

EI SOFTWARE & CORE ENGINEERING: SUMMER INTERNSHIP PROJECTS

Charles Beck, Diego Gonzalez, and Zahra Berro





About Us

Charlie



- University of Michigan,
 Ann Arbor
- Major: ComputerScience
- Department: El Software
- Manager: HussainDarwish
- o Graduating Dec. 2026

Diego



- Oakland University
- Major: ComputerScience
- Dept: Core Engineering
- Manager: Hector Robledo
- o Graduating Apr. 2026

Zahra



- University of Michigan,Dearborn
- Major: Software Engineering
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OUR INTERNSHIP OVERVIEW: A FOCUS ON AUTOMATION



- Our Core Mission: To identify and solve challenges in engineering workflows through software automation.
- Our Approach: We operated within an Agile/Scrum framework, using sprints and daily stand-ups to manage our work and collaborate effectively.
- Our Projects: Today, we'll present four key projects that highlight our contributions:
 - Static Code Analysis
 - Automated Time Reporting
 - Outlook to Windchill Integration
 - PDF to SOV Automation

OUR APPROACH: WORKING WITH AGILE & SCRUM



 Our Framework: To guide our work and ensure success, our team adopted the Agile Scrum framework, a standard in modern software development.

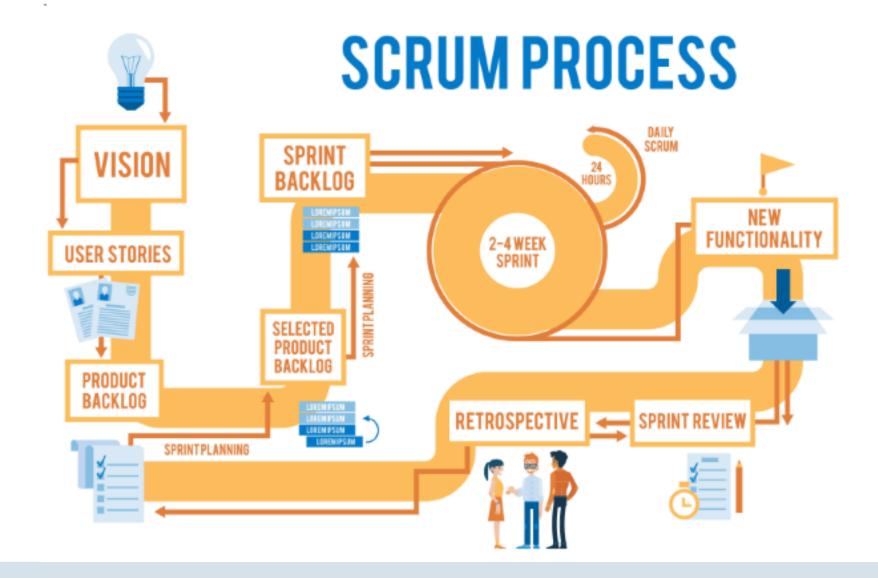
Our Process Included:

- **Sprints:** We organized our work into focused cycles, allowing us to deliver value incrementally.
- **Daily Scrums:** These daily check-ins kept us synchronized, aligned, and helped us quickly resolve any roadblocks.
- **Sprint Demos & Retrospectives:** Regular demos to our manager ensured we were on the right track, while retrospectives helped us continuously improve our teamwork and processes.

Why This Mattered:

- This structured approach provided the clarity and organization needed to tackle multiple complex projects simultaneously.
- It fostered constant communication and a collaborative team environment.







AUTOMATING COMPLIANCE TRACKING

Parsing, Tracking and Storing Compliance
Data with QAVerify Reports

QAV/QAC OVERVIEW



What is QAC/QAV?



- How do we track code compliance over time?
- Are we improving from one baseline to the next?
- Why does this take so long to trace manually?

PROJECT GOAL



```
▼<qav:compliance matrix>
 ▼<qav:compliance matrix table>
   ▼ < qav:compliance_matrix_groups >
       <qav:group>M3CM Dir-1.1</qav:group>
       <qav:group>M3CM Dir-4.1</qav:group>
       <qav:group>M3CM Dir-4.10</qav:group>
       <qav:group>M3CM Dir-4.3</qav:group>
       <qav:group>M3CM Dir-4.6</qav:group>
       <qav:group>M3CM Dir-4.9</qav:group>
       <qav:group>M3CM Rule-10.1</qav:group>
       <qav:group>M3CM Rule-10.2</qav:group>
       <qav:group>M3CM Rule-10.3</qav:group>
       <qav:group>M3CM Rule-10.4</qav:group>
       <qav:group>M3CM Rule-10.5</qav:group>
       <qav:group>M3CM Rule-10.6</qav:group>
       <qav:group>M3CM Rule-10.7</qav:group>
       <qav:group>M3CM Rule-10.8</qav:group>
```

Automate the process of parsing QAVerify XML reports and populating a centralized Microsoft Access databas

PROJECT GOAL

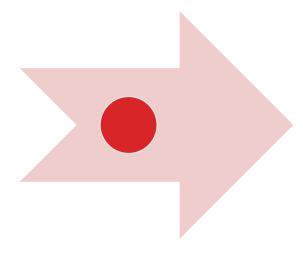


```
▼<qav:compliance matrix>
                                                                            ID
                                                                                    - FCAID -
                                                                                                 MISRAID
 ▼<qav:compliance matrix table>
                                                                       +
                                                                                    1 MR-1.1
                                                                                               GRP Rule 1 1
   ▼ < qav:compliance matrix groups >
                                                                       +
                                                                                    2 MR-1.2
                                                                                               GRP Rule 1 2
      <qav:group>M3CM Dir-1.1</qav:group>
      <qav:group>M3CM Dir-4.1</qav:group>
                                                                       +
                                                                                    3 MR-1.3
                                                                                              GRP Rule 1 3
      <qav:group>M3CM Dir-4.10</qav:group>
                                                                                    4 MR-2.1
                                                                                               GRP Rule 2 1
      <qav:group>M3CM Dir-4.3</qav:group>
                                                                                              GRP_Rule_2_2
                                                                       +
                                                                                    5 MR-2.2
      <qav:group>M3CM Dir-4.6</qav:group>
                                                                       +
                                                                                    6 MR-2.3
                                                                                               GRP Rule 2 3
      <qav:group>M3CM Dir-4.9</qav:group>
                                                                       +
                                                                                    7 MR-2.4
                                                                                              GRP Rule 2 4
      <qav:group>M3CM Rule-10.1</qav:group>
      <qav:group>M3CM Rule-10.2</qav:group>
                                                                                    8 MR-2.5
                                                                                               GRP Rule 2 5
      <qav:group>M3CM Rule-10.3</qav:group>
                                                                       +
                                                                                    9 MR-2.6
                                                                                              GRP_Rule_2_6
      <qav:group>M3CM Rule-10.4</qav:group>
                                                                       +
                                                                                   10 MR-2.7
                                                                                               GRP Rule 2 7
      <qav:group>M3CM Rule-10.5</qav:group>
                                                                                   11 MR-3.1
                                                                       +
                                                                                               GRP Rule 3 1
      <qav:group>M3CM Rule-10.6</qav:group>
                                                                       +
                                                                                   12 MR-3.2
                                                                                               GRP Rule 3 2
      <qav:group>M3CM Rule-10.7</qav:group>
      <qav:group>M3CM Rule-10.8</qav:group>
                                                                       +
                                                                                   13 MR-4.1
                                                                                               GRP Rule 4 1
```

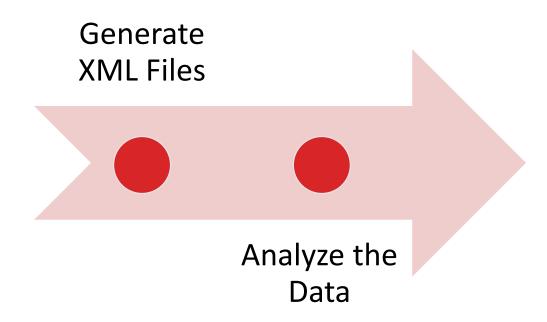
Automate the process of parsing QAVerify XML reports and populating a centralized Microsoft Access database



