CM1746: Developing Drawing Validation Rules

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Class summary

Once a drafting standard has been established, a drawing validation process must exist to ensure compliance with it. Oftentimes this consists of one or more drafters/checkers performing drawing audits from within Autodesk® AutoCAD® software.

This class illustrates how Feature Manipulation Engine (FME) can be used to audit a drawing to ensure compliance with corporate drafting standards, thus reducing or eliminating the cost for drawing validation prior to project closure.

Key learning objectives

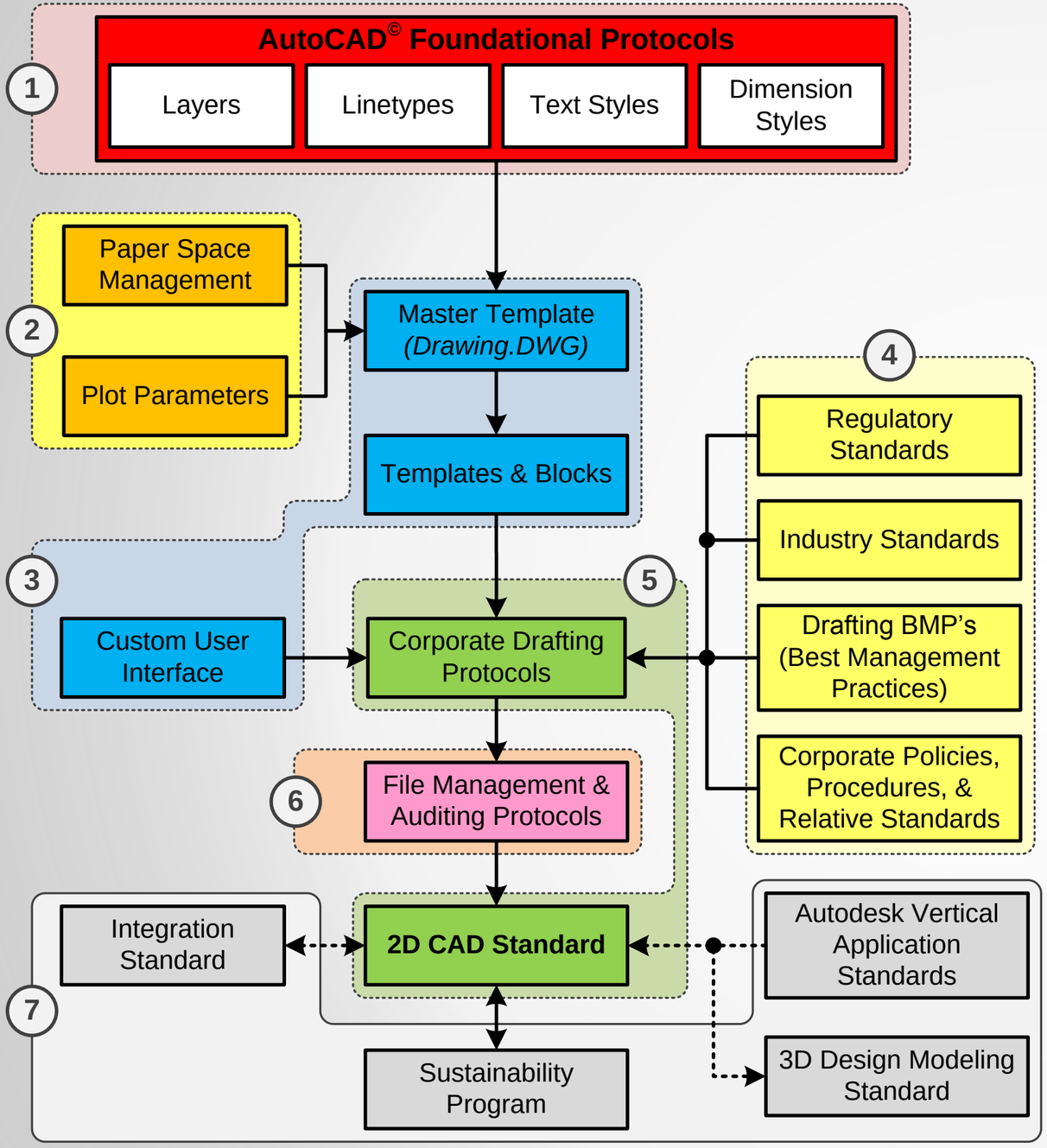
At the end of this class, you will be able to:

- Reduce the cost of drawing audits
- Reduce the cost of third-party multiseat applications
- Use applications that your GIS team may already have access to
- Automate data validation prior to project closure

Colonial Pipeline Company – Business Overview & Safety Share

- Interstate common carrier of refined petroleum products
- Over 5,500 miles of pipeline stretching from Houston to New York
- Headquartered in Alpharetta, GA
- ~700 employees
- Transports approximately 100 million gallons per day:
  - Gasoline
  - Home heating oil
  - Diesel fuel
  - Commercial jet fuel
  - Military fuels

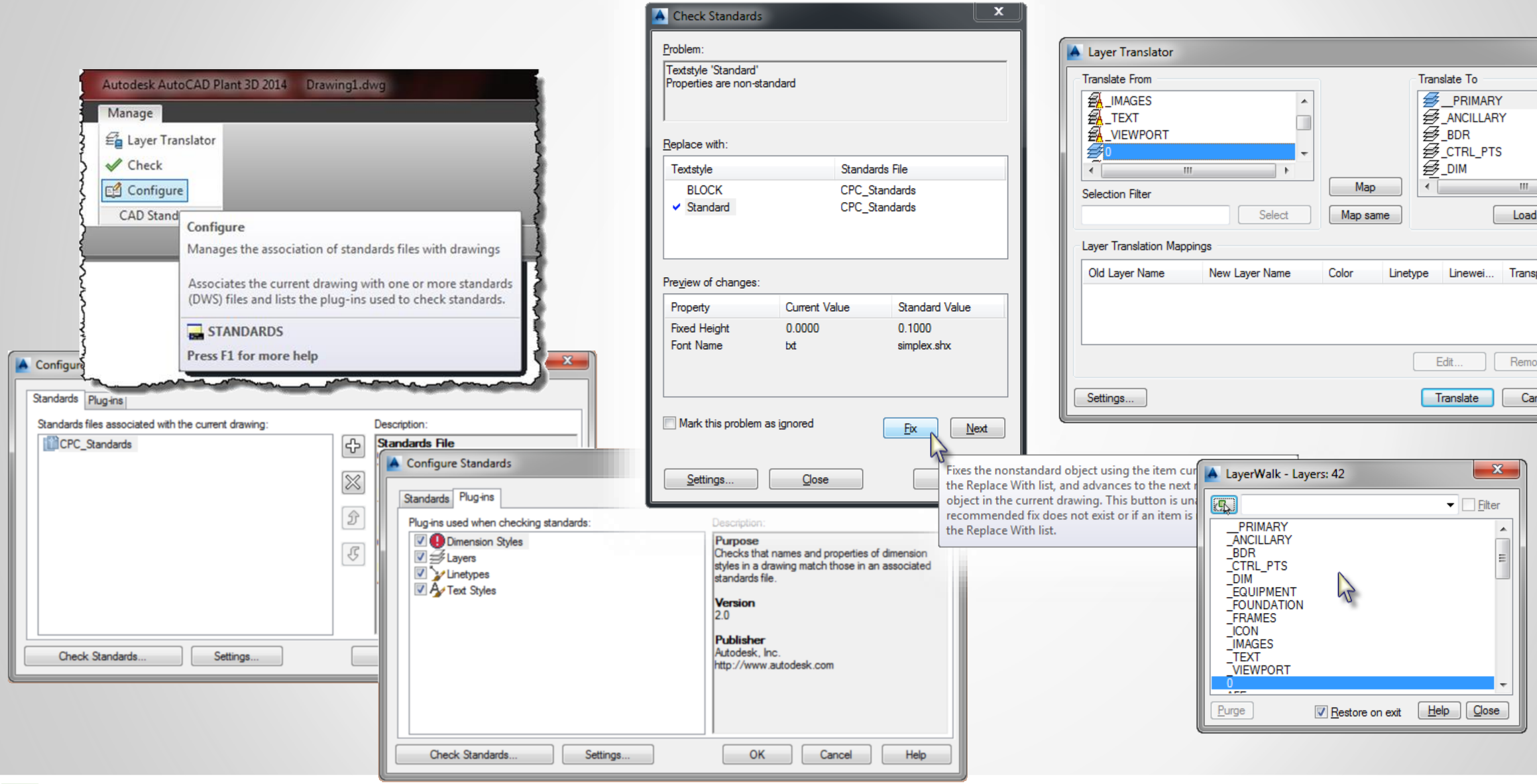
A Pipeline Company's DWS Model



LEGEND:

- = Autodesk© defined file structure
- = User defined parameters
- = User developed entities
- = Institutionalized CAD Standard
- = Corporate/Industry parameters
- = Corporate document management protocols
- = Corresponding standards development (as needed, dependant upon company initiatives)

