



# Design Automation Inventor iLogicの 活用

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# Autodesk University 2020

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<https://www.autodesk.com/autodesk-university/ja/class/Using-iLogic-Design-Automation-Inventor>Create-Configurator-2020>



## **Sajith Subramanian**

With over a decade of development experience with various CAD software, he is part of the Developer Advocacy and Support team at Autodesk, supporting and evangelizing API's for Inventor, Fusion and Vault. Now an evangelist and an enthusiast on the Forge platform, he has published various code samples showcasing the combined use of desktop product API's with our Forge platform. He now looks forward to making this transition from desktop to cloud as seamless as possible for fellow developer enthusiasts



## **CHANDRA SHEKAR G**

I born and brought up in Bangalore. My graduation and post-graduation are done in University Visveshwariah College of Engineering UVCE, Bangalore, India. Initially, started career with Unigraphics or NX customization and then worked on Inventor, Solidworks, Pro-E and AutoCAD. Working in CAD Customization or Design Automaton field since 2011. Worked with companies like Wier Minerals, Tantra Info solutions, Honeywell and Mphasis.

**日本語Lightning Talkセッション**

[https://www.youtube.com/watch?v=zXCLX3\\_-qQQ](https://www.youtube.com/watch?v=zXCLX3_-qQQ)