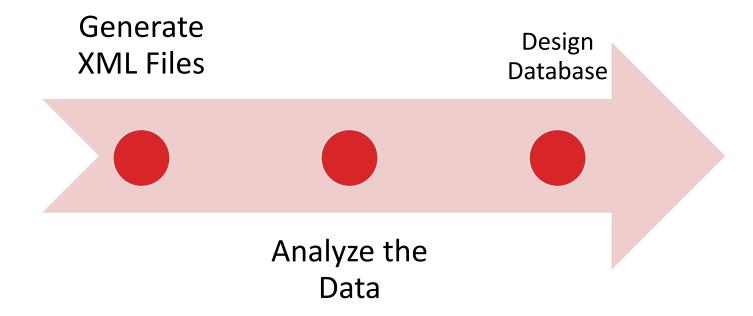
Generate XML Files



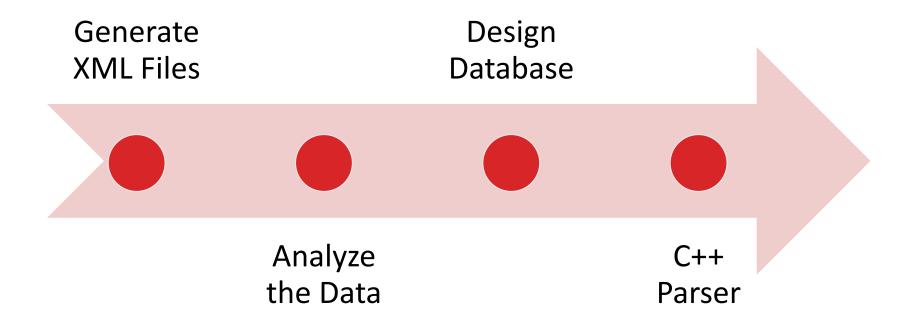




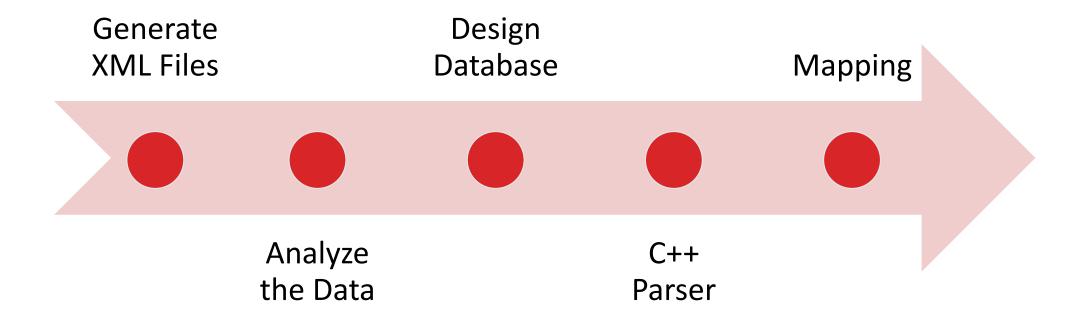












STEP 1: EXPORTED AND ANALYZED XML REPORTS



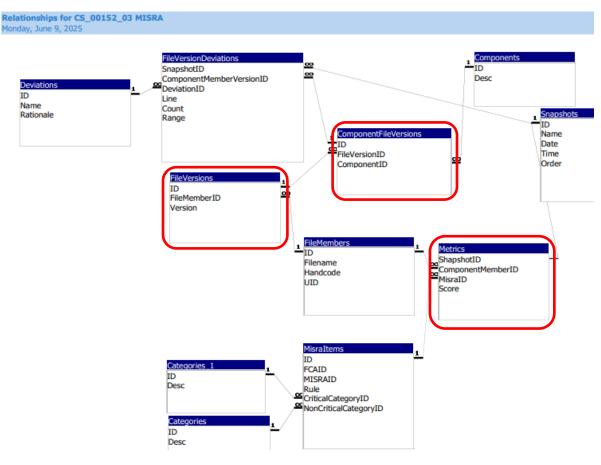
- Identified useful report types:
 - Compliance Matrix for active violations
 - Suppression Deviation List for suppressed violations
- Ensured consistent format across multiple baselines for traceability
- Analyzed report structure to identify trackable fields (widgets, baselines, deviations)

```
▼<aav:item>
 v<qay:filename fileid="-9172591116558686248" version="4fcea996">
     <![CDATA[ 2022 FCA_VSIM/BootloadManager/Include/ip/cyip_smartio_v2.h ]]>
   </gav:filename>
                                               msgid="GRP Dir 1 1">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Dir 4 1">0</qav:value>
                                               msgid="GRP Dir 4 10">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Dir 4 3">0</qav:value>
                                               msgid="GRP Dir 4 6">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Dir 4 9">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Rule 10 1">0</qav:value>
                                               msgid="GRP Rule 10 2">0</qav:value>
   <qay:value fileid="-9172591116558686248"</pre>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP_Rule_10_3">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP_Rule_10_4">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Rule 10 5">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP_Rule_10_6">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP_Rule_10_7">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
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                                               msgid="GRP Rule 11 3">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Rule 11 4">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Rule 11 5">0</qav:value>
                                               msgid="GRP Rule 11 7">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
   <qav:value fileid="-9172591116558686248'</pre>
                                               msgid="GRP Rule 11 8">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Rule 11 9">0</qav:value>
                                               msgid="GRP_Rule_12_1">0</qav:value>
   <qay:value fileid="-9172591116558686248"</pre>
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                                               msgid="GRP_Rule_13_2">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP_Rule_13_3">0</qav:value>
   <qav:value fileid="-9172591116558686248"</pre>
                                               msgid="GRP Rule 13 4">0</gav:value>
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                                               msgid="GRP Rule 13 5">0</qav:value>
```

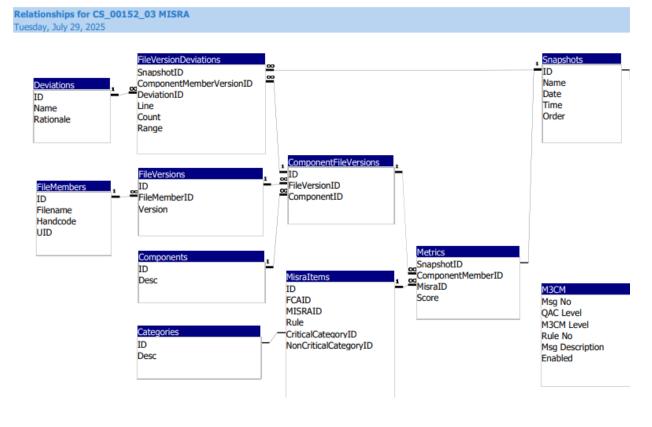
STEP 2: REDESIGNED RELATIONAL DATABASE SCHEMA



Before:



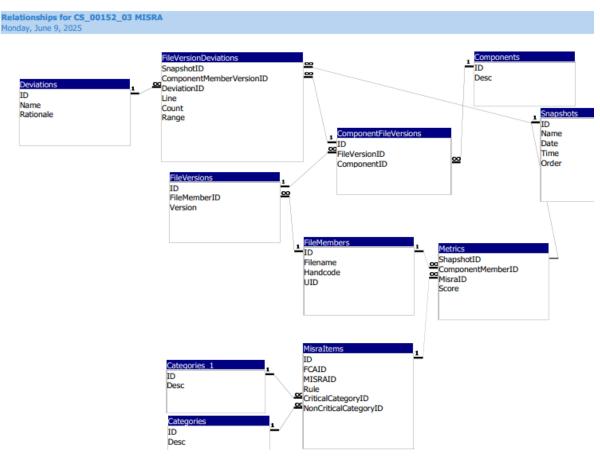
After:



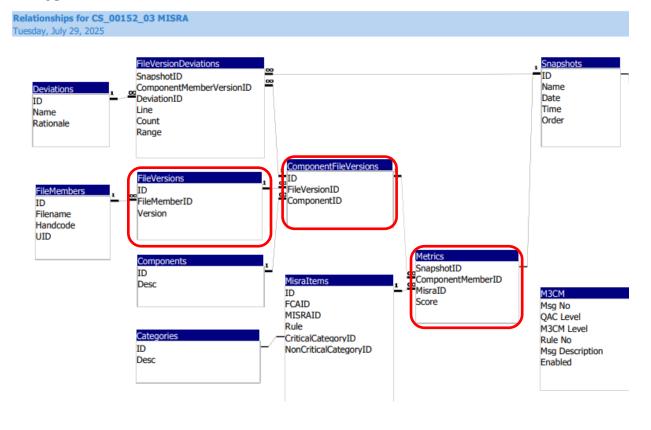
STEP 2: REDESIGNED RELATIONAL DATABASE SCHEMA



Before:



After:



STEP 3: POPULATED TABLES VIA C++ INTEGRATION



Objective:
 Automate the insertion of extracted QAV data into the redesigned Microsoft Access database.

