

Acumatica

# Virtual DevCon

2020

June 17 & 18



## Taking Advantage of Acumatica's Testing Framework & Tools to Build Quality Applications

Dmitrii Naumov  
Solutions Architect  
Acumatica

# Agenda

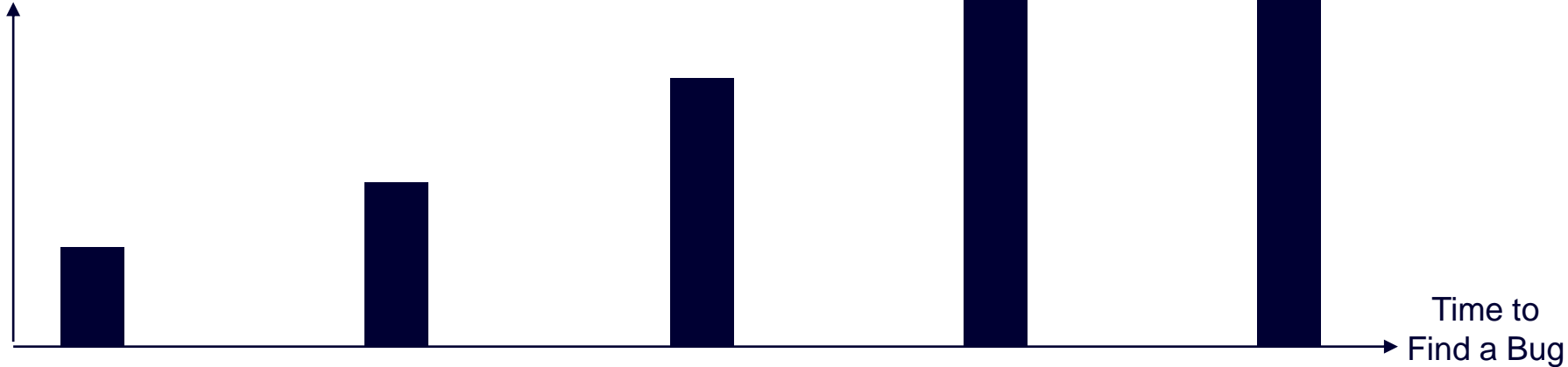
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- QA Procedures Overview
  - In Acumatica ERP
  - For ISV Solutions
- Automated Tests
  - Types
  - CB API Tests
  - Unit Tests Framework

## QA Procedures Overview

# Quality Assurance Procedures in Acumatica ERP

Cost of a Bug



## Static Code Analysis

- During Development
- During Build

## Unit tests

## Regression Tests

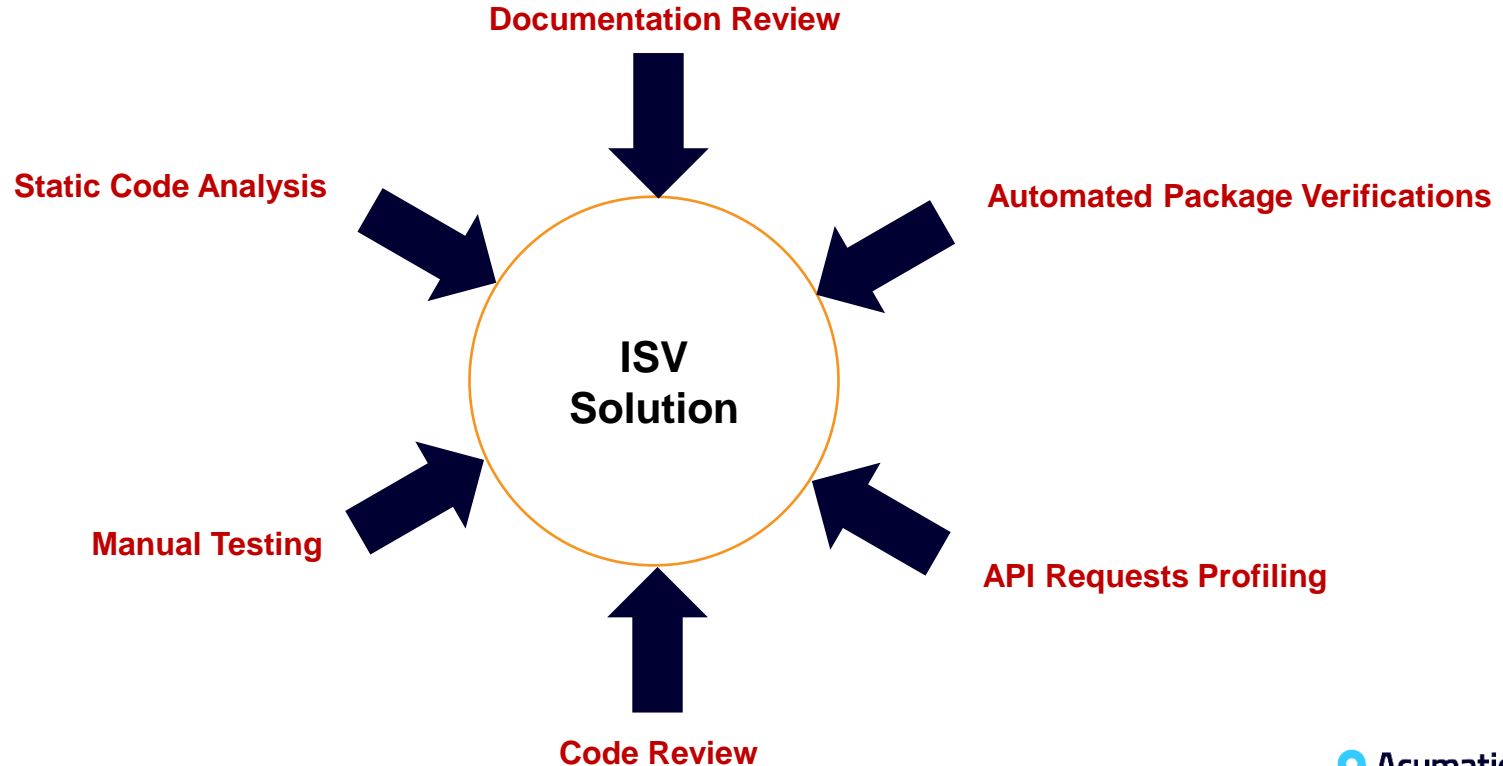
- Functionality Tests
- Tests with Different Environments (e.g. different browsers/SQL servers)
- Performance Tests

