WEBINAR: "DID YOU KNOW" SERIES - Part 2

Interface Development: Solutions & Workflows

Doing more with Iguana

iguana

Agenda

01. Modules and Templates

- Why we use them
- How we use them
- Benefits

02. EMR Integrations

- Why EMR integrations
- Pre-built VMDs
- Template EMR Adapters

03. Non-Clinical Applications

- Why non-clinical applications
- API adapters

04. Cloud Service Integrations

- Deploying Iguana in the cloud
- Integrating with cloud services

01.

Modules & Templates

Why pre-built templates?

INTERFACEWARE

Why pre-built templates?

- Multiple complex interfaces

INTERFACEWARE

Why pre-built templates?

- Multiple complex interfaces
- Tight deadlines

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Why pre-built templates?

- Multiple complex interfaces
- Tight deadlines
- Interface migration across integration engines

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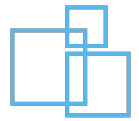
Did You Know?

There are different ways to use our templates



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Did You Know?

There are different ways to use our templates

1. Template Iguana instance

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Did You Know?

There are different ways to use our templates

1. Template Iguana instance
2. Template channel

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Did You Know?

There are different ways to use our templates

1. Template Iguana instance
2. Template channel
3. Pre-built module

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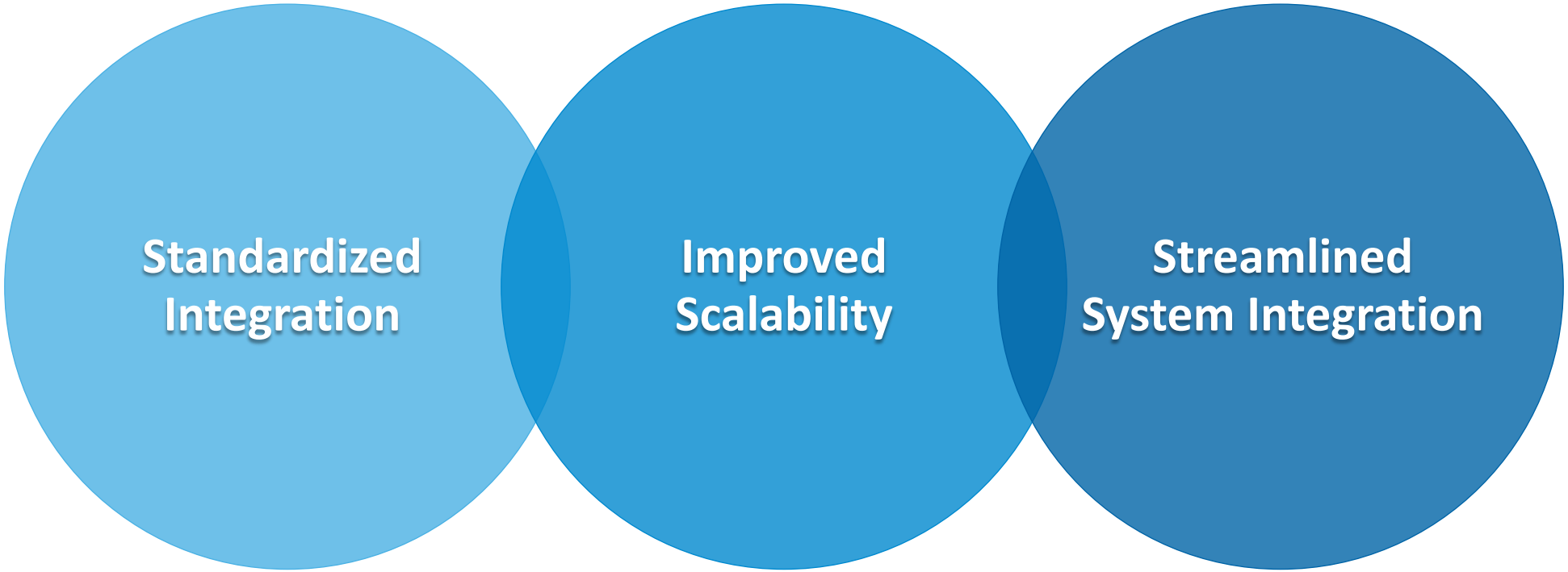
Pre-built Template Benefits



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Poll #1

How many of you present are currently using Iguana's Pre-Built Templates?

02.

EMR Integrations

Did You Know?

We have pre-built VMDs for many popular EMRs

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Did You Know?

We have pre-built VMDs for many popular EMRs

Supported Vendors' VMDs

Vendor	Message Types	HL7 Messages	HL7 Versions

EPIC	ADT	• ADT
		  ◦ A01 - A18
		  ◦ A20 - A31
		  ◦ A34
		  ◦ A35
		  ◦ A37 - A41
		  ◦ A47
		  ◦ A49
		  ◦ A52 - A53
		  ◦ A60
		• BAR^P01
		• DFT^P03
			2.4

EPIC	ORU	ORU^R01	2.3
EPIC	ORM	ORM^O01	2.3
Allscripts	MDM	MDM^T02	2.3
AthenaHealth	ADT	ADT^A08	2.3.1
AthenaHealth	PPR	PPR^PC1	2.3.1
AthenaHealth	ORM	ORM^O01	2.3.1
AthenaHealth	ORU	ORU^R01	2.3.1
AthenaHealth	VXU	VXU^V04	2.3.1
AthenaHealth	MDM	MDM^T02	2.3.1
eClinicWorks	ORM	ORM^O01	2.3
eClinicWorks	ORU	ORU^R01	2.3

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Allscripts®

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eClinicalWorks

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Did You Know?

It’s easy to build your own pre-built VMDs

HL7 Version

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Did You Know?

It’s easy to build your own pre-built VMDs

- HL7 Version
- EMR System

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Did You Know?

It’s easy to build your own pre-built VMDs

- HL7 Version
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Did You Know?

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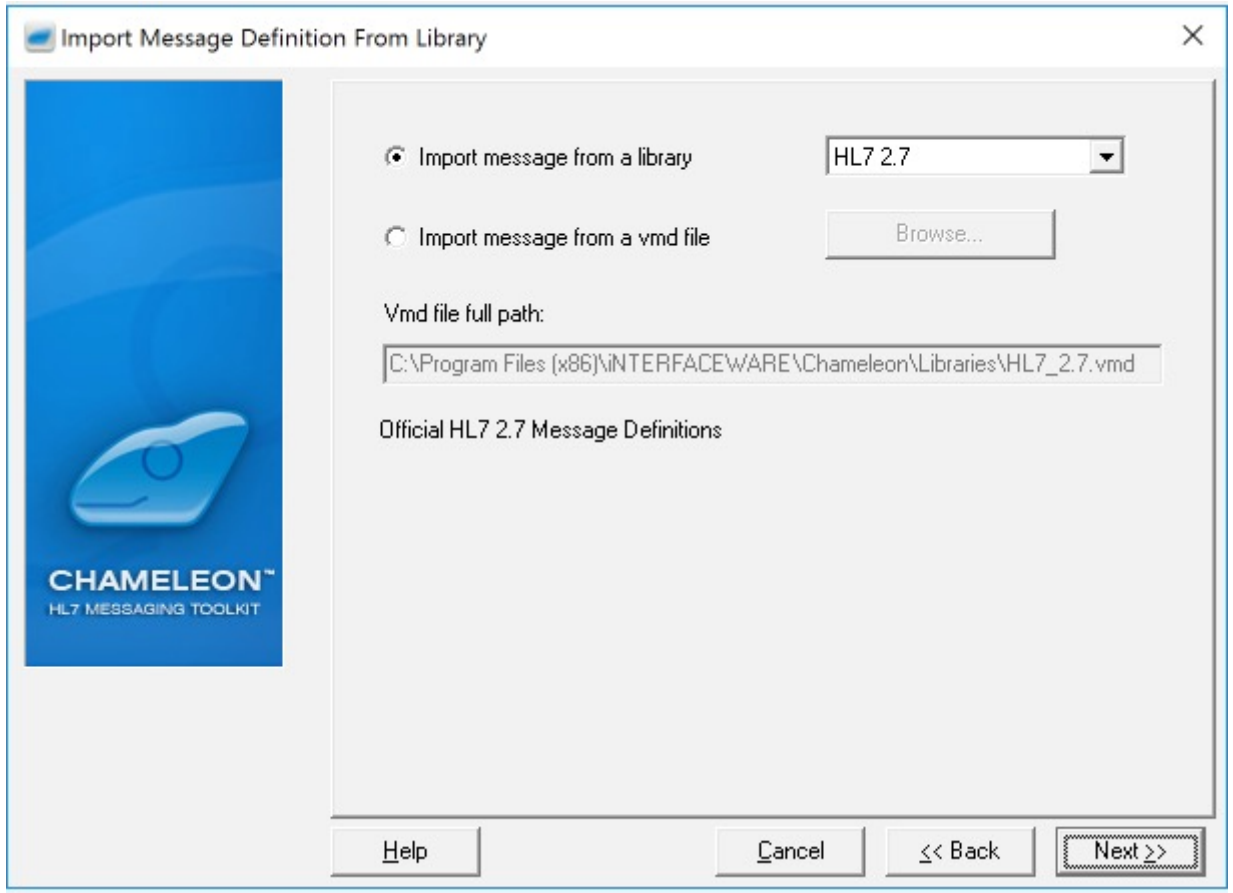