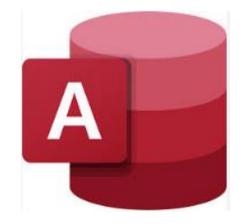
Tools Used:

• Language: C++

• IDE: Visual Studio

• Database: Microsoft Access (.mdb)

```
//insert into metrics table
DBAddEntryFields(db, L"Metrics",
    gcnew array<System::String^>{L"SnapshotID", L"ComponentMemberID", L"MisraID", L"Score"},
    gcnew array<System::String^>{snapID.ToString(),
    ComponentMemberID.ToString(),
    groupID.ToString(),
    scoreStr}
   );
```





THE RESULT: AN AUTOMATED DATA PIPELINE



FileVersions X							
_	ID +	FileMemberID -	Version -				
+	1	1	47878ec3				
+	2	2	28308d93				
+	3	3	7ab22c13				
+	4	4	5927f638				
+	5	5	9afbaf3f				
+	6	6	20d05a2c				
+	7	7	b704dfbf				
+	8	8	9e899d77				
+	9	9	ddf48122				
+	10	10	1ff3369e				
+	11	11	872d0543				
+	12	12	31c57018				
+	13	13	a2cacf84				
+	14	14	7713576a				
+	15	15	9ef3dca6				
+	16	16	f55c6c39				
+	17	17	ac13d643				
+	18	18	7bf99180				
+	10	10	haasasah				

E Co	omponent File Vers	ions X	
4	ID ≠	FileVersionID -	ComponentID -
+	1	1	1
+	2	2	1
+	3	3	1
+	4	4	
+	5	5	
+	6	6	
+	7	7	
+	8	8	
+	9	9	
+	10	10	
+	11	11	1
+	12	12	
+	13	13	
+	14	14	
+	15	15	
+	16	16	
+	17	17	
+	18	18	
+	19	19	
+	20	20	1
	24	24	4

Ⅲ Metrics ×					
∠ SnapshotID →	ComponentMemberID	Ŧ	MisralD	Ŧ	Score -
D25_J012		1	GRP_Rule_5_2		1
D25_J012		2	GRP_Rule_20_7		8
D25_J012		3	GRP_Rule_10_5		2
D25_J012		3	GRP_Rule_13_5		6
D25_J012		4	GRP_Rule_10_1		4
D25_J012		5	GRP_Rule_10_1		8
D25_J012		5	GRP_Rule_10_7		8
D25_J012		6	GRP_Rule_10_1		1
D25_J012		6	GRP_Rule_10_7		1
D25_J012		7	GRP_Rule_5_2		2
D25_J012		8	GRP_Rule_8_6		1
D25_J012			GRP_Rule_21_2		18
D25_J012		9	GRP_Rule_10_5		5
D25_J012	1	10	GRP_Rule_5_2		4
D25_J012	1	11	GRP_Rule_5_2		2
D25_J012	1	12	GRP_Rule_5_2		8
D25_J012	1	13	GRP_Rule_5_2		13
D25_J012	1	14	GRP_Rule_10_1		3
D25_J012	1	14	GRP_Rule_10_5		1
D25_J012			GRP_Rule_5_2		1
D25_J012			GRP_Rule_10_1		1
D25_J012	1	16	GRP_Rule_10_5		3

THE RESULT: AN AUTOMATED DATA PIPELINE





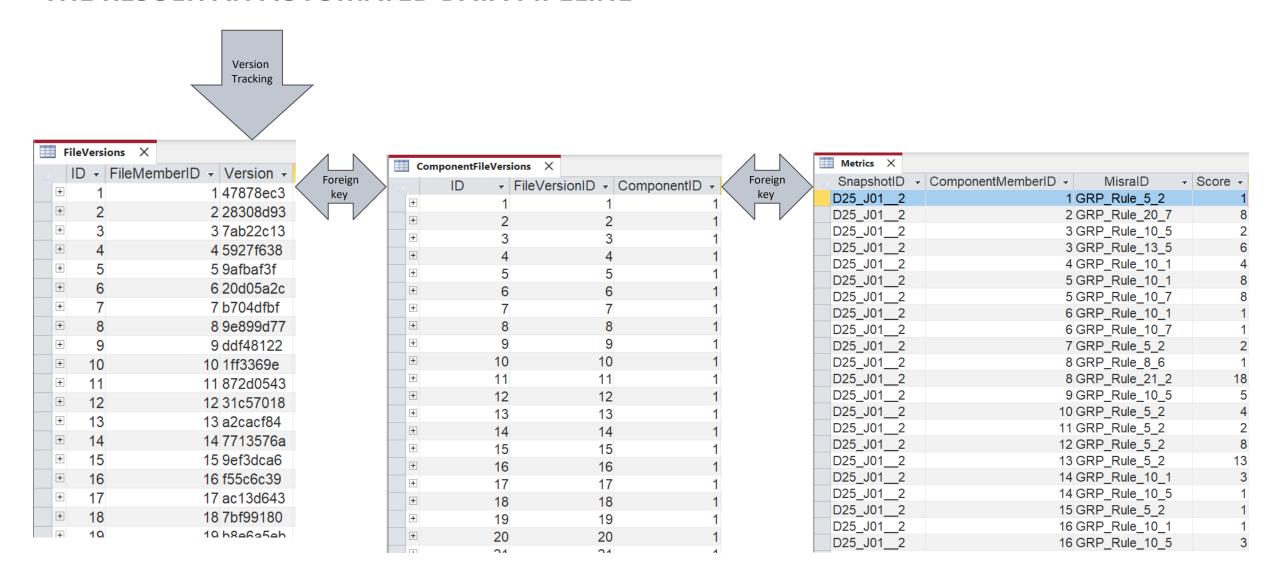
F	ileVersi	ons X		
	ID 🕶	FileMer	nberID -	Version -
+	1		1	47878ec3
+	2		2	28308d93
+	3		3	7ab22c13
+	4		4	5927f638
+	5		5	9afbaf3f
+	6		6	20d05a2c
+	7		7	b704dfbf
+	8		8	9e899d77
+	9		9	ddf48122
+	10		10	1ff3369e
+	11		11	872d0543
+	12		12	31c57018
+	13		13	a2cacf84
+	14		14	7713576a
+	15		15	9ef3dca6
+	16		16	f55c6c39
+	17		17	ac13d643
+	18		18	7bf99180
+	10		10	haaaaaah

	Component File Vers	ions X			
4	ID →	FileVers	sionID +	ComponentID	Ŧ
+	1		1		1
+	2		2		1
+	3		3		1
+	4		4		1
+	5		5		1
+	6		6		1
+	7		7		1
+	8		8		1
+	9		9		1
+	10		10		1
+	11		11		1
+	12		12		1
+	13		13		1
+	14		14		1
+	15		15		1
+	16		16		1
+	17		17		1
+	18		18		1
+	19		19		1
+	20		20		1
	24		24		4

Ⅲ Metrics ×			
∠ SnapshotID →	ComponentMemberID -	MisralD -	Score -
D25_J012	1	GRP_Rule_5_2	1
D25_J012		GRP_Rule_20_7	8
D25_J012	3	GRP_Rule_10_5	2
D25_J012		GRP_Rule_13_5	6
D25_J012	4	GRP_Rule_10_1	4
D25_J012		GRP_Rule_10_1	8
D25_J012		GRP_Rule_10_7	8
D25_J012		GRP_Rule_10_1	1
D25_J012		GRP_Rule_10_7	1
D25_J012		GRP_Rule_5_2	2
D25_J012		GRP_Rule_8_6	1
D25_J012		GRP_Rule_21_2	18
D25_J012		GRP_Rule_10_5	5
D25_J012		GRP_Rule_5_2	4
D25_J012		GRP_Rule_5_2	2
D25_J012		GRP_Rule_5_2	8
D25_J012		GRP_Rule_5_2	13
D25_J012		GRP_Rule_10_1	3
D25_J012		GRP_Rule_10_5	1
D25_J012		GRP_Rule_5_2	1
D25_J012		GRP_Rule_10_1	1
D25_J012	16	GRP_Rule_10_5	3

THE RESULT: AN AUTOMATED DATA PIPELINE





THE IMPACT: VISIBILITY & AUDIT READINESS



- Centralized database improves audit readiness and traceability.
- Automation reduces manual reporting time and effort.
- **Enhanced visibility** into code quality across versions.
- Strengthens compliance with OEM standards like MISRA.
- Scalable design enables future integration and automation.



