

Interface Design Best Practices

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Overview

1. Introduction
2. Design Patterns in Iguana
3. Storing and Recalling Configurations in Iguana
4. Securing Credentials at rest with Iguana
5. Sample Interface Walk-through
6. Q & A



What to Expect

1. What is it
2. Why is it important
3. Practical use of concept



Introduction

What is an Interface?

- Moves data between incompatible systems
- This data is commonly transferred as HL7 data

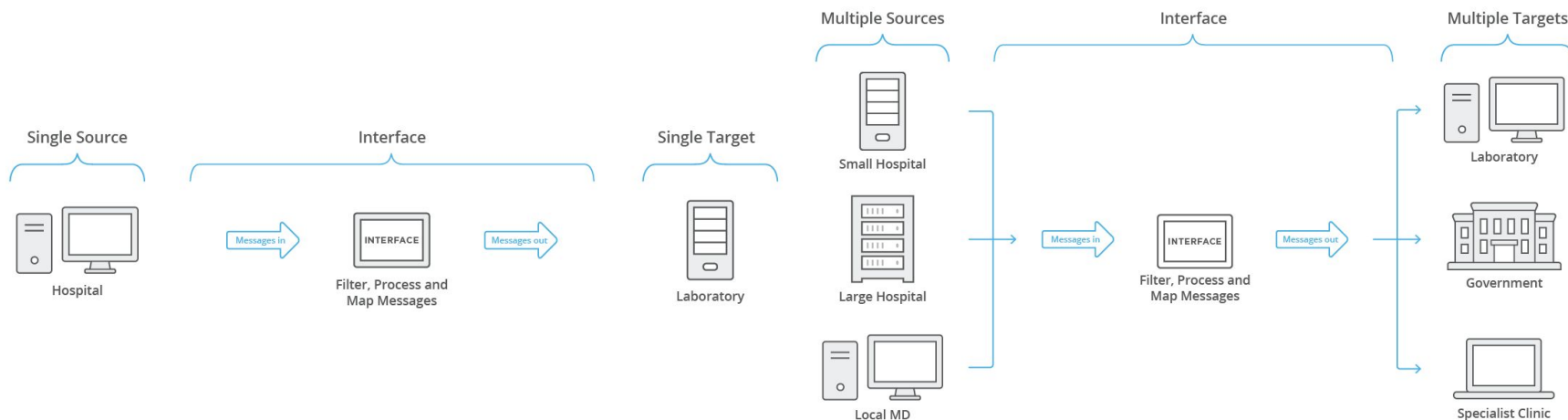


What does an Interface do?

- Reads messages
- Filters messages
- Processes messages
- Maps messages
- Transmits messages



What types of Interfaces are there?



Simple Interface

Complex Interface

Where does Iguana fit in?

- Simplifies the process to make Interfaces
- Channels can be linked to create Interfaces
- Works with all types of source/destination protocols
- Interfaces ultimately automate workflows for you to streamline your data



Design Patterns in Iguana



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Design Patterns in Iguana

- Critical in developing interfaces
- Orchestrate Interface components into practical solutions
- Design patterns drastically reduce roll out time
- Existing re-applicable solution



