed MI files are not supported if the translator is used in a stand-alone mode (not within Creo Elements/Direct Drafting).

A two-way transfer of data between Creo Elements/Direct Drafting and another CAD system supporting DWG/DXF format operates as follows:



The DWG/DXF Translator supports Microsoft Windows operating systems.

The DWG/DXF Translator supports the following MI, DWG, DFX, and SVG formats:

	Read	Write
MI Version	2.50 and newer	3.50
AutoCAD: DXF/DWG Version	12, 13, 14, 2000, 2002, 2004, 2007, 2008, 2010, 2013, 2018	12, 13, 14, 2000, 2002, 2004, 2007, 2008, 2010, 2013, 2018
SVG Version		1.0

Note that the DXF/DWG version can be toggled by means of the `OutputACADVersion` parameter in the `DXFDWG.con` file.

DWG/DXF Translator Fileset

The DWG/DXF Translator is automatically installed when you install Drafting. No separate installation procedure is required.

When you install Creo Elements/Direct Drafting, the following DWG/DXF Translator files are installed on your system:

`dxfdwg.exe`	Execution code for the DWG/DXF Translator. Note that the `.exe` extension applies to the Windows platform only.
`dxfdwg.con`	Configuration file
`adinit.dat`	Message file for prompts
`Readme`	File containing useful information pertaining to the DWG/DXF Translator

2

Using the DWG/DXF Translator

Before You Translate 10
Running the DWG/DXF Translator 10
Main Menu Options 12
Using the DWG/DXF Command Options 16
Checking the Translation 18
Transferring the Files 18

This chapter explains how to use the DWG/DXF Translator in both single and batch translations.

The DWG/DXF Translator translates files in both directions between the Creo Elements/Direct Drafting Model Interface format (MI) and the AutoCAD Drawing Interchange File format (DXF) or the AutoCAD proprietary drawing format (DWG). MI and DXF are ASCII formats, DWG is binary format.

This translator also translates between Drafting Model Interface format (MI) and Scalable Vector Graphics (SVG). SVG is based on XML.

Note

SVG translation is based on the same technology as the one used for DWG/DXF translation. The SVG format, however, has no relation at all with the DWG/DXF formats from AutoDesk. In addition, this translator works only in one direction (MI to SVG).

Note

- The DWG/DXF import configurator is only available in the Fluent User Interface. Refer to the Opening a Drawing File Using the Creo Elements/Direct Drafting File Browser topic in the Creo Elements/Direct Drafting User's Guide: Fluent User Interface.
- During translation, several minor warnings may appear. You can supress these warnings with the TRANSLATOR_WARNING function. See TRANSLATOR_WARNING in the *Creo Elements/Direct Drafting / Creo Elements/Direct 2D Access Programming Reference Guide* for details.

Before You Translate

- Make sure the files to be translated and the DWG/DXF Translator are on the same system.
- Make sure the parameters in the appropriate configuration file are set correctly for your translation. Refer to Configuration File on page 19 for information on setting the parameters. If you need to edit a file, use an editor that saves files in ASCII format.
- To translate in batch mode, you must first create the required batch file. Refer to Creating a Batch File on page 32 for guidance.

Running the DWG/DXF Translator

To run the Translator:

1. You must have already started your Windows operating system before you can start the DWG/DXF Translator.
2. Click: **Start**, **All Programs**, **PTC**, **Creo Elements Direct Drafting [version]**, **Creo Elements Direct Drafting DXF DWG Translator [version]**.

The DWG/DXF Translator's DWG/DXF Translator Start-Up Screen on page 10 is displayed. Press `[Enter]` to display the DWG/DXF Translator Main Menu on page 11.

Source and Destination Paths

To run the DWG/DXF translator transparently from within Drafting, you need to specify the paths of the source and destination files in the `dxfdwg.con` file.

When you use the DWG/DXF translator in standalone (interactive) mode, you will be prompted for the name of the source file, the name of the destination file, and the name of the log file. It is recommended to provide the full path and file name to ensure that the correct file will be found.

DWG/DXF Translator Start-Up Screen

When you start the DWG/DXF Translator, you will see the startup screen that shows information about the latest DWG/DXF release and some general information about Creo Elements/Direct.

At the bottom of the screen, you will be prompted to "Press enter to continue"

Press the `[Enter]` key to display the DWGDXF Translator Main Menu.

DWG/DXF Translator Main Menu

0	Exit Program
1	Translate DXF to MI
2	Batch Translate DXF to MI
3	Translate MI to DXF
4	Batch Translate MI to DXF
5	Translate DWG to MI
6	Batch Translate DWG to MI
7	Translate MI to DWG
8	Batch Translate MI to DWG
9	Translate MI to SVG
10	Batch Translate MI to SVG

To choose an option, enter the corresponding number at the keyboard, press `[Enter]`, and follow the prompt. If you inadvertently select the wrong option, simply keep pressing `[Enter]` until the DWG/DXF Translator Main Menu reappears.

Note

You can run the Translator from the operating system's command line prompt by specifying the appropriate options and filenames. This method bypasses the main menu options. Refer to Using the DWG/DXF Command Options on page 16 in this chapter.

Select the Run menu item and enter the command in the dialog box that is displayed.

Conversion Rules

- The default source and destination directory is your current directory.
- The default source and destination directories can be changed by editing the configuration file. Refer to Configuration File on page 19 for more information.
- You also can specify the path for the source, destination and log files. In this case the default directories are ignored, and the absolute path is used for both the destination and log files.

Main Menu Options

Exit Program (0)

This option terminates the program.

Translate DXF to MI (1)

This option translates a file from DXF format to MI format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 1.
2. Enter the name of the source file and press `[Enter]`.
3. Optionally, enter the name of the destination file. If you press `[Enter]` to use the default, the destination filename will be the name of the source file followed by the `.mi` suffix.
4. Optionally, enter the name of the log file. If you press `[Enter]` to use the default, the logfile name will be the name of the source file followed by the `.log` suffix.
5. When you have entered the appropriate filename(s), press `[Enter]` again to perform the translation.

Batch Translate DXF to MI (2)

This option translates multiple files from DXF format to MI format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 2.
2. Enter the name of the batch file for DXF to MI conversion. Each line in the batch file must be a valid response to the `Enter source file name`, `Enter destination file name`, and `Enter log file name` prompts that appear in the `Translation — DXF to MI` screen. Refer to Creating a Batch File on page 32 for instructions on creating the batch file.
3. Press the `[Enter]` key. The Translator produces a destination (output) file in MI format and a log file for each file specified in the batch file. It also produces a batch log file. (Refer to Creating a Batch File on page 32 for details of the batch log file.) If there is an error associated with the specified filename, the Translator displays a message about the error, exits from the Translator and returns to the operating system.
4. Check the result of the translation. Refer to Checking the Translation on page 18 for further information.

Translate MI to DXF (3)

This option translates a file from the MI format to the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 3.
2. Enter the name of the source file and press `[Enter]`.
3. Optionally, enter the name of the destination file. If you press `[Enter]` to use the default, the destination filename will be the name of the source file followed by the `.dxf` suffix.
4. Optionally, enter the name of the log file. If you press `[Enter]` to use the default, the logfile name will be the name of the source file followed by the `.log` suffix.
5. When you have entered the appropriate filename(s), press `[Enter]` again to perform the translation.

Batch Translate MI to DXF (4)

This option translates multiple files from MI format to DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 4.
2. Enter the name of the batch file for MI to DXF conversion. Each line in the batch file must be a valid response to the `Enter source file name`, `Enter destination file name`, and `Enter log file name` prompts that appear in the `Translation — MI to DXF` screen. Refer to Creating a Batch File on page 32 for instructions on creating the batch file.
3. Press the `[Enter]` key. The Translator produces a destination (output) file in DXF format and a log file for each file specified in the batch file. It also produces a batch log file. (Refer to Creating a Batch File on page 32 for details of the batch log file.) If there is an error associated with the specified filename, the Translator displays a message about the error, exits from the Translator and returns to the operating system.
4. Check the result of the translation. Refer to Creating a Batch File on page 32 for further information.

Translate DWG to MI (5)

This option translates a file from the DWG format to the MI format via the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 5.
2. Enter the name of the source file and press `[Enter]`.

3. Optionally, enter the name of the destination file. If you press [Enter] to use the default, the destination filename will be the name of the source file followed by the .mi suffix.
4. Optionally, enter the name of the log file. If you press [Enter] to use the default, the logfile name will be the name of the source file followed by the .log suffix.
5. When you have entered the appropriate filename(s), press [Enter] again to perform the translation.

Batch Translate DWG to MI (6)

This option translates multiple files from DWG format to MI format via the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 6.
2. Enter the name of the batch file for DWG to MI conversion. Each line in the batch file must be a valid response to the Enter source file name, Enter destination file name, and Enter log file name prompts that appear in the Translation — DWG to MI screen. Refer to Creating a Batch File on page 32 for instructions on creating the batch file.
3. Press the [Enter] key. The Translator produces a destination (output) file in MI format and a log file for each file specified in the batch file. It also produces a batch log file. (Refer to Batch File on page 31 for details of the batch log file.) If there is an error associated with the specified filename, the Translator displays a message about the error, exits from the Translator and returns to the operating system.
4. Check the result of the translation. Refer to Checking the Translation on page 18 for further information.

Translate MI to DWG (7)

This option translates a file from the MI format to the DWG format via the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 7.
2. Enter the name of the source file and press [Enter].
3. Optionally, enter the name of the destination file. If you press [Enter] to use the default, the destination filename will be the name of the source file followed by the .dwg suffix.
4. Optionally, enter the name of the log file. If you press [Enter] to use the default, the logfile name will be the name of the source file followed by the .log suffix.

5. When you have entered the appropriate filename(s), press [Enter] again to perform the translation.

Batch Translate MI to DWG (8)

This option translates multiple files from MI format to DWG format via the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu on page 11, select option # 8.
2. Enter the name of the batch file for DWG to MI conversion. Each line in the batch file must be a valid response to the Enter source file name, Enter destination file name, and Enter log file name prompts that appear in the Translation — MI to DWG screen. Refer to Creating a Batch File on page 32 for instructions on creating the batch file.
3. Press the [Enter] key. The Translator produces a destination (output) file in DWG format and a log file for each file specified in the batch file. It also produces a batch log file. (Refer to Batch File on page 31 for details of the batch log file.)

Translate MI to SVG (9)

This option translates a file from MI format to the SVG format via the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu, select option # 9.
2. Enter the name of the source file and press [Enter].
3. Optionally, enter the name of the destination file. If you press [Enter] to use the default, the destination filename will be the name of the source file followed by the .dwg suffix.
4. Optionally, enter the name of the log file. If you press [Enter] to use the default, the logfile name will be the name of the source file followed by the .log suffix.
5. When you have entered the appropriate filename(s), press [Enter] again to perform the translation.

Batch Translate MI to SVG (10)

This option translates multiple files from MI format to SVG format via the DXF format. Proceed as follows:

1. In the DWG/DXF Translator Main Menu, select option # 10.
2. Enter the name of the batch file for MI to SVG conversion. Each line in the batch file must be a valid response to the Enter source file name,

Enter destination file name, and Enter log file name prompts that appear in the Translation — MI to SVG screen. Refer to Creating a Batch File on page 32 for instructions on creating the batch file.

3. Press the [Enter] key. The Translator produces a destination (output) file in SVG format and a log file for each file specified in the batch file. It also produces a batch log file. (Refer to Batch File on page 31 for details of the batch log file.)

Using the DWG/DXF Command Options

You can run the Translator from the operating system's command line prompt by specifying the appropriate options and filenames. This method bypasses the main menu options. Refer to Using the DWG/DXF Command Options on page 16 in this chapter.

- Change to the directory where the DWG/DXF Translator is installed. Then open a DOS shell to enter the required command string.