Higher Code Quality Visibility



Better Alignment with OEM Standards



Scalable Infrastructure for **Future Projects**







STREAMLINING MEETING DOCUMENTATION

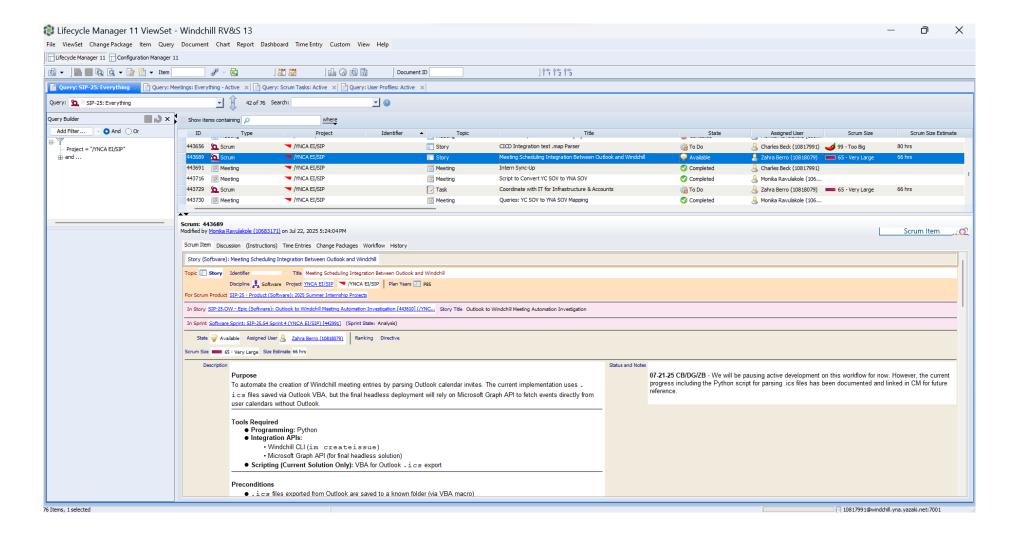
Connecting Outlook to Windchill



Currently meetings must be manually created twice.

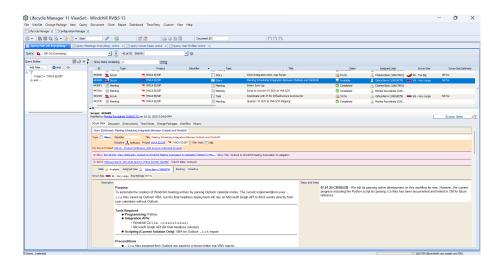


What is Windchill?





What is Windchill?



How can we gather meetings from Outlook?

How can we gather meetings from Outlook?



Microsoft Graph

Win32 API

How can we gather meetings from Outlook?



Microsoft Graph

Pros:

- Supports headless execution
- Supports M365

Cons:

- Complex Setup
- No built-in .ics generation
- Requires Azure

Win32 API

Pros:

- Simple implementation& testing
- Native .ics support
- No outside connection

Cons:

- No Microsoft Support
- Not truly headless

Microsoft Graph



An app is registered is Microsoft Azure Studio, to get access tokens.



Using the access tokens from Azure Studio & the Graph API the script access the outlook calendar.



The information is then manual parsed into a .ics file for easy reading.



The .ics file is then places into a folder for further processing.



Now that we know how to gather the meetings, how can we put them in Windchill?



Now that we know how to gather the meetings, how can we put them in Windchill?

A little birdie

```
--- Assemble the 'im createissue' command ---
create_parts = ['im', 'createissue', '--type=Meeting']
# Sanitize text from the .ics file to prevent breaking the command string.
title = str(event.get('summary', 'No Title'))
sanitized title = title.replace('"', '\\"')
create parts.append(f'--field="Title={sanitized title}"')
description = str(event.get('description', 'No Agenda Provided'))
sanitized description = description.replace('"', '\\"')
create_parts.append(f'--field="Description={sanitized_description}"')
 Extract and format other meeting details for the command's fields.
organizer_email = str(event.get('organizer', '')).replace('MAILTO:', '')
create_parts.append(f'--field="Initiator={organizer_email}"')
create parts.append('--field="Topic=Meeting"')
dtstart = event.get('dtstart').dt
dtend = event.get('dtend').dt
if isinstance(dtstart, datetime):
    create parts.append(f'--field="Scheduled Date={dtstart.strftime("%b %d, %Y")}"')
    create_parts.append(f'--field="Scheduled Time={dtstart.strftime("%H:%M:%S")}"')
    if isinstance(dtend, datetime):
        duration = format duration(dtend - dtstart)
        create parts.append(f'--field="Scheduled Duration={duration}"')
```



Now that we know how to gather the meetings, how can we put them in Windchill?

A little birdie

What are we doing here?

```
create_parts = ['im', 'createissue', '--type=Meeting']

# Sanitize text from the .ics file to prevent breaking the command string.
title = str(event.get('summary', 'No Title'))
sanitized_title = title.replace(''', '\\")
create_parts.append(f'--field="Title=(sanitized_title)")
description = str(event.get('description', 'No Agenda Provided'))
sanitized_description = description.replace(''', '\\")
create_parts.append(f'--field="Description=(sanitized_description)")

# Extract and format other meeting details for the command's fields.
organizer_email = str(event.get('organizer', '')).replace('NAILTO:', '')
create_parts.append(f'--field="Initiator=(organizer_email)"')

create_parts.append(''--field="Topic=Meeting"')
dtstart = event.get('dtstart').dt
dtend = event.get('dtstart').dt
dtend = event.get('dtstart').dt
dtend = event.get('dtstart', datetime):
    create_parts.append(f'--field="Scheduled Date=(dtstart.strftime("%b %d, %V"))"')
    if isinstance(dtstart, datetime):
        create_parts.append(f'--field="Scheduled Date=(dtstart.strftime("%h:%M:%S"))"')
    if isinstance(dtstart, datetime):
        duration = format_duration(dtend - dtstart)
        create_parts.append(f'--field="Scheduled Duration=(duration)"')
```

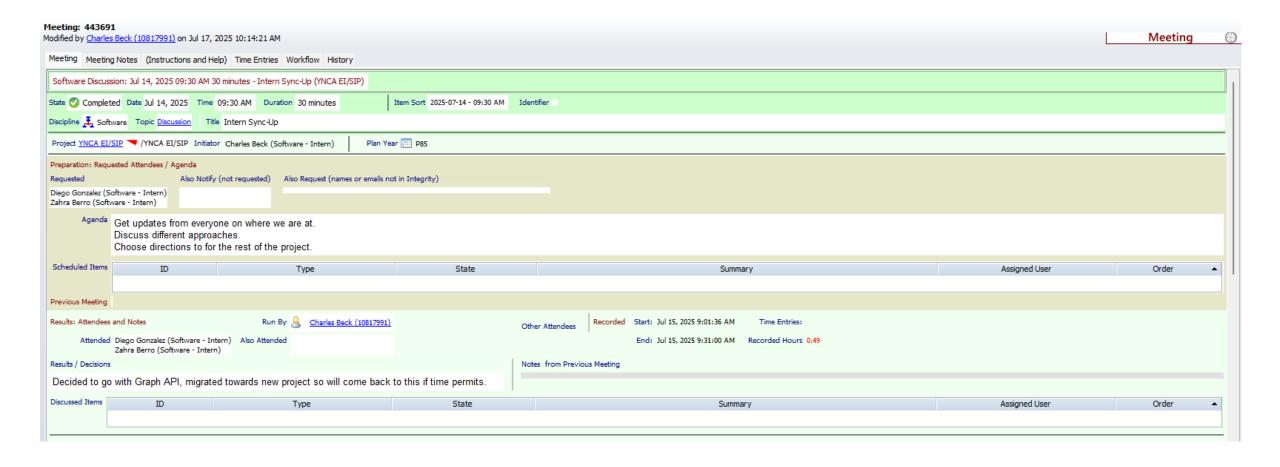
```
# --- Assemble the 'im createissue' command ---
create_parts = ['im', 'createissue', '--type=Meeting']
```

```
title = str(event.get('summary', 'No Title'))
sanitized_title = title.replace('"', '\\"')
create_parts.append(f'--field="Title={sanitized_title}"')

description = str(event.get('description', 'No Agenda Provided'))
sanitized_description = description.replace('"', '\\"')
create_parts.append(f'--field="Description={sanitized_description}"')
```

RESULTS





IMPACT



- Boosts Engineering Productivity by eliminating a repetitive, manual documentation task for every scheduled meeting.
- Improves Data Accuracy & Consistency by removing the risk of human error from manual data entry into Windchill.
- Ensures Full Documentation Compliance by creating a complete and auditable trail of all project meetings in the official system of record.