# なぜiLogicなのか？

始める敷居の低さ



Design Automation  
を利用するアイデア



# Design Automation for Inventorの用語



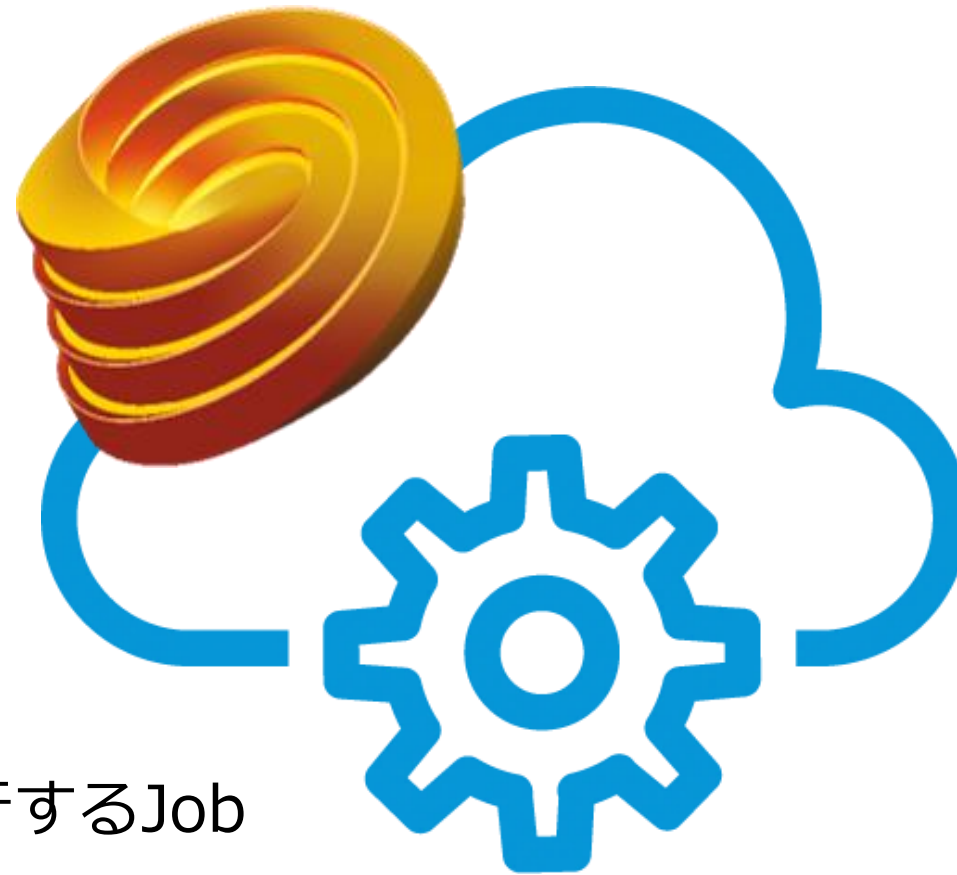
## AppBundle

Inventor プラグイン



## WorkItem

Inventor Serverを実行するJob



## Activity

AppBundleとWorkItemのインターフェース



## Engine

複数バージョンのInventor Server



## 理解が不安なときは…

- Forge Online - Design Automation : タスクの自動化

[https://adndevblog.typepad.com/technology\\_perspective/2020/07/forg-online-design-automation-basics.html](https://adndevblog.typepad.com/technology_perspective/2020/07/forg-online-design-automation-basics.html)

- Forge Online - Design Automation : Inventor タスクの自動化

[https://adndevblog.typepad.com/technology\\_perspective/2020/07/forg-online-design-automation-api-for-inventor.html](https://adndevblog.typepad.com/technology_perspective/2020/07/forg-online-design-automation-api-for-inventor.html)

# Inventorコアエンジンの/s オプション

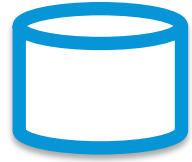
InventorCoreConsole.exe

- ✓ Design Automation for Inventor用のコアエンジン
- ✓ クライアント版Inventorには同梱されていない
- ✓ 起動引数で指定されたAppBundleをロードし、AppBundleのメソッド（のどちらか）を実行
  - Run(Document doc) : 所定起動引数のみ場合
  - RunWithArguments(Document doc, NameValueMap map) : 所定引数以外を指定した場合。所定以外の引数はNameValueMapにキー“-1”, “-2”...で順に格納される
- ✓ InventorCoreConsole.exeの所定起動引数
  - /a : ロードするAppBundleのパス
  - /i : ロードするドキュメントのパス
  - /s : 実行するスクリプトファイルへのパス



