Working in ARRIS Compared to Working in AutoCAD

It is important to have an understanding of how work is accomplished in AutoCAD to assure that transfer of information is as clean as possible and troubleshooting is easier. The approach to creating drawings in ARRIS and AutoCAD differs in several areas:

- Use of Bylayer property for many entities. Common parameters set on a per layer basis includes linestyle, color, plot or no plot.
- Pens do not exist in AutoCAD, plotting is done by color unless output thickness is explicitly defined and attributed to the entity.
- AutoCAD uses Xrefs and Blocks versus Drawings and Repeated Items for ARRIS. Blocks may be created within the drawing or they may be inserted from an external source and may consist of entities on multiple layers. An External References is essentially a link to another drawing and the all layers within that file are included.
- A Block must be created on layer 0 if it is to be used on any given layer.
- An AutoCAD drawing file may contain multiple layouts (pages), each of which may have multiple viewports. ARRIS sheets consist of a single page, which may have multiple viewports.
- The typical drafting unit in AutoCAD is inches while ARRIS usually works in feet.
- AutoCAD users work in a real world coordinate system (like a state wide coordinate system) that encompasses a much larger area than the typical ARRIS database.

Entity Mapping And Expert Translator Tools

Many entities stay the same in ARRIS and AutoCAD but a few that get changed are noted below. See the Expert Translator file et-entities-mapping pdf for a complete list.

- ARRIS line hatch translates to an AutoCAD line hatch but ARRIS repeated item hatch translates to AutoCAD block.
- Each hatch in ARRIS translates to a unique AutoCAD custom hatch style.
- Styles in AutoCAD stay associated with the entities even after they are placed. If you update the style, those items placed with that style definition update as well.
- Polylines can translate into ARRIS as zones, a running line or as a repeated item.
- Nested blocks and blocks with multiple layers get translated onto a single layer as a repeated item in ARRIS. The layers that the entities would have been spread out on come in empty if nothing else was on that layer. In order to get the intended layer scheme, these types of blocks must be exploded in AutoCAD before translating.

In order to match the graphics as much as possible, you should create standard layer, repeated item, font and pen mapping files to get the best results. Create multiple translator config files to address the nuances of each client but re-use as many of the mapping files as practicality allows. The more you understand the correlation between entities and methods used to create drawings, the more success you will have. A sample translator support file is shown on the following page for reference purposes.

The following is a sample color map (*.clm) file for correlating ARRIS *pen or color* to AutoCAD *color*. This assumes the AutoCAD user will follow the typical approach of using color to dictate line thickness and output color.

```
ARRIS = AUTOCAD

0  = 7
1  = 3
2  = 2
3  = 1
4  = 30
5  = 15
6  = 6
7  = 4
8  = 5
9  = 52
10 = 45
11 = 101
12 = 200
13 = 108
14 = 8
15 = 11
```
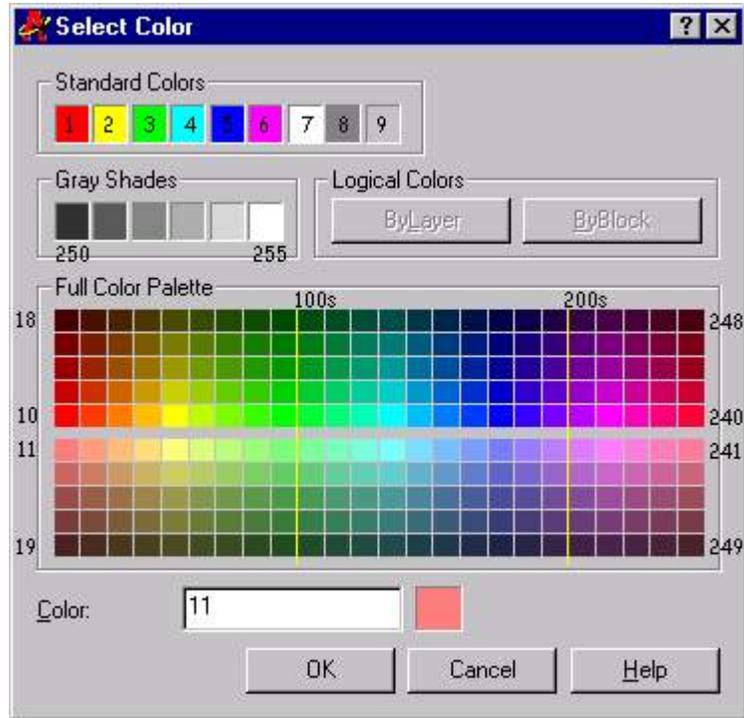
Using the chart shown at right to choose destination colors in AutoCAD may help you discuss with the recipient how thick color 1 should plot. Our pen 1 is set to be color 3 (green) so I can tell the AutoCAD technician to set the thickness of 'color 3' to .18 and black. Likewise, I can tell them that 'color 11' should be set to a 1.00 thickness, 40 % tone output.