Standards validation within the CAD environment…

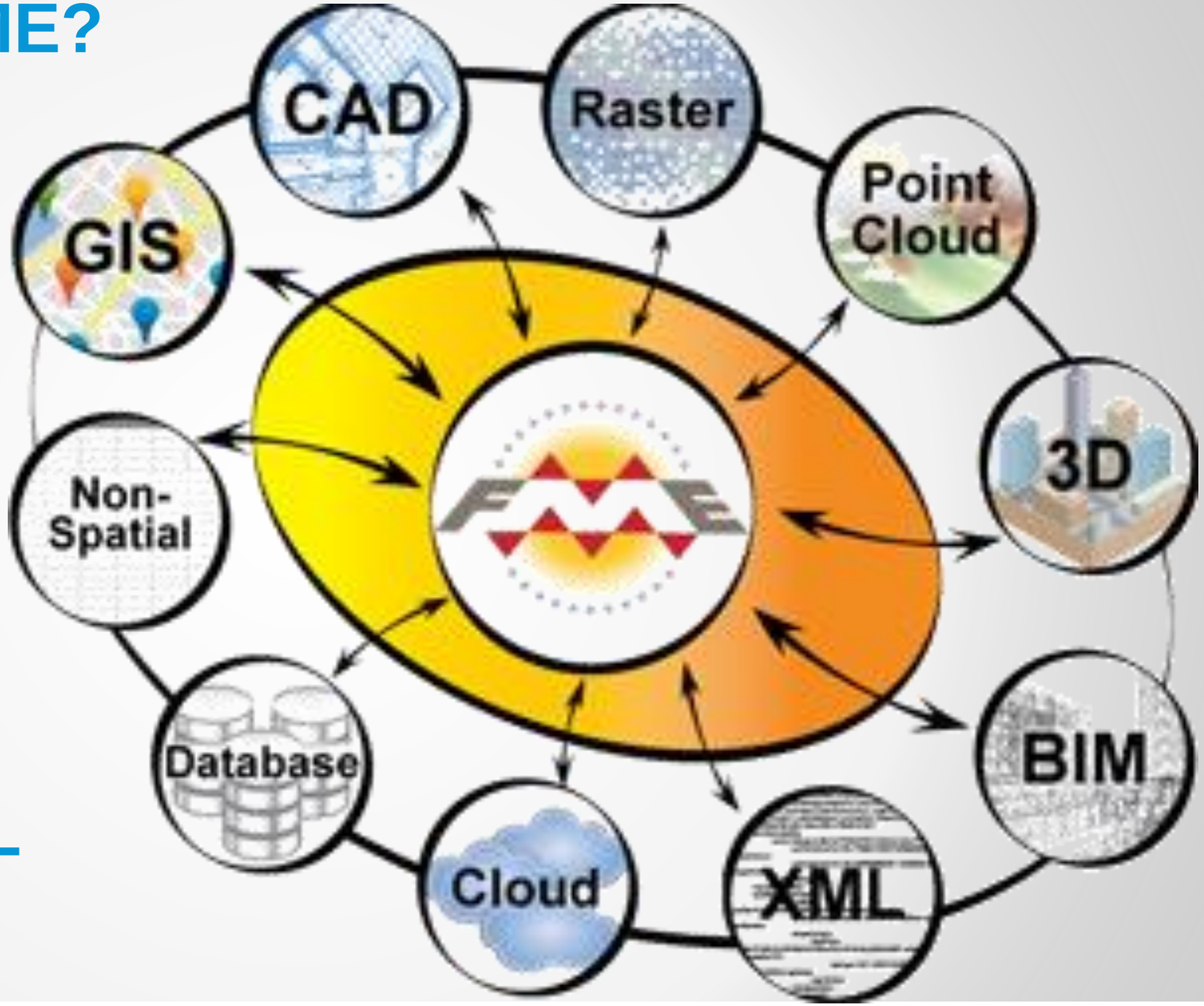


Standards validation beyond the CAD environment …

- Automation
  - External of AutoCAD
- Scalability
  - PC based and/or Server based
- Cost & Time Reduction
- Customization
  - Pertinent to Industry or Corporate specific standards
  - Evolve with business processes
  - Error logging, correction, and notification

… Our solution? …FME

Introduction to FME?