List of Command Options

-i	Translate from DXF to MI.
-o	Translate from MI to DXF.
-m	Translate from MI to DWG.
-d	Translate from DWG to MI.
-s	Translate from MI to SVG.
-e	The following string is the configuration filename. (A standard configuration file, dxfdwg.con is used by default. Use this option to specify a customized file configuration file if you have created one.)
files	The files to be translated.
-b	Batch translate. (The default is single translation.)
-f	The following strings are the source, destination, and log file names. Refer to Translate DXF to MI (1) on page 12 for details on specifying filenames.
-t	The following string is the target version of AutoCAD. For example, -t ACAD1009 saves the MI file to AuotCAD revision 12. You can alsow save to ACAD1012 (r13), ACAD1014 (r14), ACAD1015 (r2000), ACAD1018 (r2004).

Note

Options `-i`, `-o`, `-m`, `-d`, and `-s` are mutually exclusive.

Options `-b`, `-f` and files (no option) are mutually exclusive.

If you want to use the Run command to start the translator, you need to enter the full name of the DWG/DXF Translator, including pathname and extension, be specified, for example, `\dxfdwg\dxfdwg.exe`.

Options 1 to 10 in the DWG/DXF main menu are equivalent to the following DWG/DXF command options:

Main Menu	DWG/DXF Command
1: Translate DXF to MI	`dxfdwg -i`
2: Batch Translate DXF to MI	`dxfdwg -i -b`
3: Translate MI to DXF	`dxfdwg -o`
4: Batch Translate MI to DXF	`dxfdwg -o -b`
5: Translate DWG to MI	`dxfdwg -d`
6: Batch Translate DWG to MI	`dxfdwg -d -b`
7: Translate MI to DWG	`dxfdwg -m`
8: Batch Translate MI to DWG	`dxfdwg -m -b`
9: Translate MI to SVG	`dxfdwg -s`
10: Batch Translate MI to SVG	`dxfdwg -s -b`

Translating One or More Files

To translate one or more files (default destination and log filenames):

```
dxfdwg.exe [-i or o or m or d or s]
[-e file] [-t AutoCAD version]files
 [Enter]
```

Translating in Batch Mode

To translate in batch mode:

```
dxfdwg.exe [-i or o or m or d or s] [-e file]
 [-t AutoCAD version] -b batch_file [Enter]
```

Specifying Destination and Log Filenames

To specify the destination and log filenames:

```
dxfdwg.exe [-i or o or m or d or s] [-e file] -b
batch_file [Enter]
```

Checking the Translation

The Translator creates a log file for each file translated. Verify that the translation was successful by checking the log file as follows:

1. Check the direction of translation and the settings of the source and destination filenames. This ensures you are looking at the correct log file.
2. Check the values used for the configurable parameters. Make sure these parameters are set correctly. (Refer to Configuration File on page 19 for details of these configurable parameters.)
3. Check for the warning and error messages.
4. If you are translating from DXF to MI, check for any DXF External Reference Parts translated. (Refer to Loading DXF External Reference Parts on page 67 for instructions on loading these parts back into the drawing.)

For more information on log files, see Log File on page 26.

If you translated in batch mode, check the batch log file first. This file contains a one-line comment for each file translated. The comment indicates whether the translation was successful, but does not provide details of a problem. If a comment indicates a particular translation was unsuccessful, check the source file's corresponding log file to find out why.

For more information on the batch log file, see Batch Log File on page 34.

Transferring the Files

After you have checked the log file(s) and are satisfied with the translation, you may need to transfer the output file to the system where it will be used.

If you translated a DWG/DXF file into MI format, the output MI file is probably already on the system where it will be used. If so, you do not need to transfer the MI file.

If you translated an MI file into DWG/DXF format, the output DWG/DXF file will probably be used on an MS-DOS system.

3

Configuration File

Introduction.....20
Listing of the Configuration File 20

Introduction

The configuration file `DXFDWG.con` controls the translation process and the mapping of configurable entities in the DWG/DXF Translator. This configuration file contains default settings; these are shown in Listing of the Configuration File on page 20.

Listing of the Configuration File

The following is a listing of the configuration file with default settings as supplied with the system:

```
#     Creo Elements/Direct /Interface for MI SVG/DWG/DXF (TM*)
#        * DXF and DWG are trademarks of Autodesk, Inc.
#
#     MI <==> DWG/DXF/SVG configuration file#
# Each line which specifies a unique parameter has the format
#
#       COMMAND  <whitespace> OPTION  [# comments]
#
# You may change comments and values
# Blank lines are ignored


# General Translator Parameters

SourceDirPath                ./
DestinDirPath                ./
FontFilesPath               ./
KanjiTranslate               OFF
EnableLegacyEncoding        OFF

# DXF/DWG/SVG to MI Translation Switches

StartSection                 DXF to MI Translator
PolymarkerType               2
TranslateDXFPenLineSize      4
TranslateInvisibleLayers     OFF
CustomUnits                  OFF
Units                        mm
UnitsScale                   1.0
ContourSnapGap               1E-12
HatchCloseContours           ON
HatchToContours              OFF
CreateManualHatch            OFF
ExplodeDXFDimensions         OFF
RecomputeDimBlock            OFF
KeepAttributesWithPart       OFF
RecordByLayerInfo            OFF
SplineControlPointTranslation OFF
```

```
TranslateDXFInvisibleEntities OFF
ReadAllLayoutData             OFF
TranslatePaperspace           OFF
LayoutName
ModelSpace                    ON
SideBySideLayoutView          OFF

# data for translation from MI to DXF/DWG/SVG

TranslateSubfixDimProp        ON
TranslateSuperfixDimProp      ON
KeepTopScale                  OFF
TranslateMIPenLineSize        1
OutputACADVersion             AC1015
ConvertMIDimensionsToGeometry OFF
CreateSplineFitPoints         ON
HighSplinePrecision           OFF
TranslateMIInvisibleEntities  OFF
SVGDarkBackground       ON
LineTypeGlobalScale           1.0
MinimumHatchSpacingDensity    0.0
DXFDecimalPrecision           14
TranslatePictureAs            REFERENCE

#font mappings

# "width ratio" means MI to ACAD font width ratio (in both
directions)

# "autocad font file name" "OSDD 1byte font name" "OSDD 2byte font
name" "width ratio"
# "line spacing" "vertical line spacing"

FontMapACADtoMI "txt.shx"       "hp_i3098_v"    "hp_kanj2_c"
0.90  1.666   1.3333
FontMapACADtoMI "simplex.shx"   "hp_d17_v"      "hp_kanj2_c"
0.95  1.666   1.3333
FontMapACADtoMI "complex.shx"   "hp_block_v"    "hp_kanj2_c"
0.95  1.666   1.3333
FontMapACADtoMI "italic.shx"    "hp_jasc_v"     "hp_kanj2_c"
1.15  1.666   1.3333

FontMapACADtoMI "TIMES.TTF"     "Times_New_Roman"  "hp_kanj2_c"
1.03   1.666   1.3333
FontMapACADtoMI "tahoma.ttf"    "Tahoma"           "hp_kanj2_c"
1.25   1.666   1.3333
FontMapACADtoMI "ARIAL.TTF"     "Arial"            "hp_kanj2_c"
1.2    1.666   1.3333
FontMapACADtoMI "ARIALUNI.TTF"  "Arial_Unicode_Ms"  "Arial_
Unicode_Ms"       1.2           1.666        1.3333
```

```
FontMapACADtoMI "ARIALBD.TTF"   "Arial"             "osd_default"
1.2           1.666        1.3333
FontMapACADtoMI "COUR.TTF"      "Courier_New"      "hp_kanj2_c"
0.75   1.666   1.3333

# Followed lines should be uncommented, if AutoCAD is installed on
the system, where the translated drawing will be viewed.
# FontMapACADtoMI "isocp.shx"     "isocp"         "hp_kanj2_c"
0.77  1.666   1.3333
# FontMapACADtoMI "isocp___.ttf"  "isocp"           "hp_kanj2_c"
0.77   1.666   1.3333

# "OSDD 1byte font name" "autocad font file name" "width ratio"
"magic string" magicNumber "line spacing"

FontMapMItoACAD "osd_default"      "txt.shx"         0.90
""              0          1.666
FontMapMItoACAD "osd_default2"     "txt.shx"         1.07
""              0          1.666
FontMapMItoACAD "osd_default3"     "simplex.shx"     0.95
""              0          1.666
FontMapMItoACAD "hp_i3098_v"    "txt.shx"          0.90
""     0        1.666
FontMapMItoACAD "hp_i3098_c"    "txt.shx"          1.07
""     0        1.666
FontMapMItoACAD "hp_d17_v"      "simplex.shx"      0.95
""     0        1.666
FontMapMItoACAD "hp_d17_c"      "simplex.shx"      1.24
""     0        1.666
FontMapMItoACAD "hp_block_v"    "complex.shx"      0.95
""     0        1.666
FontMapMItoACAD "hp_block_c"    "complex.shx"      1.39
""     0        1.666
FontMapMItoACAD "hp_jasc_v"     "italic.shx"       1.15
""     0        1.666
FontMapMItoACAD "hp_jasc_c"     "italic.shx"       1.24
""     0        1.666

FontMapMItoACAD "Times_New_Roman"  "TIMES.TTF"     1.03
""     0        1.666
FontMapMItoACAD "tahoma"           "Tahoma.ttf"    1.25
""     0        1.666
FontMapMItoACAD "arial"            "ARIAL.TTF"     1.2
""     0        1.666
FontMapMItoACAD "Arial_Unicode_Ms" "ARIALUNI.TTF"    1.2
""         0   1.666
FontMapMItoACAD "Courier_New"      "COUR.TTF"        0.75
""              0          1.666
FontMapMItoACAD "isocp"            "isocp___.ttf"  0.77
""     0        1.666
```

```
# "OSDD 2byte font name" "autocad font file name" "width ratio"
"magic string" magicNumber "line spacing" "big font name"
FontMapMI2toACAD "hp_kanji_c"      "MS Mincho.ttf"       0.89
"MS Mincho"     32785        1.666       ""
FontMapMI2toACAD "hp_kanj2_c"      "MS Mincho.ttf"       0.89
"MS Mincho"     32785        1.666       ""
#Uncomment following two lines and comment previous two lines,
when mapping 2-byte OSDD fonts into AutoCAD bigfonts.
#FontMapMI2toACAD "hp_kanji_c"      "txt.shx"           0.89
""              0            1.666       "bigfont.shx"
#FontMapMI2toACAD "hp_kanj2_c"      "txt.shx"           0.89
""              0            1.666       "bigfont.shx"

# linetype mappings

# "autocad linetype name" "OSDD linetype name"

LinetypeMapACADtoMI "CONTINUOUS"         Solid
LinetypeMapACADtoMI "DASHED"             Dashed
LinetypeMapACADtoMI "DOTTED"             Dotted
LinetypeMapACADtoMI "DOT_CENTER"         DotCenter
LinetypeMapACADtoMI "LONG_DASHED"        LongDashed
LinetypeMapACADtoMI "DASH_CENTER"        DashCenter
LinetypeMapACADtoMI "PHANTOM"            Phantom
LinetypeMapACADtoMI "CENTER_DASH_DASH"   CenterDashDash

# "autocad arrow" "OSDD arrow" "arrow scale" "arrow fill"

ArrowMapACADtoMI "_NONE"            NoArrow     1       ON
#None
ArrowMapACADtoMI "_CLOSED"          Arrow       1       OFF
#Closed
ArrowMapACADtoMI "_DOT"             Dot         1       ON
#Dot
ArrowMapACADtoMI " "                Arrow       1       ON
#Closed Filled
ArrowMapACADtoMI "_CLOSEDBLANK"     Arrow       1       OFF
#Closed Blank
ArrowMapACADtoMI "_OBLIQUE"         Slash       1       OFF
#Oblique
ArrowMapACADtoMI "_ARCHTICK"        Slash       1       OFF
#Architectural Tick
ArrowMapACADtoMI "_OPEN"            OSDD is         1       ON
#Open
ArrowMapACADtoMI "_ORIGIN"          Dot         1       OFF
#Origin Indication
ArrowMapACADtoMI "_OPEN90"          Jis         1       ON
#Right-Angle
ArrowMapACADtoMI "_OPEN30"          Jis         1       OFF
#Open 30
```

```
ArrowMapACADtoMI "_DOTBLANK"        Dot         1       OFF
#Dot Blanked
ArrowMapACADtoMI "_DOTSMALL"        Dot         0.5     ON
#Dot Small
ArrowMapACADtoMI "_BOXFILLED"       Arrow       1       ON
#Box Filled
ArrowMapACADtoMI "_BOXBLANK"        Arrow       1       OFF
#Box
ArrowMapACADtoMI "_DATUMFILLED"     Triangle    1       ON
#Datum Triangle Filled
ArrowMapACADtoMI "_DATUMBLANK"      Triangle    1       OFF
#Datum Triangle
ArrowMapACADtoMI "_INTEGRAL"        Slash       1       ON
#Integral

# "OSDD arrow" "mi arrow fill" "autocad arrow" "arrow scale"

ArrowMapMItoACAD NoArrow    ON        "_NONE"          1
ArrowMapMItoACAD NoArrow    OFF       "_NONE"          1
ArrowMapMItoACAD Arrow      ON        " "              1
ArrowMapMItoACAD Arrow      OFF       "_CLOSED"        1
ArrowMapMItoACAD Dot        ON        "_DOT"           1
ArrowMapMItoACAD Dot        OFF       "_ORIGIN"        1
ArrowMapMItoACAD Triangle   ON        "_DATUMFILLED"   1
ArrowMapMItoACAD Triangle   OFF       "_DATUMBLANK"    1
ArrowMapMItoACAD Jis        ON        "_OPEN30"        1
ArrowMapMItoACAD Jis        OFF       "_OPEN30"        1
ArrowMapMItoACAD Slash      ON        "_OBLIQUE"       1
ArrowMapMItoACAD Slash      OFF       "_OBLIQUE"       1
```

Note

You can specify multiple layout names/paperspaces (comma-separated) for `LayoutName` to translate the specified layouts. Set `SideBySideLayoutView` to `ON` to view the translated layouts adjacent to each other.