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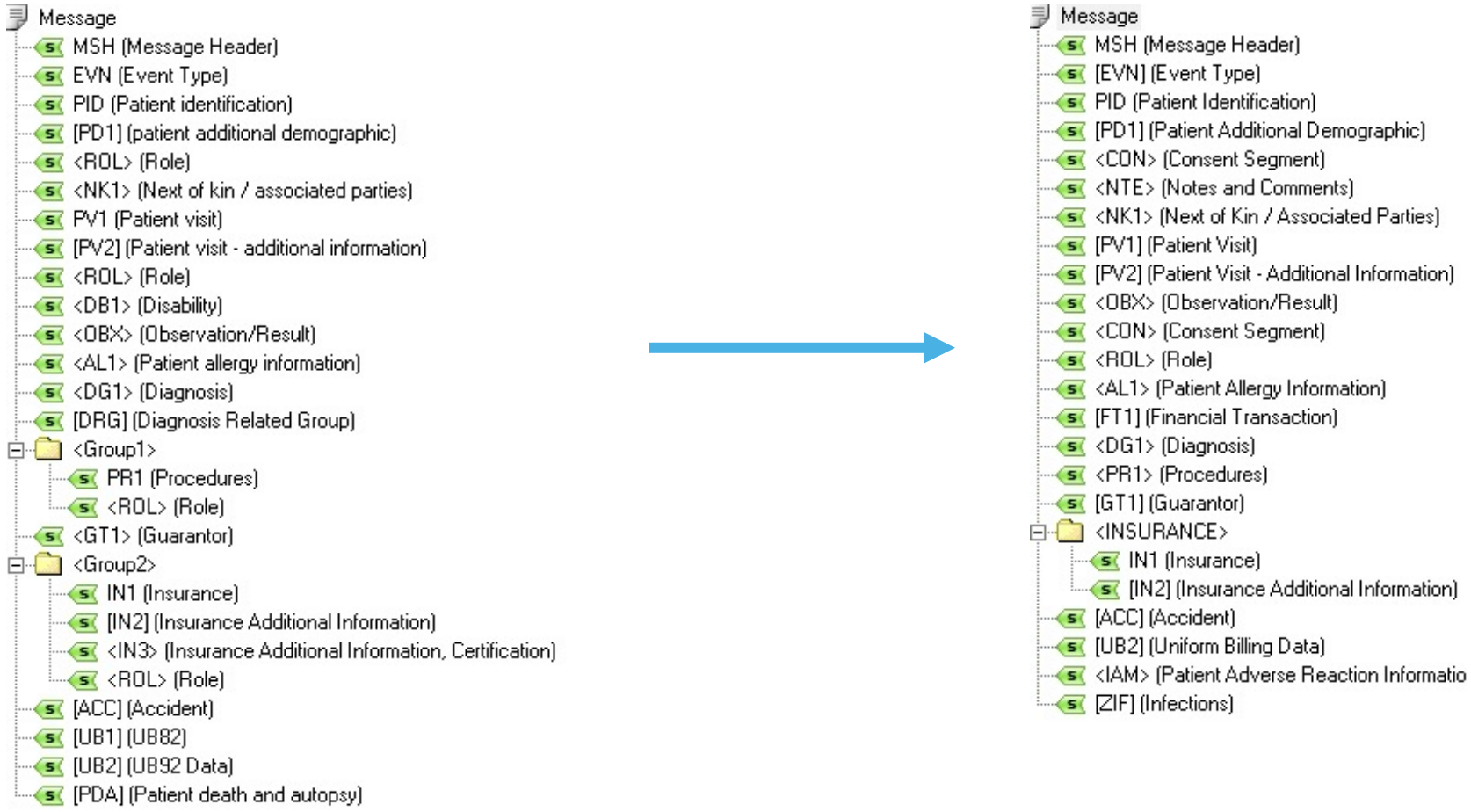

VMD-imported (standard)

Epic VMD (customized)

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Did You Know?

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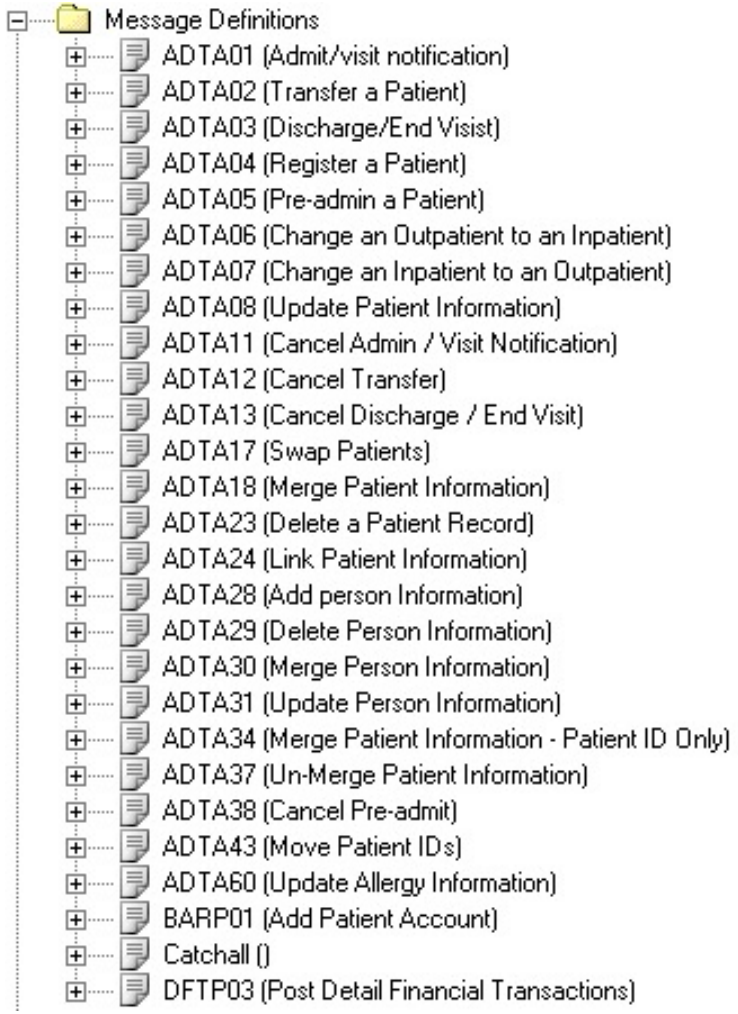

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Did You Know?

We have pre-built adapters for common EMR workflows

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Generate code mapping stubcode for:

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Generate code mapping stubcode for:

1. Code types for a given version

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Generate code mapping stubcode for:

1. Code types for a given version

```
local hl7v = "2.5"
local isCodeSet = true
local codeNames = {
   "Administrative Sex",
   "Segment action code"
}
```

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Did You Know?

We have pre-built adapters for common EMR workflows

Generate code mapping stubcode for:

1. Code types for a given version

```
local hl7v = "2.5"
local isCodeSet = true
local codeNames = {
    "Administrative Sex",
    "Segment action code"
}
```

local code =...

```
local code = [[{
    "segment action code": {
        "A": "A",
        "D": "D",
        "U": "U"
    },
    "administrative sex": {
        "A": "A",
        "F": "F",
        "U": "U",
        "M": "M",
        "O": "O",
        "N": "N"
    }
}]]
return json.parse{data=code}
```

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Did You Know?

We have pre-built adapters for common EMR workflows

Generate code mapping stubcode for:

1. Code types for a given version
2. Code types from one version to another

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Did You Know?

We have pre-built adapters for common EMR workflows

Generate code mapping stubcode for:

1. Code types for a given version
2. Code types from one version to another

```
local sourceHL7v = "2.5.1"
local destHL7v = "2.3"
-- Create a list of CodeNames:
-- {"SOURCE_NAME", "DESTINATION_NAME", "DEFAULT_CODE_VALUE"},
local codeNames = {
   {"Administrative Sex", "Sex", "U"},
   {"Segment action code", "Segment action code", ""}
}
```

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Did You Know?