SAVE TIME

REDUCE ERRORS



MORE COMPLIANT



AUTOMATING YC SOVS TO YNA SOVS

Processing pdfs and converting them to Excel spreadsheets



YC SOVs must be converted into YNA SOVs



YC SOVs must be converted into YNA SOVs

What is a SOV?

						目	CONTENTS	次	ARC			生産図 1 /
製 PROI	品: UC	名 []	称 [AMI			095J-HUD(LH) 095J-HUD(LH)		納フ custo		TEMA TEMA		
製 PROI						6 6 4 0 1 - 0 8 0 A			先品番 MER'S NUMBER	83108-08	8070	
			告層 EVE			部 品 番 号 PART NUMBER	変更 CHANGE	図番 DRAW. NO.	部 品 PART		個数 QTY	NOTE
1	1							1	外観図 OUTLINE DRAW	VING		欠図 in preparation
2	1				П	S 5 6 6 - 0 9 5 J HUD		2	メータ要求仕 METER SPEC	:様書		欠図 in preparation
3	1				1	7 6 6 4 9 0 – 1 0 7 A	△2	3	アッパーケー ー L UPPER HOUSIN		1	
4		2			٦	7 6 6 4 9 7 – 2 8 0 A		4	アッパーケー UPPER HOUSIN	-ス L	1	
5		2	Г	П	┪	7 6 6 4 4 4 - 5 9 0 A	П	5	表ガラス L FRONT GLASS		1	
6		2	Г	П	7	7 6 6 4 9 3 – 5 0 0 A		6	折り返しミラ FOLD MIRROR	— L	1	
7		2			1	7 6 6 5 7 9 – 1 8 0 A	П		両面テープ DOUBLE SIDEI		1	
8	1				1	7 6 6 4 9 0 – 1 0 8 A	△2	7	インナーケー ー L INNER HOUSIN	-スアッシ	1	
9		2	Г	П	╗	7 6 6 4 9 7 – 2 9 0 A		8	インナーケー INNER HOUSIN	·ス L	1	
10		2			7	7 6 6 4 5 2 - 5 0 0 A	П		パッキン PACKING		2	
11	1				1	7 7 7 6 8 1 – A	△2		3ミリタッピ: TAPPING SCRE		4	L10 (UPPER HOUSING AS SY × INNER HOUSING ASSY)
12	1					7 6 6 4 9 0 – 1 0 9 A	△2	9	非球面ミラー L ASPHERICAL M SY L		1	
13		2			1	7 6 6 4 9 3 - 5 1 0 A		10	非球面ミラー ASPHERICAL M		1	
14		2			1	7 6 6 4 5 1 – 2 9 0 A	Δ1	11	モータホルタ MOTOR HOLDEN		1	
15		2				7 6 6 4 5 9 - 0 7 0 A	$\triangle 2$		圧縮ばね COMPRESSION	SPRING	1	
16		2			1	7 6 6 4 6 2 - 0 9 0 A	Δ1	12	ジョイント I JOINT L		1	
17		2	Г		┪	7 6 6 4 5 4 - 0 3 0 A	△2		モータ MOTOR		1	



YC SOVs must be converted into YNA SOVs

What is a SOV?

How can we make that into an SOV?

```
parse_bom_pdf(pdf_path: Path) -> List[Dict]:
entries: List[Dict] = []
with pdfplumber.open(str(pdf_path)) as pdf:
    for page in pdf.pages:
        tables = page.extract_tables()
       if not tables:
        tbl = tables[0]
        hdr i = next(
               i for i, row in enumerate(tbl[:6])
               if any(clean_cell(c).lower().startswith("level") for c in row)
               and any(clean cell(c).lower().startswith("part number") for c in row)
        hdr = tbl[hdr_i]
       cmap: Dict[str, int] = {}
        for ci, cell in enumerate(hdr):
           txt = clean_cell(cell).lower()
           if "part number" in txt:
               cmap['part_number'] = ci
           elif "part name" in txt:
               cmap['part_name'] = ci
               cmap['quantity'] = ci
           elif "change" in txt or txt.startswith("rev"):
               cmap['change'] = ci
        cmap.setdefault('part_number', 6)
        cmap.setdefault('part_name', 19)
       cmap.setdefault('quantity', None)
        cmap.setdefault('change', None)
```

					CONTENT	次	ARC			PAGE 生産図 1 / 3 TION DRAWING
製 PROI				095J-HUD(LH) 095J-HUD(LH)		納フ custo		TEMA TEMA		
製 PROI				6 6 4 0 1 - 0 8 0 A			大品番 MER'S NUMBER	83108-08	8070	
	Г		層 VEL	部 品 番 号 PART NUMBER	変更 CHANGE	図番 06.NV. NO.	部品 PART		個数 QTY	備 考 NOTE
1	1					1	外観図 OUTLINE DRAW			大図 in preparation
2	1			S 5 6 6 - 0 9 5 J HUD		2	メータ要求仕 METER SPEC			欠図 in preparation
3	1			7 6 6 4 9 0 - 1 0 7 A	△2	3	アッパーケー ー L UPPER HOUSIN		1	
4		2		7 6 6 4 9 7 – 2 8 0 A		4	アッパーケー UPPER HOUSIN		1	
55		2		7 6 6 4 4 4 - 5 9 0 A		5	表ガラス L FRONT GLASS		1	
6		2		$7\ 6\ 6\ 4\ 9\ 3 - 5\ 0\ 0\ A$		6	折り返しミラ FOLD MIRROR		1	
7		2		7 6 6 5 7 9 - 1 8 0 A			両面テープ DOUBLE SIDEI		1	
8	1			7 6 6 4 9 0 - 1 0 8 A	△2	7	インナーケー ー L INNER HOUSIN	ig assy L	1	
9		2		7 6 6 4 9 7 – 2 9 0 A		8	インナーケー INNER HOUSIN		1	
10		2		$7\ 6\ 6\ 4\ 5\ 2-5\ 0\ 0\ A$			バッキン PACKING		2	
11	-1			7 7 7 6 8 1 – A	△2		3ミリタッピ: TAPPING SCRE		4	L10 (UPPER HOUSING AS SY × INNER HOUSING ASSY)
12	1			7 6 6 4 9 0 – 1 0 9 A	Δ2	9	非球面ミラー L ASPHERICAL) SY L		1	
13		2		7 6 6 4 9 3 – 5 1 0 A		10	非球面ミラー ASPHERICAL M		1	
14		2		7 6 6 4 5 1 — 2 9 0 A	Δ1	11	モータホルタ MOTOR HOLDER		1	
15		2		7 6 6 4 5 9 - 0 7 0 A	△2		圧縮ばね COMPRESSION		1	
16		2		7 6 6 4 6 2 - 0 9 0 A	Δ1	12	ジョイント I JOINT L		1	
17		2		7 6 6 4 5 4 - 0 3 0 A	△2		モータ MOTOR		1	



YC SOVs must be converted into YNA SOVs

What is a SOV?

How can we make that into an SOV?