# iLogicファイルの指定方法

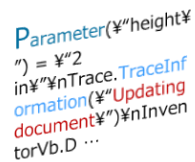
## 場所



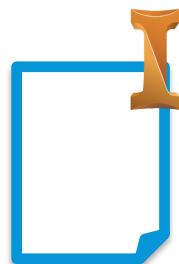
Cloud Storage



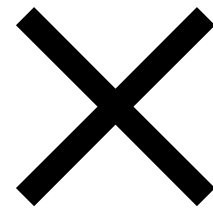
AppBundle



Parameter/  
Argument



Inventor File



## 設定



Activity



WorkItem

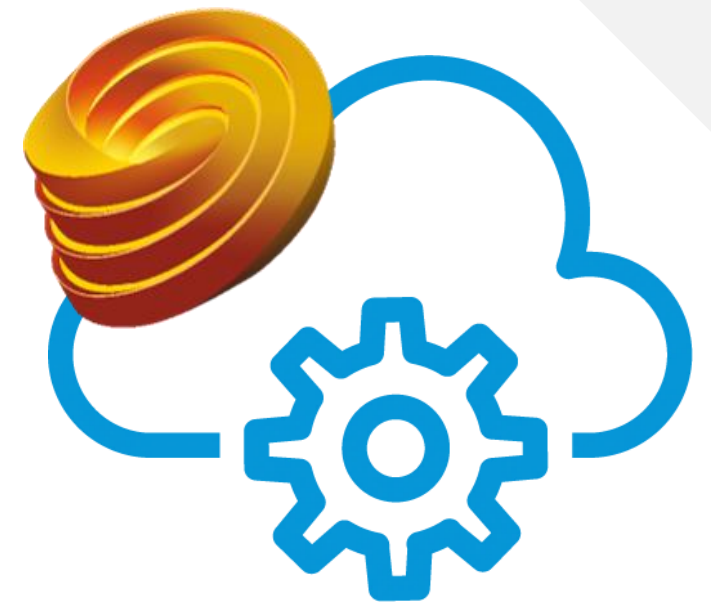
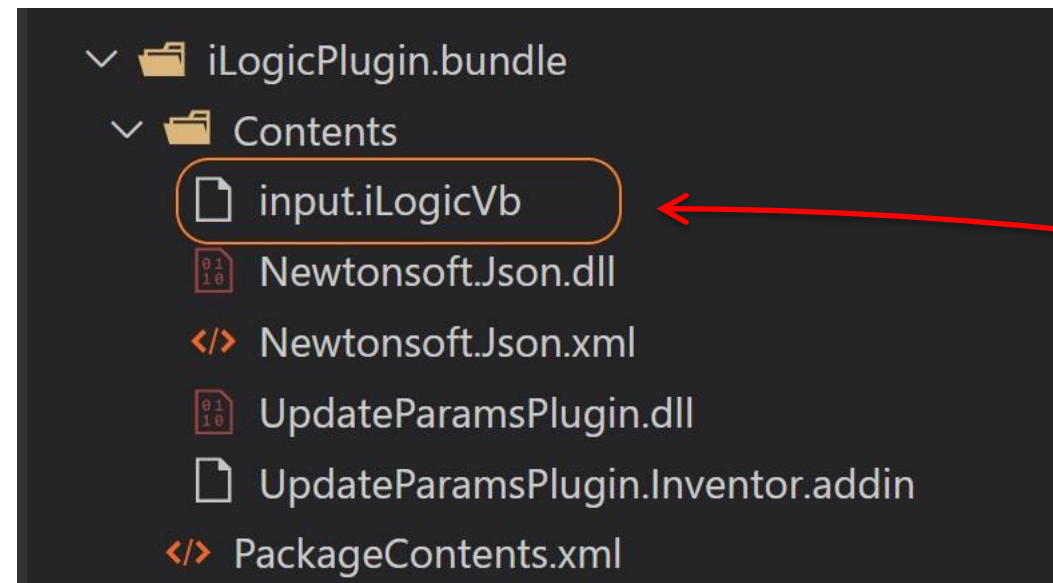


# AppBundle内のiLogicの実行

7



## AppBundle



## Activity

```
{
  "id": "{ActivityId}",
  "commandLine": [
    "$(engine.path)¥¥InventorCoreConsole.exe /i ¥"$(args[InventorDoc].path)¥" /s ¥"$(appbundles[{AppBundle
Name}].path)¥¥iLogicPlugin.bundle¥¥Contents¥¥input.iLogicVb¥""
    ...
  ],
  "appbundles": [{AppBundleId + AppBundleAlias}],
  ...
}
```

# Parameter/Argumentによる指定



## Activity

```
{
  "id": "{ActivityId}",
  "commandLine": [
    "$(engine.path)¥¥InventorCoreConsole.exe /i ¥"$(args[InventorDoc].path)¥" /s  $(args[iLogicName].path)"
  ]
  ...
}
```



