Engineering Data Quality

Allowing the digital age to work for us and not against us

Jonathon Sutton

BOEING is a trademark of Boeing Management Company Copyright © 2023 Boeing. All Rights Reserved
Copyright © 2023 Elysium Inc. All Rights Reserved
Copyright © 2023 Northrop Grumman Corporation. All Rights Reserved
Copyright © 2023 Parker-Hannifin Corporation. All Rights Reserved
Copyright © 2023 PDES. All Rights Reserved

Jonathon Sutton – Engineering Technical Specialist, Airplane Level Engineering Integration (ALEI)

As a member of Boeing's ALEI MBDef team, he has had the privilege of working with their data quality solutions team to develop a data quality solution that will be integrated into the future modeling software for the company. He brings over 13+ years experience with production systems as well as his data quality expertise. From the start of his career at the Boeing company he has been involved with numerous data quality projects, like the NTChecklist, iCheckit, CheckMBD, and ZECAD tools and lot's more. Data quality is something that he is passionate about, but ending the need for un-necessary data quality validation is where his true passion resides.

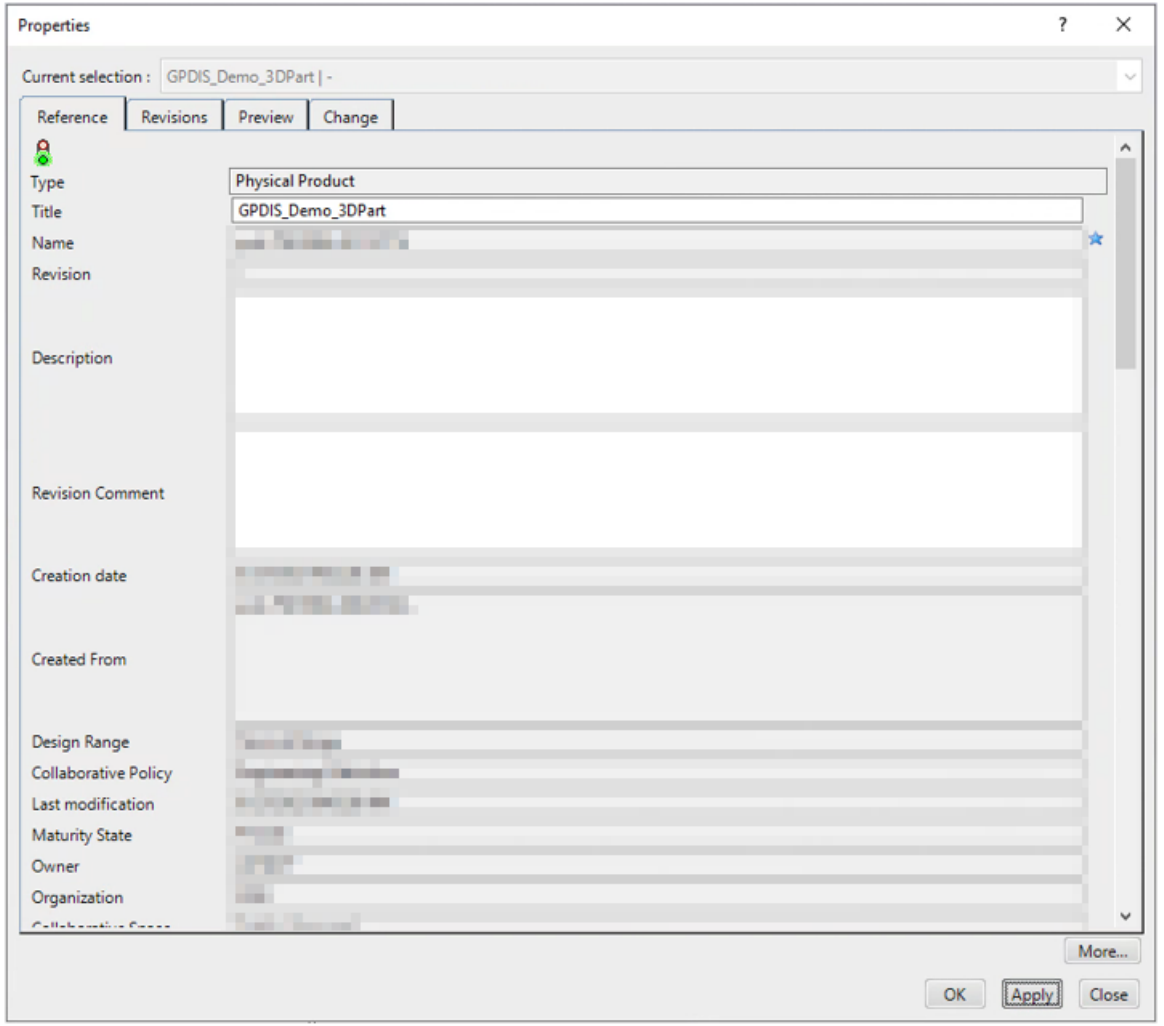
What is Engineering Data and Data Quality?

Engineering Data is a necessary part of what we do everyday

What is Engineering Data and Data Quality?

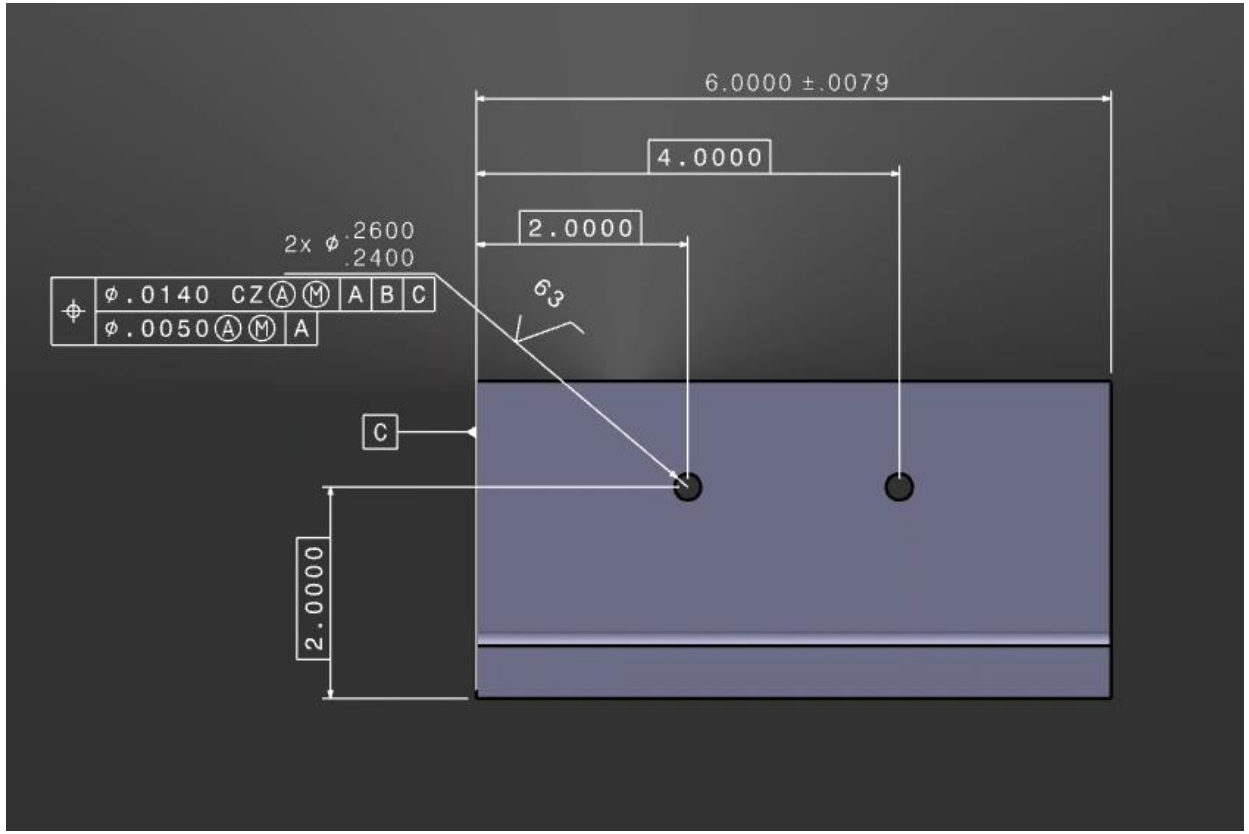
- **Engineering Data Quality is…**
  - **Attributes**

Engineering Data is a necessary part of what we do everyday



What is Engineering Data and Data Quality?