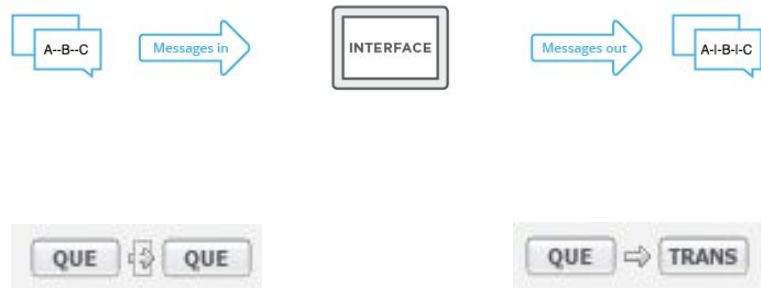
Design Patterns in Iguana

- Canonical Data Model
- Message Enrichment
- One to Many
- Many to One



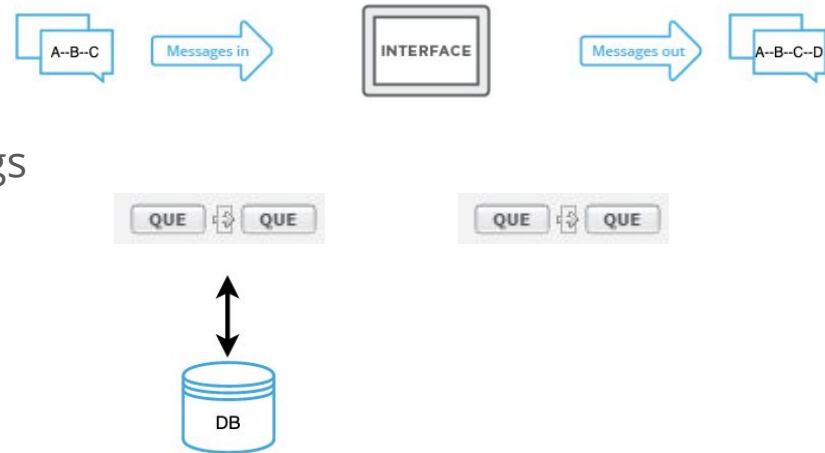
Canonical Data Model (CDM)

- Data model superset
- Centralized message exchange medium
- Can be simple or complex
- E.g. mapping scripts, database insertions, and conditional filters



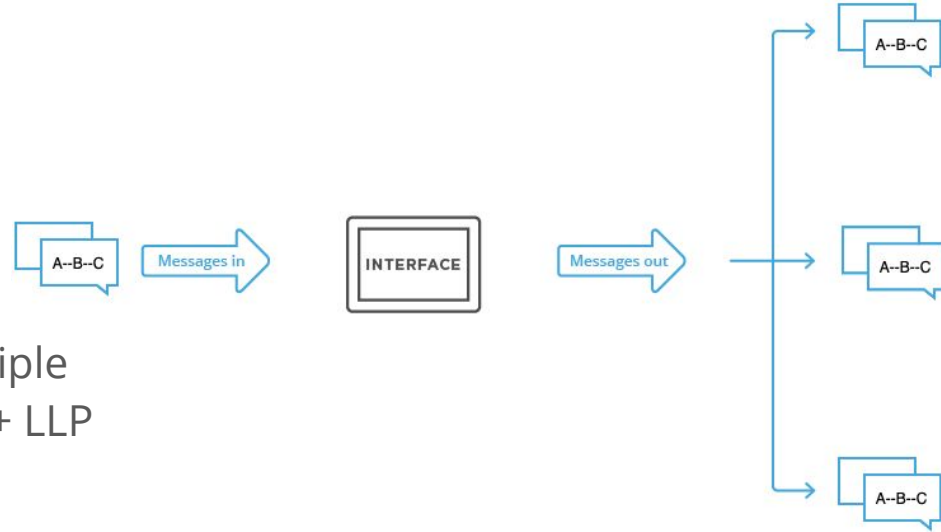
Message Enrichment

- New data is added to the message
- Can be simple or complex
- May be multiple levels of enrichment
- E.g. database lookups, translator mappings



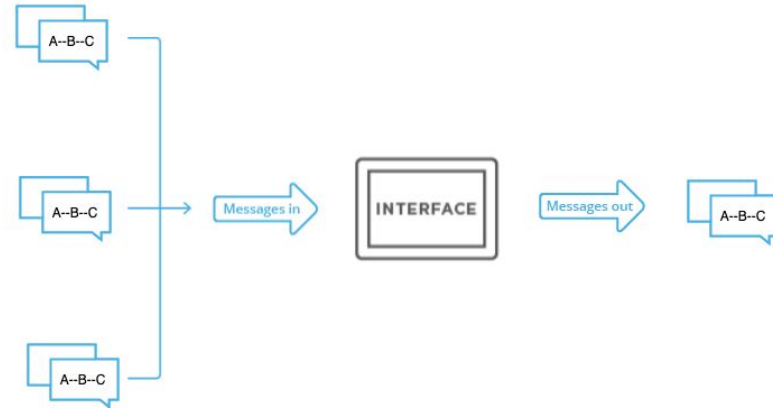
One to Many (OTM)

- Complex System
- Routes data to many endpoints
- Can be routed omnidirectionally, or dynamically
- E.g. 1 channel queue routed to multiple channel queues, or via LLP module + LLP listener



Many to One (MTO)

- Complex System
- Routes multiple inbound to one outbound
- Can be Asynchronous or Synchronous
- E.g. setting destination queues of many channels to on source queue
- SQLite db can be used to pool message data



Storing and Recalling Configurations in Iguana



Storing and Calling Configurations in Iguana?