## Code Review

## Manual Testing

# Quality Assurance Procedures for ISV Solutions

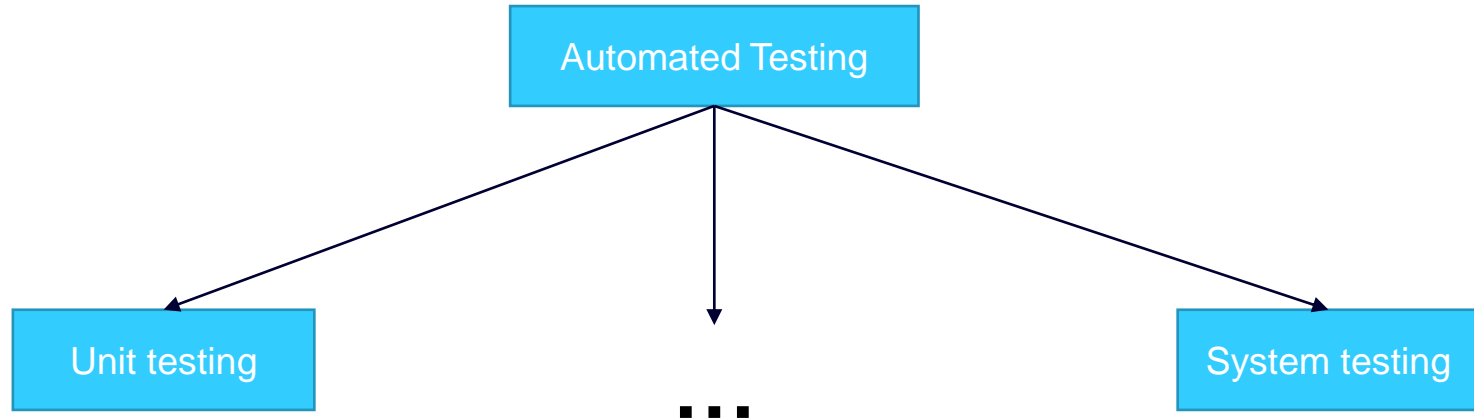
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# Automated Testing