## WorkItem

```
{
  "activityId": "{specify activity id + alias}",
  "arguments": {
    "InventorDoc": {
      "url": "{specify input file url}"
    },
    "iLogicName": {
      "value": "iLogicVb.RunRule(¥"MyRule¥")"
    },
    ...
  }
}
```

```
[01/27/2021 06:37:20] Starting work item 06d287cc9e7248259f08e6050499a75f
[01/27/2021 06:37:20] Start download phase.
[01/27/2021 06:37:20] Start downloading input: verb - 'GET', url -
'https://developer.api.autodesk.com/oss/v2/signedresources/f46ee514-9332-4e96-8c9a-53a55dd71fce?region=US'
[01/27/2021 06:37:20] '84480' bytes have been written to
T:¥Aces¥Jobs¥06d287cc9e7248259f08e6050499a75f¥Input.ipt.
[01/27/2021 06:37:20] End downloading file 'https://developer.api.autodesk.com/oss/v2/signedresources/f46ee514-
9332-4e96-8c9a-53a55dd71fce?region=US'.
[01/27/2021 06:37:20] End download phase successfully.
[01/27/2021 06:37:21] Start preparing script and command line parameters.
[01/27/2021 06:37:21] Command line: [ /i "T:¥Aces¥Jobs¥06d287cc9e7248259f08e6050499a75f¥Input.ipt" /s
"T:¥Aces¥Jobs¥06d287cc9e7248259f08e6050499a75f¥arg_iLogic.dat" ]
[01/27/2021 06:37:21] End preparing script and command line parameters.
```

WorkItem実行時に、指定したvalue値が記載された  
ファイルとしてCoreエンジンに渡され、実行される



# Inventorファイル内のiLogicの実行

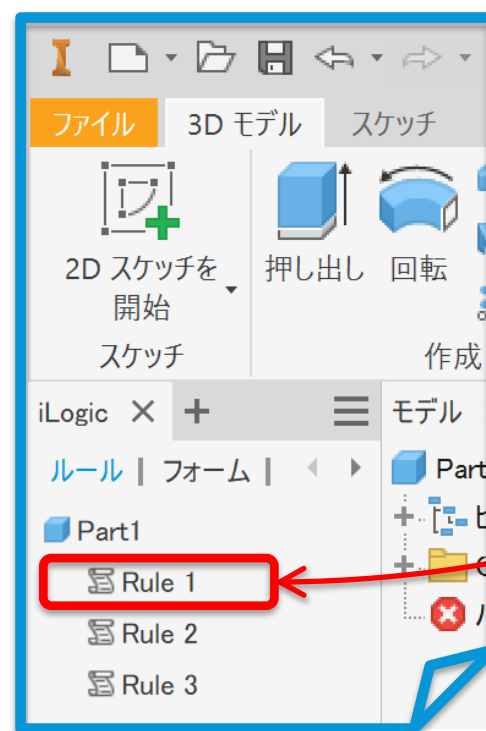
- iLogicVb.RunRule(name As String)メソッド
  - ✓ name 実行するiLogic ルール名