Each of the mapping files is a text file that uses this same format of creating a column heading which determines the "from" and "to" direction followed by a listing of source and destination entries. Note that the capability to use wildcards has been added to the layer mapping table. While this can be very useful, do not use it for files that are intended to be returned to the sender as the original layer structure cannot be restored.

For files that are sent back and forth between AutoCAD and ARRIS, you may find it useful to create an Excel spreadsheet with a column for ARRIS entries, one for AutoCAD entries and a column of equal signs in between. By switching the column sequence, you can create long mapping lists that stay properly correlated and export them to separate ascii text files for import and export.

Steps To Take When Sending ARRIS Files to AutoCAD

To assure the best result on when exporting files to AutoCAD, take the following steps:
- ALWAYS pack your database and run 'chklib' to make sure support files are loaded.
- If you can create an AutoCAD .ctb (color table) file it has a better chance of actually being used by the recipient.
- If you cannot create a .ctb file, correlate your pens (or colors, depending on how you plot in ARRIS) to a specific AutoCAD color and then send along a text file that lists the color number and it's corresponding thickness. Additionally, if not plotted in black, be sure to reference an RGB value and/or tone percentage.
- Unless you perform font mapping during translations, include the AutoCAD versions of ARRIS font files which can be downloaded from Sigma Design's website or can be created through the Expert Translator.

When Importing an AutoCAD DWG to ARRIS

There are several issues you may need to address to get the best result when bringing DWG files into ARRIS:
- I recommend translating into a new empty file and then copying entities desired into your working database. This minimizes repeated item issues mentioned below and coaxes you to edit out unnecessary data. Loading layers from a translated database may also be a good alternative as long as the origins are synchronized.
- As mentioned earlier, nested blocks and multi-layer blocks need to be exploded in AutoCAD if you need to have the content spread out on the same layers.
- Be aware of repeated item scale factor changes on return trip files.
- Linetype scales (dash parameters) will likely need to be adjusted.
- Origin offset values may be necessary to obtain desired increments.

Expert Translator – Release 7.5 New Features

Several important enhancements which address productivity and compatibility have been made for the latest release of the translator:
- The ability to translate multiple ARRIS sheets into one AutoCAD DWG file with multiple layouts. Each ARRIS sheet becomes a separate layout in AutoCAD.
- Mapping of ARRIS repeated item hatch patterns to AutoCAD patterns instead of having repeated item hatches converted to blocks in AutoCAD.
- Functionality that allows AutoCAD firms to send DWG files to ARRIS firms without having to bind Xrefs before sending. All externally referenced files still need to be included for correct results but the AutoCAD firm does not have to alter their working files in order to deliver useable files to ARRIS firms.
- A new Expert Translator initialization file (etrans.ini) which sets default configurations for import, export and support file locations according to user preference.