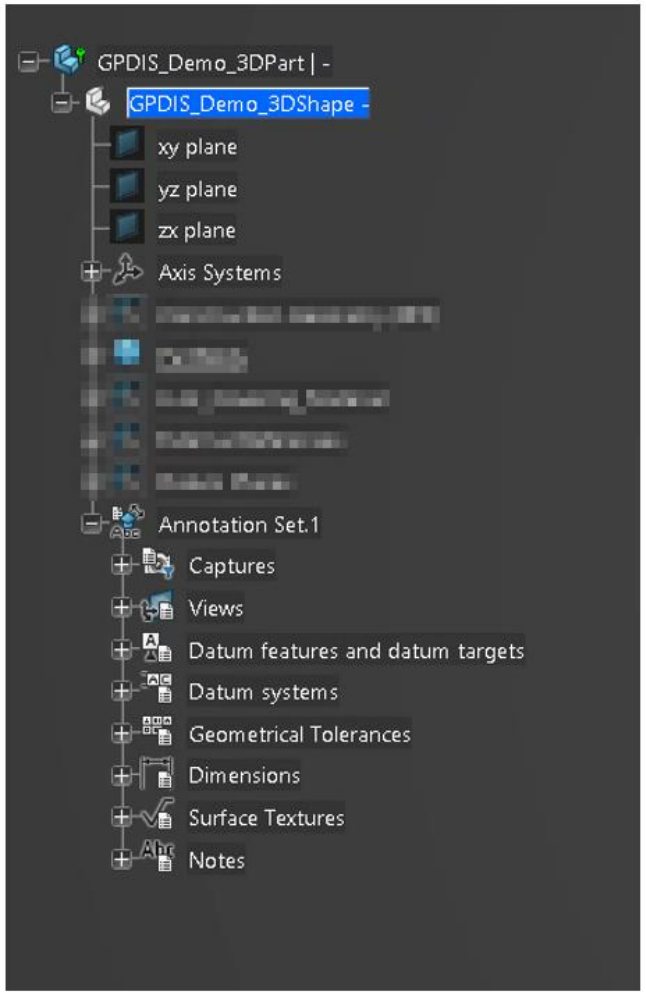
- **Engineering Data Quality is…**
  - **Attributes**
  - **Annotation**



Engineering Data is a necessary part of what we do everyday

What is Engineering Data and Data Quality?

- **Engineering Data Quality is…**
  - **Attributes**
  - **Annotation**
  - **Organization**



Engineering Data is a necessary part of what we do everyday

Why is Engineering Data Quality an Issue?

Time and effort spent dealing with Engineering Data comes with cost

Why is Engineering Data Quality an Issue?

- **It is an issue because...**
  - **Manual entry into multiple systems**

Time and effort spent dealing with Engineering Data comes with cost

Why is Engineering Data Quality an Issue?

- **It is an issue because...**
  - **Manual entry into multiple systems**
  - **Manual validation**

Time and effort spent dealing with Engineering Data comes with cost

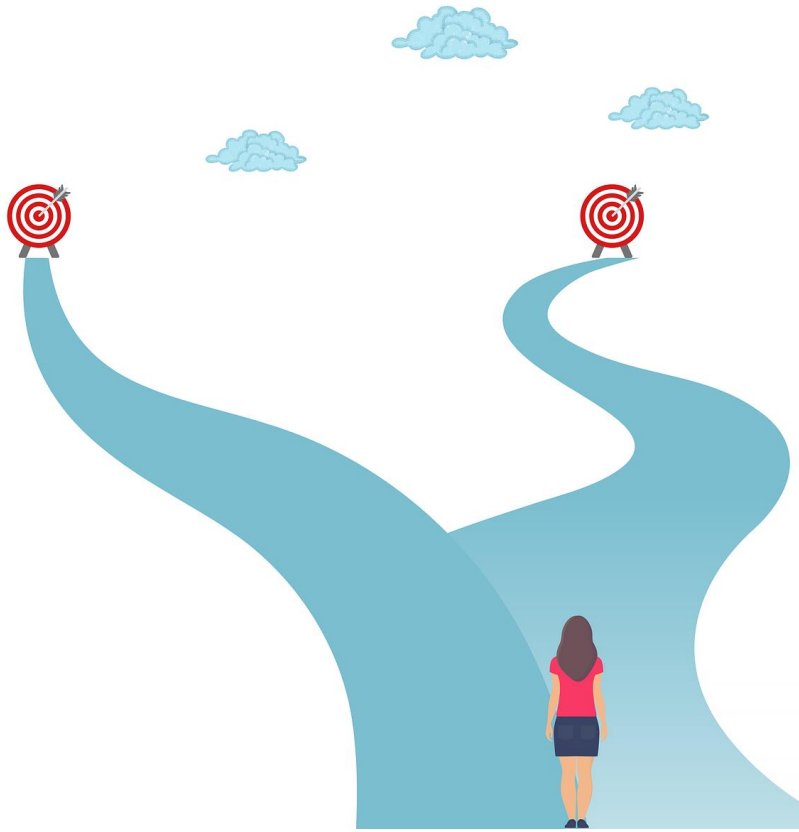
Why is Engineering Data Quality an Issue?

- **It is an issue because...**
  - **Manual entry into multiple systems**
  - **Manual validation**
  - **Time consuming**

Time and effort spent dealing with Engineering Data comes with cost

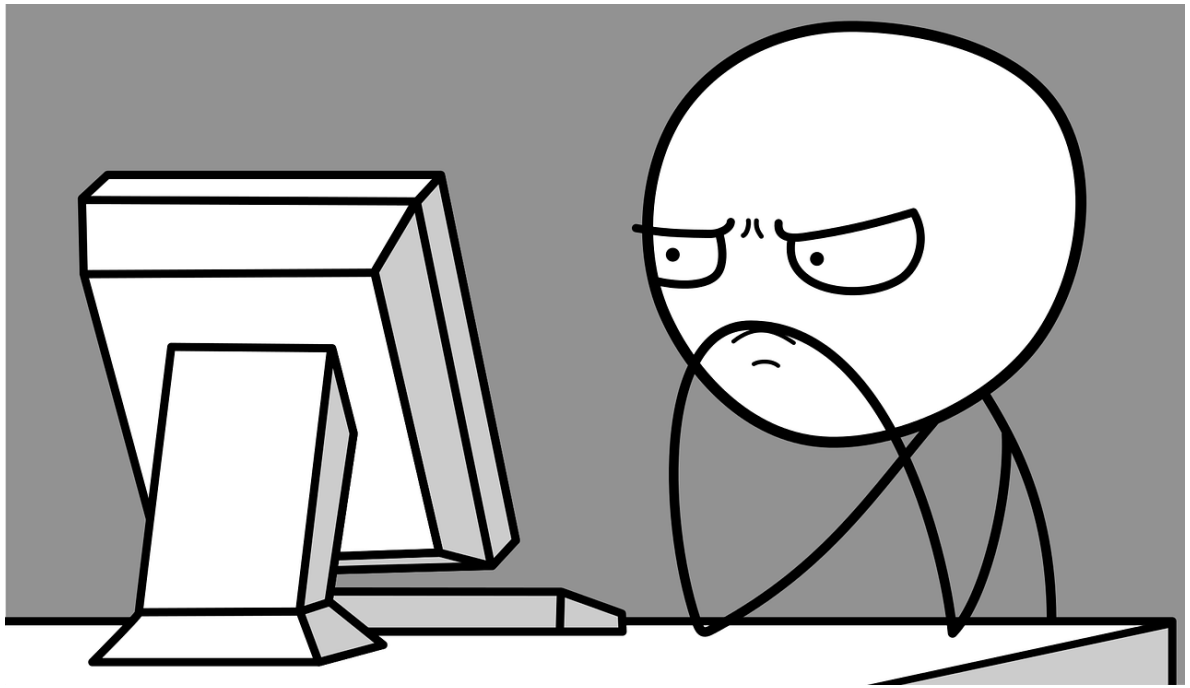
What Are the Options?