InventorCoreConsole.exe

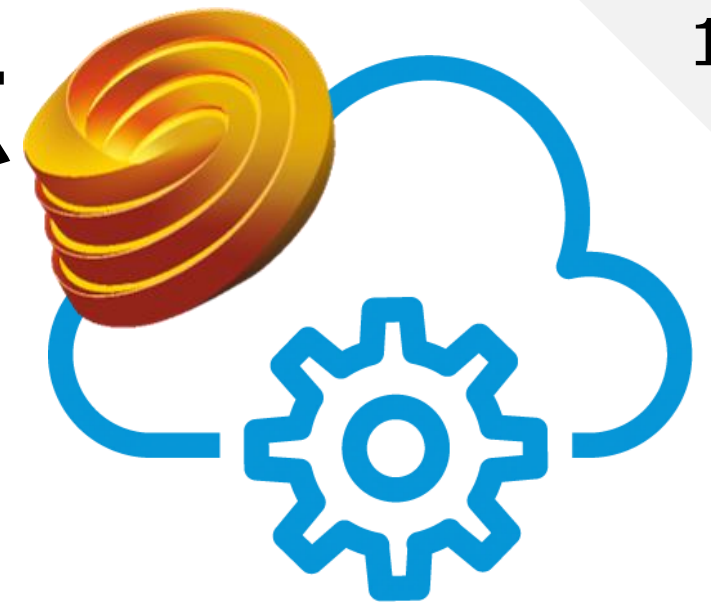
/i <*inventor file*>

/s <*script file*>



```
...  
iLogicVb.RunRule("Rule 1")  
...
```

