Exceptions & Debugging

Exceptions & Debugging - Agenda

- **Exception handling**
  - Recovery and reporting: *Try/Catch/Finally*
  - Suppress by *ContinueOnError* property
- **Common exceptions/challenges**
- **Debugging techniques**
  - Progress logging, saving screenshots
  - Debug mode, highlight steps, slow step

Best Practices
Q&A
Test
Online Resources

Exception Handling

Addressing exceptions

- In development phase
- Specific treatment/recovery
- Debugging techniques

Error reporting

- In production phase
- Require human intervention
- Provide detailed information

Common Exceptions

Object reference not set to an instance of an object.
Thrown when a variable has not been initialized (has no value). To avoid this, make sure a variable has a value before using its methods.

Index was outside the bounds of the array. Index out of range.
Thrown in an attempt to access array or collection elements with an index that is outside its capacity. Most common situation: getting an element of a list without checking if the list contains items

Cannot find the UI Element corresponding to this selector.
Occurs when the selector used to identify the control does not match any control on the screen. To debug, when this exception is thrown, you need to inspect the target application and observe if the control exists.

Common Exceptions

Image was not found in the provided timeout.
Occurs when the expected image is not identified on screen either because it is not visible in foreground or the image is slightly different due to environment settings (resolution, theme) or controls are in different state.

Text was not found.
Occurs in Text based automation activities. Text activities currently do not take into account the TimeoutMS property when searching for the text, so the text needs to be on the screen when the activity is reached.

Click generic error. Cannot use UI_CONTROL_API on this UI node. Please use UI_HARDWARE_EVENTS method.
Occurs when a click could not be executed. The most common issue is using SimulateClick or SendWindowMessages options in an application window that does not support them.

Automation Challenges

Timing Issues

Unexpected behavior is likely to occur when the application is not in the state the workflow assumes it to be. The first thing to watch for is the time the application takes to respond to workflow interactions. Activities use the *TimeoutMS* and the *WaitForReady* properties when searching for a control so they can be used for synchronization. *DelayMS* should be used for activities that change the state of the application and the next activity should not be executed immediately. Measures may include using extra activities (find image, find text, element exists, wait image vanish) that wait for the desired application state before other interactions.

Input Method Issues

Each input method has its own particularities and can trigger a different behavior to the target application. How the application reacts to an input method should be considered when choosing one. Errors may appear when using one of the input method without knowing its implications.

Coordinates Issues

Coordinates are relative to the target but it’s recommended to use them as little as possible in situation where the layout of the application changes between instances. Extra measures may be needed to maintain the layout of the application.

UI Synchronization

Useful activities for checking application UI status

- *FindElement*, *ElementExists*, *WaitElementVanish*
- *ImageExists*, *WaitImageVanish FindOCRTextPosition*
- *OnElementVanish*, *OnImageVanish*
- *DelayBefore*, *DelayAfter*

Debugging Techniques

- Debug mode
  - Break
  - Highlight
  - Slow step
- View outline
- Output
  - Log message
  - Messagebox

Best Practices

- Use *LogMessage* to trace execution status
  - When starting and ending sequences
  - When taking decisions
  - While looping
- Catch all exceptions and treat them in appropriate contexts

Q&A

Test

Online Resources

- How to use the *Try/Catch* activity
- How to debug workflows
- How to collect crash dumps