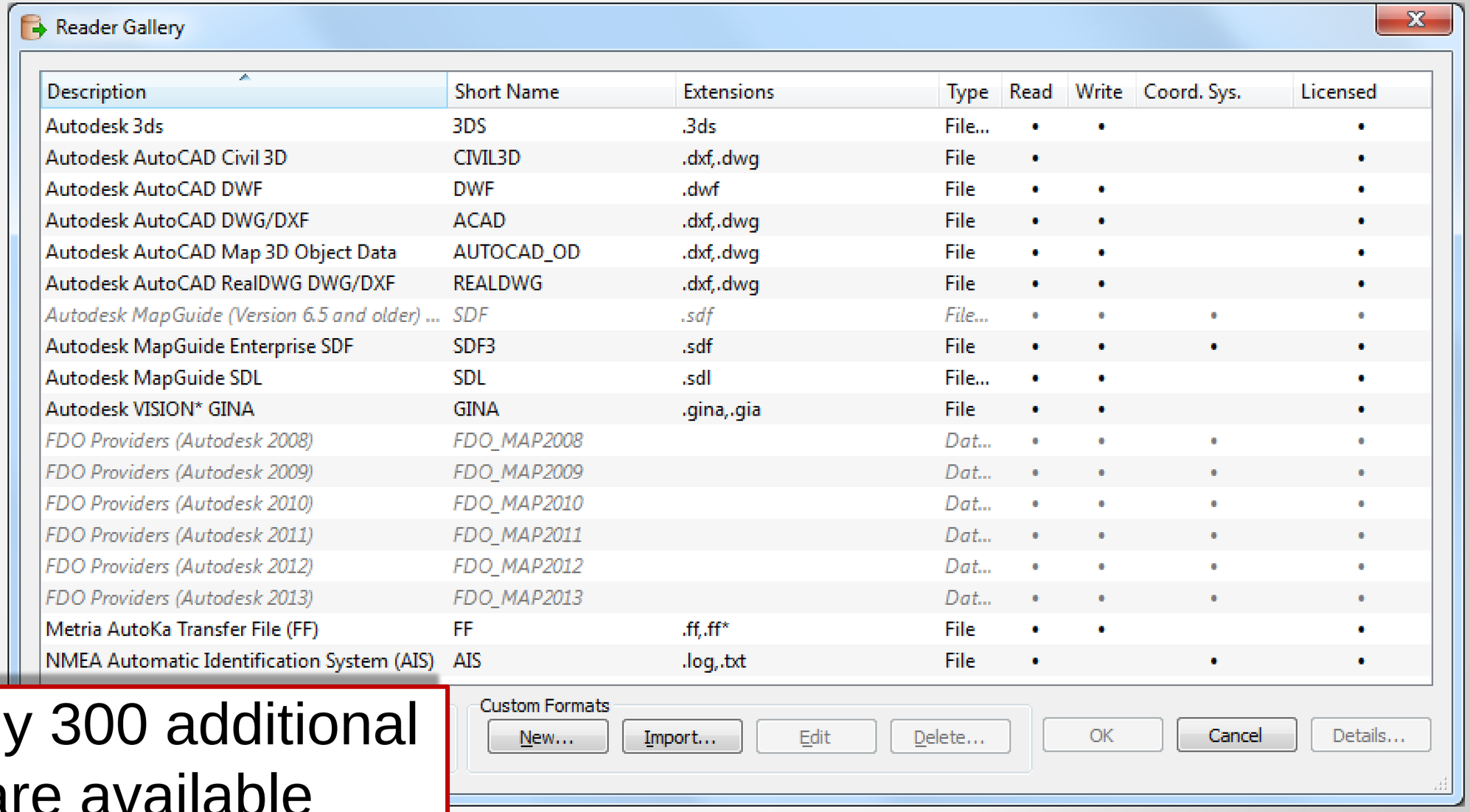


It’s a Spatial ETL

Extraction…

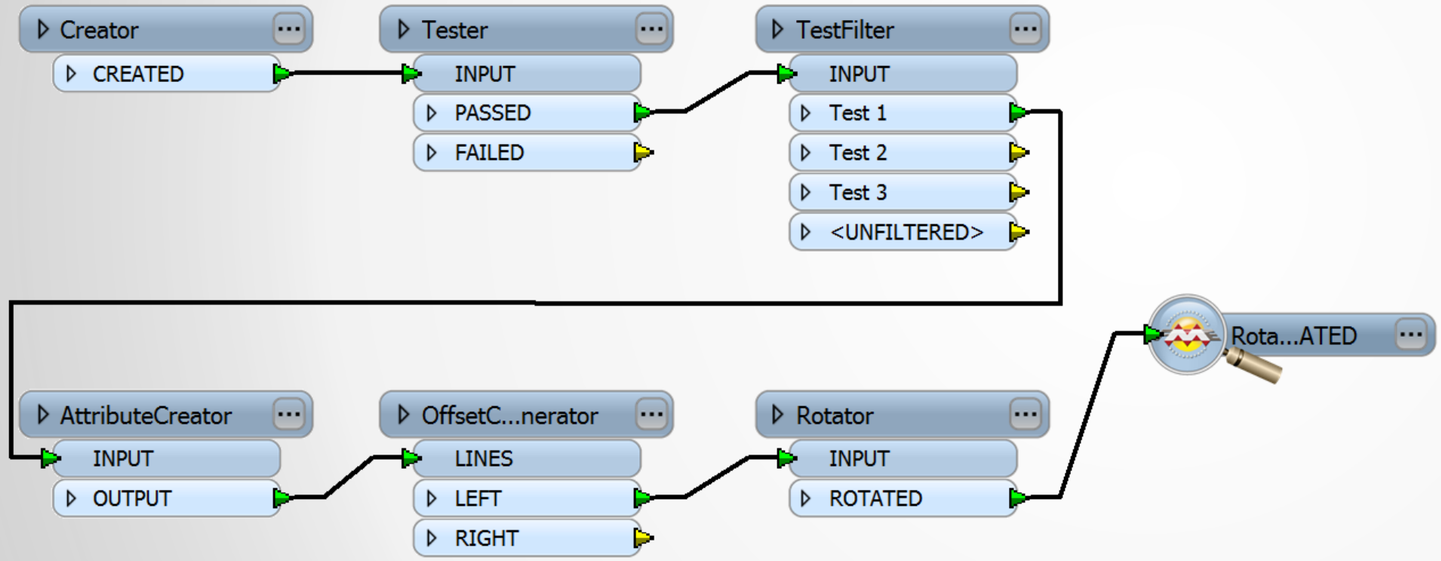
T

L



Approximately 300 additional formats are available

E
Transformation …
L



Defined as the actual Transformers used within FME to manipulate what was just extracted.