					目	CONTENTS	次	ARC			PAGE 生産図 1 / 3 TION DRAWING
製i PROL					095J-HUD(LH) 095J-HUD(LH)		納) custo		TEMA TEMA		
製i PROL					6 6 4 0 1 - 0 8 0 A			大品番 MER'S NUMBER	83108-0	8070	
		階 LEV			部 品 番 号 PART NUMBER	変更 CHANGE	図番 DEAW. NO.	部 品 PART		個数 QTY	NOTE
1	1	T	Τ	П			1	外親図 OUTLINE DRAW	TING		大図 in preparation
2	1	T	Τ	П	S 5 6 6 - 0 9 5 J HUD		2	メータ要求仕 METER SPEC	:様書		欠図 in preparation
3	1				7 6 6 4 9 0 – 1 0 7 A	Δ2	3	アッパーケー ー L UPPER HOUSIN		1	
4	П	2	Τ	П	7 6 6 4 9 7 - 2 8 0 A	П	4	アッパーケー UPPER HOUSIN		1	
5	П	2	Τ	П	7 6 6 4 4 4 - 5 9 0 A	T	5	表ガラス L FRONT GLASS	L	1	
6		2	T	П	766493-500A		6	折り返しミラ FOLD MIRROR		1	
7		2	T	П	766579-180A			両面テープ DOUBLE SIDED	TAPE	1	
8	1				7 6 6 4 9 0 – 1 0 8 A	Δ2	7	インナーケー ー L INNER HOUSIN		1	
9		2	Τ	П	7 6 6 4 9 7 – 2 9 0 A		8	インナーケー INNER HOUSIN		1	
10	П	2	Τ	П	7 6 6 4 5 2 - 5 0 0 A	П		バッキン PACKING		2	
11	1	T			7 7 7 6 8 1 – A	Δ2		3ミリタッピ: TAPPING SCRE		4	L10 (UPPER HOUSING AS SY × INNER HOUSING ASSY)
12	1				7 6 6 4 9 0 – 1 0 9 A	Δ2	9	非球面ミラー L ASPHERICAL) SY L		1	
13		2	Τ	П	7 6 6 4 9 3 - 5 1 0 A		10	非球面ミラー ASPHERICAL)		1	
14		2	Γ		7 6 6 4 5 1 - 2 9 0 A	Δ1	11	モータホルダ MOTOR HOLDER		1	
15		2			7 6 6 4 5 9 - 0 7 0 A	△2		圧縮ばね COMPRESSION	SPRING	1	
16		2	Ι		7 6 6 4 6 2 - 0 9 0 A	Δ1	12	ジョイント I JOINT L		1	
17		2			7 6 6 4 5 4 - 0 3 0 A	△2		モータ MOTOR	•	1	

What does the new SOV look like with this code?

BEFORE



With these two SOV PDFs...

						目	CONTENTS	次	ARC		PAGE 生産図 1 / 3
製 PROI					095J-HUD(LH) 095J-HUD(LH)			納ノ custo			
製 PROI				ER	6 6 4 0 1 - 0 8	3 0 A			失品番 83108-08	8070	
			吉層 EVE		部 品 番 号 PART NUMBER	÷	変更 CHANGE I	図番 RAW. NO.	部 品 名 称 PART NAME	個数 QTY	備 考 NOTE
1	1			Т			П	1	外観図 OUTLINE DRAWING		大図 in preparation
2	1	П		T	S 5 6 6 - 0 9 5 J	HUD	П	2	メータ要求仕様書 METER SPEC		大図 in preparation
3	1				766490-10	7 A	△2	3	アッパーケースアッシ ー L UPPER HOUSING ASSY L	1	
4	Γ	2		Т	766497-28	0 A	П	4	アッパーケース L UPPER HOUSING L	1	
5	Γ	2		\top	766444-59	0 A	П	5	表ガラス L FRONT GLASS L	1	
6	Г	2		\top	766493-50	0 A	П	6	折り返しミラー L FOLD MIRROR L	1	
7	Г	2			766579-18	0 A			両面テープ DOUBLE SIDED TAPE	1	
8	1				766490-10	8 A	△2	7	インナーケースアッシ ー L INNER HOUSING ASSY L	1	
9	Γ	2		Т	766497-29	0 A	П	8	インナーケース L INNER HOUSING L	1	
10	Γ	2		Т	766452-50	0 A	П		パッキン PACKING	2	
11	1				7 7 7 6 8 1 – A		△2		3ミリタッピングネジ TAPPING SCREW M3	4	L10 (UPPER HOUSING AS SY × INNER HOUSING ASSY)
12	1				766490-10	9 A	△2	9	非球面ミラーアッシー L ASPHERICAL MIRROR AS SY L	1	
13	Γ	2		T	766493-51	0 A	П	10	非球面ミラー L ASPHERICAL MIRROR L	1	
14	Γ	2		T	766451-29	0 A	△1	11	モータホルダー B MOTOR HOLDER B	1	
15	Γ	2			766459-07	0 A	△2		圧縮ばね COMPRESSION SPRING	1	
16	Г	2		\top	766462-09	0 A	△1	12	ジョイント L JOINT L	1	
17	Γ	2		\top	766454-03	0 A	$\triangle 2$		モータ MOTOR	1	

					目	CONTENTS	次	ARC			PAGE 生産図 1 / 3 TION DRAWING
製i PROL					088J-HUD(LH) 088J-HUD(LH)		納ノ custo	V)L	TEMA TEMA		
製i PROI				ER	6 6 4 0 1 - 0 7 0 A			先品番 MER'S NUMBER	83108-AN	1030	
			据 VE		部 品 番 号 PART NUMBER	変更 CHANGE	図番 DRAW. NO.	PART 1	名 称 NAME	個数 QTY	備 考 NOTE
1	1						1	外観図 OUTLINE DRAW	ING		欠図 in preparation
2	1				S 5 6 5 - 0 8 8 J HUD		2	メータ要求仕 METER SPEC			欠図 in preparation
3	1				7 6 6 4 9 0 – 1 1 0 A		3	アッパーケー ー L UPPER HOUSIN	IG ASSY L	1	欠図 in preparation
4		2			7 6 6 4 9 7 — 3 1 0 A		4	アッパーケー UPPER HOUSIN		1	
5		2			7 6 6 4 4 4 - 6 0 0 A		5	表ガラス L FRONT GLASS	L	1	
6		2			7 6 6 4 9 3 – 5 3 0 A		6	折り返しミラ FOLD MIRROR		1	
7		2			766579-180A		7	両面テープ DOUBLE SIDED	TAPE	1	
8	1				7 6 6 4 9 0 – 1 1 1 A		8	インナーケー シー L INNER HOUSIN		1	欠図 in preparation
9		2			7 6 6 4 9 7 — 3 2 0 A		9	インナーケー INNER HOUSIN		1	
10		2			7 6 6 4 5 2 - 5 0 0 A		10	パッキン PACKING		2	
11	1				7 7 7 6 8 1 – A			3ミリタッピン TAPPING SCRE		4	L10(UPPER HOUSING AS SY × INNER HOUSING ASSY)欠図 in prepara tion
12	1				7 6 6 4 9 0 – 1 1 2 A		11	非球面ミラー L ASPHERICAL M SY L		1	欠図 in preparation
13		2			7 6 6 4 9 3 – 5 2 0 A		12	非球面ミラー ASPHERICAL M		1	
14		2			7 6 6 4 5 1 — 3 0 0 A		13	モータホルダ MOTOR HOLDER		1	欠図 in preparation
15		2			7 6 6 4 5 9 - 0 7 0 A		14	圧縮ばね COMPRESSION	SPRING	1	欠図 in preparation
16		2			7 6 6 4 6 2 – 1 0 0 A		15	ジョイント L JOINT L		1	欠図 in preparation
17		2			7 6 6 4 5 4 - 0 3 0 A		16	モータ MOTOR		1	欠図 in preparation



Spreadsheet of Variants



We get an elegant spreadsheet of all SOV variants

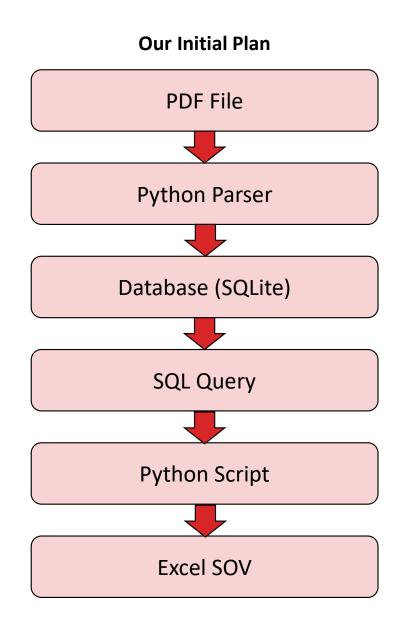
Yazaki Assy Drawing Number		
Yazaki Assy Drawing Rev		
Yazaki MTS Part Number		
Yazaki MTS Rev		
Yazaki S-Characteristics Drawing Number		
Yazaki S-Characteristics Drawing Rev		
Customer Drawing Number		
Customer Drawing Rev Vehicle Code		
Customer Part Description		
Model Year		
Manufacturing Plant		
Customer Part Number	6401-070A 83108-AN030	6401-080A 83108-08070
Yazaki Assembly Number	86401-070A	6401-080A