- **The fork in the road**



What Are the Options?

- **The fork in the road**
  - **Continue down same path**



Continue wasting time with manual entry and validation.

What Are the Options?

- **The fork in the road**
  - **Continue down same path**

    Or

  - **Figure out a better way**

Continue wasting time with manual entry and validation, or build the quality in.

What is the issue?

- **What is the issue**

Minimize the entry of data validation and move validation of it during the engineering creation.

What is the issue?

- **What is the issue**
  - **Post engineering vs. during engineering creation**

Minimize the entry of data validation and move validation of it during the engineering creation.

What is the issue?

- **What is the issue**
  - **Post engineering vs. during engineering creation**
  - **No direct connection to the engineering data**

Minimize the entry of data validation and move validation of it during the engineering creation.

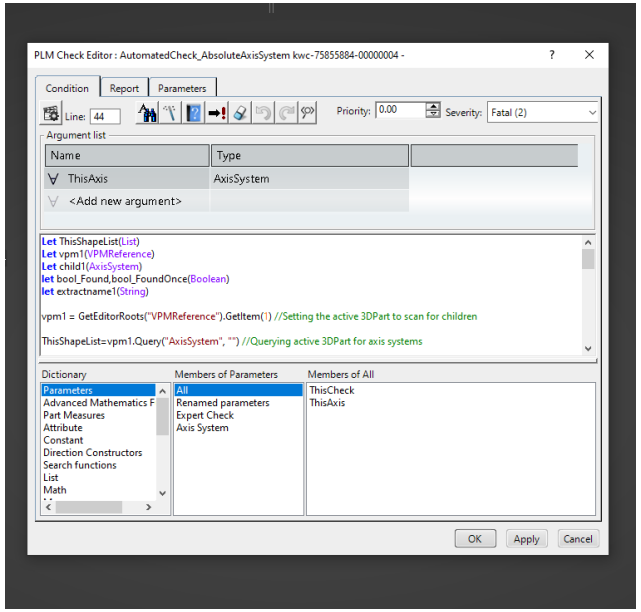
How do we do this?

- **Lets explore the tools**
  - **3DExperience Apps**

Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

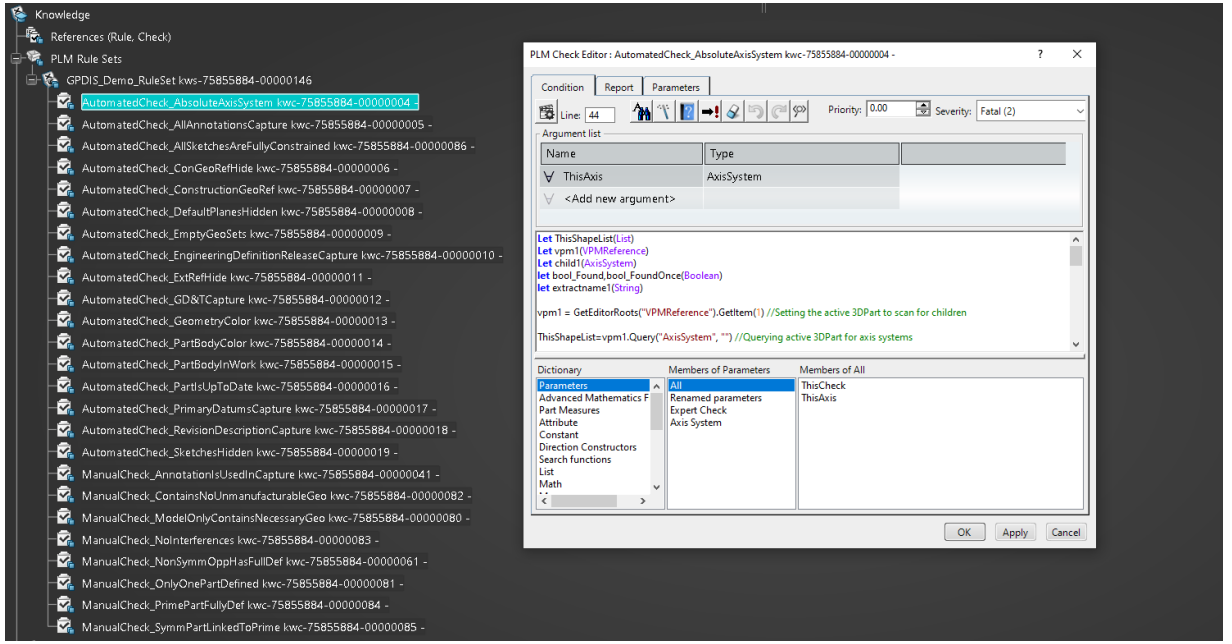
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

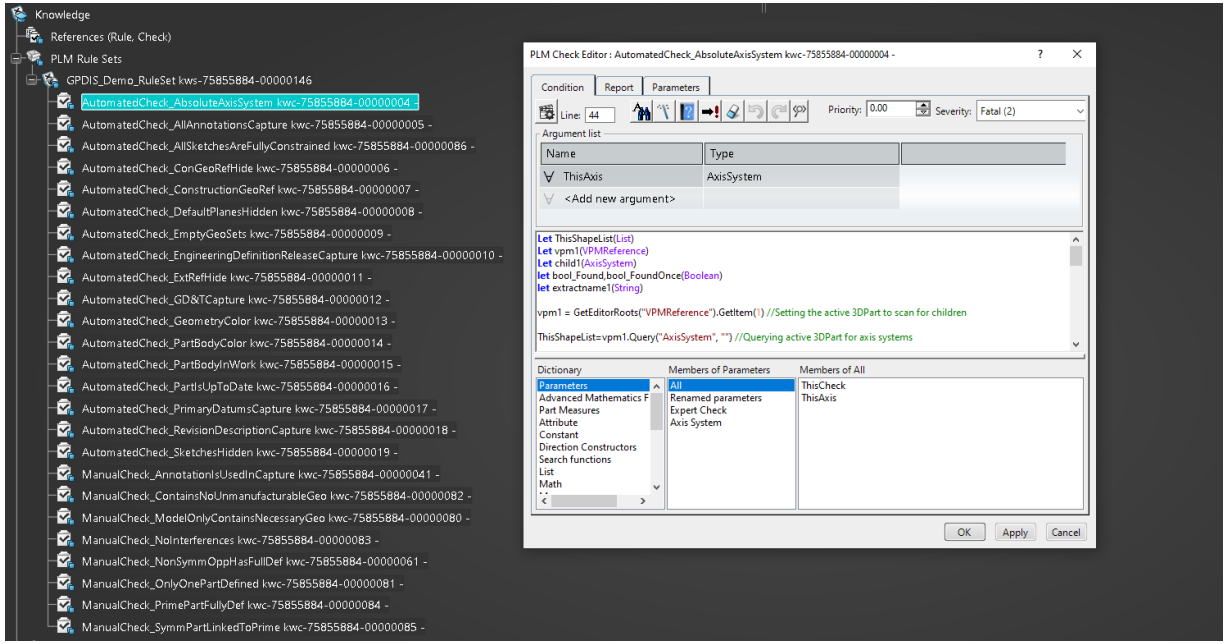
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