# Automated Testing

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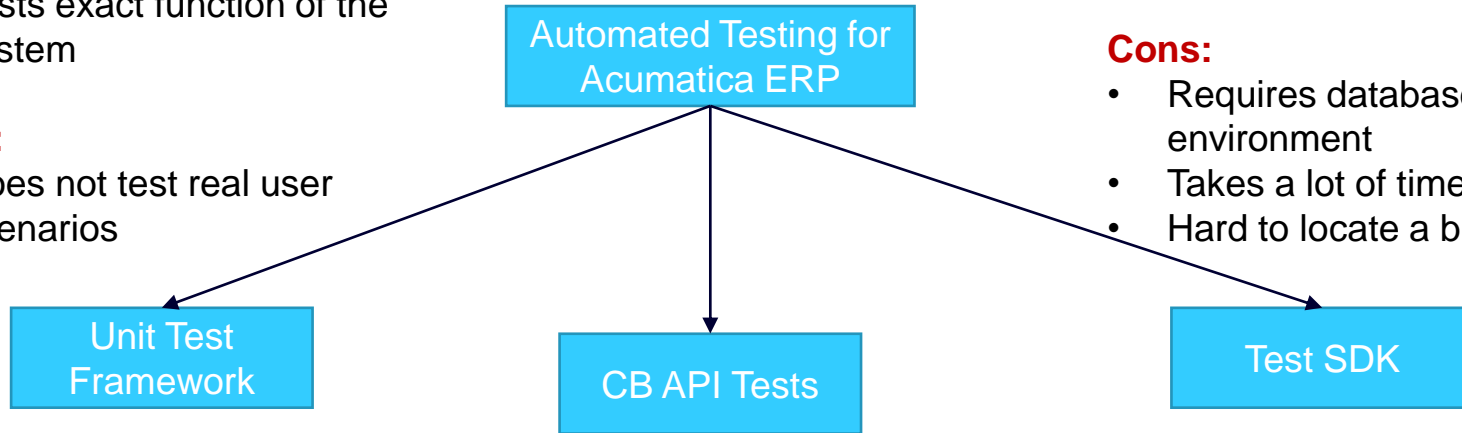
# Automated Testing for Acumatica ERP

## Pros:

- Fast execution
- Fast development
- Tests exact function of the system

## Cons:

- Does not test real user scenarios



## Pros:

- Fast
- Can be written by a developer familiar with Web Services

## Cons:

- Requires database and environment
- Needs Webservice Endpoint

## Pros:

- 99% emulates user interaction with the system

## Cons:

- Requires database and environment
- Takes a lot of time to run
- Hard to locate a bug



## Testing With Contract Based API

## Example of Contract Based API Test

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- It is important to have data generated to not be dependent on the exact state of the DB
- Works for Process with great variety of options/possible workflows

[Fact]

0 references | dnaumov, 80 days ago | 1 author, 1 change

```
public void ReceiptCalculationWithEmployeePart()
```

```
{
```

```
    ReceiptEntry entry = PutReceiptsEntry(_client, "ReceiptCalculationWithEmployeePart", 5, 5);  
    entry.Amount.Value.ShouldBeEquivalentTo(25);  
    entry.ClaimAmount.Value.ShouldBeEquivalentTo(25);
```

```
    entry.EmployeePart.Value = 5;  
    entry = _client.Put(entry).As<ReceiptEntry>();  
    entry.Amount.Value.ShouldBeEquivalentTo(25);  
    entry.ClaimAmount.Value.ShouldBeEquivalentTo(20);
```

```
}
```