We have pre-built adapters for common EMR workflows

☐	TRANS ⇨ QUE	EMR Adapter 2-HL7 CodeMap Util
☐	QUE ⇨ QUE	EMR Adapter 2-HL7 Mapping
☐	QUE ⇨ TRANS	EMR Adapter 3-HL7 to Database

Generate code mapping stubcode for:

1. Code types for a given version
2. Code types from one version to another

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local sourceHL7v = "2.5.1"
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local code =…

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      "A": "A",
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      "N": "U"
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return json.parse{data=code}
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Did You Know?

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Pre-built EMR Adapter Benefits

- Standardized Integrations
- Improved Scalability

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Poll #2

What do you think is the biggest benefit of a Pre-Built EMR Adapter?

03.

Non-Clinical Applications

Did You Know?

We have several pre-built API adapters

Did You Know?

We have several pre-built API adapters

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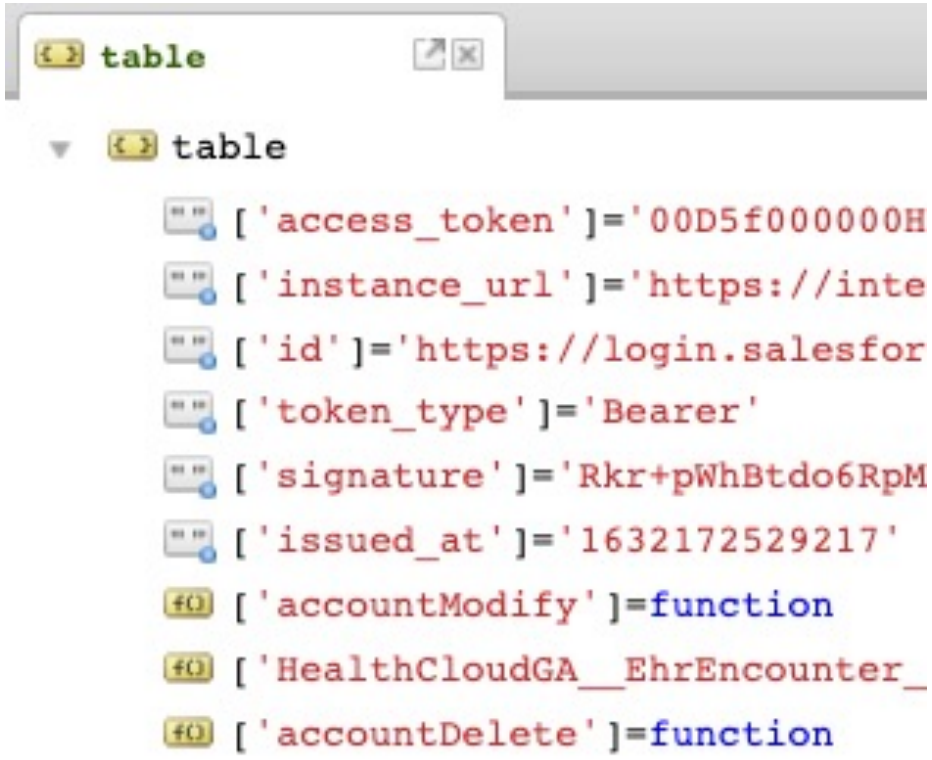
Did You Know?

It’s easy to build your own API adapter

Did You Know?

It’s easy to build your own API adapter

```
-- Create Salesforce connection object
local sfAPI = salesforce()
```



Did You Know?

It’s easy to build your own API adapter

1. API Documentation

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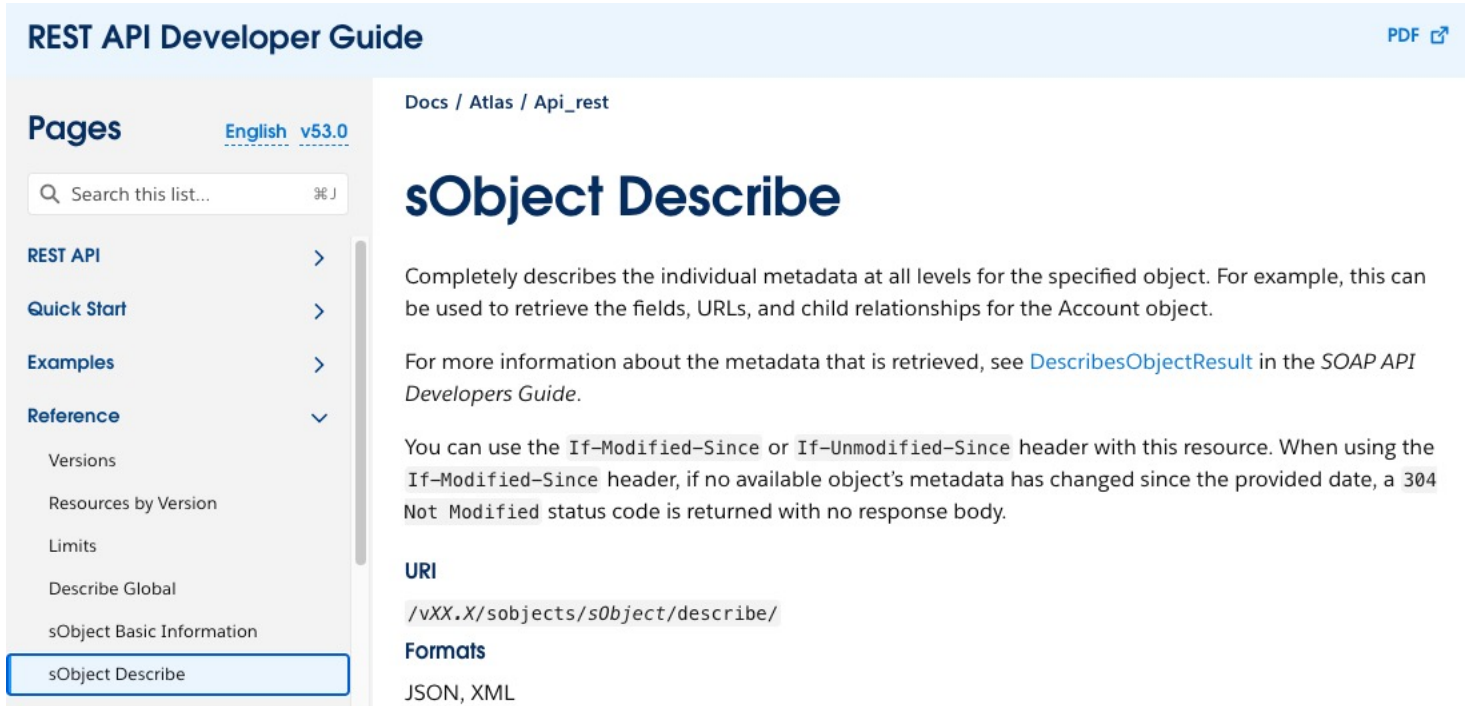

