Prepared for:

Centers for Medicare & Medicaid Services and The Office of the National Coordinator for Health Information Technology

CMS Alliance to Modernize Healthcare
Federally Funded Research and Development Center

An Open Source Electronic Clinical Quality Measure Testing and Certification Tool

Supporting the 2014 ONC Certification Edition with Cypress v3

Draft

Version 0.1

November 22, 2017

Record of Changes

Version	Date	Author / Owner	Description of Change
0.1	November 22, 2017	MITRE	Version 0.1

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1.   Introduction

Cypress v3.2 is the rigorous open source testing tool of Electronic Health Records (EHR) and EHR modules used in calculating electronic Clinical Quality Measures (eCQM). Cypress v3.2 is the official testing tool for the 2015 EHR Certification program supported by the Office of the National Coordinator for Health Information Technology (ONC). The 2015 Edition final rule, published by the ONC, updates the ONC Health Information Technology (IT) Certification Program and includes certification criteria to support repeatable electronic clinical quality measurement and reporting across the healthcare ecosystem. The 2015 Edition eCQM certification criteria also support the requirements of the Medicare and Medicaid EHR Incentive Programs and other Centers for Medicare & Medicaid Services (CMS) program requirements.

ONC and CMS developed the Cypress v3.2 User Guide for test proctors who test and certify EHR systems at Authorized Testing Labs (ATL). EHR software engineers, quality assurance engineers, and production release engineers may draw on the guide when they use Cypress in a pre-testing mode to understand how their EHR product will perform in an ATL-conducted operational test.

Cypress 2.6.1 is the only version available for use with the 2014 Certification Edition. By design, Cypress 2.6.1 only supports the eCQMs published in 2014 by CMS. Therefore, vendors looking to certify to the 2014 Certification Edition are required to implement eCQMs that are not currently in use. As an alternative, this document describes how Cypress v3 can be configured for testing with the 2014 Certification Edition.

The two most significant differences between the 2014 Certification Edition and the 2015 Certification Edition are:

1. The 2015 Edition requirement to perform patient deduplication
2. The 2015 Edition C2 (import and calculate) requirement for automated QRDA import

It is possible to work around these two differences to achieve a 2014 certification by temporarily changing the administrative settings for the Cypress instance. This document describes the steps required to change the administrative settings in Cypress.

2. Steps to Update Cypress Configuration to Turn Off Patient Duplication

This section presents the required ten steps to change the administrative settings in Cypress.

Step 1: Log in with a User Account with Administrative Privileges

- An administrator account will have a link to the **Admin** page in the banner in Figure 1.
- Click on the **Admin** link to go to the **Admin Page**.
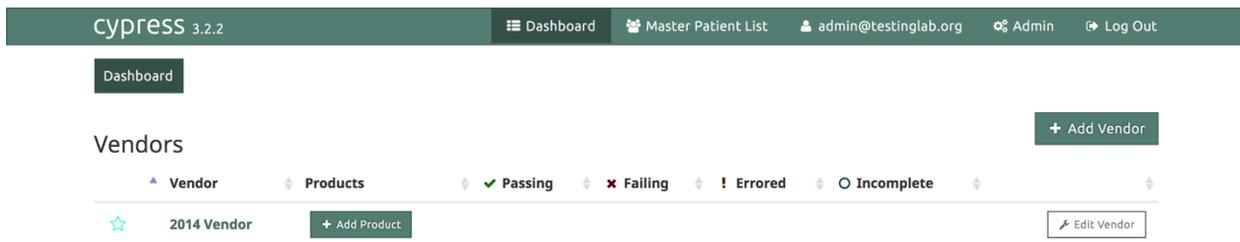
Figure 1. Screenshot of Vendor Dashboard

Step 2: Go to Admin Page

- By default, Cypress will be running in **ATL mode** as shown in Figure 2.
- Select **Edit Application Settings** to modify the Application Mode.
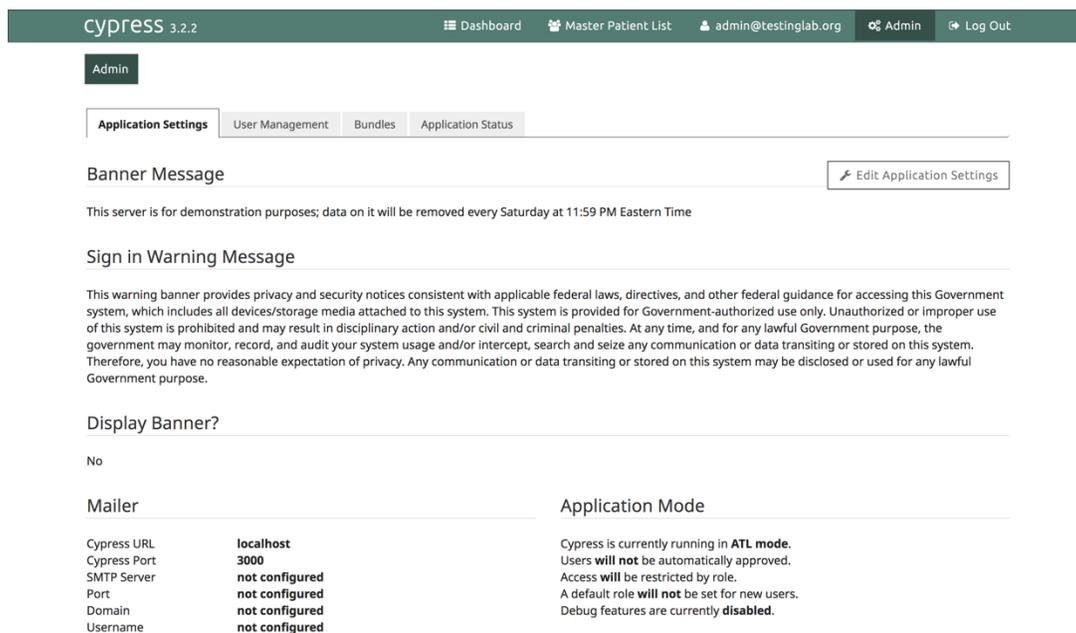
Figure 2. Screenshot of Admin Page