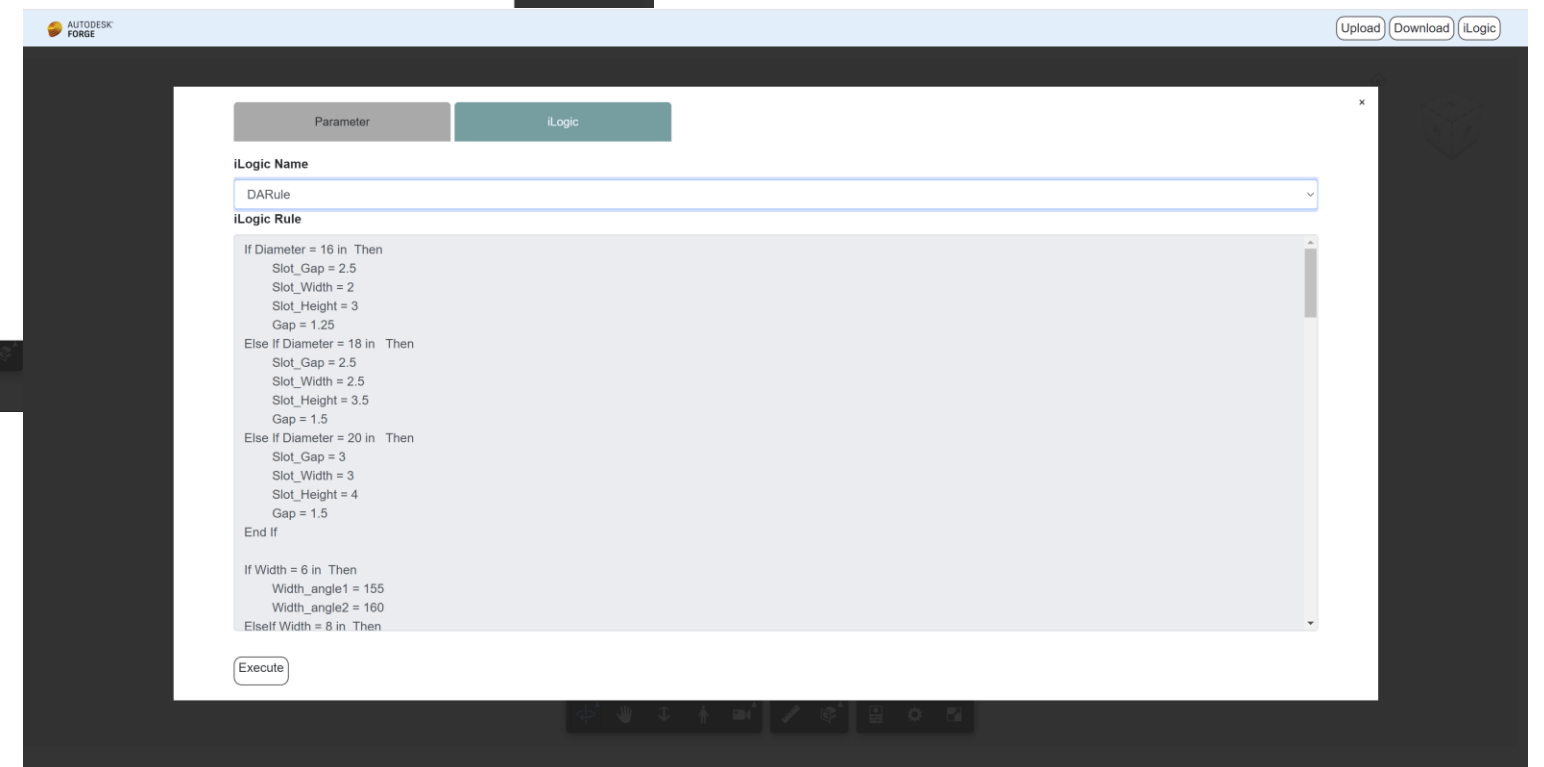
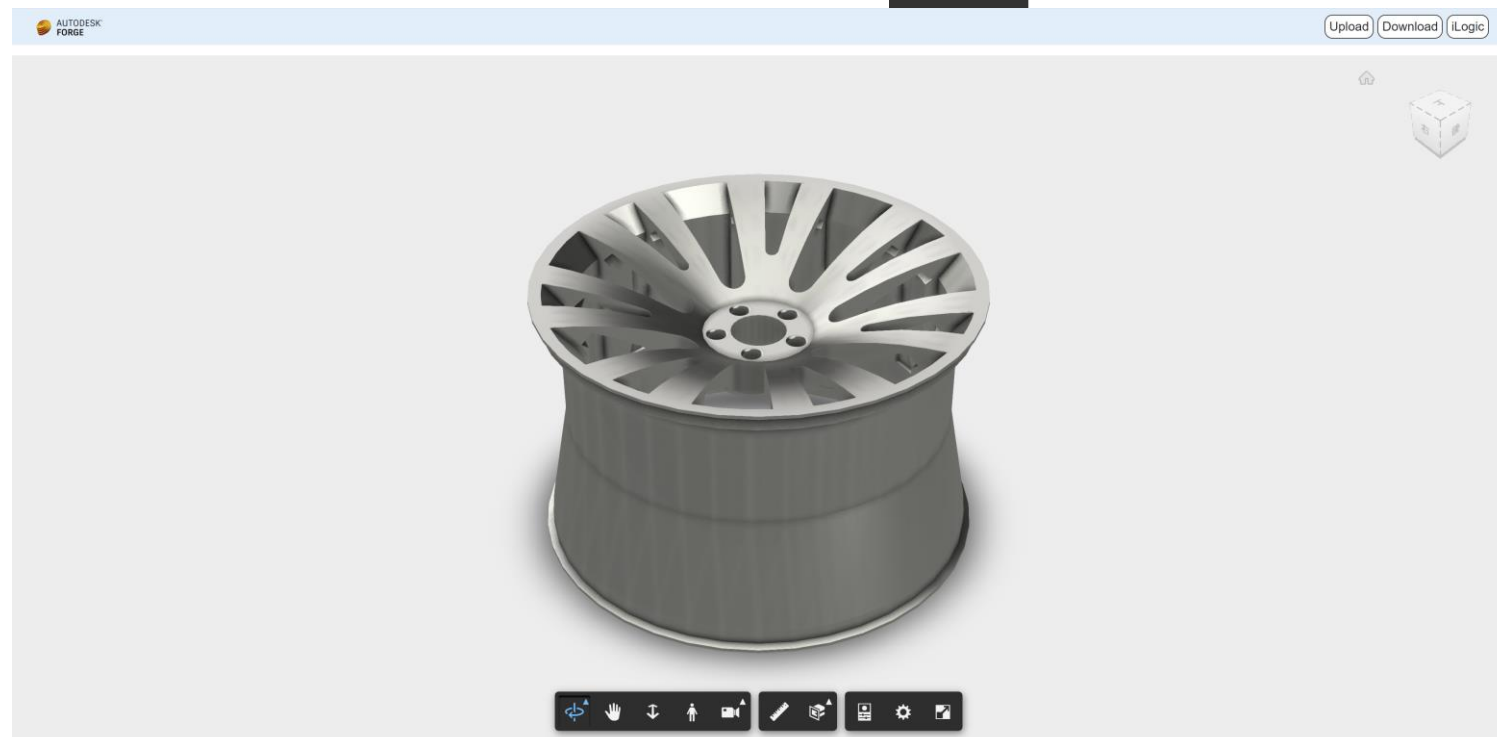
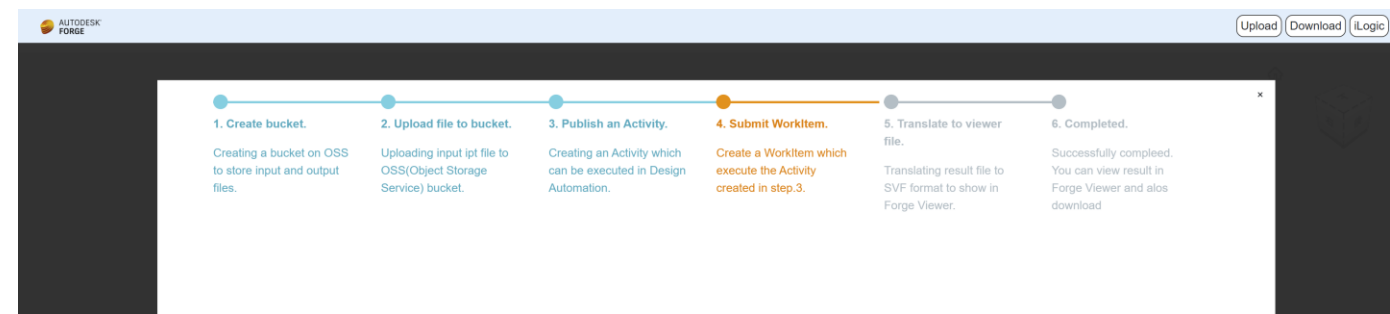
# Design Automation iLogicの記述の注意点