Note

If an image file and MI file are in the same path, the DWG/DXF translator stores the path as a reference path for the image in the resultant DWG/DXF file. The reference path is set in the DWG /DXF file if you set `TranslatePictureAs` to `REFERENCE` in the `DXFDWG.con` file.

If you translate a MI file (containing references to an image file) to DWG/DXF with `TranslatePictureAs` set to `REFERENCE` in the `DXFDWG.con` file, the resultant DWG/DXF file stores the path of the image file.

If you translate a MI file (without references to an image file) to DWG/DXF with `TranslatePictureAs` set to `REFERENCE` in the `DXFDWG.con` file, an image file is created along with the DWG/DXF file in the same path. The resultant DXF/DWG file stores the path of the image file.

AutoCAD uses the image path information contained in the DWG/DXF file to load the image file along with the DWG/DXF file. If you modify the path of the image file, AutoCAD prompts you to specify the correct path of the image file.

You can find more information about the configuration parameters in the `dxfdwg` directory (`readme.htm`).

4

Log File

Description of a Log File: DXF Translation 27
Description of a Log File: DWG Translation 29

Description of a Log File: DXF Translation

A `DXF Log` File consists of three main sections:

- The first section contains information about the direction of the translation, that is, from DXF to MI or from MI to DXF. It also lists the names of the input (source) file and the output (destination) file of the translation.
- The second section lists the values or settings of all the parameters in the configuration file used for the translation.
- The third section lists all the warnings and errors encountered during the translation.

If you are translating from DXF to MI, any DXF External Reference Parts translated are also listed in this third section. Refer to Loading DXF External Reference Parts on page 67 for instructions loading back the DXF External Reference Parts.

The following is an example listing of a log file for an MI to DXF translation.

```
SourceDirPath  ./
DestinDirPath  ./
KanjiTranslate OFF
EnableLegacyEncoding OFF
RecordByLayerInfo      OFF
CustomUnits    OFF
Units   mm
UnitsScale     1
ConvertMIDimensionsToGeometry  OFF
ExplodeDXFDimensions   OFF
KeepAttributesWithPart OFF
StartSection   DXF to MI Translator
InternalHandseed
PolymarkerType 2
OutputACADVersion      AC1014
DXFDecimalPrecision    14
TranslateDXFPenLineSize        4
TranslateInvisibleLayers       OFF
TranslateSubfixDimProp ON
TranslateSuperfixDimProp       ON
KeepTopScale   OFF
CounterSnapGap   1E0
TranslateMIPenLineSize 1
HighSplinePrecision    OFF
MinimumHatchSpacingDensity     0
FontMapACADtoMI "ARIAL.TTF"    "arial" "hp_kanj2_c"   1.2
1.666
FontMapACADtoMI "complex.shx"  "hp_block_v"   "hp_kanj2_c"   0.95
1.666
FontMapACADtoMI "COUR.TTF"     "courier_new"  "hp_kanj2_c"   0.75
1.666
```

```
FontMapACADtoMI "isocp.shx"    "isocp" "hp_kanj2_c"   0.77
1.666
FontMapACADtoMI "isocp___.ttf" "isocp" "hp_kanj2_c"   0.77
1.666
FontMapACADtoMI "italic.shx"   "hp_jasc_v"    "hp_kanj2_c"   1.15
1.666
FontMapACADtoMI "simplex.shx"  "hp_d17_v"     "hp_kanj2_c"   0.95
1.666
FontMapACADtoMI "tahoma.ttf"   "tahoma"       "hp_kanj2_c"   1.25
1.666
FontMapACADtoMI "TIMES.TTF"    "times_new_roman"      "hp_kanj2_c"
1.03    1.666
FontMapACADtoMI "txt.shx"      "hp_i3098_v"   "hp_kanj2_c"   0.9
1.666
FontMapMItoACAD "arial" "ARIAL.TTF"    1.2     ""      0
FontMapMItoACAD "courier_new"  "COUR.TTF"     0.75    ""      0
FontMapMItoACAD "hp_block_c"   "complex.shx"  1.39    ""      0
FontMapMItoACAD "hp_block_v"   "complex.shx"  0.95    ""      0
FontMapMItoACAD "hp_d17_c"     "simplex.shx"  1.24    ""      0
FontMapMItoACAD "hp_d17_v"     "simplex.shx"  0.95    ""      0
FontMapMItoACAD "hp_i3098_c"   "txt.shx"      1.07    ""      0
FontMapMItoACAD "hp_i3098_v"   "txt.shx"      0.9     ""      0
FontMapMItoACAD "hp_jasc_c"    "italic.shx"   1.24    ""      0
FontMapMItoACAD "hp_jasc_v"    "italic.shx"   1.15    ""      0
FontMapMItoACAD "isocp" "isocp___.ttf" 0.77    ""      0
FontMapMItoACAD "tahoma"       "tahoma.ttf"   1.25    ""      0
FontMapMItoACAD "times_new_roman"      "TIMES.TTF"    1.03    ""
0
FontMapMI2toACAD       "hp_kanj2_c"   "MS Mincho.ttf" 0.89    "MS
Mincho"    32785
FontMapMI2toACAD       "hp_kanji_c"   "MS Mincho.ttf" 0.89    "MS
Mincho"    32785
ArrowMapACADtoMI       " "     Arrow   1       ON
ArrowMapACADtoMI       "_ARCHTICK"    Slash   1       OFF
ArrowMapACADtoMI       "_BOXBLANK"    Arrow   1       OFF
ArrowMapACADtoMI       "_BOXFILLED"   Arrow   1       ON
ArrowMapACADtoMI       "_CLOSED"      Arrow   1       OFF
ArrowMapACADtoMI       "_CLOSEDBLANK" Arrow   1       OFF
ArrowMapACADtoMI       "_DATUMBLANK"  Triangle       1       OFF
ArrowMapACADtoMI       "_DATUMFILLED" Triangle       1       ON
ArrowMapACADtoMI       "_DOT"  Dot     1       ON
ArrowMapACADtoMI       "_DOTBLANK"    Dot     1       OFF
ArrowMapACADtoMI       "_DOTSMALL"    Dot     0.5     ON
ArrowMapACADtoMI       "_INTEGRAL"    Slash   1       ON
ArrowMapACADtoMI       "_NONE" NoArrow 1       ON
ArrowMapACADtoMI       "_OBLIQUE"     Slash   1       OFF
ArrowMapACADtoMI       "_OPEN" Jis     1       ON
ArrowMapACADtoMI       "_OPEN30"      Jis     1       OFF
ArrowMapACADtoMI       "_OPEN90"      Jis     1       ON
ArrowMapACADtoMI       "_ORIGIN"      Dot     1       OFF
ArrowMapMItoACAD       NoArrow OFF     "_NONE" 1
```

```
ArrowMapMItoACAD       NoArrow ON      "_NONE" 1
ArrowMapMItoACAD       Arrow   OFF     "_CLOSED"      1
ArrowMapMItoACAD       Arrow   ON      " "     1
ArrowMapMItoACAD       Dot     OFF     "_ORIGIN"      1
ArrowMapMItoACAD       Dot     ON      "_DOT"  1
ArrowMapMItoACAD       Slash   OFF     "_OBLIQUE"     1
ArrowMapMItoACAD       Slash   ON      "_OBLIQUE"     1
ArrowMapMItoACAD       Triangle        OFF     "_DATUMBLANK"  1
ArrowMapMItoACAD       Triangle        ON      "_DATUMFILLED" 1
ArrowMapMItoACAD       Jis     OFF     "_OPEN30"      1
ArrowMapMItoACAD       Jis     ON      "_OPEN30"      1
LinetypeMapACADtoMI    "CENTER_DASH_DASH"     CenterDashDash
LinetypeMapACADtoMI    "CONTINUOUS"   Solid
LinetypeMapACADtoMI    "DASHED"       Dashed
LinetypeMapACADtoMI    "DASH_CENTER"  DashCenter
LinetypeMapACADtoMI    "DOTTED"       Dotted
LinetypeMapACADtoMI    "DOT_CENTER"   DotCenter
LinetypeMapACADtoMI    "LONG_DASHED"  LongDashed
LinetypeMapACADtoMI    "PHANTOM"      Phantom

------------------------------------------------
 Warning: Insertion of ASSE: _tb_frame_A3__131  OpenDWG Message:
No error
 Warning: Insertion of ASSE: front1__203  OpenDWG Message: No
error
 Warning: Insertion of ASSE: I-I__209  OpenDWG Message: No error
 Warning: Insertion of ASSE: front1__213  OpenDWG Message: No
error
 Warning: Insertion of ASSE: G-G__214  OpenDWG Message: No error
 Warning: Insertion of ASSE subordinate: G-G__214  OpenDWG
Message: No error
 Warning: Insertion of ASSE: front1__223  OpenDWG Message: No
error
 Warning: Insertion of ASSE subordinate: I-I__221  OpenDWG
Message: No error
 Warning: Insertion  of entity type: 1  OpenDWG Message: No error
 Warning: Insertion  of entity type: 28  OpenDWG Message: No error
 Warning: Insertion  of entity type: 28  OpenDWG Message: No error
 Warning: Insertion  of entity type: 28  OpenDWG Message: No error
 Warning: Insertion  of entity type: 500  OpenDWG Message: No
error
 Warning: Insertion  of entity type: 29  OpenDWG Message: No error
 Warning: Insertion  of entity type: 29  OpenDWG Message: No error
No errors encountered during translation.
```

Description of a Log File: DWG Translation

A DWG Log File consists of five main sections:

- The first section contains information about the direction of the translation, that is, from DWG to MI or from MI to DWG. It also lists the names of the input (source) file and the output (destination) file of the first translation from DWG or MI to DXF.
- The second section lists the values or settings of all the parameters in the configuration file used for the translation.
- The third section lists all the warnings and errors encountered during the first translation.
- The fourth section lists the names of the input (source) file and the output (destination) file of the second translation from DXF to DWG or MI.
- The fifth section is the same as the third section but for the second translation.

5

Batch File

Description of a Batch File.....32
Creating a Batch File 32

Description of a Batch File

The DXF Translator can run in Batch Mode, which enables you to translate more than one file at a time. Refer to sections Batch Translate DXF to MI (2) on page 12, Batch Translate MI to DXF (4) on page 13, Batch Translate DWG to MI (6) on page 14, Batch Translate MI to DWG (8) on page 15, and Batch Translate MI to SVG (10) on page 15 for details of how to run the translation in batch mode.