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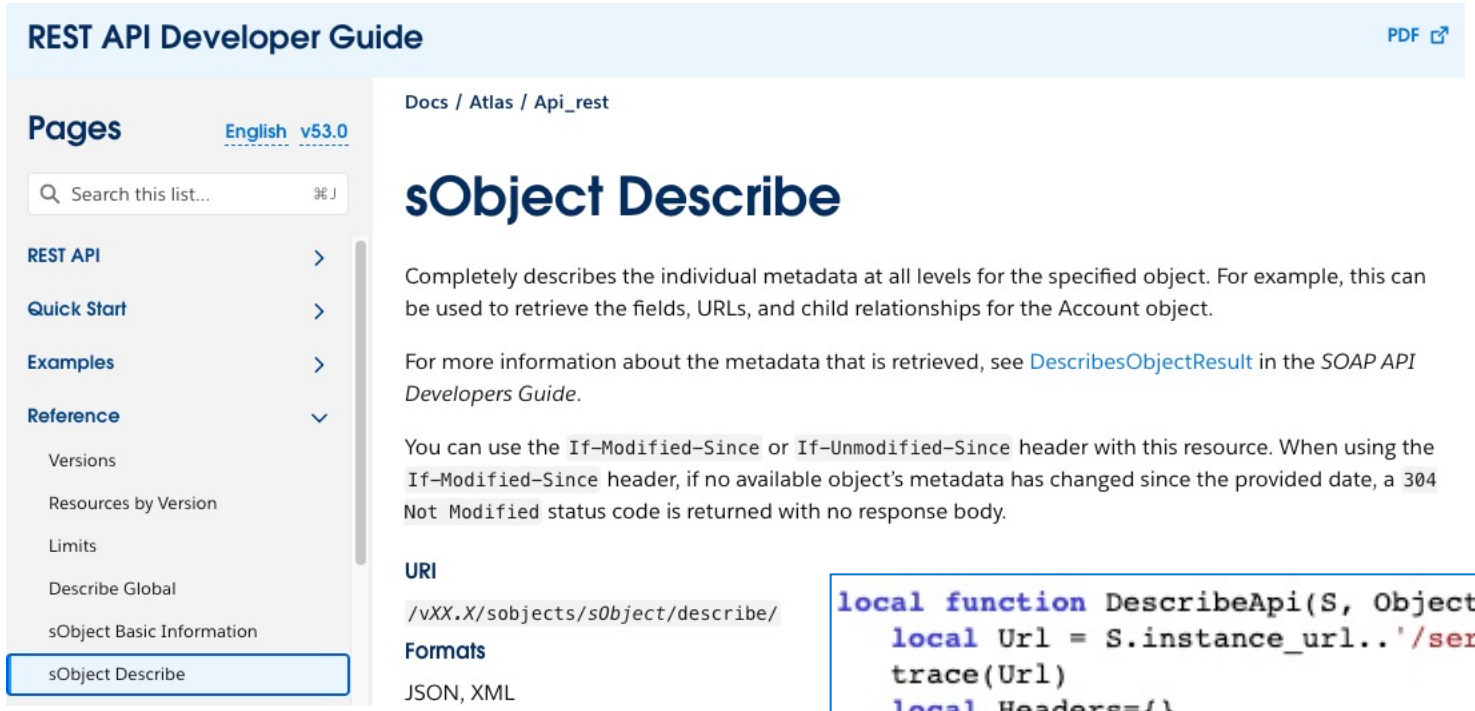
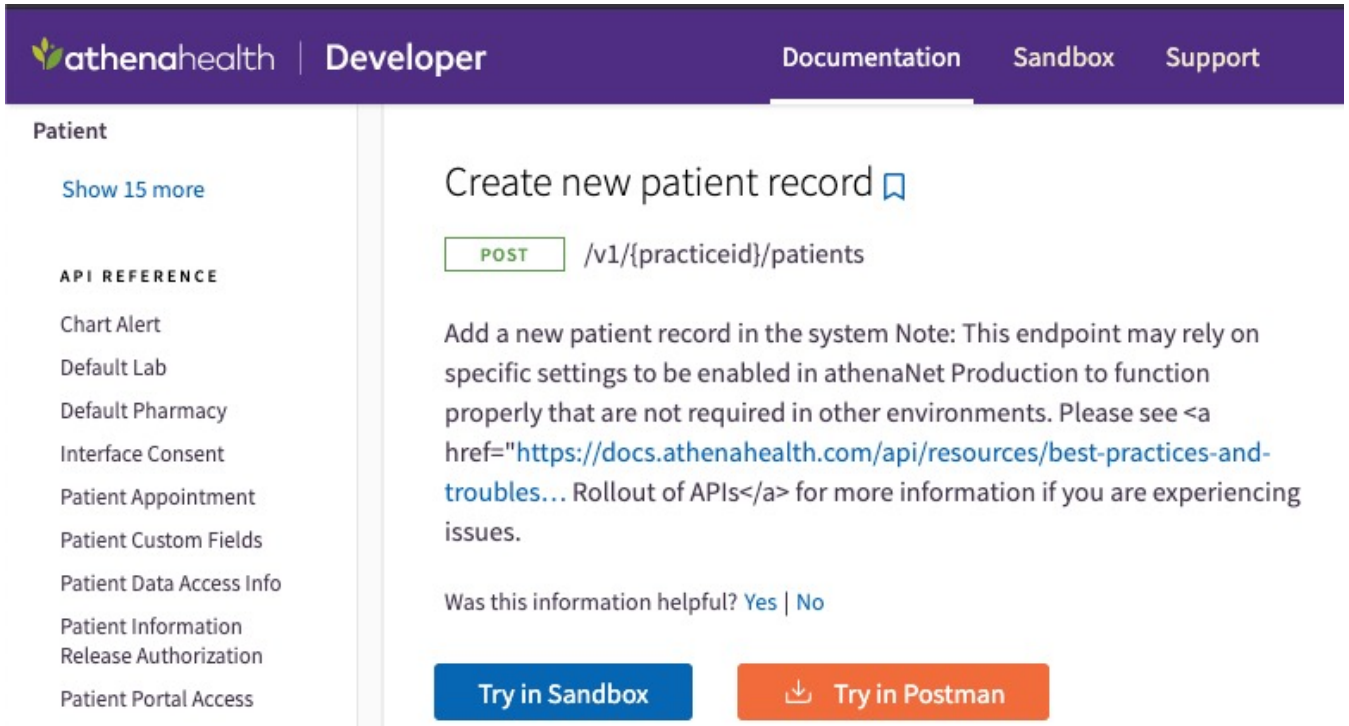



```
local function DescribeApi(S, Object)
   local Url = S.instance_url..'/services/data/v52.0/sobjects/'..Object..'/describe/'
   trace(Url)
   local Headers={}
   Headers['Content-Type']='application/json'
   Headers.Authorization ="Bearer ".. S.access_token
   local R = net.http.get{headers=Headers, live=true, url=Url, parameters={}}
   return json.parse{data=R}
end
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation



Did You Know?

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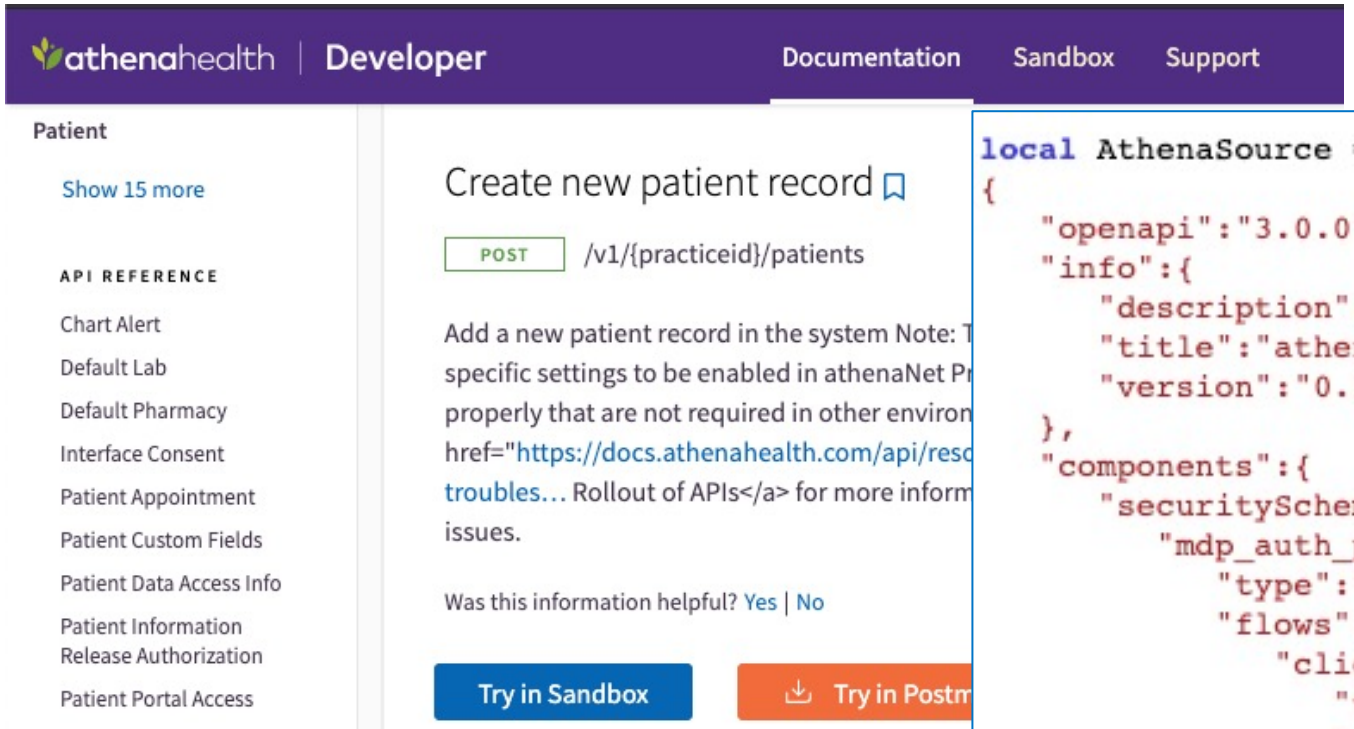


```
local AthenaSource = [[
{
   "openapi":"3.0.0",
   "info":{
      "description":"Welcome to the More Disruption Please (MDP) API d
      "title":"athena API collection",
      "version":"0.1"
   },
   "components":{
      "securitySchemes":{
         "mdp_auth_preview":{
            "type":"oauth2",
            "flows":{
               "clientCredentials":{
                  "tokenUrl":"https:\/\/api.preview.platform.athenahea
                  "scopes":{
                     "athena\/service\/Athenanet.MDP.*":"MDP Preview"
                  }
               }
            }
         },
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation

Did You Know?