Approximately 450 additional transformers are available

E
T
Load…

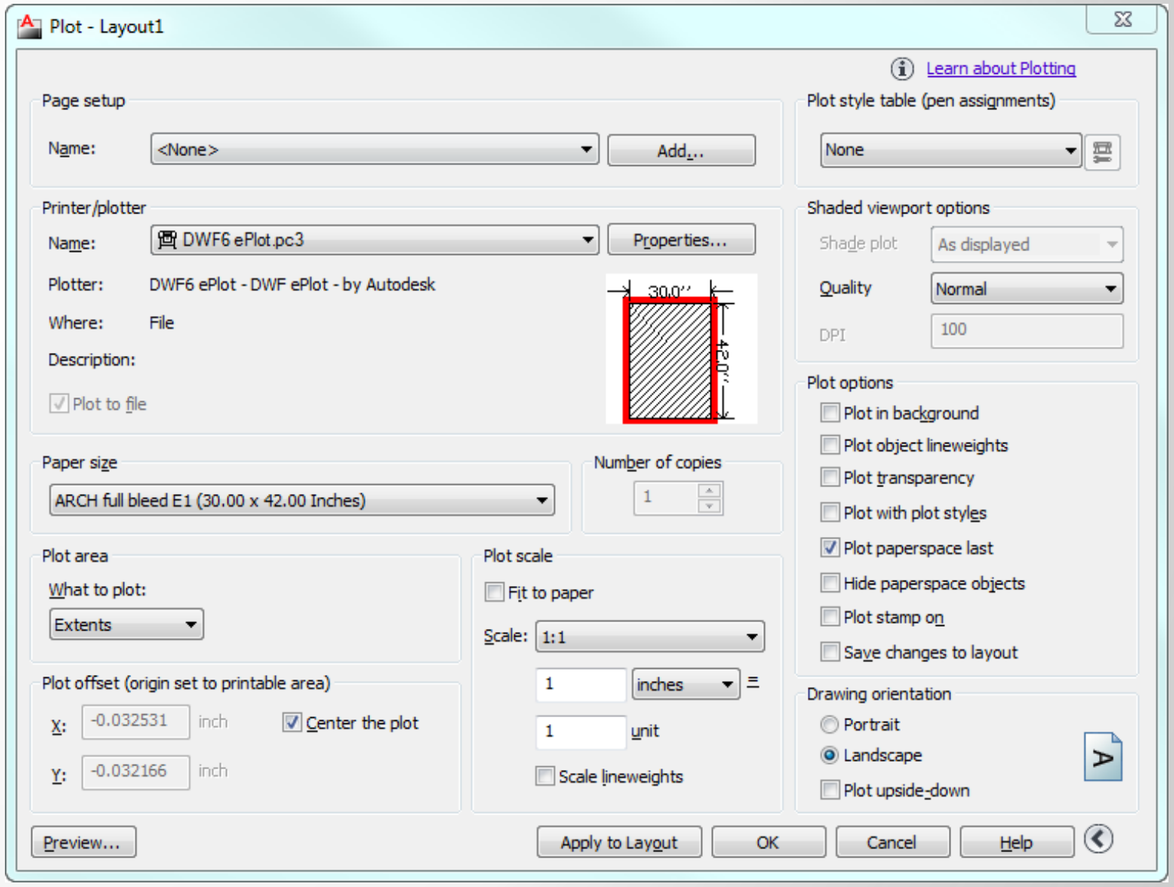
	A	B	C	D
1	File Name	Number Records	Number Errors	Percentage Errors
2	7-CLD-M001	994	87	8.75%
3	7-AYJ-E008(01)	2272	131	5.77%

Displaying the results of the extracted file as it was processed against the drafting standards.

Known Limitations of FME for CAD Drawing Validation…

- Writing to multiple Layouts within a single CAD file
- Plot parameters are not supported

  FME is not intended to be used for hardcopy output – moreover, to transform data (in all or part) from one file format to another.



FME's biggest limitation is…

Your Imagination!

So What's Next?

- Error Correction
- Vendor Distribution
- Cloud Deployment
- Integration with 3D, GIS, EAM, and/or other Enterprise Applications
- 4D