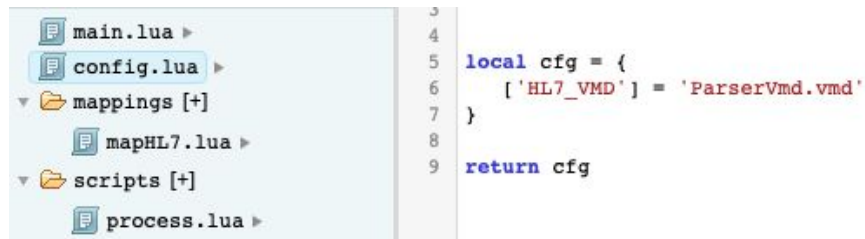
- Makes code more dry/template ready
- Minimizes environmental code changes
- Reduces deployment and maintenance effort

Types of Configuration Stores

- Configuration script
 - Internal (Lua)
 - External (JSON, API)
- Environment Variables
- Stores vary by environment (Dev, Test, Prod)

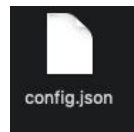
Lua Configuration Script (Internal)

- Contains input parameters needed for translator scripts to operate
- Parameters usually vary between environments
- E.g. config.lua (shared or local)
- Data saved here will be accessible via source control



External Configuration Script

- Contains operational input parameters
- Parameters usually vary between environments
- E.g. config.json (shared or local)
- Data is outside of source control



```
config.json  siteConfig.lua
1  {
2      "config":{
3          "HL7_VMD":{
4              "Name":"ParserVMD",
5              "location":"/opt/vmd/HL7.VMD"
6          }
7      }
8  }
```

Environment Variables

- Stores channel and system variables
- Local to one Iguana instance
- Accessible by all channels
- E.g. `os.getenv('varname')`

Settings > Environment Variables

NAME	VALUE	ACTION
local-variable-can-be-deleted	Click the red [x] to permanently delete this local environment variable	
LOGNAME	julianmuir	
PATH	/usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin:/opt/X11/bin:/usr/local/git/bin/	
PATH_extended	/usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin:/opt/X11/bin:/usr/local/git/bin/ add-a-directory	
PATH_original	/usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin:/opt/X11/bin:/usr/local/git/bin/	
PWD	/Applications/INTERFACEWARE-iguana	
SECURITYSESSIONID	186a6	
SHELL	/bin/bash	

Control Panel

[Add Variable](#)

Show All

Page Help

OVERVIEW

From this page, you can view, add, edit and delete the environment variables defined for this Iguana server.

Any changes made on this screen only affect this Iguana server. Other processes are not affected. Changes that you make can be viewed in the configuration file `/Applications/INTERFACEWARE-Iguana/IguanaEnv.txt`.

HELP LINKS

[Environment variables](#)

Configuration Best Practices

- Use configuration methods in tandem
- Initialize variables before the main function block
- Copy/pasting often => consider adding variable to configuration

Securing Credentials at Rest with Iguana



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The States of Data

- Data exists in usually one of these forms:
 - At Rest
 - In Transit
 - In Action
- Data at rest is subject to risk if it is not protected or encrypted properly

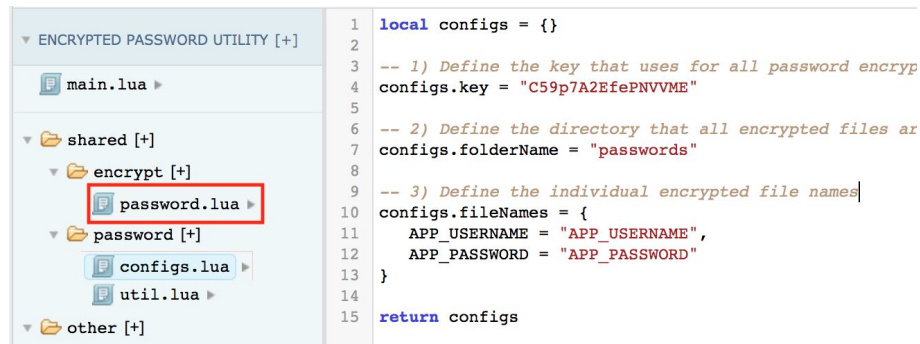
Credential safety in Iguana

- Credentials are vital to administering data
- Improper securement may cause security risks
- Company policy may require credentials to adhere to encryption standards



password.lua -- Secure Credentials at Rest

- INTERFACEWARE built module
- Stops credentials from going into GIT source control (e.g. commit history)
- Credentials are encrypted at rest
- Data only ever decrypted at runtime