It’s easy to build your own API adapter

1. API Documentation

```lua
local salesforce = require 'salesforce.api'
local dateparse = require 'interfaceware.dateparse'
local map = require 'patientMappings'
local isLive = true

-- Create Salesforce connection object
local sfAPI = salesforce()

-- Owner id
local ownerId = '0055f000002DQ6CAAW'

function main(Data)
   -- (1) Parse HL7 message
   local inMsg,Name = hl7.parse{data=Data,vmd='demo.vmd'}
   if Name == 'ADT' then
      -- (2) Retrive patient details
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation

```
help.
```

```
example (function) Returns an example of a table that is compatible with
get (function) Get the help data for a function.
reset (function) Clears all custom help data, and loads the default help.
set (function) Sets the help data used for interactive help.
toHtml (function) Renders the given help data as HTML.
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

```
local function api()

   local ConsumerKey    = config.load{config="salesforce_consumer_key"    , key=StoreKey}
   local Password       = config.load{config="salesforce_password"        , key=StoreKey}
   local ConsumerSecret = config.load{config="salesforce_consumer_secret", key=StoreKey}
   local UserName       = config.load{config="salesforce_username"        , key=StoreKey}

   local C = SalesforceConnect{username=UserName, objects=SalesObjects,
      password=Password, consumer_key=ConsumerKey,  consumer_secret=ConsumerSecret}

   return C

end
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Retrieve token over HTTP

```
local function GetAccessTokenViaHTTP(CacheKey,T)
   local Url = 'https://login.salesforce.com/services/oauth2/token'
   local Auth = {grant_type = 'password',
      client_id = T.consumer_key,
      client_secret = T.consumer_secret,
      username = T.username,
      password = T.password}
   local J = net.http.post{url=Url,
      parameters = Auth,
      live=true}
   PutCache(CacheKey, J)
   local AccessInfo = json.parse(J)
   return AccessInfo
end
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Retrieve token over HTTP

Cache token

```
local function PutCache(Key, Value)
   Store:put(Key, Value)
   Store:put(Key.."T", os.ts.time())
end
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Retrieve token over HTTP

Cache token

Retrieve token

```
local function GetCache(Key, CacheTimeout)
   if (CacheTimeout == 0) then
      return nil
   end
   local CacheTime = Store:get(Key.."T")
   if (os.ts.difftime(os.ts.time(), CacheTime) < CacheTimeout) then
      local CachedData = Store:get(Key)
      local R = json.parse{data=CachedData}
      return R
   end
   return nil
end
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Store module

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Store module

Encrypted password module

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security

Store module

Encrypted password module

Crypto API

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security
3. Testing and Performance

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security
3. Testing and Performance

```
local function handleErrors(Response, Err, Header, Extras)
   iguana.logInfo(Response)
   if Err ~= 200 then -- For all responses other thsn 200 OK
       if Err == 401 then --Failed Authorization
         trace(token)
         local tempToken = GetAccessTokenViaHTTP('access_token',
                  password=Config.load{config='athena_secret', ke
         trace(tempToken)
         Extras.P.header.Authorization = "Bearer "..tempToken
         Response, E, Header = api[Extras.typeof](Extras.api, Ext
         if E ~= 200 then
            error('Failed to Authorize', 6)
         else
            return json.parse{data=Response}
         end
      end
      if Err == 404 then --incorrect/missing parameters
         trace(Response)
         return json.parse{data=Response}
      end
      if Err == 400 or Err == 403 then --Error in response
         local ResponseError = ''
         local Response = json.parse{data=Response}
         ResponseError = ResponseError..Response.error..'\n'
         for K, V in pairs(Response) do
            if(K ~= 'error') then
```

Did You Know?

It’s easy to build your own API adapter

1. API Documentation
2. Authentication and Security
3. Testing and Performance

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function main(Data)
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2. Authentication and Security
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local sfAPI = salesforce()

-- Owner id
local ownerId = '0055f000000EL1KAAW'