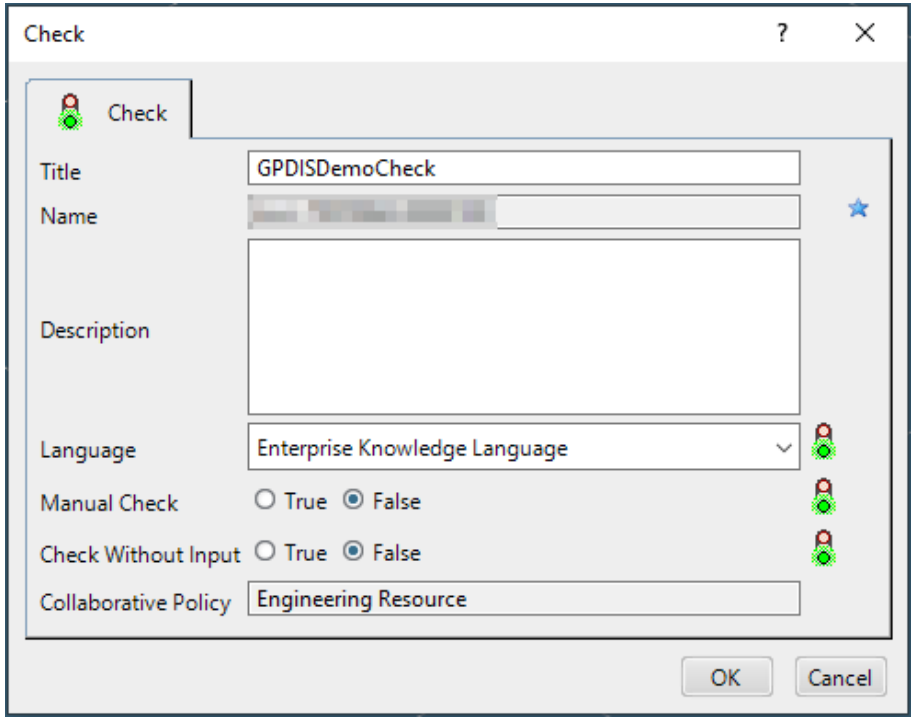
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

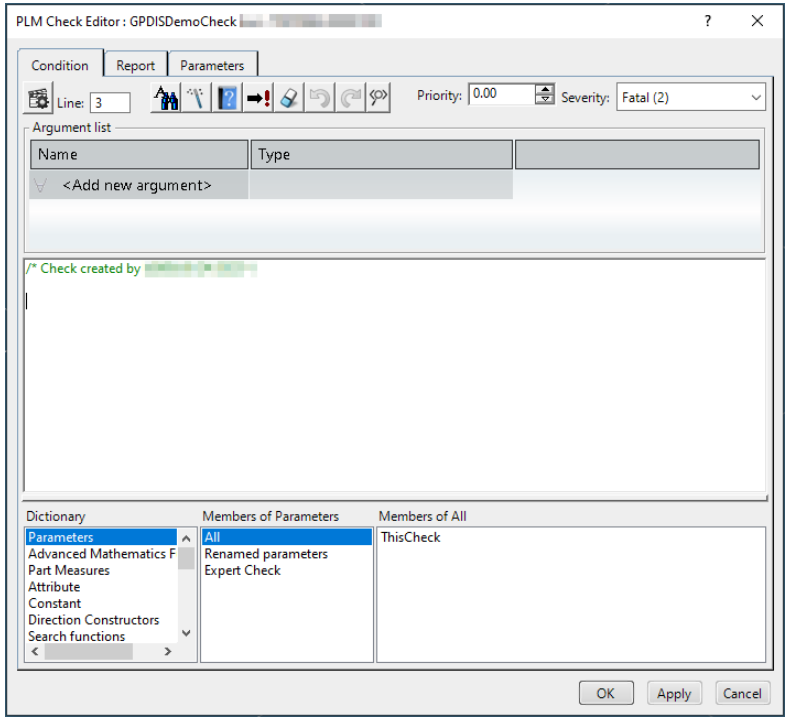
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

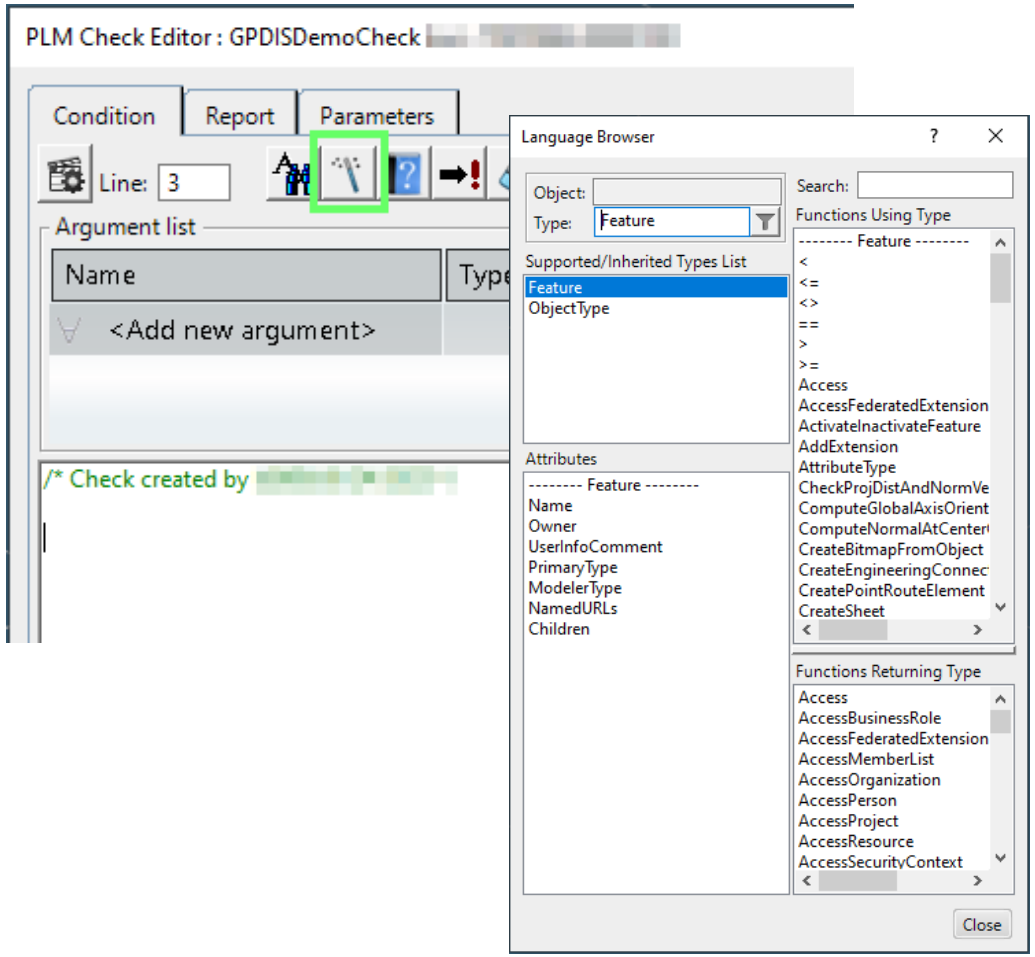
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

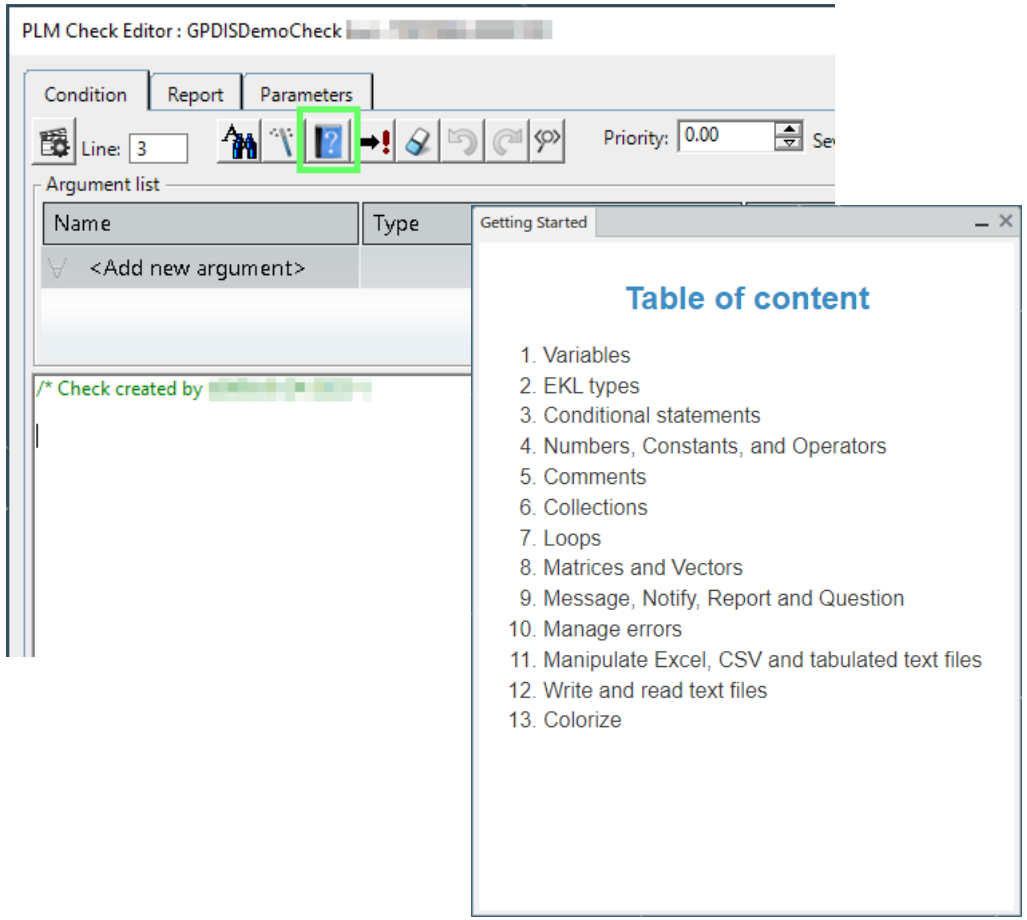
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