To translate in batch mode, you need a Batch File. (Refer to the section "Creating a Batch File".) A batch file is a text file containing in each line an input string to the prompts: `Enter source file name`, `Enter destination file name`, and `Enter log file name`.

These prompts come up on the screen when you select Option `1` or Option `3` from the main menu. Refer to Main Menu Options on page 12 for information on responding to the prompt.

Creating a Batch File

A batch file is an ASCII text file. Each line of the batch file must contain a source filename, and optionally, destination and log filenames. Specify the names as follows (filenames in brackets are optional):

```
source_filename [destination_filename [log_filename]
```

You cannot specify the log filename unless you first specify the destination filename.

Note

The format of the entries in your batch file is the same as the format used to respond to the prompt that comes up when you select the appropriate option from the Translator's main menu. Read these sections for further explanation of the format used to enter filenames.

Example of a Batch File

An example of the contents of an MI to DXF batch translation file is shown below.

```
cylh1.mi cylh1.dxf cylh1.log
cylh2.mi headg.dxf head.log
motor_br.mi
jibmount.mi crane145.dxf jib.log
```

Creating Your Own Batch Files

Create the batch file with one of the following methods:

- Manually create the batch file with an editor that saves files in ASCII format. Enter the names of each source file (and destination and log filenames, if desired) on a separate line.

If you use a word processor that has special formatting capabilities, make sure you save the file in ASCII format.

- If all the files for translation are in one directory, create the batch file by redirecting the output to a file, as follows:

  Windows-Based Systems Only:
  ```
  dir /w \path\directory > batchfile [Enter]
  ```

Note

You will need to edit the batch file if either of the following apply:

- You want to specify names for the destination or log files.
- You created the batch file using the DOS `DIR` command, which outputs more information than you require.

When you choose the appropriate option, the Translator prompts you for the name of your batch file. Enter the name of your batch file.

6

Batch Log File

Description of a Batch Log File 35

Description of a Batch Log File

The DXF Translator can run in Batch Mode, which enables you to translate more than one file at a time. Refer to sections Batch Translate DXF to MI (2) on page 12, Batch Translate MI to DXF (4) on page 13, Batch Translate DWG to MI (6) on page 14, Batch Translate MI to DWG (8) on page 15, Batch Translate MI to SVG (10) on page 15, for details of how to run the translation in batch mode.

At the end of batch translation, the Translator produces a Batch Log File in addition to log and output files for each translated file.

A batch log file consists of two main sections. The first section contains information about the direction of translation, that is, from DXF to MI or from MI to DXF (and from DWG to MI or from MI to DWG). The second section gives a one-line description of the translation for each file in the batch file. This one-line description indicates briefly the result of each translation so that you can check the log file if an error was encountered during translation.

The following is a listing of a batch log file as a result of running the batch file shown in Batch File on page 31:

Windows-Based Systems Only:

```
File '.\test1.dxf' contained 0 error(s).
File '.\test2.dxf' contained 0 error(s).
File '.\test3.dxf' contained 0 error(s).
```

7

Output File

Introduction....37
Listing of an MI Output File....37
Listing of a DXF Output File....38

Introduction

At the end of each translation, the DWG/DXF Translator produces an output file, which contains a translated version of the input file. The output file can be an MI file, a DXF file, or a DWG file depending on the direction of translation. Refer to the following sections for listings of these output files.

Note

Because DWG files are binary, they cannot be listed.

Listing of an MI Output File

The following is a listing of an MI output file:

```
#~1
DXF to MI Translator
#~2
2
TC41:1
TC5:3
TOP
3
TC61:4
TC62:6
PLAST:6
LAST:6
#~3


ACAD : AC1009                    1
2.20                             0
2D                               0
25                               |~
75                               ASSP
25                               2
75                               1
0                                LAYER: 1
0                                |~
0                                #~5
XX                               ASSE
1                                3
mm                               1
RAD                              1
1e-05                            TOP
1e-05                            1
32                               0
1                                0
```

```
1                                   0
1                                   0
0                                   0
0                                   |~
0                                   #~6
0                                   TOP
1                                   #~61
0                                   P
0                                   4
0                                   25
0                                   25
1                                   |~
0                                   P
0                                   5
0                                   75
0                                   75
1                                   |~
3                                   #~62
0                                   LIN
0                                   6
0                                   7
0.18                                0
#~41                                0
PSTAT                               1
                                    2
                                    4
                                    5
                                    |~
                                    ##~~
```

Listing of a DXF Output File

The following is a partial listing (showing the beginning and end) of a DXF output file:

```
  0                                 $VIEWCTR
SECTION                              10
  2                                 10
HEADER                               20
  9                                 10
$ACADVER
  1                                 .... }
AC1004                              .... } Additional
  9                                 .... } system variables
$INSBASE                            .... } not shown.
 10                                 .... }
0
 20                                   0
0                                   ENDTAB
  9                                   0
$EXTMIN                             ENDSEC
```

```
 10
25
 20
25
  9
$EXTMAX
 10
75
 20
75
  9
$LIMMIN
 10
25
 20
25
  9
$LIMMAX
 10
75
 20
75
  9
```

```
  0
SECTION
  2
BLOCKS
  0
ENDSEC
  0
SECTION
  2
ENTITIES
  0
LINE
  8
1
 10
25
 20
25
 11
75
 21
75
  0
ENDSEC
  0
EOF
```

8

DXF to MI Entity Mappings

This chapter contains an entity mapping table, which lists all the entities supported by the DXF Translator. Most entities are represented pictorially.

Entities not listed below are ignored by the Translator and generate a warning in the log file.

Table 17. Simple Geometry (DXF to MI)

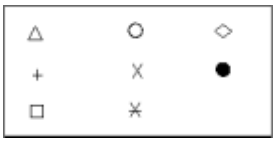
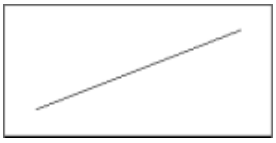
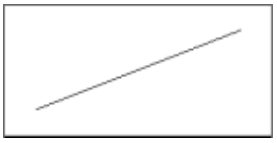
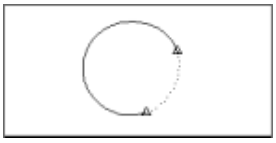
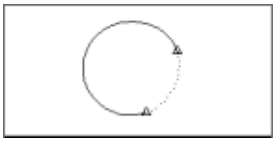
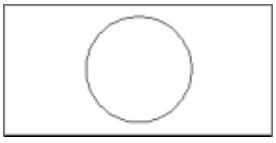
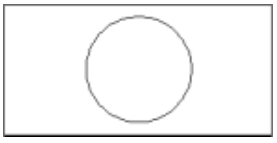
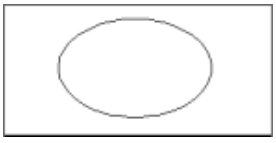
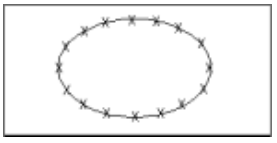
Points		Polymarker	
Line		Line	
Arc		Arc	
Circle		Circle	
Ellipse		B splines (if BSPL setting: `ON`) or arcs (BSPL setting: `OFF`)	

Table 17. Simple Geometry (DXF to MI) (continued)

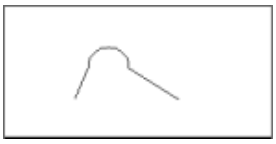
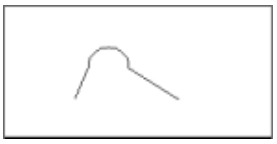
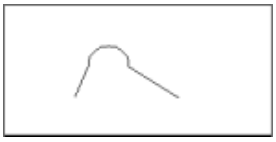
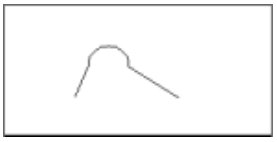
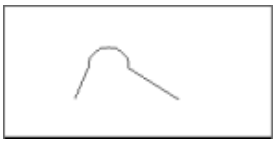
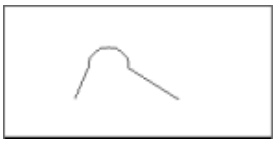
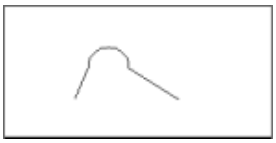
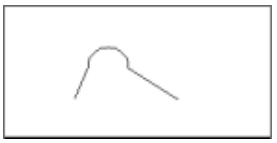
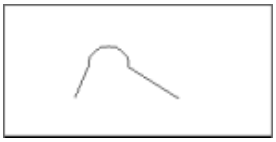
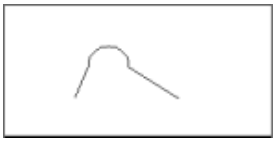
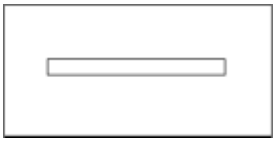
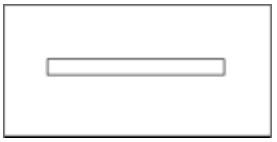
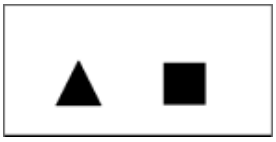
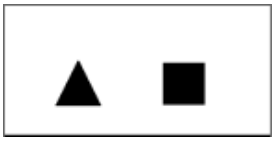
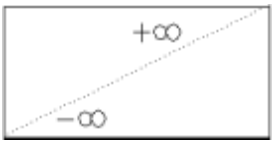
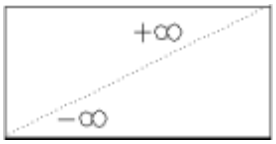
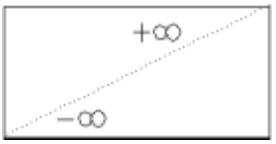
Spline		B Splines	
Polyline		Lines	
Polyline (curve fit)		Lines and arcs	
Polyline (spline fit)		B-spline or C-spline (depends on the BSPL setting: `ON` or `OFF`)	
Multi-Lines		Lines	
Trace		Bounding composite curves with associated text and optional hatch	
Solid		3 or 4 lines with associated text and optional hatch	
Rays		Construction line	
Xlines		Construction line	

Table 18. Simple Annotation (DXF to MI)

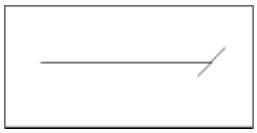
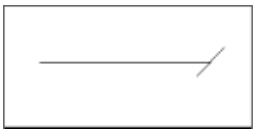
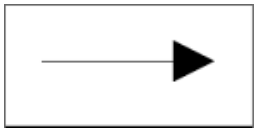
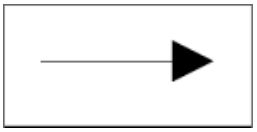
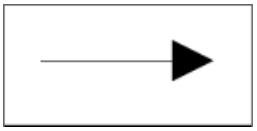
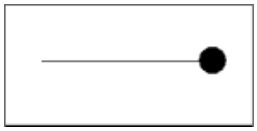
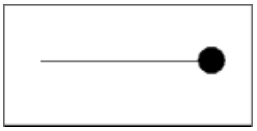
Leader arrow		Leader arrow	
Tick		Slash	
Arrow		Arrow	
Free		Arrow	
Dot		Dot	

Table 19. Composite Annotation (DXF to MI)

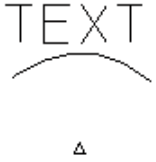
Text		Text	
Line of text		Line of text	
Line spacing (in range from 0.25 to 4.0)		Line spacing	
Mtext (multi-line text)		Text	
Arctext (arc-aligned text)		Text	
Rtext (remote text)		Text	

Table 19. Composite Annotation (DXF to MI) (continued)