function main(Data)
   -- (1) Parse HL7 message

local SalesObjects= "user,account,HealthCloudGA__EhrEncounter__c"
```

Pre-built API Adapter Benefits

- Streamlined System Integration
- Improved Scalability

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04.

Cloud Service Integrations

Did You Know?

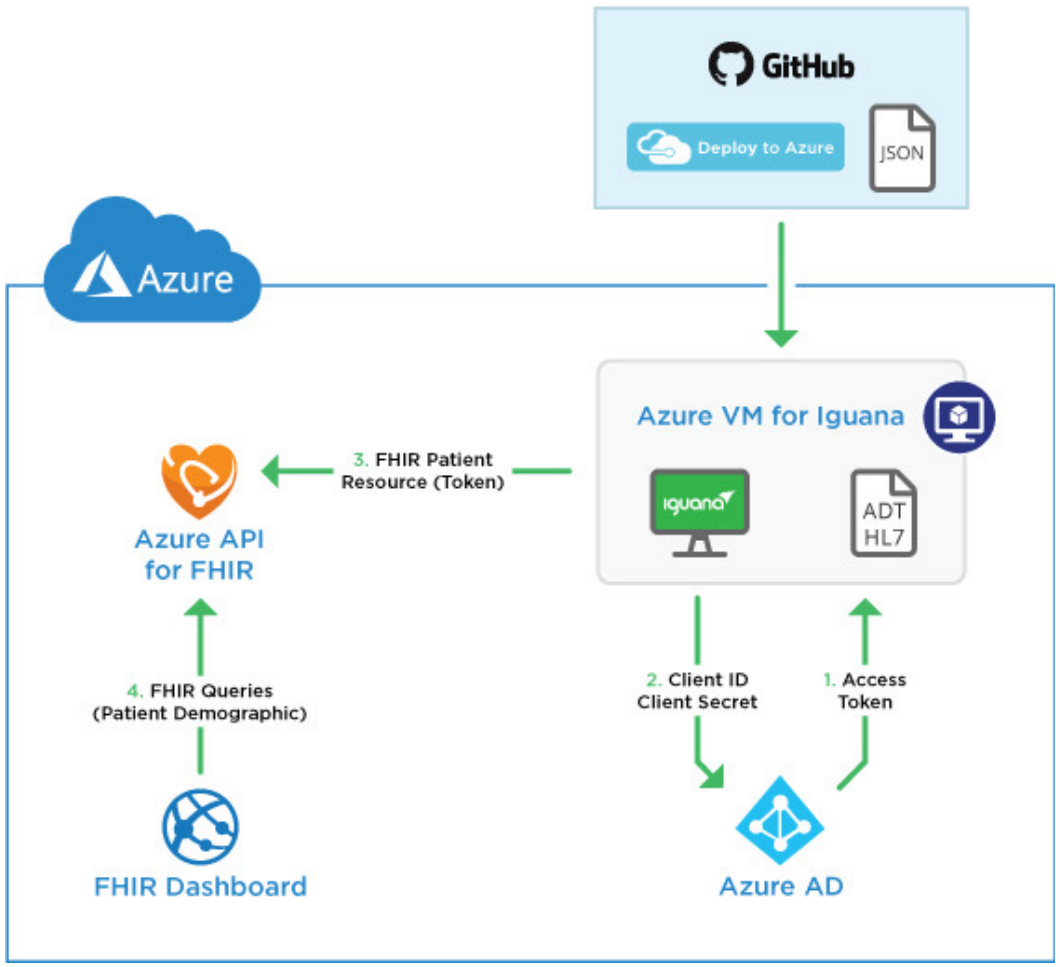
Cloud provisioning services can accelerate Iguana instance deployment

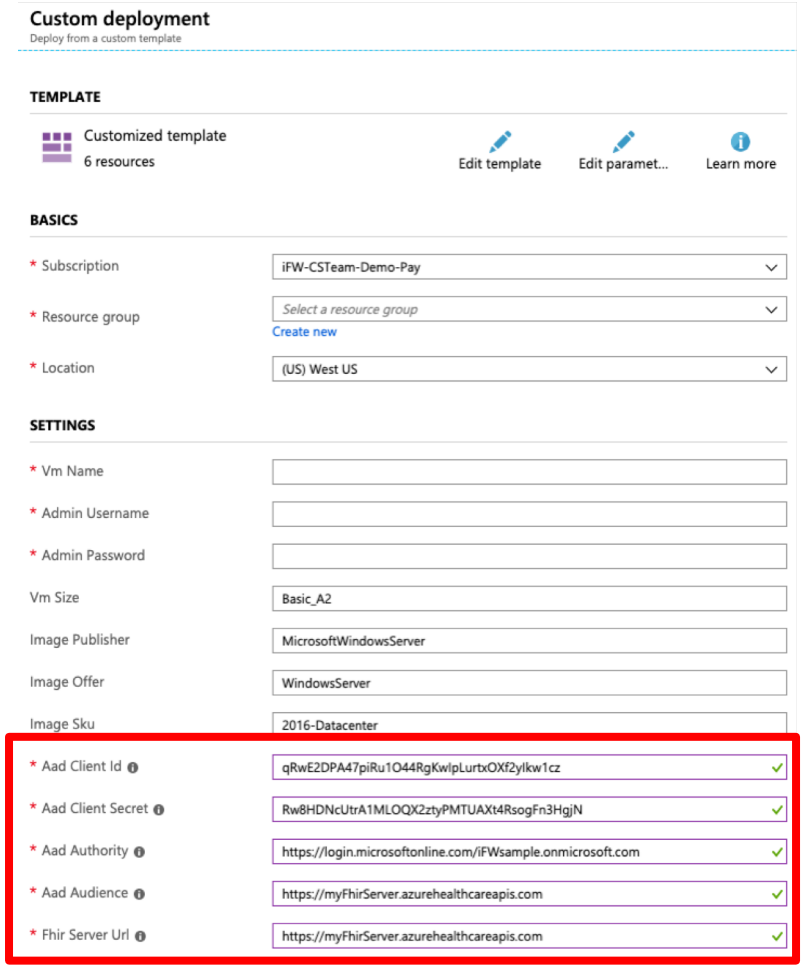
Poll #3

Are you currently using any cloud services with Iguana?

Did You Know?

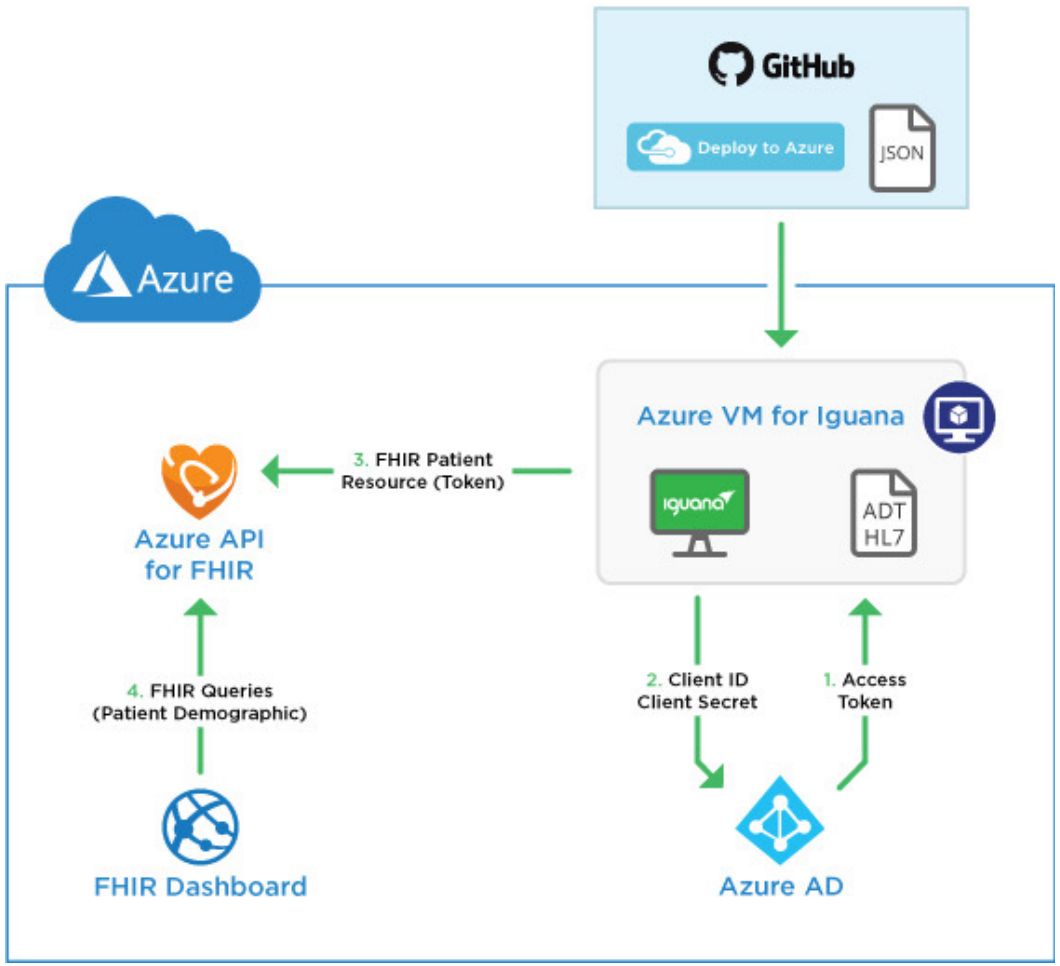
Cloud provisioning services can accelerate Iguana instance deployment





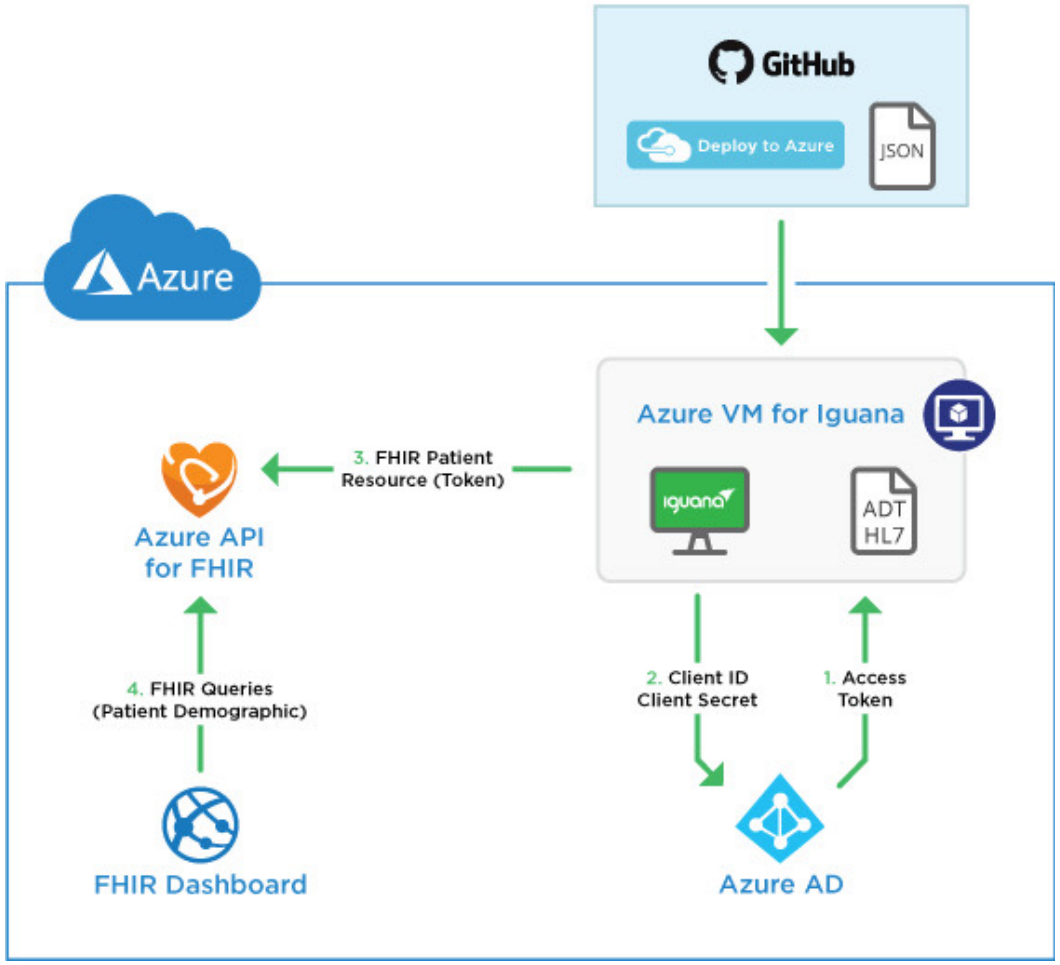
Did You Know?