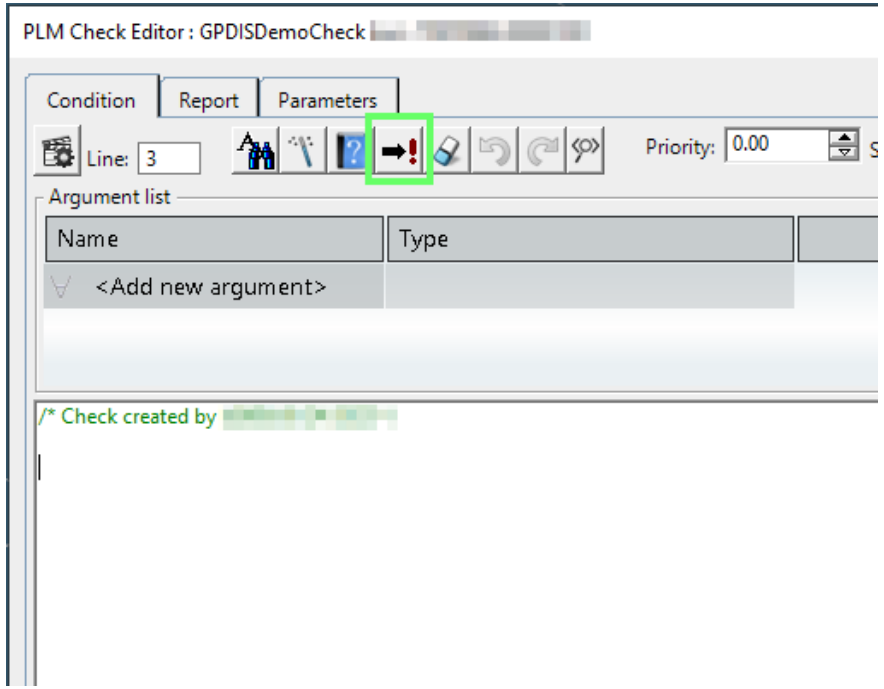
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

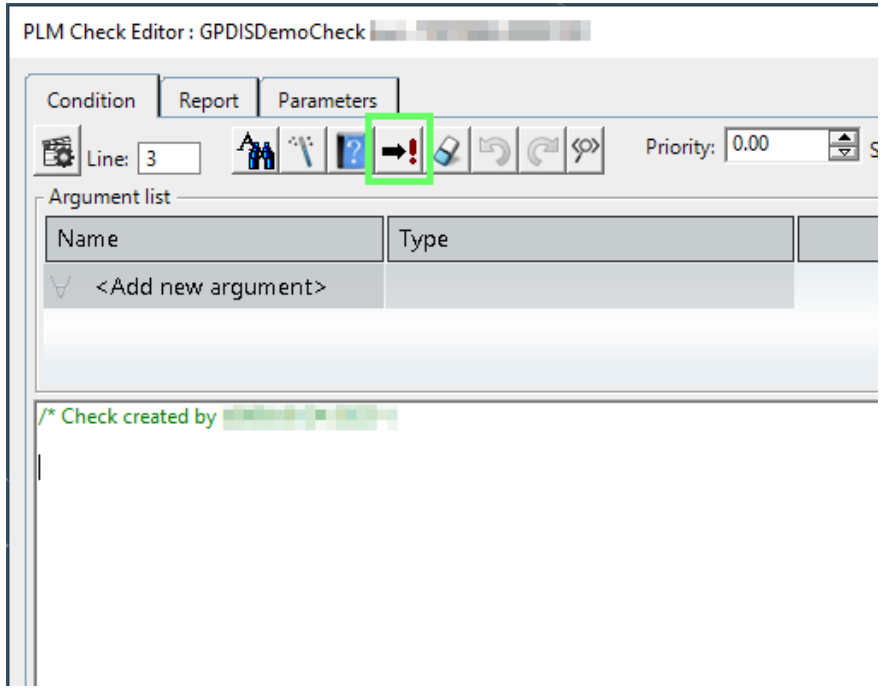
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

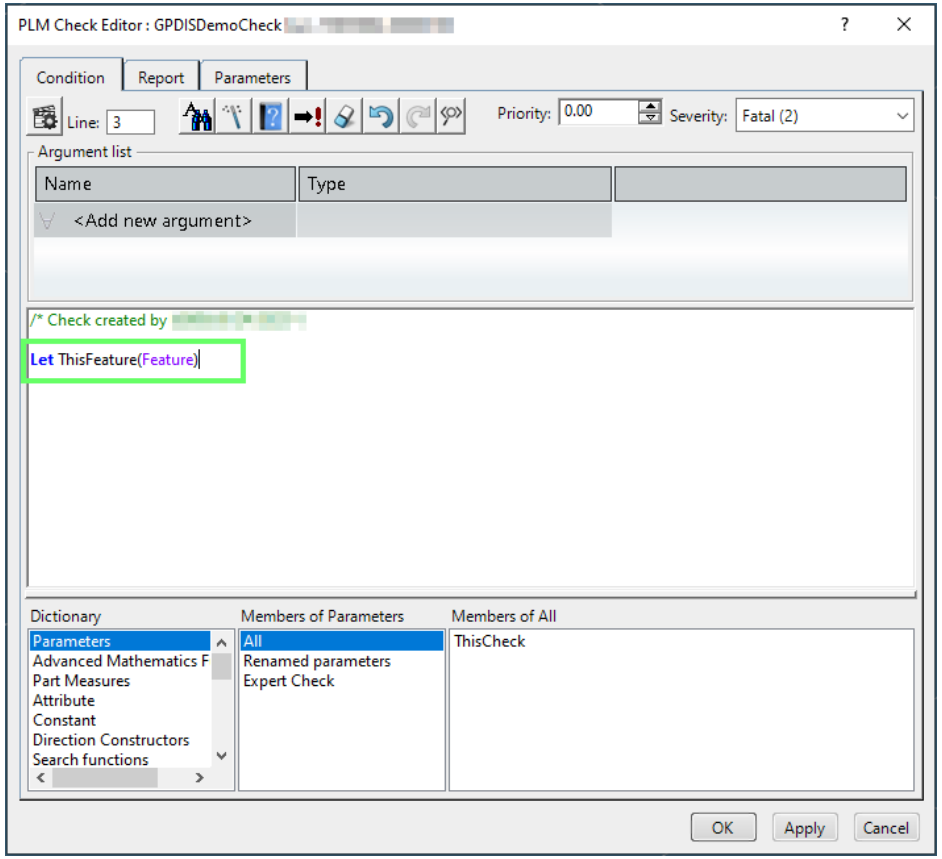
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