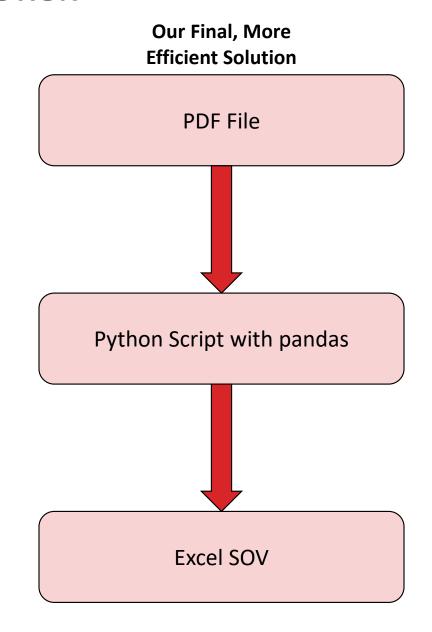
Part Type	Part Name	Part Number	Drawing Number	Rev.	Δ0	Δ2
Outline Drawing	Outline Drawing			Δ0	0	0
Meter Spec	Meter Spec	S565-088JHUD	S565-088JHUD	Δ0	0	0
Opper Housing Assy L	Upper Housing Assy L	766490-110A	766490-110A	Δ0	1	0
Upper Housing L	Upper Housing L	766497-310A	766497-310A	Δ0	1	0
Front Glass L	Front Glass L	766444-600A	766444-600A	Δ0	1	0
Fold Mirror L	Fold Mirror L	766493-530A	766493-530A	Δ0	1	0
Double Sided Tape	Double Sided Tape	766579-180A	766579-180A	Δ0	1	1
nner Housing Assy L	Inner Housing Assy L	766490-111A	766490-111A	Δ0	1	0
Inner Housing L	Inner Housing L	766497-320A	766497-320A	Δ0	1	0
Packing	Packing	766452-500A	766452-500A	Δ0	2	2
Tapping Screw M3	Tapping Screw M3	777681-A	777681-A	Δ0	4	5
spherical Mirror Assy L	Aspherical Mirror Assy L	766490-112A	766490-112A	Δ0	1	0
Aspherical Mirror	Aspherical Mirror L	766493-520A	766493-520A	Δ0	1	0
Motor Holder A	Motor Holder A	766451-300A	766451-300A	Δ0	1	0
Compression Spring	Compression Spring	766459-070A	766459-070A	Δ0	1	1
Joint L	Joint L	766462-100A	766462-100A	Δ0	1	0
Motor	Motor	766454-030A	766454-030A	Δ0	1	1
3mm TAP Tight Screw	3mm TAP Tight Screw	787362-A	787362-A	Δ0	2	2
Extension Spring	Extension Spring	766459-080A	766459-080A	Δ0	1	1
Bearing	Bearing	766449-040A	766449-040A	Δ0	1	1

Moto	r Lead Wire Assy L	Motor Lead Wire Assy L	766461-960A	766461-960A	Δ0	1	0
L	ower Housing L	Lower Housing L	766497-330A	766497-330A	Δ0	1	0
	Backlight Assy	Backlight Assy	766440-047A	766440-047A	Δ0	1	0
	TFT Shield Case	TFT Shield Case	766497-340A	766497-340A	Δ0	1	1
	Display TFT	Display TFT	7GAF3004210	7GAF3004210	Δ0	1	1
	Diffuser	Diffuser	766471-230A	766471-230A	Δ0	1	1
	Backlight Housing A Assy	Backlight Housing A Assy	766440-048A	766440-048A	Δ0	1	1
	Glass Plate	Glass Plate	766444-540A	766444-540A	Δ0	1	0
	Backlight Housing A	Backlight Housing A	766497-350A	766497-350A	Δ0	1	0
	Flyeye Lens	Flyeye Lens	769306-660	769306-660	Δ0	1	1
	Fresnel Lens	Fresnel Lens	766446-470	766446-470	Δ0	1	1
	3mm Tapping Screw	3mm Tapping Screw	777654-A	777654-A	Δ0	2	2
	Backlight Housing B	Backlight Housing B	766497-360A	766497-360A	Δ0	1	1
	Condenser Lens	Condenser Lens	766446-480	766446-480	Δ0	1	1
	Backlight Lead Wire Assy	Backlight Lead Wire Assy	766461-970A	766461-970A	Δ0	1	0
	088j-hud Backlight P CB Assy 1	088j-hud Backlight P CB Assy 1	766400-718A	766400-718A	Δ0	1	1
	Heat Sink	Heat Sink	766496-180A	766496-180A	Δ0	1	1
	088j-hud Relay PCB A Ssy 1	088j-hud Relay PCB A Ssy 1	766400-720A	766400-720A	Δ0	1	0
	FFC L	FFC L	766461-980A	766461-980A	Δ0	1	0
	Backlight Cover	Backlight Cover	766468-510A	766468-510A	Δ0	1	0
088	j-hud Main PCB As Sy 1	088j-hud Main PCB As Sy 1	766400-719A	766400-719A	Δ0	1	0
(Svif Shield Case	Gvif Shield Case	766491-870A	766491-870A	Δ0	1	1
Re	ear Cover Assy L	Rear Cover Assy L	766340-016A	766340-016A	Δ0	1	0
	Rear Cover L	Rear Cover L	766468-520A	766468-520A	Δ0	1	0
	PCB Shield Case	PCB Shield Case	766497-240A	766497-240A	Δ0	1	1
	Barcode Label	Barcode Label	769359-040A	769359-040A	Δ0	1	1
	Meter Spec	Meter Spec	S566-095JHUD	S566-095JHUD	Δ0	0	0

PIVOTING OUR APPROACH FOR A SIMPLER SOLUTION







IMPACT







Replaced hours of tedious manual labor with a solution that runs in seconds.



REDUCE ERRORS

Guarantees data integrity and eliminates the risk of costly transcription errors in the SOV.



PROCESS ACCELERATION

Streamlines a critical workflow, enabling faster project turnaround and quicker handoffs to downstream teams.



TIME THRESHOLD REPORTING

Uncovering time-reporting gaps to boost accountability, visibility, and compliance.



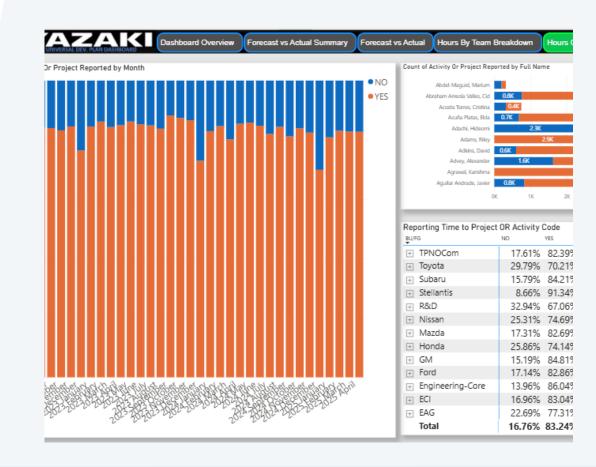
TIME REPORTING THRESHOLD

Purpose:

- Gain a better understanding of actual resource requirements to develop different products/complete projects
- Accurate reporting is required for a proper R&D tax credit of engineering resources
- Hours are assigned Development plans can used to invoice Yazaki affiliates

Action:

 Create program that flags users who don't properly report time, and than sends an email to users & their manager/director.





20% of hours show no activity and project reported each month!





New cell in the upload hours table

Source System	•	EAG ENGO	•	SupervisorEmail
SuccessFactors			0	
SuccessFactors			0	
SuccessFactors			1	
SuccessFactors			0	
SuccessFactors			1	
SuccessFactors			0	
· .			^	

STEP 1: UPDATE THE UDP DASHBOARD



Source System	•	EAG ENG0	•	SupervisorEmail =
SuccessFactors			0	
SuccessFactors			0	
SuccessFactors			1	
SuccessFactors			0	
SuccessFactors			1	
SuccessFactors			0	
c			^	

```
1 SupervisorEmail =
 2 VAR IsTerminated =
           COUNTROWS('InBound SuccessFactorsHeadCount'),
          FILTER(
              'InBound SuccessFactorsHeadCount',
              'InBound SuccessFactorsHeadCount'[User_ID] = 'Upload Hours csv (2)'[Employee ID]
               && 'InBound SuccessFactorsHeadCount'[HC Date] = DATE(2025, 5, 1)
               && 'InBound SuccessFactorsHeadCount'[Status] = "Terminated"
11
12
13 VAR Super =
       CALCULATE(
15
          FIRSTNONBLANK('InBound SuccessFactorsHeadCount'[Supervisor], 1),
17
              'InBound SuccessFactorsHeadCount',
18
              'InBound SuccessFactorsHeadCount'[User_ID] = 'Upload Hours csv (2)'[Employee ID]
               && 'InBound SuccessFactorsHeadCount'[HC Date] = DATE(2025, 5, 1)
20
21
22
23 RETURN
           IsTerminated > 0,
           "Terminated",
              ISBLANK(Super),
              "No Supervisor Found",
              CALCULATE(
                  FIRSTNONBLANK('Emails'[EmployeeUserName], 1),
                  FILTER('Emails', 'Emails'[EmployeeID] = Super)
33
34
```