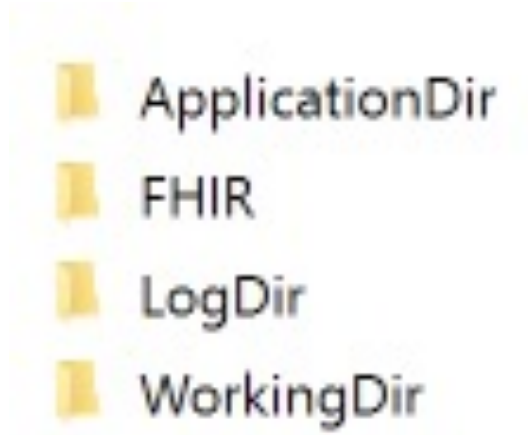
Cloud provisioning services can accelerate Iguana instance deployment



Did You Know?

Cloud provisioning services can accelerate Iguana instance deployment





	START/STOP		TYPE	CHANNEL NAME ▲	LAST ACTIVITY	ERRORS	QUEUED
☐	START	☐	TRANS ⇨ LLP	CHN 1: Random HL7 ADT Message	2019/06/22 16:45	--	0
☐	START	☐	FILE ⇨ QUE	CHN1: HL7 From File	--	--	--
☐	STOP	■	LLP ⇨ QUE	CHN2: Random HL7 ADT Receiver	2019/06/22 16:45	--	--
☐	STOP	■	QUE ⇨ QUE	CHN3: ADT To FHIR Mapper	2019/06/22 16:45	--	0
☐	STOP	■	QUE ⇨ TRANS	CHN4: FHIR Message to Server	2019/06/22 16:45	--	0
☐	START	☐	TRANS ⇨ QUE	CHN5: Clear FHIR Server	--	--	--

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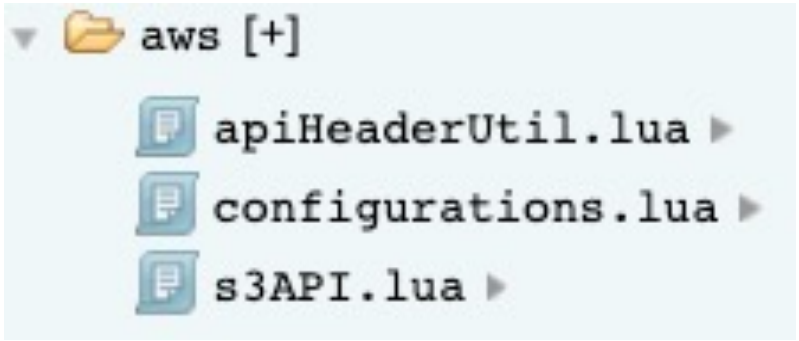