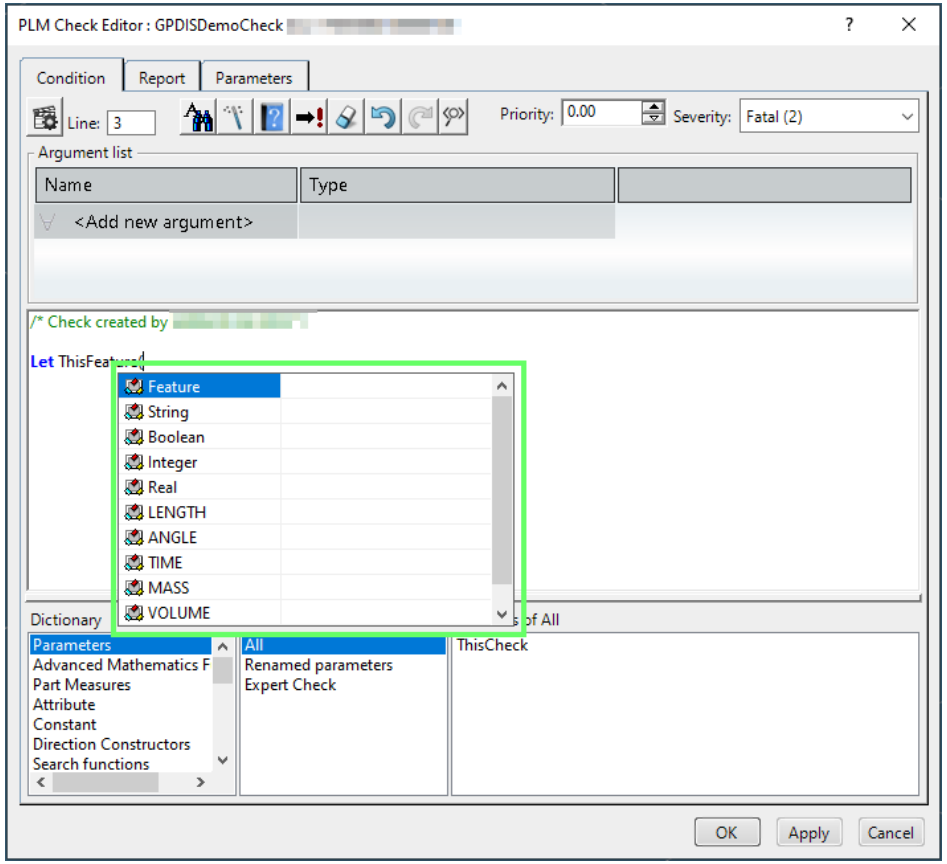
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

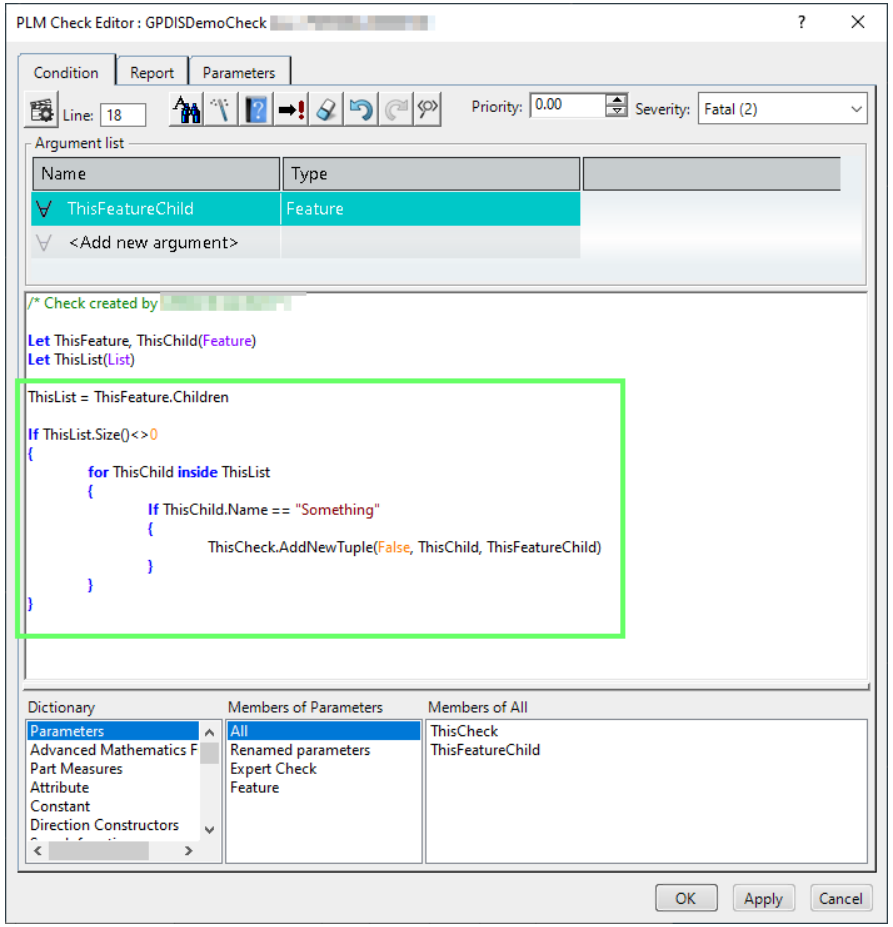
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check



Continue wasting time with manual entry and validation, or build the quality in.

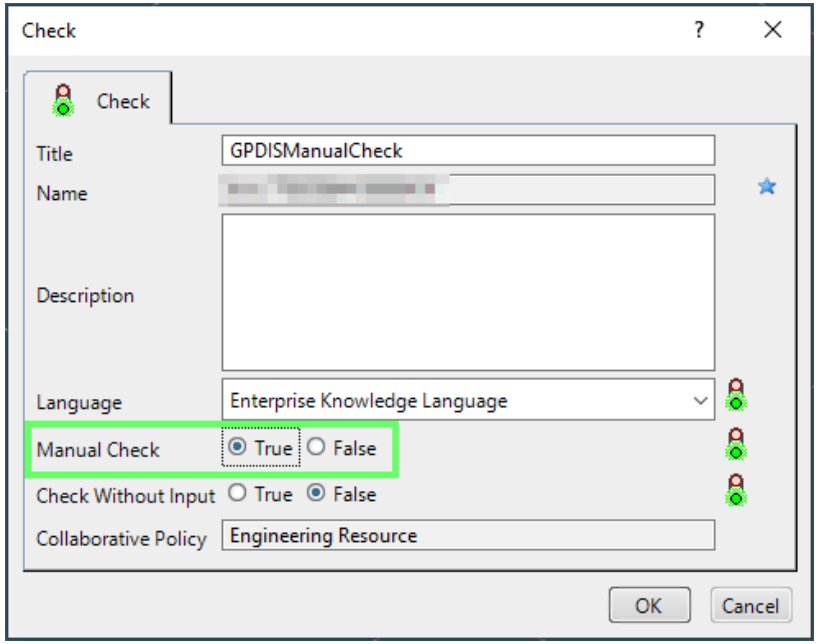
How do we do this?

- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**

Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

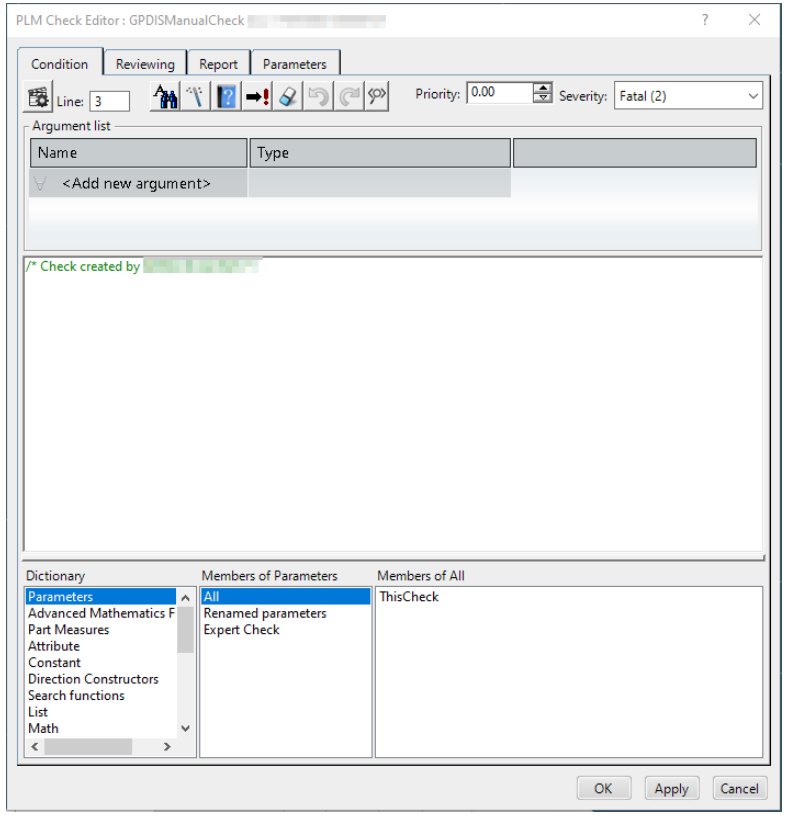
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