Step 3: Edit Application Settings

- By default, Cypress will be running in **ATL mode** as shown in Figure 3.
- Select **Custom** to change the default settings.

Figure 3. Screenshot of Edit Settings (Original Settings)

Step 4: Select Custom Options

- When first selected, the **Custom** settings will be the same as the original **ATL settings**.
  - **Auto Approve**, **Ignore Roles**, and **Debug Features** will all be set to **Disable** as shown in Figure 4.

Figure 4. Default Settings

Step 5: Enable Debug Features

- Clicking **Enable** for **Debug Features** enables turning off patient duplication when creating a new Product.
- Click **Edit Settings** to save the changes as shown in Figure 5.

Figure 5. Enable Debug Features

Step 6: Add a New Vendor and Product

- Once the settings have been saved, a new product can be created with patient duplication turned off.
- Add a product to an existing (or new) vendor by clicking the **Add Product** button as shown in Figure 6.
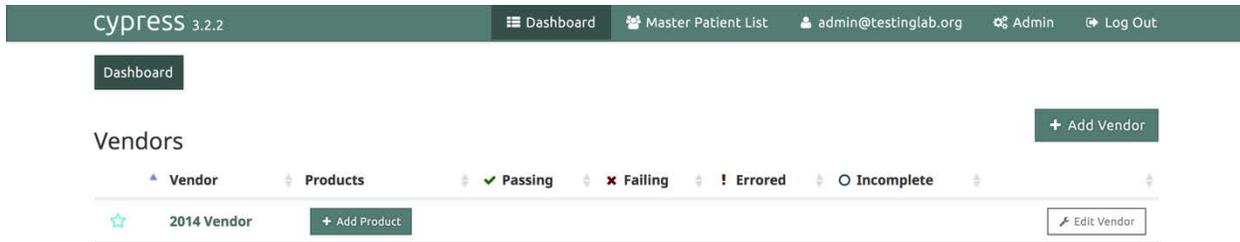
Figure 6. Add Product to a Vendor

Step 7: Take Note of Default Options

- By default, **Duplicate Records** will still be enabled, as shown in Figure 7.

Figure 7. Create Product (Default Options)

Step 8: Deselect Duplicate Records

- Patient duplication can be turned off by deselecting **Duplicate Records**.
- Please note that "C4" is still a certification option in Figure 8even though C4 is not applicable to the 2014 ONC Certification.

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- Cypress v3 can only be used with the 2015, 2016, and 2017 measure bundles. These bundles require newer standards than the one specified in the 2014 Certification Edition.

Figure 8. Create Product without Patient Duplication

Step 9: Each Individual Test Exposes 'Get Known Good Result'

- One of the ramifications to enabling **Debug Features** is that the **Get Known Good Results** feature will be available for each test.

- **IMPORTANT!! If your Cypress version is accessible to vendors, then the vendors will also be able to Get Known Good Results. When this is the case, immediately switch the Application Mode back to ATL after creating the product.**

Figure 9. Get Known Good Results on a Test Page

Step 10: Return Settings to ATL Mode
- The **Application Mode** can be switched back to **ATL** mode by going to the **Admin** Page, clicking on **Edit Application Setting** (as shown in Figure 3) and selecting **ATL** as the **Application Mode**.

3.   Supporting Manual Entry in Cypress v3

The decision to create measure-specific test decks (instead of a single test deck for each measure) derives from the 2015 Edition C2 (import and calculate) requirement for automated QRDA import and the desire to increase the measure logic coverage in Cypress. When an ATL uses the **Download Full Test Deck** button (as shown in Figure 10), the generated zip file will only contain the QRDA files for the test patients. To support users who do not have the ability to import QRDA files, the test proctor can provide HTML versions of the test patients. Unfortunately, there is no single button available for this action. Instead, a test proctor must go to each individual test and download the HTML files from the View Patients page. The following two steps describe how to download the HTML patient files.

Step 1: Go to Individual Test
- Each C1, C2, C3, and C4 test page has a link to **View Patients** as shown in Figure 10.

Figure 10. View Patients for Individual Test

Step 2: Download HTML Records Using View Patients

- The **View Patients** page shows a listing of the patients in the Cypress test deck (Figure 11).

- The **Download HTML Patients** button will download a zip file including an HTML representation of all patients in the measure specific test deck.

Figure 11. View Patients with Download HTML

Acronyms

ATL	Authorized Testing Lab
CMS	Centers for Medicare & Medicaid Services
CQM	Clinical Quality Measure
eCQM	Electronic Clinical Quality Measure
EHR	Electronic Health Record
HTML	Hypertext Markup Language
ONC	Office of the National Coordinator for Health Information Technology
QRDA	Quality Reporting Document Architecture