```
s3API
```

- f() **readFile** (function) This function loads a file from the configured AWS S3 bucket.
- f() **uploadFile** (function) This function uploads a file to the configured AWS S3 bucket.

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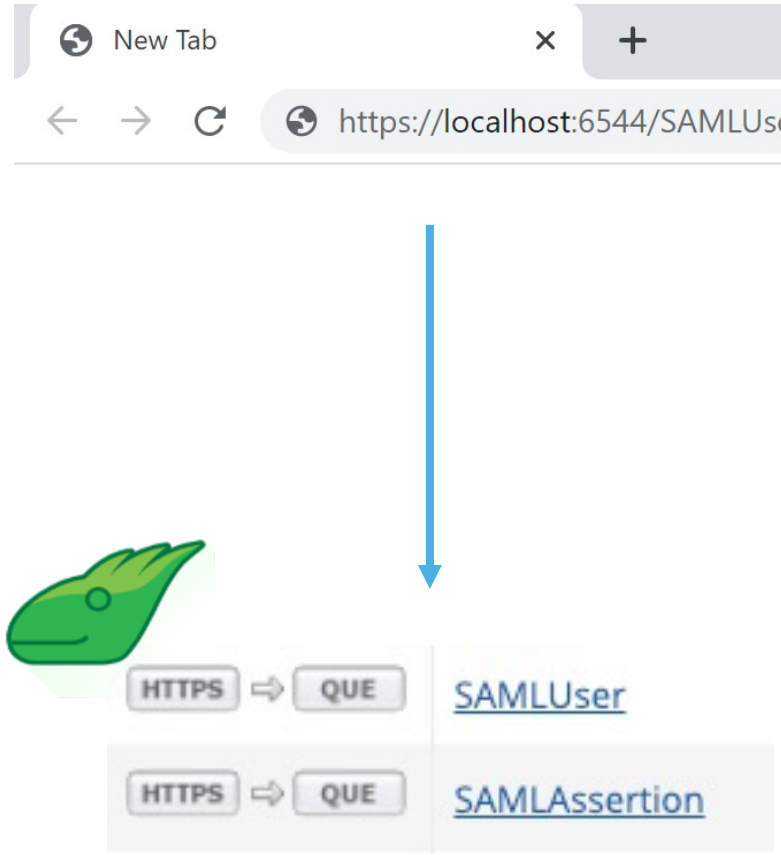

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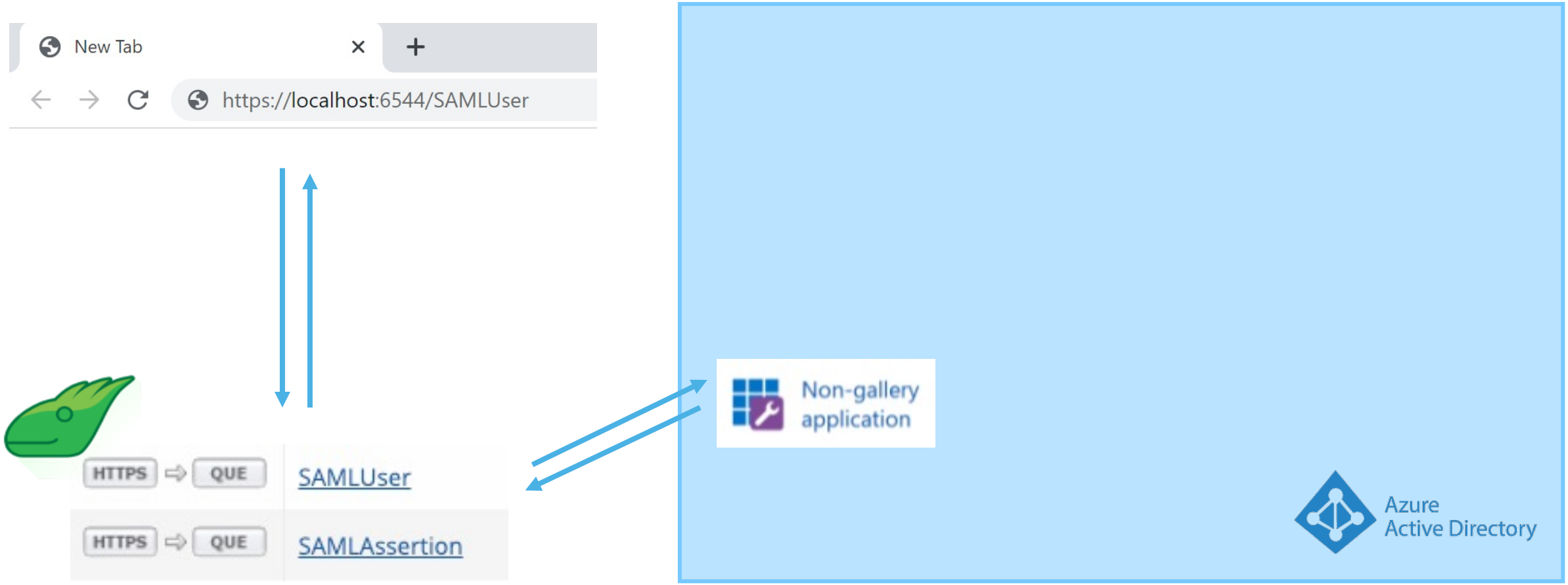

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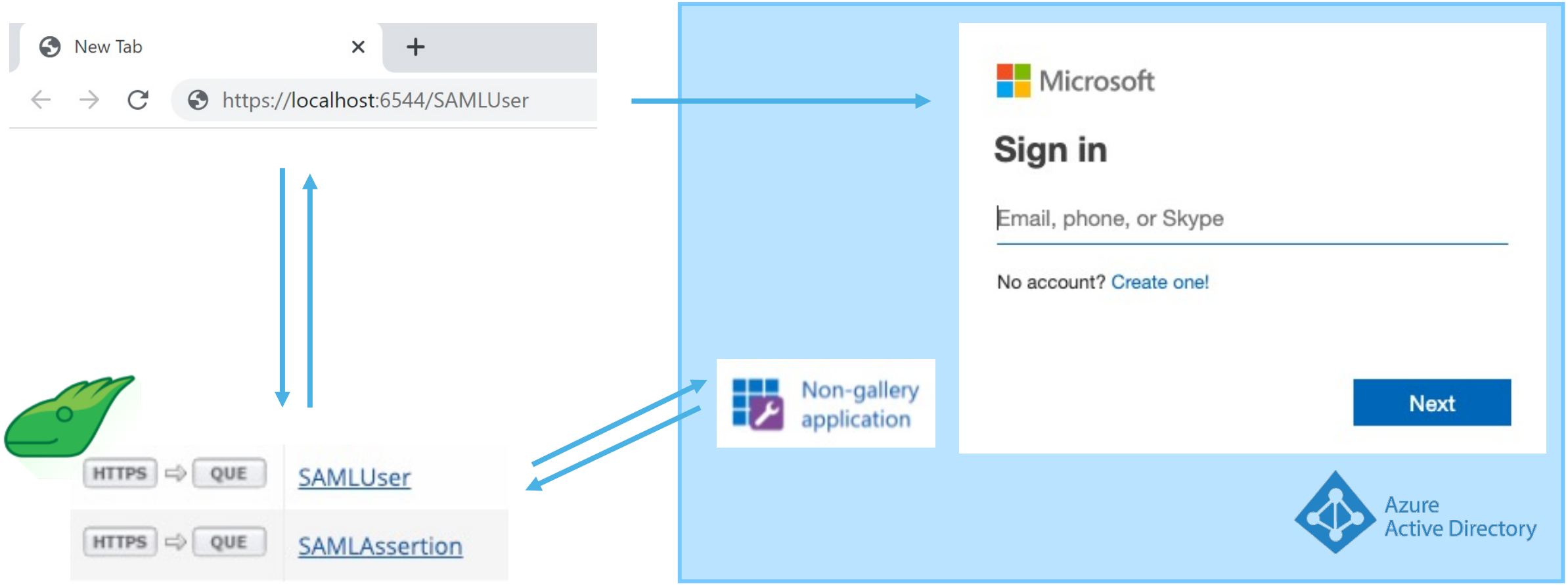

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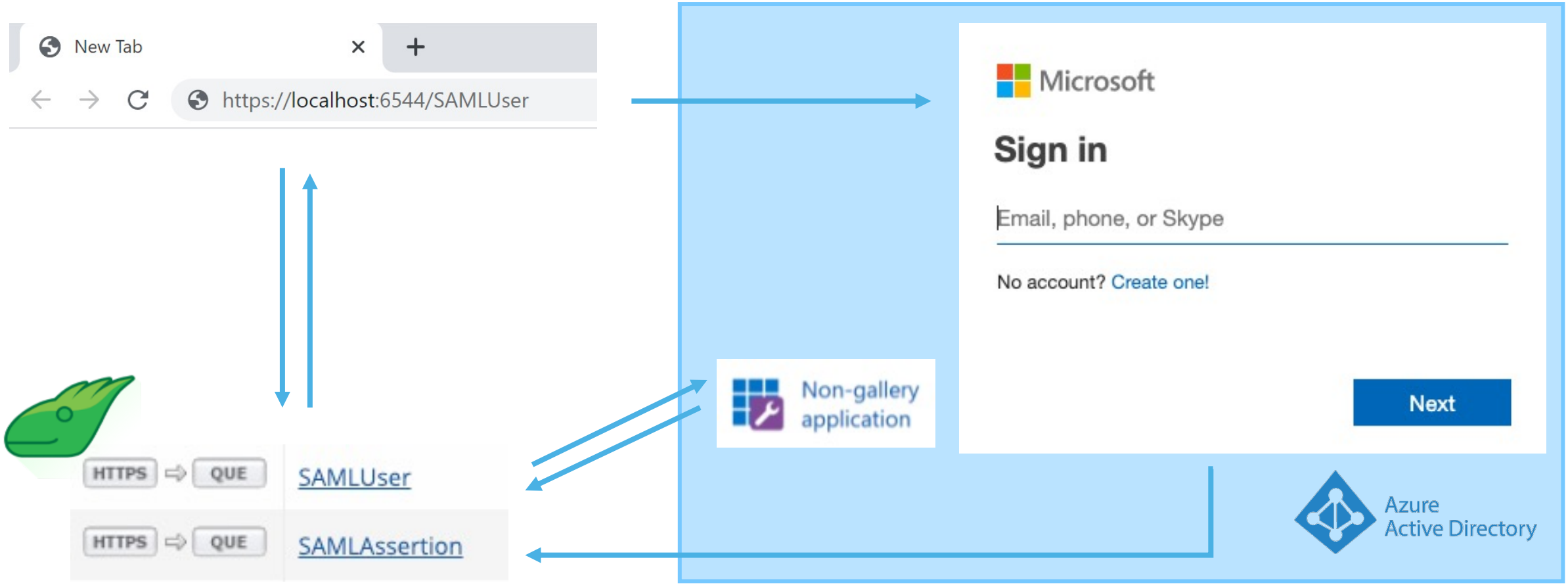

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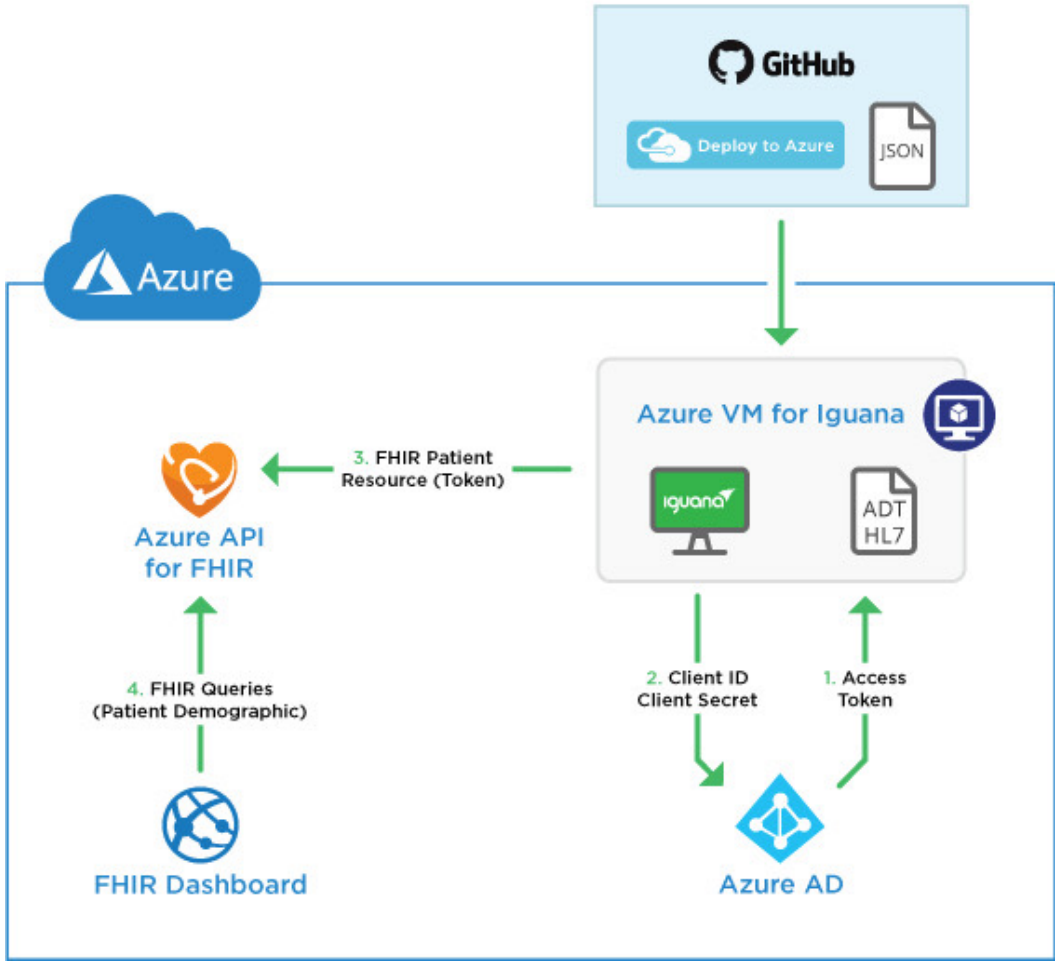

Cloud Service Pre-built Template Benefits

- Streamlined System Integration
- Improved Scalability

INTERFACEWARE

Conclusion

Thank You!

iNTERFACEWARE