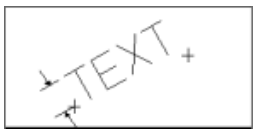
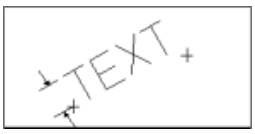
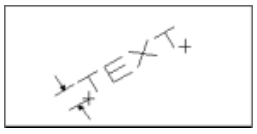
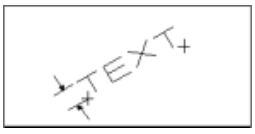
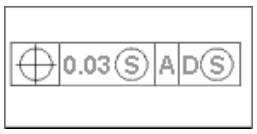
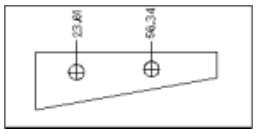
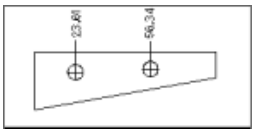
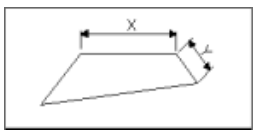
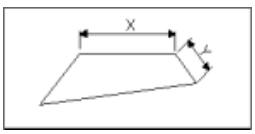
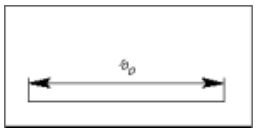
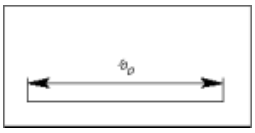
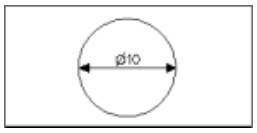
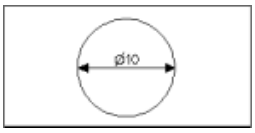
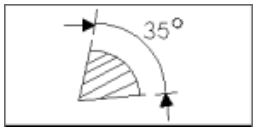
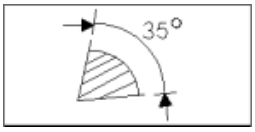
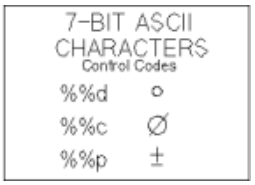
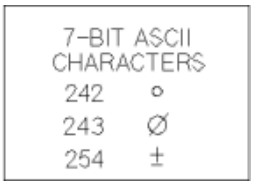
Text		Text	
Obliquing angle		Text slant	
Align		Rotation angle and adjusted height	
Adjust		Text adjust	
Attribute text		Text with associated info named "ATTRIB"	
Fit		Rotation angle with fixed text height	
Tolerance		Text with symbols	
Tolerance entities		Text with symbols	
Ordinate dimension		A part containing geometry and text	
Linear dimension		Linear Dimension	
Linear dimension (rotated)		A part containing geometry and text	
Radius dimension		Radius dimension	

Table 19. Composite Annotation (DXF to MI) (continued)

Text		Text	
Diameter dimension		Diameter dimension	
Angular dimension		Angular dimension	
New dimension Special characters		Dimension Corresponding HP 8-bit characters	

Text Font Defaults (may be altered in the Configuration File)

Standard	hp_i3098_v
Simplex	hp_d17_v
Complex	hp_block_v
Italic	hp_jasc_v

Table 20. Composite Geometry (DXF to MI)

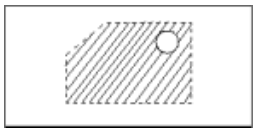
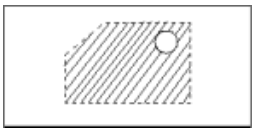
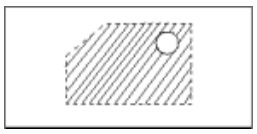
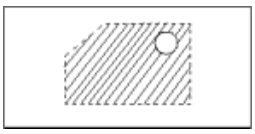
Block with hatch lines		Part with hatch lines	
Associative hatching		PFA (associate hatching)	

Table 21. Info Attributes (DXF to MI)

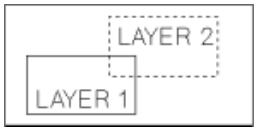
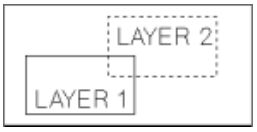
Layers		Layers (info attributes)	

Table 22. Assembly Hierarchy (DXF to MI)

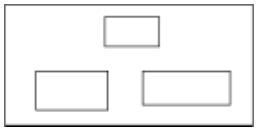
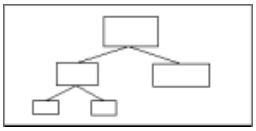
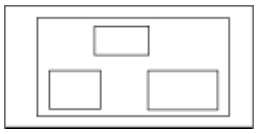
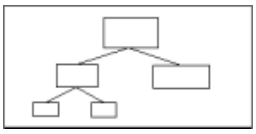
Blocks		Parts	
Inserted blocks		Shared parts	

Table 23. Component Attributes (DXF to MI)

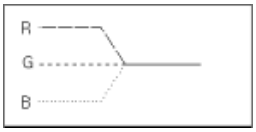
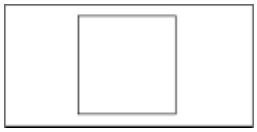
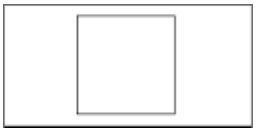
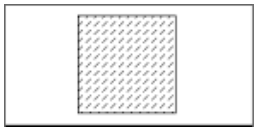
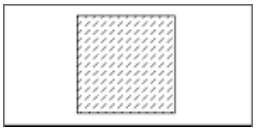
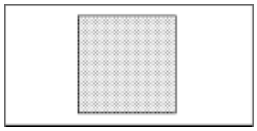
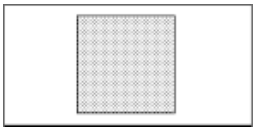
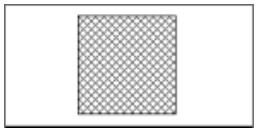
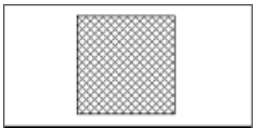
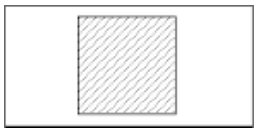
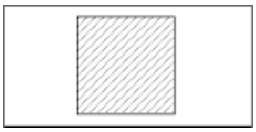
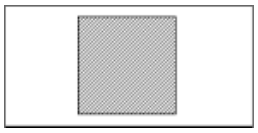
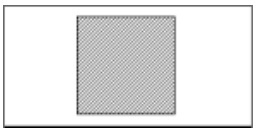
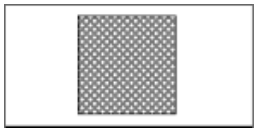
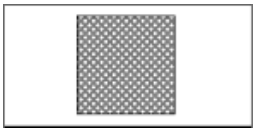
Colors		Colors	
DXF color number		Approximated with nearest of 8 base colors (Closest match)	
ACI		RGB Color	
White		White	
Red (1)		Red	
Yellow		Yellow	
Green		Green	
Cyan		Cyan	

Table 23. Component Attributes (DXF to MI) (continued)

Colors		Colors	
Magenta		Magenta	
Blue		Blue	

(1) Shading is used to give the effect of different colors.

Table 24. Component Attributes (DXF to MI)
Lineweight and Linesize (may be altered in the Configuration File)

Linesize		Linesize	
Lineweight		Pensize	

Table 25. Component Attributes (DXF to MI)
Linetype Defaults (may be altered in the Configuration File)

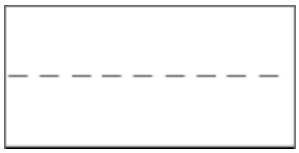
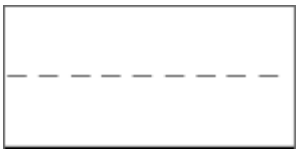
Complex linetypes		Standard linetypes	
Continuous		Solid	
Dashed		Dashed	

Table 25. Component Attributes (DXF to MI) (continued)

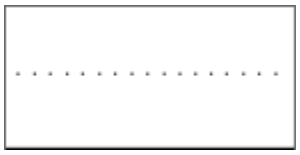
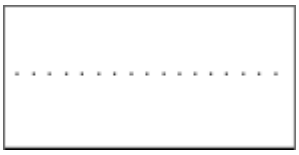
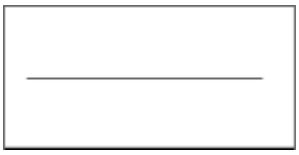
Complex linetypes		Standard linetypes	
Hidden		Dashed	
Center		Dash center	
Phantom		Center dash dash	
Dot		Dotted	
Dashdot		Dot center	
Border		Dot center	
Divide		Phantom	
Free defined		Solid	

Table 26. Component Attributes (DXF to MI)

Scaleable thickness (linesize) which only a Polyline can own:	
Polyline with thickness != 0 (line, arc, circle, spline, b-spline)	Geometry (line, arc, circle, spline, b-spline) with either pensize or linesize or 0

9

MI to DXF Entity Mappings

This chapter contains an entity mapping table, which lists all the entities supported by the DXF Translator. Most entities are represented pictorially.

Any entities marked by an asterisk (*) are available in the DXF Translator as of Drafting rev. 10.

Table 27. Simple Geometry (MI to DXF)

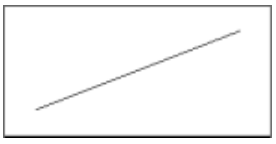
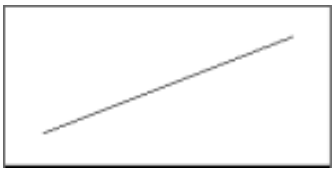
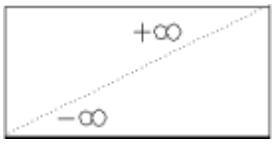
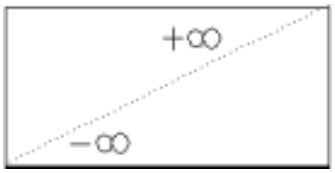
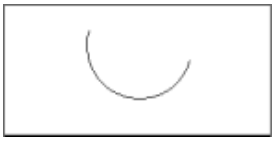
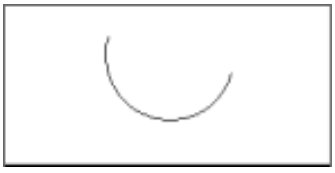
Line		Line	
Geometry (line, arc, circle, fillet, spline, b-spline) with pensize / linesize		Polyline (line, arc, circle) depending on configuration switches	
Construction Line		Xline	
Arc		Arc	

Table 27. Simple Geometry (MI to DXF) (continued)

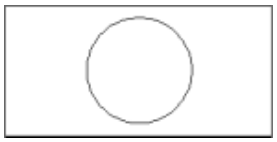
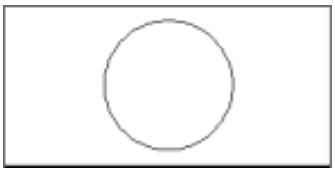
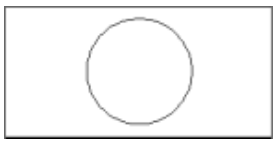
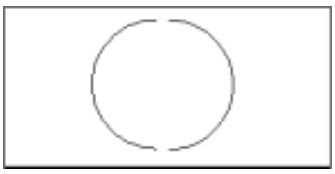
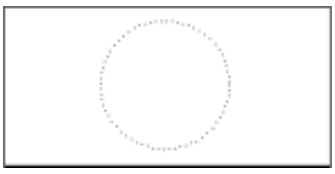
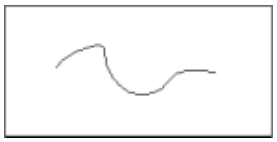
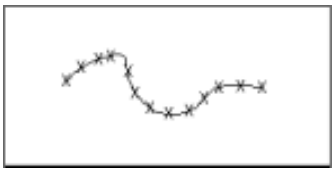
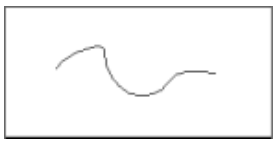
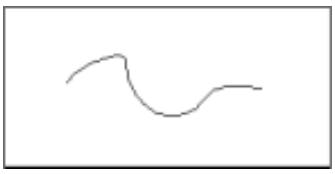
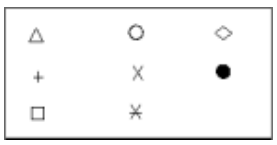
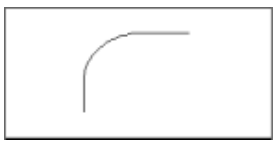
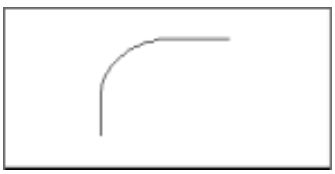
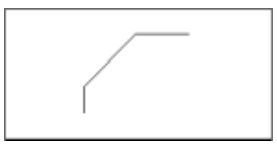
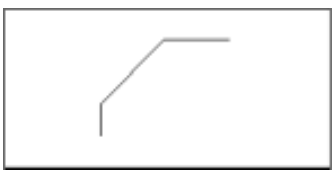
Circle		Circle	
Circle with thickness > 0 and switch Translate thickness: ON		2 arcs	
Construction circle		Circle on Special layer	
C-Spline		Polyline (lines and arcs)	
B-Spline		Spline	
Polymarker		Point	
Fillet		Arc	
Chamfer		Line	