Sample Interface Walkthrough

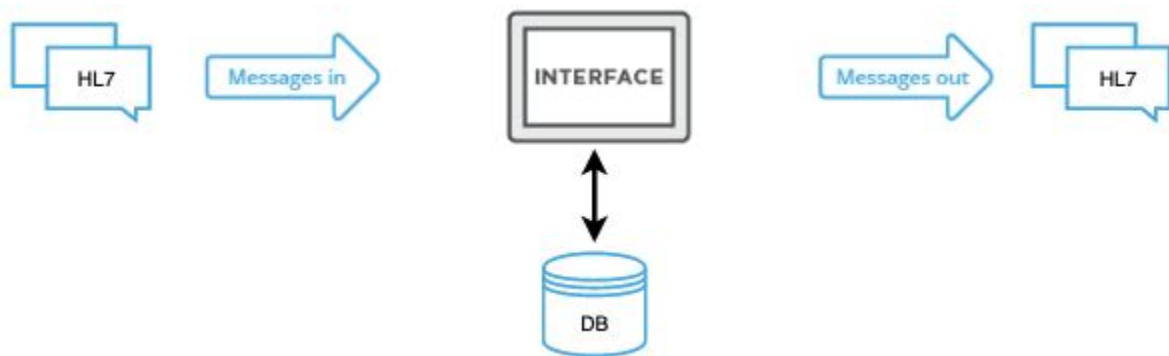


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Walk-through: Unknown Interface Analysis

- Utilizes HL7 Messages
- Has a SQLite database
- Has both upstream and downstream endpoints



Walk-through: Success Criteria

- Identify the type of interface
- Identify which of the 3 Configuration stores mentioned is being used
- Encrypt important credentials

Walk-through: Summary

- Interface type:
 - Complex Interface
 - Message Enrichment
 - Dynamic One to Many routing
- Stored variables in config.lua script and Environment Variables
- Encrypted important credentials using password.lua

Anticipated Questions



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What is the latest/greatest version of the password.lua module?

- The latest is the one you import from the **Encrypt Password in File** channel from the **Built-In: Iguana Files** repository
- Has not been changed much in the past few years
- Reference: <https://help.interfaceware.com/v6/encrypt-password-in-file>

Do external Lua variables persist between poll time executions?

- External Lua variables persist between poll time executions when referenced **before** the main function block
- Comprehensive resource on variable initialization:
 - How Iguana processes the main.lua:
<https://help.interfaceware.com/v6/how-iguana-processes-main-module>

How can you cache repeated database interactions?

- You can cache database interactions by utilizing our **database query caching** module
- Comprehensive resource on query caching:
 - <https://help.interfaceware.com/v6/database-query-caching>

How do I access a variable from an external configuration?

- You can use the **io.open()** API and related **io** API's to handle external file interactions
- Comprehensive resources on external files:
 - https://help.interfaceware.com/api/#io_open
 - <https://help.interfaceware.com/v6/load-and-save-a-file?v=6.0>

Open Q & A



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Have More Questions?

Don't Hesitate to Ask Questions

Email us your questions:

marketing@Interfaceware.com

Fill out our Captera Survey:

<http://interfaceware.com/survey>

Thank You!

References

1. <https://help.interfaceware.com/v6/interface-concepts>
2. <https://help.interfaceware.com/v6/developing-interfaces>
3. <https://help.interfaceware.com/v6/introduction-to-channels>
4. <https://help.interfaceware.com/v6/mapping-hl7-to-hl7>
5. <https://help.interfaceware.com/v6/from-channel-source-component-features>
6. <https://help.interfaceware.com/v6/configuration-management>
7. <https://help.interfaceware.com/v6/environment-variables#admin>
8. <https://help.interfaceware.com/v6/load-data-from-iguana-environment-variable>
9. https://help.interfaceware.com/api/#os_getenv
10. <https://help.interfaceware.com/v6/encrypt-password-in-file>
11. <https://help.interfaceware.com/v6/encrypted-password-utility>
12. <https://help.interfaceware.com/v6/how-iguana-processes-main-module>