

# Graphics Guidelines for JCALS Publishing

## FORMATS

Encapsulated Postscript (EPS) is the preferred format for publishing graphics in JCALS. If a preview capability is desired, EPS with interchange format is required (EPSi). It is important to note that while many PC graphics programs are capable of producing EPS files, they are not capable of producing EPSi. Generally, PC graphic programs produce an EPS file with TIFf format preview images or EPSf. JCALS composition software is not EPSf aware. EPSi maintains the fidelity of the original graphic and affords the published graphic the ability to zoom in and out without loss of resolution.

The single drawback is that EPS graphics are not editable. EPSi is not the preferred format for organically maintained graphics. For maintenance of graphics an editable, vector based format is required.

Computer Graphics Metafile (CGM) format Level 1 is currently the only acceptable format for delivery of graphics to JCALS for AF organic maintenance. CGM is an editable vector graphic easily updated, which provides better sustainment life cycle and provides quality output. When a CGM level 1 graphic is converted to EPSi, text automatically maps to a CGM text font (e.g., Monospace Gothic). Deliver organically maintained graphics in CGM (Level 1) format.

CGM graphics should use a monospace font to more closely align with the AF JCALS conversion. To maintain the precise font appearance the originating CAD/graphics software and when a proportional font is used, conversion of all text to polylines or curves is required; graphic file size may increase slightly. Subsequent editing requires replacing the graphic text objects with new converted text. When converting files to CGM, carefully review the final file to ensure all text transitioned properly. Test by converting the file to EPSi to ensure fidelity.

Tagged image file format (TIFf) is the least preferred format. TIFf is a bitmap (raster) image format that does not lend itself to scalability (zooming) and is more cumbersome to edit. While high quality TIFf images are usable by JCALS publishing, file sizes can be extremely large and the graphic is not as sustainable. Automated conversion of TIFf files in the JCALS publishing software during composition significantly impedes the publishing process and output times for the final composition are greatly increased. Delivered TIFf files must conform to CCITT Group 4 compression. Other encoding formats generate significantly larger files.

## FILE NAMING

For all graphic forms, the actual file's id name extension must be in lower case, e.g., ".cgm", ".eps", or ".tif". Do not leave spaces in file id names; dashes and underscore can be used to indicate breaks in file name segments, e.g., sample\_graphic-01234.eps.

MIL-PRF-28001 prohibits the use of special characters, including the underscore character, in any entity name. The JCALS parser will reject those tagged instances that are not in compliance.

For example:

This will work:

```
<!ENTITY testcabling SYSTEM "C:\b-2\bru\graphics\test_cabling.eps"  
NDATA eps>
```

This will not work:

```
<!ENTITY test_cabling SYSTEM "C:\b-2\bru\graphics\test_cabling.eps"  
NDATA eps>
```

## SIZING AND TAGGING

Graphics sizing by the illustrator is necessary before exporting in the desired format. Optimally, set the EPS bounding area or box size to the exact measurement when creating the graphic. The <graphic> element attributes specifying a "boardno" (graphic identification) also provides the sizing on the page. If dimensional data is not specified the graphic will default to the original bounding box size. A typical graphic in the context of figure might look like this:

```
<figure>  
<title>Test Equipment</title>  
<graphic boardno="f12345a" repropwid="51.5pi" reprodep="39.25pi">  
</figure>
```

While the "boardno" attribute is required and must be specified, the "repropwid" and "reprodep" attributes are optional and may be left blank. However, we *strongly* recommend specifying the reprodep to ensure the graphic does not push the figure title to the next page. When specifying measurements, ensure the dimensions used maintain the aspect ratio of the graphic or it will appear distorted. Additionally, whenever width or depth is specified, a unit of measure, e.g., "in" for inches, "pi" for picas, "pt" for points, must be included.

**Note:** It is our *understanding* that Datalogics Composer v 1.96 defaults to points when a unit of measurement is not specified.

## DETERMINING PAGE SIZE

MIL-STD-38784 and MIL-HDBK-38790 define standard page sizes. A page consists of the overall margins, the binding edge, and the header and footer. Whether or not you use the AF formatting output specification instance (FOSI) for printing that comes packaged with the Digital Support Suite (DSS) you can gain valuable insight into the amount of

space available for full-page graphics by analyzing the FOSI. Graphics of lesser size can often be positioned without this consideration.

In the FOSI, ( [filename].fosi ), are “pagesets” for every approved page size in the MIL-STD/MIL-HDBK. Determining the available space from the pagespec (page specification) will yield the maximum graphic size for that page. Have a copy of the latest MIL-HDBK-28001 available to understand the concrete syntax you will find in the FOSI. For example, in the context of the FOSI (see red text below):

```
<pageset id="bodypg" rectver="1" blankpg="1" frcchglv="0"
orient="portrait">

<rectopg width="51pi" nomdepth="66pi" bind="lleft" chgmkwid="6pt"
chgmloff="4pt" chgmkplc="plftrt" topfloat="top-page.flt" botfloat="bot-
page.flt">

<pageres>

<enumerat increm="1" enumid="pgct">
<enumerat increm="1" enumid="pageenum">
<savetext textid="pgnumber"
conrule="volfoliostr[BO], foliostr[BO], pageenum" saverule="2">
<savetext textid="pagedeltext" conrule="delnotetext [FI]"></pageres>

<pagespec>
<topmarg nomdepth="3pi">
<botmarg nomdepth="3pi">
<leftmarg width="4.5pi">
<rtmarg width="3.0pi">
<header nomdepth="3pi">

<sectext scope="sheet">
<subchars>
<font style="sanserif" size="14pt" weight="bold">
<quadding quad="center" lastquad="lcenter"></subchars>
</sectext>
```

pi = pica (6 per inch)  
pt = point (72 per inch)

Subtract the measurements in the <pagespec> from the nominal measurement in the page identifier <rectopg>

Using these calculations should allow the publication of graphics on the JCALS system.

Updates to this information will continue based on user feedback, new page set development, and experience with the software.

Please address any comments or questions relating to SGML to the TMSS web site <http://www.ide.wpafb.af.mil/tmss/>

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