Table 28. Composite Geometry (MI to DXF)

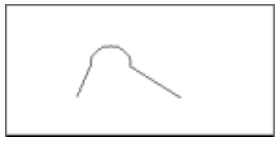
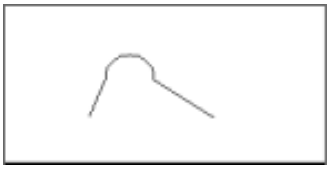
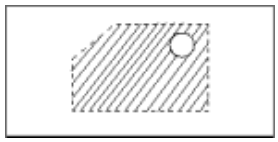
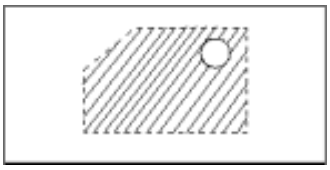
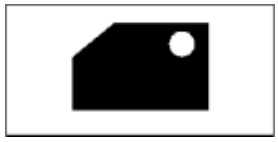
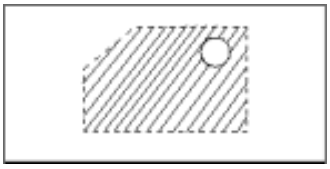
Composite curve		Lines and arcs	
Hatch		Block with hatch lines (solid hatch fills are unsupported)	
Solid hatch		Alternative hatch (for hatches = 0)	

Table 29. Simple Annotation (MI to DXF)

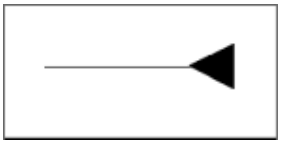
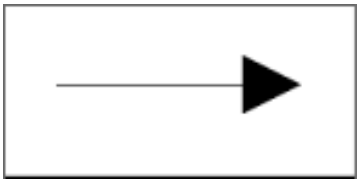
Leader arrow		Leader arrow	
Arrow		Arrow	
Dot		Dot	
Slash		Tick	
Reverse arrow		Arrow	

Table 29. Simple Annotation (MI to DXF) (continued)

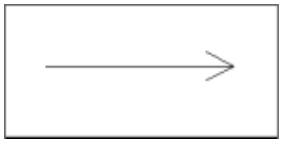
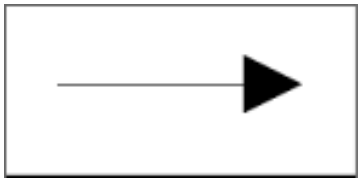
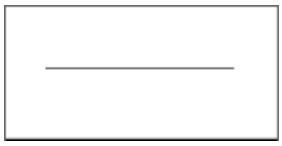
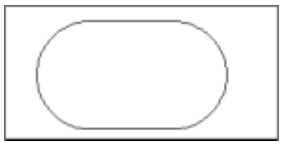
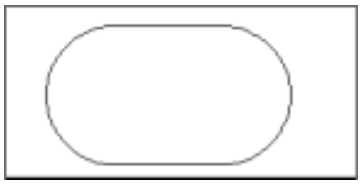
Leader arrow		Leader arrow	
JIS		Arrow	
None		None	
Balloon		Polylines of curves and arcs	

Table 30. Composite Annotation (MI to DXF)

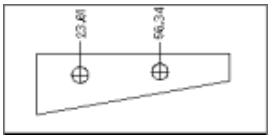
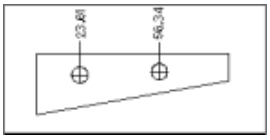
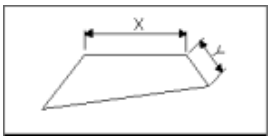
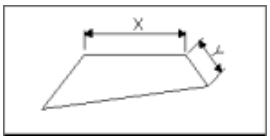
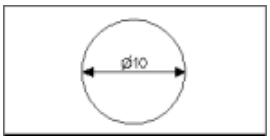
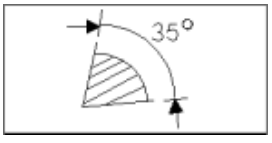
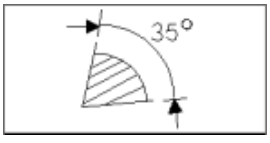
Coordinate dimension		Block with geometry and text	
Linear dimension		Linear Dimension	
Radius dimension		Radius dimension	
Diameter dimension		Diameter dimension	
Angular dimension		Angular dimension	

Table 30. Composite Annotation (MI to DXF) (continued)

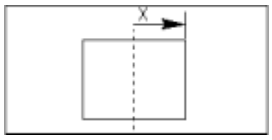
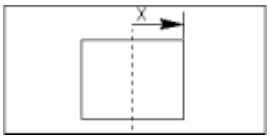
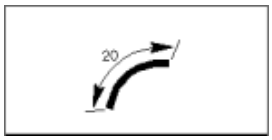
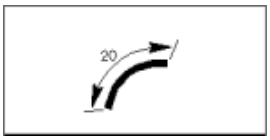
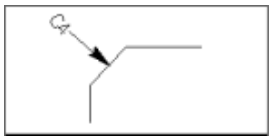
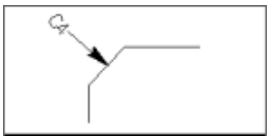
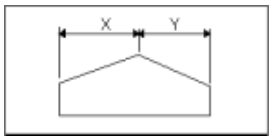
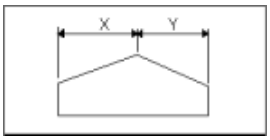
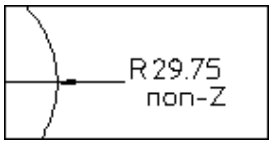
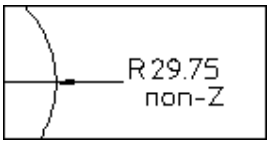
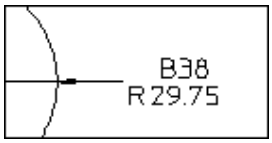
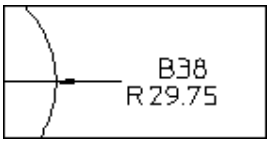
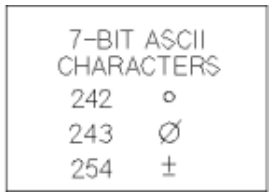
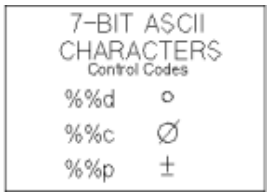
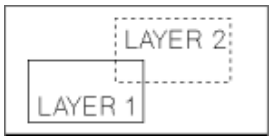
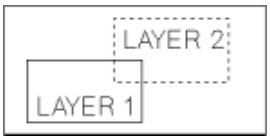
Symmetric dimension		Single dimension	
Arc dimension		Block with geometry and text	
Chamfer dimension		Block with geometry and text	
Chain dimension		Linear dimension	
Dimension subfix		Dimension text using subfix properties	
Dimension superfix		Dimension text using superfix properties	
Text: 7-bit ASCII characters Chr 242 (degree sign) Chr 243 (diameter sign) Chr 254 (plus minus sign)		7-bit ASCII subset of HP 8-bit fonts will translate to DXF text in addition to the following 3 characters: Text (% %d control code) Text (% %c control code) Text (% %p control code)	

Table 30. Composite Annotation (MI to DXF) (continued)

Line spacing	TEXT TEXT TEXT	Line spacing (in range from 0.25 to 4.0)	TEXT TEXT TEXT
Text block		Single lines of text	
Text block *		MText *	
Layers		Layers: (MI allows an entity to be on multiple layers, but DXF does not. In cases of multiple layers, only one will be chosen.)	

Text Font Defaults (may be altered in the Configuration File)

Text fonts are mapped to the defined values given in the configuration file. Non-defined fonts are mapped to STYLE `"STANDARD":FONT "TXT"`

Table 31. Assembly Hierarchy (MI to DXF)

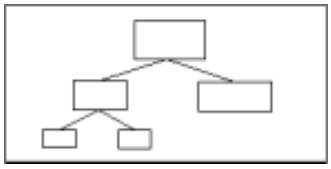
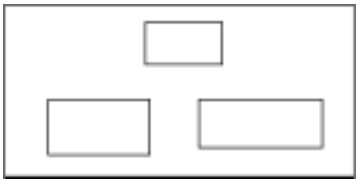
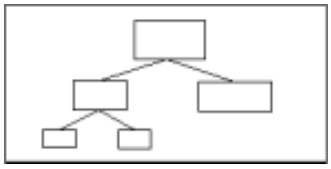
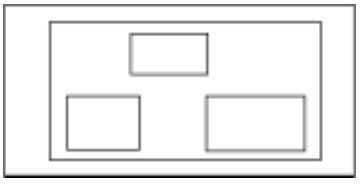
Part Tree		Blocks	
Shared Parts		Inserted blocks	

Table 32. Associative Elements (MI to DXF)

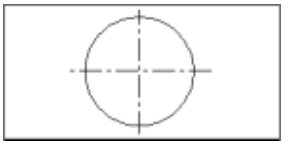
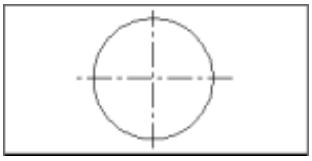
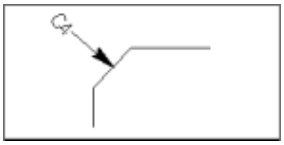
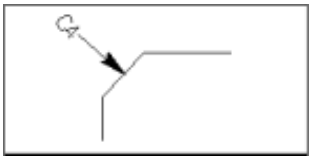
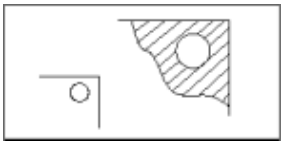
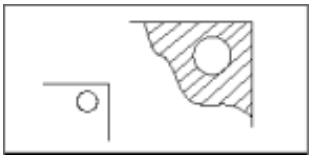
Centerline		Line	
Symmetry line		Line, Arc, Circle	
Reference line		Leader	
Associated Detail		Associativity will be lost. Geometry maintained.	