Query to populate the Supervisor Email cell

New cell in the upload hours table

STEP 1: UPDATE THE UDP DASHBOARD



Source System	•	EAG ENG0	•	SupervisorEmail =
SuccessFactors			0	
SuccessFactors			0	
SuccessFactors			1	
SuccessFactors			0	
SuccessFactors			1	
SuccessFactors			0	
c			^	

```
1 SupervisorEmail =
 2 VAR IsTerminated =
           COUNTROWS('InBound SuccessFactorsHeadCount'),
           FILTER(
              'InBound SuccessFactorsHeadCount',
               'InBound SuccessFactorsHeadCount'[User_ID] = 'Upload Hours csv (2)'[Employee ID]
               && 'InBound SuccessFactorsHeadCount'[HC Date] = DATE(2025, 5, 1)
               && 'InBound SuccessFactorsHeadCount'[Status] = "Terminated"
11
12
13 VAR Super =
       CALCULATE(
15
           FIRSTNONBLANK('InBound SuccessFactorsHeadCount'[Supervisor], 1),
17
              'InBound SuccessFactorsHeadCount',
18
               'InBound SuccessFactorsHeadCount'[User_ID] = 'Upload Hours csv (2)'[Employee ID]
               && 'InBound SuccessFactorsHeadCount'[HC Date] = DATE(2025, 5, 1)
21
22
23 RETURN
           IsTerminated > 0,
           "Terminated",
              ISBLANK(Super),
              "No Supervisor Found",
              CALCULATE(
                  FIRSTNONBLANK('Emails'[EmployeeUserName], 1),
                   FILTER('Emails', 'Emails'[EmployeeID] = Super)
33
34
```

Query to populate the Supervisor Email cell

New cell in the upload hours table

SuccessFactors 1 Hetalbhai.Patel@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Michael.Manor@us.yazaki.c SuccessFactors 1 Michael.Manor@us.yazaki.c SuccessFactors 1 Michael.Manor@us.yazaki.c SuccessFactors 1 Jonathan.Miller@us.yazaki.c SuccessFactors 1 Jonathan.Miller@us.yazaki.c SuccessFactors 1 Jonathan.Miller@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Baris.Arakelian@us.yazaki.c SuccessFactors 1 Hussain.Nasser@us.yazaki.c SuccessFactors 1 Hussain.Nasser@us.yazaki.c SuccessFactors 1 Jonathan.Miller@us.yazaki.c	•
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SuccessFactors 1 Daniel.VelazquezBorja@mx	.yaz
SuccessFactors 1 Sergio.Garza@mx.yazaki.co	m

Populated cells







```
3 //'Upload Hours csv (2)'[Work Date] < (EOMONTH(TODAY(), -1) + TIME(0, 0, 1))
     // DAX Query
5 DEFINE
         VAR __DS0FilterTable =
            TREATAS(("NO"), 'Upload Hours csv (2)'[Activity Or Project Reported])
         VAR __DS0FilterTable2 =
               KEEPFILTERS(VALUES('Upload Hours csv (2)'[SupervisorEmail])),
               NOT('Upload Hours csv (2)'[SupervisorEmail] IN {BLANK(),
                   "No Supervisor Found"})
         VAR _DS0FilterTable3 =
               KEEPFILTERS(VALUES('Upload Hours csv (2)'[Work Date])),
                   'Upload Hours csv (2)'[Work Date] >= (EOMONTH(TODAY(), -2) + 1),
                    'Upload Hours csv (2)'[Work Date] < (EOMONTH(TODAY(), -2) + 1)
         VAR _DS0FilterTable4 =
           FILTER(
                KEEPFILTERS(VALUES('Upload Hours csv (2)'[Job Title])),
29 'Upload Hours csv (2)'[Job Title] IN {"Director",
```





```
3 //'Upload Hours csv (2)'[Work Date] < (EOMONTH(TODAY(), -1) + TIME(0, 0, 1))
     // DAX Query
      DEFINE
         VAR __DS0FilterTable =
             TREATAS(("NO"), 'Upload Hours csv (2)'[Activity Or Project Reported])
         VAR __DS0FilterTable2 =
                KEEPFILTERS(VALUES('Upload Hours csv (2)'[SupervisorEmail])),
                NOT('Upload Hours csv (2)'[SupervisorEmail] IN (BLANK(),
                   "No Supervisor Found"})
         VAR _DS0FilterTable3 =
                KEEPFILTERS(VALUES('Upload Hours csv (2)'[Work Date])),
                    'Upload Hours csv (2)'[Work Date] >= (EOMONTH(TODAY(), -2) + 1),
                     'Upload Hours csv (2)'[Work Date] < (EOMONTH(TODAY(), -2) + 1)
         VAR DS0FilterTable4 =
                KEEPFILTERS(VALUES('Upload Hours csv (2)'[Job Title])),
29 'Upload Hours csv (2)'[Job Title] IN {"Director",
```



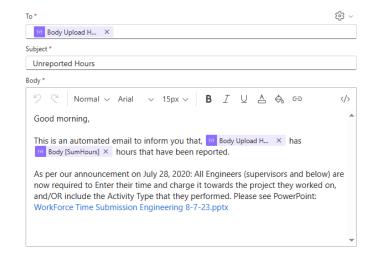
Power BI Query

Parse into a Json file

Send out Emails



```
3 //'Upload Hours csv (2)'[Work Date] < (EOMONTH(TODAY(), -1) + TIME(0, 0, 1))
     // DAX Query
     DEFINE
        VAR DS0FilterTable =
            TREATAS(("NO"), 'Upload Hours csv (2)'[Activity Or Project Reported])
        VAR __DS0FilterTable2 =
               KEEPFILTERS(VALUES('Upload Hours csv (2)'[SupervisorEmail])),
               NOT('Upload Hours csv (2)'[SupervisorEmail] IN (BLANK(),
                   "No Supervisor Found"})
         VAR DS0FilterTable3 =
               KEEPFILTERS(VALUES('Upload Hours csv (2)'[Work Date])),
                    'Upload Hours csv (2)'[Work Date] >= (EOMONTH(TODAY(), -2) + 1),
                    'Upload Hours csv (2)'[Work Date] < (EOMONTH(TODAY(), -2) + 1)
        VAR __DS0FilterTable4 =
                KEEPFILTERS(VALUES('Upload Hours csv (2)'[Job Title])),
     'Upload Hours csv (2)'[Job Title] IN {"Director",
```





recurrence

Power BI Query

Parse into a Json file

Send out Emails

IMPACT



- This Flow will give leadership more
 accurate visibility into how resources
 are used across different products
 and projects.
- Automated monthly notifications and standardized tracking promote company-wide consistency and strengthen compliance.





ACTIVE FEEDBACK

BETTER VISIBILITY



ORGANIZED GOVERNANCE

OUR KEY LESSONS LEARNED



- Success is More Than Code: It's Understanding the Business Problem.
 - We learned that the most impactful solutions come from deeply understanding the "why" behind a task—whether it's saving an engineer's time or ensuring compliance for an audit.
- The Power of Collaboration: Agile, Feedback, and Iteration.
 - Our Agile process taught us that consistent communication and feedback are essential. Great ideas came from our daily stand-ups and sprint demos, not just from working alone.
- Clarity is a Skill: Translating Technical Solutions into Business Value.
 - It's not enough to build a functional tool. We learned the crucial skill of explaining how our technical work solves a business problem, saves money, or reduces risk.

VALUABLE EXPERIENCE, LASTING IMPACT



From Academic Concepts to Real-World Application:

• This internship allowed us to apply our classroom knowledge to solve complex, "messy" business problems that don't have textbook answers.

From Isolated Code to Integrated Systems:

• We learned how to build solutions that operate within a larger business ecosystem, connecting different enterprise tools to create a seamless workflow.

From Learning to Delivering Tangible Impact:

• We didn't just complete assignments; we built and delivered automation tools that directly improve efficiency, reduce errors, and provide measurable value to Yazaki.

SPECIAL THANKS



Our sincere thanks to our managers, Hussain Darwish and Hector Robledo.

A special thank you to our mentors and team members for their guidance and support.

Thank you to the entire El Software and Core Engineering teams.



THANK YOU FOR YOUR ATTENTION!

ANY QUESTIONS?