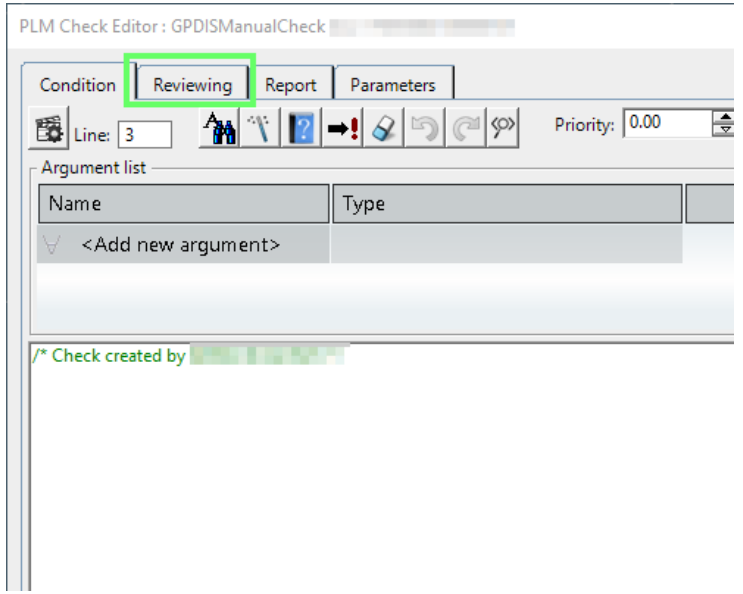
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

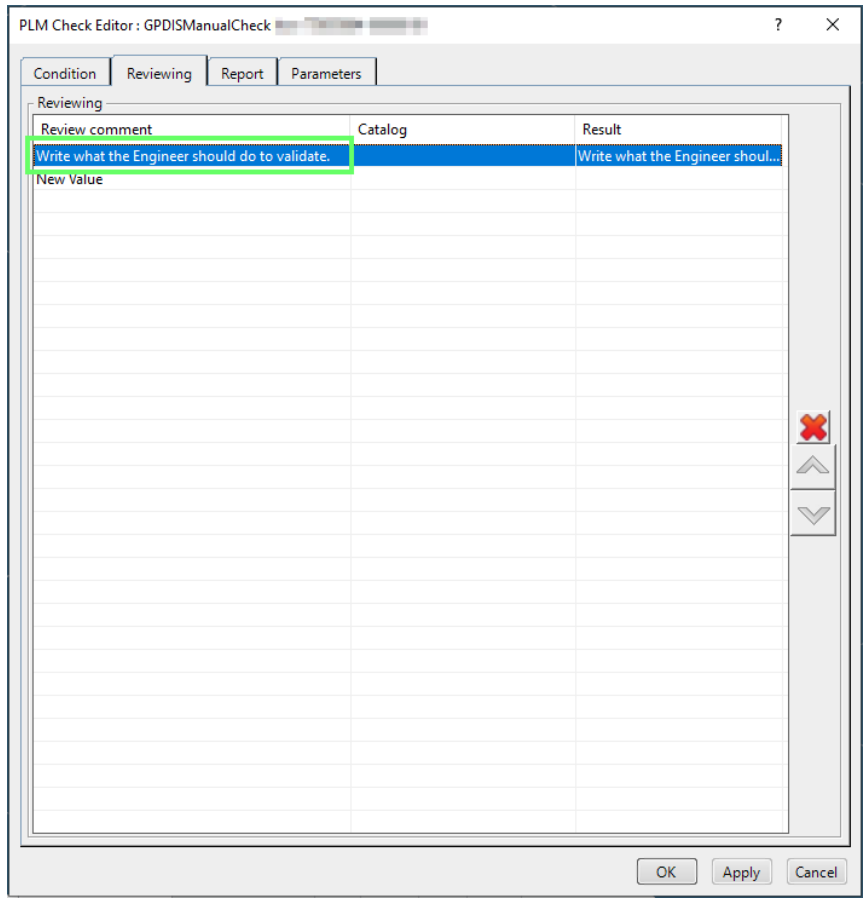
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

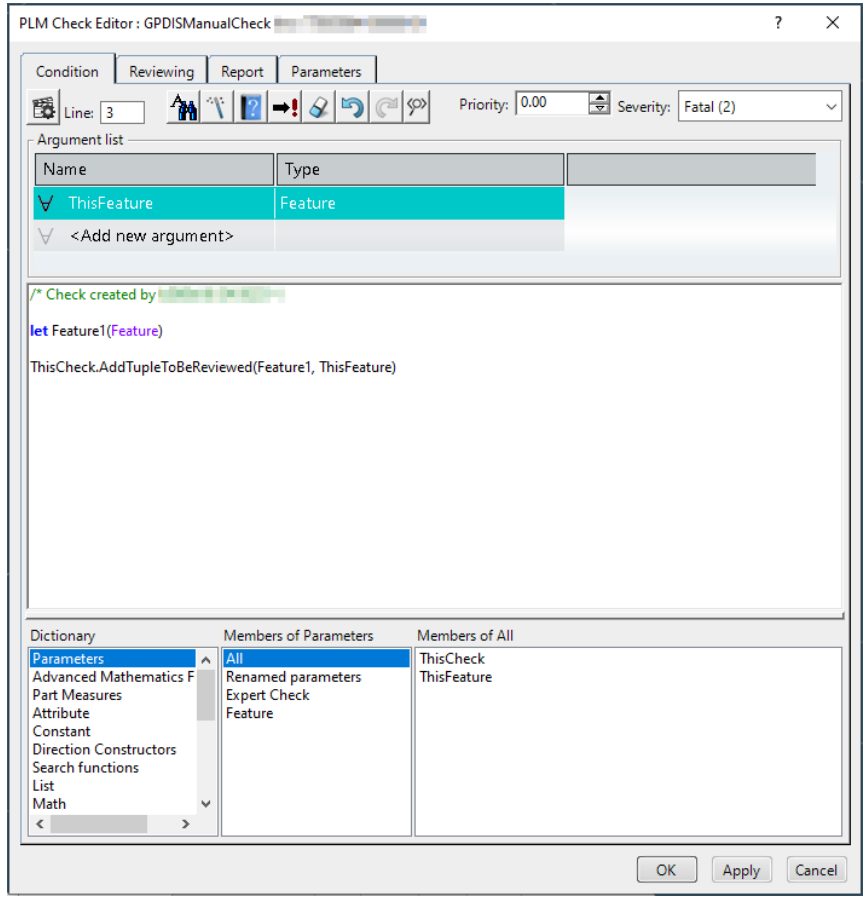
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