Table 33. Component Attributes (MI to DXF)

Colors

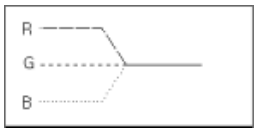
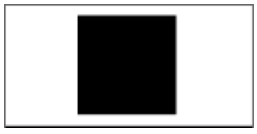
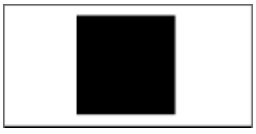
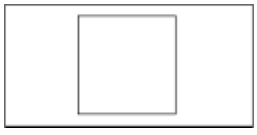
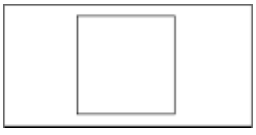
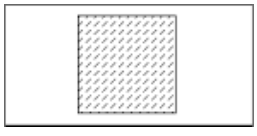
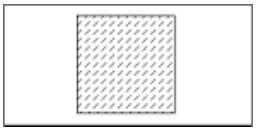
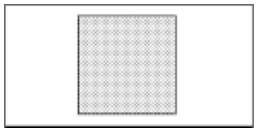
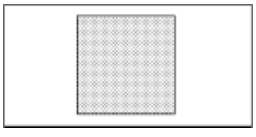
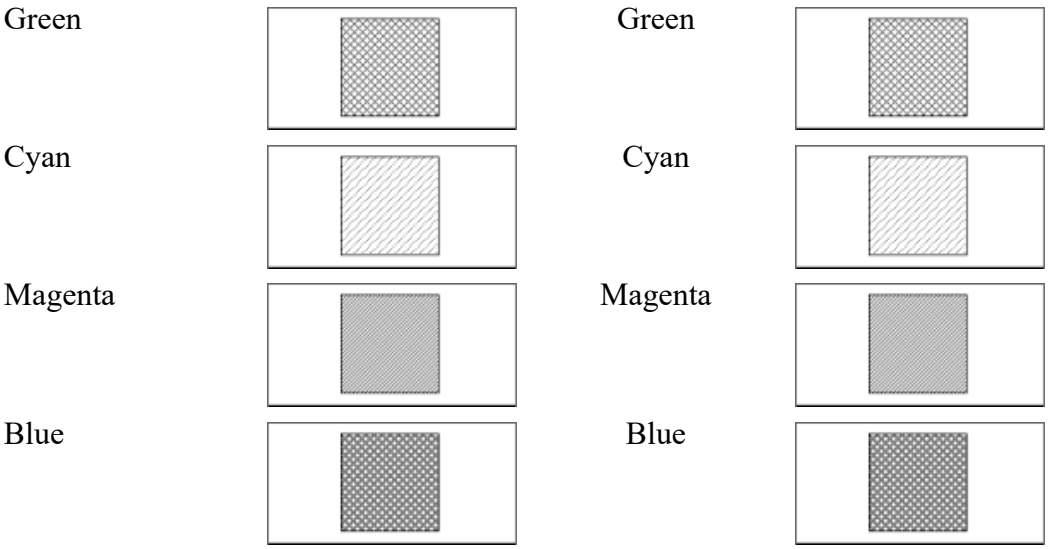
RGB color		ACI	
Black		Mapped to layer 0-0 which is switched off	
White		White	
Red (1)		Red	
Yellow		Yellow	

Table 33. Component Attributes (MI to DXF) (continued)

Colors



(1) Shading is used to give the effect of different colors.

Table 34. Component Attributes (MI to DXF)

Lineweight and Linesize (may be altered in the Configuration File)

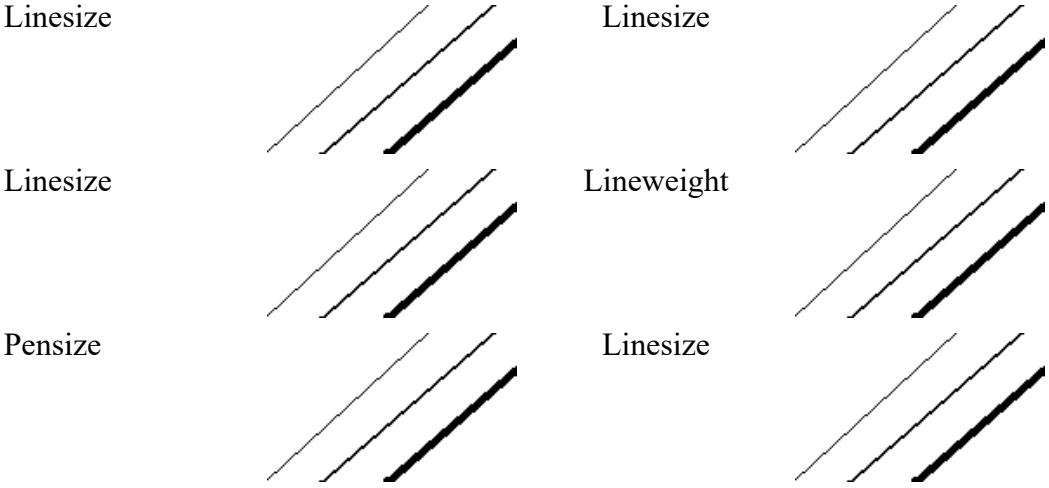
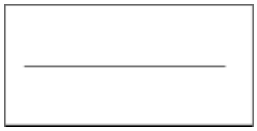
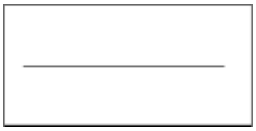
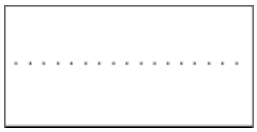
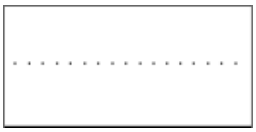
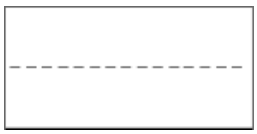
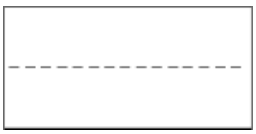
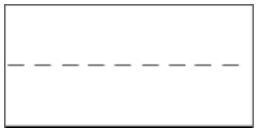
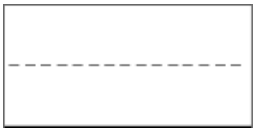
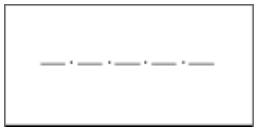
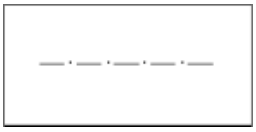


Table 35. Component Attributes (MI to DXF)

Linetype Defaults (may be altered in the Configuration File)

Table 35. Component Attributes (MI to DXF) (continued)

Solid		Continuos	
Dotted		Dot	
Dashed		Dash	
Long dashed		Dash	
Dot center		Dash dot	
Dash center		Center	
Phantom		Divide	
Center dash dash		Phantom	
Geometry (hidden in Drafting)			

System generated hidden geometry or dimension will **NOT** be translated to DXF.

A

Hints and Tips for Translating DXF/DWG to MI

The following section provides hints and tips for using the DWG/DXF Translator.

Note

Refer to the latest edition of the AutoCAD USERS REFERENCEfor further information.

- Linetype and color BYLAYER/BYBLOCK are not always translated correctly. This happens if the entities obtain their color or linetype from the block insert and the inserts use different colors or linetypes. These will be converted to the same color or linetype due to the translation method applied to inserts: multiple inserts of the same block are translated into shared parts and different instances of a shared part cannot be different.

In order to obtain correct colors after translation, you can explode the blocks in AutoCAD. However, note that you will lose any shared parts when using this workaround.

- To see the layer status of your AutoCAD drawings after translation to MI,
  1. Switch RecordByLayer to ON in the DXFDWG.con file.
  2. Perform the translation.
  3. Load the translated drawing and open the info browser.

4. View the SYS:LAYER_SCOPE infotext. The line ACAD_LAYER_STATUS indicates layer status as follows:
   ```
   ACAD_LAYER_STATUS <layer name <visible flag <freeze flag
   <lock flag
   ```
   Where,
   - layer name = name of a layer associated with his info.
   - visible flag = 1 if layer is visibe, otherwise 0
   - freeze flag = 1 if layer is frozen, otherwise 0.
   - lock flag = 1 if layer is locked, otherwise 0.

- Non-associative hatches are not translated, due to the fact that there is no way of determining which objects limit the hatch. In order to translate the hatch into geometry you can explode the hatch block in AutoCAD.
- Non-split hatches may yield unexpected results. Creo Elements/Direct Drafting expects to encounter just one possible hatch between any two points in the contours that define the hatch. If there are more, the contour needs to be split. In order to translate the hatch into geometry, you can explode the hatch block in AutoCAD.
- Some splines may be translated if they use knot and control point values that Creo Elements/Direct Drafting does not accept. When encountering such a spline, the DXF/DWG Translator will issue a warning.
- Radius, angular and diameter dimensions are converted to geometry.
- Text boxes for all text (including dimension text) is calculated approximately as the translator doesn't have all the information about the text (character width and height).
- Only text properties defined in text style are translated. Text formats (e.g. font, size, ...) defined within the text itself are not translated to MI.
- Paper space is not translated.
- Multilines are not translated.
- Traces are not translated.
- Solid 3D region bodies are not translated.
- In order to determine the drawing units, the DWG/DXF translator relies on AutoCAD MEASUREMENT system variable. This variable is set to 1 when the dimension style is set to ANSI (style used when you select English in Start from Scratch) and 0 when the dimension style is set to ISO-25 (the default when you select Metric in Start from Scratch), DIN or JIS. In the first case the drawing units are set to inches, in the second case to millimeters. The user can override this behaviour by setting CustomUnits switch of the configuration file

to ON. This forces the translator to take the units specified in Units and UnitsScale parameters (see below).

- The MEASUREMENT system variable was introduced in AutoCAD R14. Unit settings based on this variable may return false results when files from pre-R14 versions are translated. In such cases, use the settings mentioned above.
- Avoid using CONTROL CODES in the text strings, because they will be translated literally.
- Avoid making any text entries in the configuration file longer than 84 characters, because the Creo Elements/Direct Drafting editor truncates them.
- Vertical text will be translated to a horizontal text line in Creo Elements/Direct Drafting.
- The AutoCAD text fonts COMPLEX and ITALIC both include a slant angle within their definitions. This is not the case with Creo Elements/Direct Drafting fonts and will therefore lead to a slanted representation of the text after the translation.
- POLYLINES with variable line widths will be translated to normal lines, and DONUTS to normal circles in Creo Elements/Direct Drafting.
- Shape definitions are not currently supported by the translator. Such information is therefore lost after translation.
- The Multi Leader Line cannot be converted during DXF/DWG to MI conversion. The Multi Leader Line element is not converted even if the DXF/DWG to MI conversion was successful.
- The multiple insert function MINSERT is not supported by the Translator.
- Avoid defining colors and linetypes as BYBLOCK, as this option is not supported by the Translator.
- DXF format does not specify the accuracy of geometric entities which is specified by the user with the DXFOUT command. A valid file can be generated with only one decimal place of accuracy. When the file is translated to MI format, the vertices for adjoining entities may not lie on exactly the same point. If the entities do not have a common location for a vertex, Creo Elements/Direct Drafting does not accept them as adjoining entities.

  The small gap between entities does not typically have any effect on plots or other graphic displays. However, when Creo Elements/Direct Drafting attempts functions such as hatching or automatic dimensioning, small problems may arise. Automatic hatching is unlikely to work, and you must manually define the boundary for the hatch pattern. Dimensioning with many decimal places of accuracy may give an incorrectly rounded value.

- DXF format uses Entity Coordinate Systems (ECS, sometimes called UCS) to specify local coordinate systems. An ECS may be parallel or skewed to the original coordinate system, and its origin can be anywhere in 3D space.

  The DXF Translator works in 2D only, therefore, if an ECS defines an X-Y plane lying in the global X-Y plane, the Translator works correctly for entities defined in the new X-Y plane. Essentially you can translate and rotate the coordinate system in the X-Y plane, but if you use a Z coordinate or a rotation out of plane, it gives unexpected results. The occurrence of ECS data is displayed as a warning in the logfile.

  If you need to transform 3D entities to 2D representation, use the IGES 2D Translator.
- The internal structure of a drawing may change after translation. For example, drawings created on AutoCAD in DXF format and then translated to MI format may have problems with automatic hatch, because the accuracy allowed in DXF is limited. If you store all drawings originally created on AutoCAD in DXF format in a separate directory, you can load back the drawings in AutoCAD and manually define the hatch boundary again. Therefore, it is important to organize the files so that you can easily keep track of where the original drawings are.

The following points apply only if associated dimensions are translated.