# Unit Test Framework

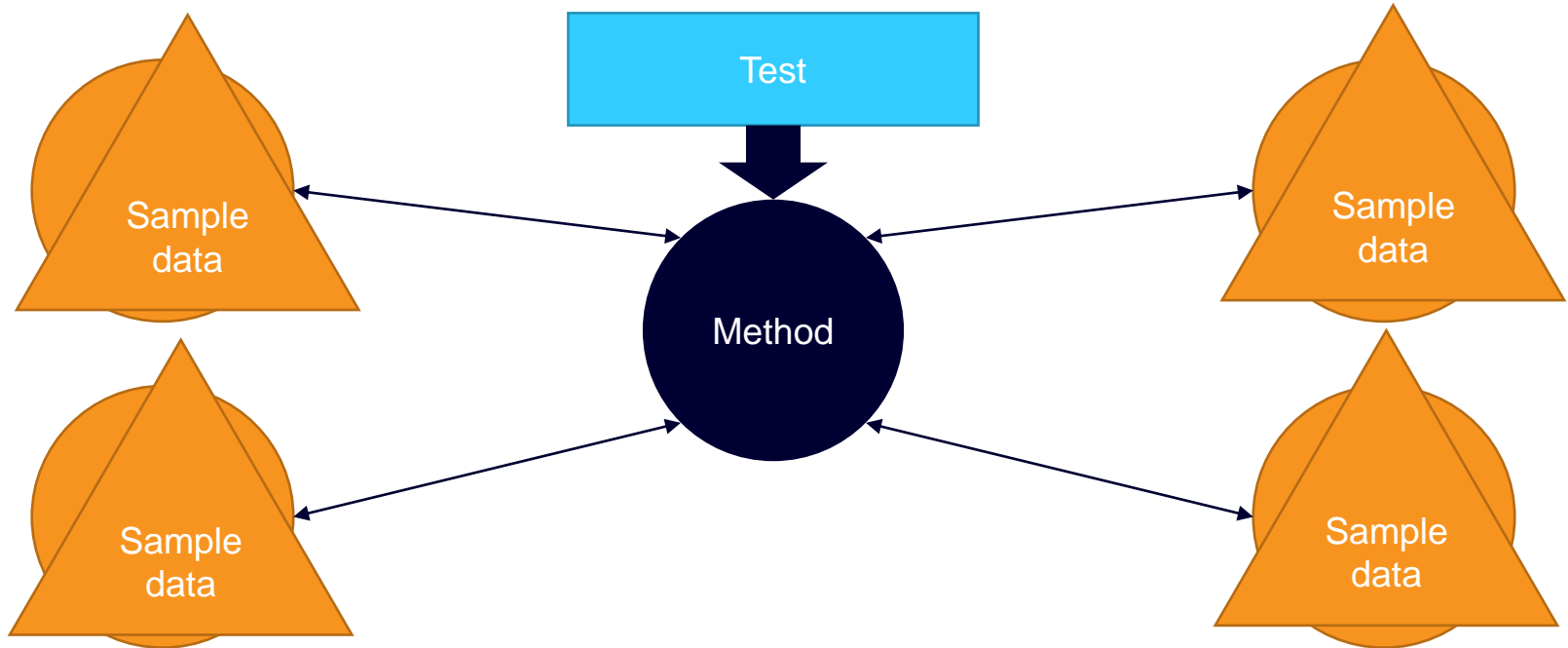
# Acumatica Test Framework

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- Tests PXGraph behavior
- Code is very similar to our Acumatica Framework code
- Selection of records from the database is easy to mock-up

# Mocking Data and Dependencies

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# Writing Your First Unit Test

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**Step 1:** Create your unit test class

**Step 2:** Setup the data you need for the test

**Step 3:** Execute the action

**Step 4.** Verify the result

**Include the following information in the test name:**

- **The fact that it is a test (versus a setup method)**
- **The functionality that you're testing**
- **A brief and clear description of the expected result**
- **A brief and clear description of the testing conditions**

# Writing Your First Unit Test

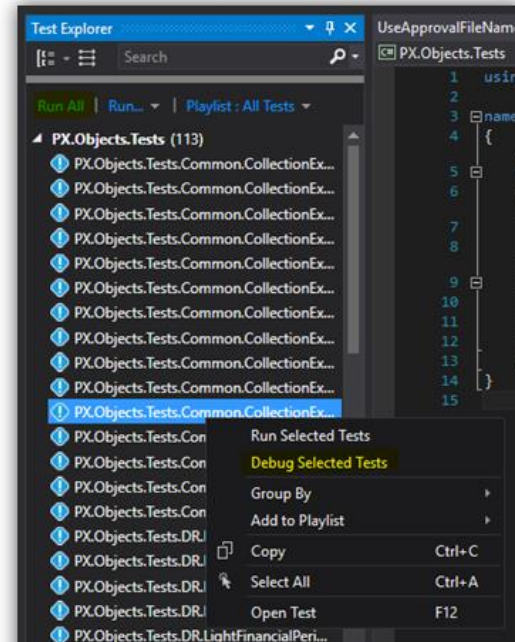
## Step 4: Write Your First Unit Test

```
[Fact]
public void Test_GenerateTransactions_ThrowsException_When_Docu
mentDateIsNull()
{
    // Arrange
    // -
    _deferralSchedule.DocDate = null;
    _scheduleDetail.DocDate = null;

    // Action
    // -
    CreateTransactionsGenerator();

    // Assert
    // -
    Assert.Throws<PXException>(() => GenerateTransactions());
}
```

## Step 5: Run Your Unit Test



## Summary

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- **There are several different procedures to make sure the quality of the solution is good**
- **Different approaches and tools may find different kinds of bugs, so it is important to leverage all of them**
- **It is important to have quality assurance procedures on each step of the development so the bug is found as early as possible**
- **Acumatica provides a rich set of tool for QA**





## Useful Resources

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- **Unit Test Example:** <https://github.com/Acumatica/UnitTestsDemo>
- **Test SDK:** <http://acumatica-builds.s3.amazonaws.com/index.html?prefix=builds/20.1/20.105.0024/TestSDK/>
- **ISV Certification Guidelines:** <https://portal.acumatica.com/wp-content/uploads/2020-R1-Acumatica-ISV-Software-Certification-Guidelines.pdf>

# To Be Continued...

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## Today:

12:40 pm  
1:40 pm



Sergey Nikomarov & Evgeny Afanasiev  
**Acuminator & Other Important Developer Tools**



## Tomorrow:

10:10 am  
10:40 am



Patrick Chen  
**Taking Advantage of the Testing SDK**





# Thank You!

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**Dmitrii Naumov**

dnaumov@acumatica.com