1. ThisApplicationではなくThisServerを  
ThisApplication.ActiveDocumentではなく、  
ThisDoc.Documentを使用する
2. UI表示を行う処理は記述しない
3. ログ出力はLoggerではなくTraceを使用する

# Design Automation for Inventor iLogic実行のサンプルアプリケーション

<https://forge-ilogic.herokuapp.com/>



# まとめ

- **なぜDesign AutomationでiLogicなのか？**
  - 始める敷居の低さ
  - Design Automationを利用するアイデア
- **iLogicファイルの指定方法**
  - コアエンジンの/sオプションで、ファイルを指定
  - 場所と設定の組み合わせ
- **Design Automation iLogicの記述の注意点**
  - 3つの注意点

# 参考ブログ記事

- Forge Online - Design Automation : タスクの自動化  
[https://adndevblog.typepad.com/technology\\_perspective/2020/07/forg-online-design-automation-basics.html](https://adndevblog.typepad.com/technology_perspective/2020/07/forg-online-design-automation-basics.html)
- Forge Online - Design Automation : Inventor タスクの自動化  
[https://adndevblog.typepad.com/technology\\_perspective/2020/07/forg-online-design-automation-api-for-inventor.html](https://adndevblog.typepad.com/technology_perspective/2020/07/forg-online-design-automation-api-for-inventor.html)
- Design Automation API for Inventor - iLogicを利用したDesign Automationの実行方法  
[https://adndevblog.typepad.com/technology\\_perspective/2020/11/design-automation-api-for-inventor-various-way-to-run-illogic.html](https://adndevblog.typepad.com/technology_perspective/2020/11/design-automation-api-for-inventor-various-way-to-run-illogic.html)
- Design Automation API for Inventor - Inventor iLogic利用時の注意点  
[https://adndevblog.typepad.com/technology\\_perspective/2020/12/design-automation-api-for-inventor-note-writing-an-illogic-for-da.html](https://adndevblog.typepad.com/technology_perspective/2020/12/design-automation-api-for-inventor-note-writing-an-illogic-for-da.html)
- Run iLogic Rule without AppBundle  
<https://forge.autodesk.com/blog/run-illogic-rule-without-appbundle>
- Different ways to run iLogic code  
<https://forge.autodesk.com/ja/node/1801>
- Prepare iLogic Rules for Design Automation  
<https://forge.autodesk.com/blog/prepare-illogic-rules-design-automation>





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