- Dimension-style table not available: The translation of dimensions without a dimension-style table is based on using default values. This means that the dimensions may change in many areas following a modification. This problem cannot be solved in many situations because there is not enough information when the dimension-style table is missing.
- Dimension-style table available: The translation of dimension with a dimension-style table is restricted by the following points:
  - A dimension with alternative texts with postfix is translated into geometry.
  - A dimension with a factor that does not correspond to one of the Creo Elements/Direct Drafting units is translated into geometry.

```
units_scale |
     from DXF.con|
                 -->|
                    |    1.0       10.0       1000.0
1000000.0       25.4
     possible |  |    mm        cm         m            km
inch
     factors  |  |
                v  |

------------|-----------------------------------------------
----------------
```

```
     mm           |   1.0         10.0        1000.0
1000000.0        25.4
     cm           |   0.1          1.0         100.0
100000.0         2.54
     m            |   0.001        0.01          1.0
1000.0         0.0254
     km           |   0.000001     0.00001       0.001
1.0         0.0000254
     inch         |   0.03937      0.3937       39.37
39370.0         1.0
```

- A dimension with different colors is translated into a dimension with the color of the dimension lines.
- A dimension with free extension lines is translated into a Creo Elements/Direct Drafting dimension but loses this special information following modification.
- A dimension with a rounding value is translated into a Creo Elements/Direct Drafting dimension but loses this special information following a modification.
- A dimension with suppressed dimension lines is translated into a Creo Elements/Direct Drafting dimension but loses this special information following modification.
- A dimension with a forced position of the dimension text is translated into a Creo Elements/Direct Drafting dimension but loses this special information following a modification.

- Because the translator has no information about the font, it is sometimes necessary to change the Character Width Factor parameter to prevent the dimension text and dimension lines from overlapping each other.

B

Hints and Tips for Translating MI to DXF/DWG

The following section provides hints and tips for using the DWG/DXF Translator.

- Compressed MI files are not supported. Such files should be saved in uncompressed mode in Creo Elements/Direct Drafting prior to translation.
- MI formats older than rev. 2.5 are not supported. Before you can translate such files, save these to a supported MI version (rev. 2.5 or higher).
- "Old" Creo Elements/Direct Drafting splines are not supported. These should be converted to the "new-style" B-splines.
- Any text (including dimension text) may require repositioning in the translated file. This is due to the following reasons:
  - Font baselines in Creo Elements/Direct Drafting differ from those in AutoCAD.
  - AutoCAD does not support definable gaps between lines in multiline texts.
  - When text is anchored in a point other than the left lower corner, correct calculation of the anchor position requires the exact character width. The only way to obtain this data is to read Creo Elements/Direct Drafting and AutoCAD fonts).
- If single-line text is rotated, contains special symbols, or is not bottom left aligned, it is translated into multiline text (baseline limitation).
- Hatches and overlapping objects: The AutoCAD way of filling objects that overlap is different from the method in Creo Elements/Direct Drafting. In some cases, the translated hatches may differ from the original ones.

- Splines as contours: The Creo Elements/Direct Drafting control and knot values are not compatible with AutoCAD's spline system when handling contours. Therefore hatches with spline contours are not translated. In order to translate these splines, convert them to arcs and lines.
- Solid hatches in AutoCAD are different from non-solid hatches in a way that the elements of the contours must be ordered. Because this is not the case in Creo Elements/Direct Drafting, solid hatches are translated into non-solid ones.
- Different prefix/postfix colors may be used in Creo Elements/Direct Drafting. In AutoCAD, this is defined through a single string which does not support different colors.
- Some of the GD&T symbols do not exist in AutoCAD; therefore they are translated to '?' or similar symbol (examples are square and circular target symbols).
- Linetypes are mapped correctly, but sometimes AutoCAD does not show them correctly. After specifying some scaling factors or zooming the drawing, correct linetypes should show up.
- Creo Elements/Direct Drafting parts can be flagged not to be scaled (to ignore the scaling setting); this flag is currently ignored, which causes such parts to appear misplaced when translated to DXF/DWG.
- Text fonts are user-definable in both MI and DXF. MI fonts of this type are converted to the STANDARD DXF text font, unless specifically referenced in the Configuration File.
- The TOP part in Creo Elements/Direct Drafting is not translated to a Block in DXF because it is inconvenient to interactively change elements therein.
- Block and layer names are converted if they include special characters. They are truncated if they are more than 31 characters in length. The only allowed special characters are `$`, `-`, and `_` (dollar, hyphen and underscore). All other special characters are converted to `_` (underscore).
- Isometric shared parts are not supported by the translator. If you unshare these parts within Creo Elements/Direct Drafting they will be translated correctly.
- Translations of transformed shared parts is supported if they are mirrored, scaled or rotated. Other special transformed shared parts will not be translated (for example, isometric).
- Older MI files may contain dimensions that do not translate properly to DFX. Such MI files should be restored and then re-saved in the current version of Creo Elements/Direct Drafting.

- Dimensions in scaled shared parts and in detail parts are handled differently from other dimensions. If the part is not a detail part, it can be SMASHed prior to translation.
- Symbols are implemented in the ME product series as a font. When symbols are found, the ME product automatically "shifts" to the alternate font. The alternate symbols font is mapped in the DXF configuration table to any font you select. If you provide a font that has the same symbols in the same order as the Creo Elements/Direct Drafting symbols font, the translation then occurs automatically.
- The internal structure of a drawing may change after translation. For example, drawings created on AutoCAD in DXF format and then translated to MI format may have problems with automatic hatch, because the accuracy allowed in DXF is limited. If you store all drawings originally created on AutoCAD in DXF format in a separate directory, you can load back the drawings in AutoCAD and manually define the hatch boundary again. Therefore, it is important to organize the files so that you can easily keep track of where the original drawings are.
- Creo Elements/Direct Drafting allows an entity to reside on multiple layers, while AutoCAD does not. In the case of multiple layers, only one will be chosen when translating to DXF. The use of multiple layers is uncommon, however, restriction to single layers will provide better mapping.
- Hatches that are filled solid in MI are not mapped over to DXF. A work around is to modify the hatch in Creo Elements/Direct Drafting to have a fine hatch-line spacing such that it appears solid, before translation.

The following points apply only if associated dimensions are translated:

- A non-linear dimension with an alternative dimension text is translated into geometry.
- A dimension with a superfix, subfix or prefix is translated into geometry.
- Vertical dimensions and dimensions with vertical texts are translated into geometry.
- A dimension with a text-box is translated into a dimension without a text-box.
- A dimension with a tolerance for an alternative text is translated into geometry.
- A dimension with a different text font is translated into a dimension with the standard text font.
- A dimension with a text with a slant is translated into a dimension without a slant.

- DXF has only one global parameter for units. Therefore a drawing with different units will not be translated correctly.
- DXF has only one global parameter for number of digits following the decimal point (number of decimal places). Therefore, in a translated drawing, all dimension values will have the same number of places after decimal point.
- The text of an angle dimension will be horizontal following a modification.
- Because the translator has no information about the font, it is sometimes necessary to change the Character Width Factor parameter to prevent the dimension text and dimension lines from overlapping each other.
- Angular dimensions greater than 180° are translated into the complementary angle. The exception to this is the direct angular dimension which is translated into the DXF 3-point angular dimension.

C

Loading DXF External Reference Parts

A DXF file sometimes contains references to external parts, which are called External Reference Parts and are usually stored separately in another DXF file. All DXF external reference parts translated are listed in the log file, so you can check the log file to see if they exist (for example, `WORK_FILE` and `REF_FILE`).

To load these external parts back into the translated MI file:

1. Position the external reference file, called `REF_FILE`.
2. Write the `WORK_FILE` and the `REF_FILE`.
3. Copy both files to the workstation.
4. Load `WORK_FILE`. The system displays reference-point text.
5. Load the reference file `REF_FILE` at the reference-point text.

The system displays the message:

```
DXF WARNING - External reference filename not included.
```

where `filename` is the name of the file.

Index

A

Align, 40
Arc, 40
ArrowMapACADtoMI, 19
ArrowMapMItoACAD, 19
Assembly hierarchy
  DXF to MI, 40
Associative element
  Line, Leader, arc, circle, 49
Attribute text, 40

B

Batch File, 31
  creating, 32
  description, 31
  example, 32
Batch log file, 34
  description, 34-35
Batch translate
  DWG to MI, 14
  DXF to MI, 12
  MI to DWG, 15
  MI to DXF, 13
  MI to SVG, 15
Before You Translate, 10

C

C-Spline, Spline, B-spline, 49
Checking the Translation, 18
Choosing options, 12
Circle, 40
Command Options
  DWG/DXF, 16
Component attribute (MI to DXF)
  colors, 49
  Linesize, 49
  Lineweight, 49
  Pensize, 49
Composite annotation
  DXF to MI, 40
  MI to DXF, 49
Composite attributes
  colors, 40
  linesize, 40
  Pensize, 40
Composite geometry
  hatching, 40
  MI to DXF, 49
Configuration file, 19
  listing, 20
Construction circle, 49
Construction line, 40
Construction line, polylines, xline, 49
ConvertMIDimensionsToGeometry, 19
CreateManualHatch, 19
Creating batch file, 32
CustomUnits, 19

D

Description
  Batch File, 31
  Parameters, 19
Destination
  directory path, 19
Dimension
  Angular, 40
  Diameter, 40
  Linear, 40
  MI to DXF, 49

Radius, 40
Dimensions
subfix, 19
superfix, 19
DWG to MI
Translate, 13
translate (batch), 14
translation switch, 19
DWG/DXF command options, 16
DXF output file, 37
DXF to MI
translate, 12
translate (Batch), 12
DXF to MI Entity Mappings, 40

E

Ellipse, 40
Exit program, 12
ExplodeDXFDimensions, 19

F

File
Configuration, 19
Files
transferring, 18
Fileset, 7
FontMapACADtoMI, 19
FontMapMI2toACAD, 19
FontMapMItoACAD, 19

H

HighSplinePrecision, 19
Hints and Tips for Translating DXF/DWG to MI, 58
Hints and Tips for Translating MI to DXF/DWG, 63

K

Kanji translation, 19
KeepAttributesWithPart, 19
KeepTopScale, 19

L

Layers, 40
Leader arrow, 40
Leader Arrow
MI to DXF, 49
Line, Polyline, Multiline, 40
Linesize, 19
Linetype (MI to DXF), 49
Linetype Defaults, 40
LineTypeGlobalScale, 19
LinetypeMapACADtoMI, 19
Listing
batch log file, 35
configuration file, 20
DXF output file, 37
MI output file, 37
Listing of log file
MI to DXF, 27
Loading DXF External Reference Parts, 67
Log file
description, 27
DXF, 27
MI to DXF, 27

M

Magic information, 19
Main menu screen, 11
MI to DWG
translate, 14
translate (batch), 15
MI to DXF
translate, 13
translate (Batch), 13
MI to DXF Entity Mappings, 49
MI to DXFI
translation switch, 19
MI to SVG

translate, 15
translate (Batch), 15
Mtext, Arctext, Rtext, 40

O

Obliquing angle, 40
Options
choosing, 12
Output file, 36
OutputACADVersion, 19

P

Parameters
description, 19
Patch (source), 19
Path (destination), 19
Pensize, 19
Point, Polymarker, 40
Polymarkers, 19
PolymarkerType, 19
Product Overview, 5
Program
exit, 12

Q

Quit program, 12

R

Rays, 40
RecordByLayerInfo, 19
Running the translator
DWG/DXF, 10

S

Simple annotation
DXF to MI, 40
Simple Annotation
MI to DXF, 49
Simple geometry
DXF to MI, 40
Simple Geometry (MI to DXF), 49
SourceDirPath, 19
Spline, B-spline, C-spline, 40
Start up screen, 10
Starting the translator, 10
StartSection, 19
subfix, 19
superfix, 19

T

Text font default, 40
Text font defaults
MI to DXF, 49
Tolerance entities, 40
Top part
keep scale, 19
Transferring files, 18
Translate
Before you translate, 10
checking the translation, 18
DWG to MI, 13
DWG to MI (batch), 14
DXF to MI, 12
DXF to MI (Batch), 12
MI to DWG, 14
MI to DWG (batch), 15
MI to DXF, 13
MI to DXF (Batch), 13
MI to SVG, 15
MI to SVG (Batch), 15
TranslateDXFPenLineSize, 19
TranslateInvisibleLayers, 19
TranslateMIPenLineSize, 19
TranslatePaperspace, 19
TranslateSubfixDimProp, 19
TranslateSuperfixDimProp, 19
Translation
Kanji, 19

U

Units scale, 19
Using the DWG/DXF Translator, 8

X

Xlines, 40