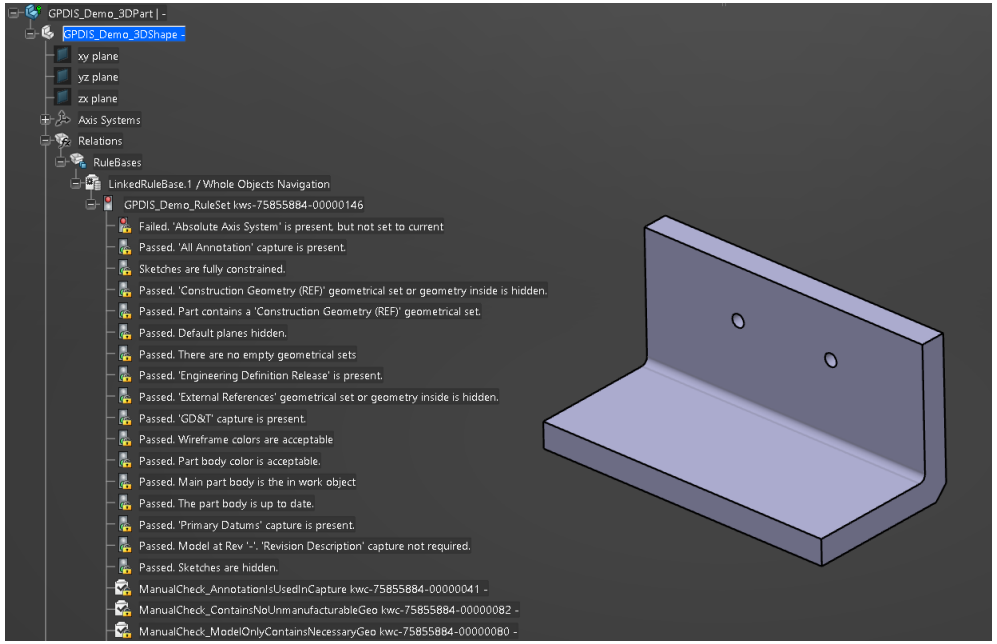
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

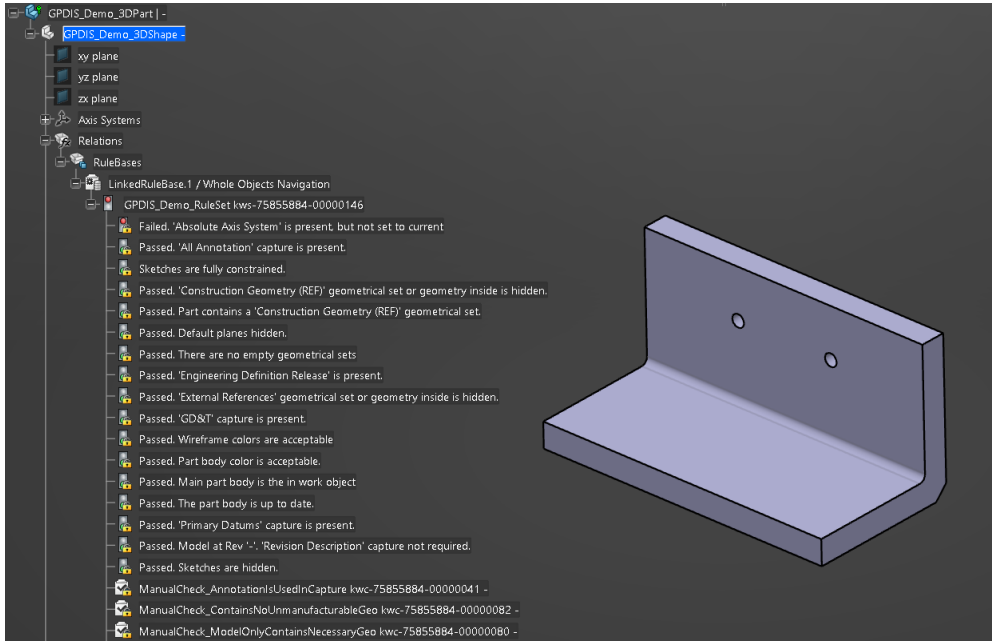
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check
  - **Quality Rules Reuse App**



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

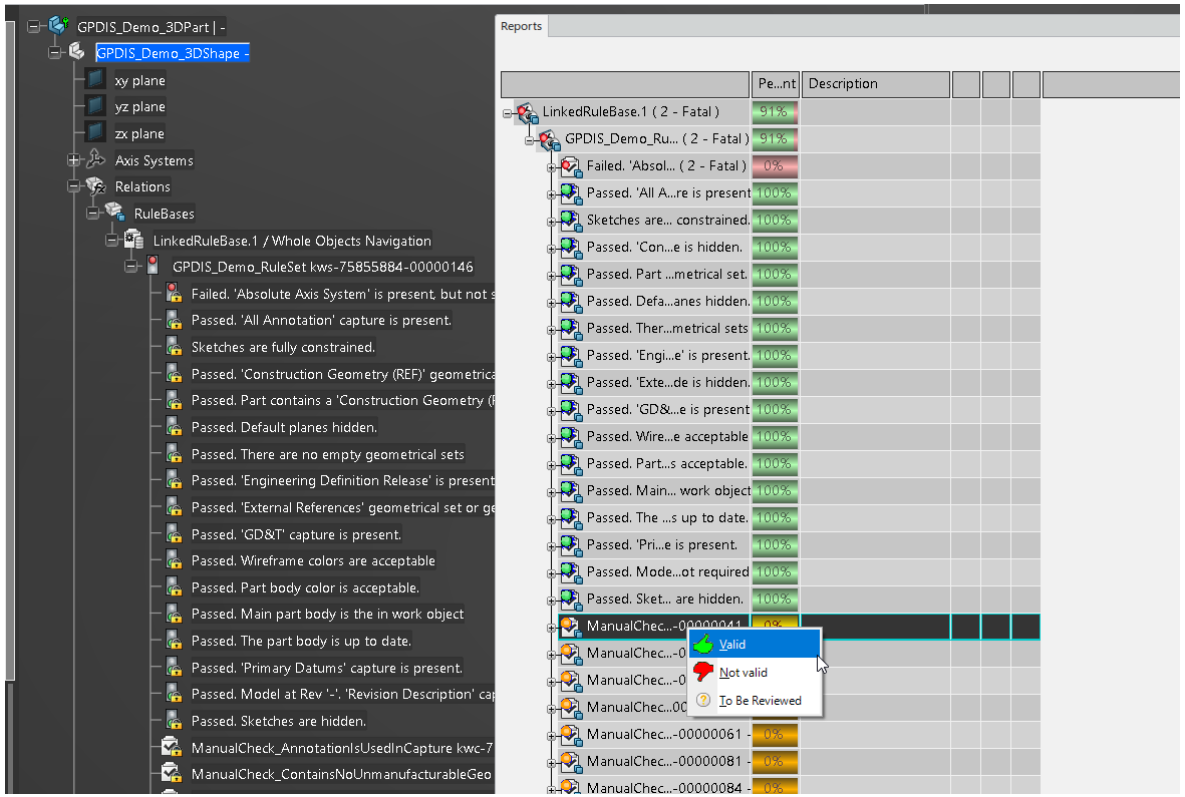
- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check
  - **Quality Rules Reuse App**
    - **Solve Automated Checks**



Continue wasting time with manual entry and validation, or build the quality in.

How do we do this?

- **Lets explore the tools**
  - **3DExperience Apps**
    - **Engineering Knowledge Language (EKL)**
  - **Quality Rules Capture App**
    - **Automated**
      - Create the Check
      - Define the Check
    - **Manual**
      - Create the check
      - Define the check
  - **Quality Rules Reuse App**
    - **Solve Automated Checks**
    - **Solve Manual Checks**



Continue wasting time with manual entry and validation, or build the quality in.

Any Questions

Please reach out anytime

Thank you

Jonathon Sutton
email: jonathon.j.Sutton@boeing.com
Phone: (425)-234-9918

Backup

- **Image Citations**
  - **Person with question mark image by Peggy und Marco Lachmann-Anke from Pixabay**
  - **Lego office worker Image by kirill_makes_pics from Pixabay**
  - **Checklist Image by Tumisu from Pixabay**
  - **Scales Image by Mona Tootoonchinia from Pixabay**
  - **Fork in Road Image by Rosy from Pixabay**
  - **Frustrated person Image by OpenClipart-Vectors from Pixabay**
  - **Computer thumbs up Image by Gerd Altmann from Pixabay**
  - **Person Shrugging Image by Robin Higgins from Pixabay**
  - **Versus Image by Oleg Gamulinskii from Pixabay**
  - **Person connecting cables Image by Peggy und Marco Lachmann-Anke from Pixabay**