

Payment Gateway API Testing Report

Uploaded File Content

```
<?xml version="1.0" encoding="UTF-8"?>

<FIToFICustomerCreditTransferV08 xmlns="urn:iso:std:iso:2002:tech:xsd:pacs.008.001.08">

  <GrpHdr>

    <MsgId>ABC1234567890</MsgId>

    <CreDtTm>2025-03-23T14:25:43</CreDtTm>

    <NbOfTx>1</NbOfTx>

    <SttlmInf>

      <SttlmMtd>CLRG</SttlmMtd>

      <ClrSys>

        <Cd>CHIPS</Cd>

      </ClrSys>

    </SttlmInf>

  </GrpHdr>

  <CdtTrfTxInf>

    <PmtId>

      <InstrId>PAY001</InstrId>

      <EndToEndId>INV2025001</EndToEndId>

    </PmtId>

    <IntrBkSttlmAmt Ccy="USD">15000.00</IntrBkSttlmAmt>

    <ChrgBr>SLEV</ChrgBr>

    <Dbtr>

      <Nm>John Doe</Nm>

      <PstlAdr>

        <Ctry>US</Ctry>

        <AdrLine>123 Main St, New York, NY</AdrLine>

      </PstlAdr>

    </Dbtr>

    <DbtrAcct>

      <Id>

        <IBAN>US12345678901234567890</IBAN>

      </Id>

    </DbtrAcct>

  </CdtTrfTxInf>

</FIToFICustomerCreditTransferV08>
```

```
</DbtrAcct>

<Cdtr>

  <Nm>ABC Corp</Nm>

  <PstlAdr>

    <Ctry>GB</Ctry>

    <AdrLine>456 London Bridge, UK</AdrLine>

  </PstlAdr>

</Cdtr>

<CdtrAcct>

  <Id>

    <IBAN>GB09876543210987654321</IBAN>

  </Id>

</CdtrAcct>

</CdtTrfTxInf>

</FIToFICustomerCreditTransferV08>
```

Generated Test Cases

```
{
  "test_cases": [
    {
      "id": 1,
      "scenario": "Valid SWIFT ISO 20022 Transaction - CHIPS Settlement",
      "input_data": {
        "xml_message": "<?xml version='1.0' encoding='UTF-8'?'>\n<FIToFICustomerCreditTransferV08\nxmlns='urn:iso:std:iso:20022:tech:xsd:pacs.008.001.08'\n  <GrpHdr>\n    <MsgId>ABC1234567890</MsgId>\n    <CreDtTm>2025-03-23T14:25:43</CreDtTm>\n    <NbOfTxS>1</NbOfTxS>\n    <SttImInf>\n      <SttImMtd>CLRG</SttImMtd>\n      <ClrSys>\n        <Cd>CHIPS</Cd>\n        </ClrSys>\n      </SttImInf>\n    </GrpHdr>\n    <CdtTrfTxInf>\n      <PmtId>\n        <InstrId>PAY001</InstrId>\n        <EndToEndId>INV2025001</EndToEndId>\n        </PmtId>\n        <IntrBkSttImAmt\n          Ccy='USD'>15000.00</IntrBkSttImAmt>\n          <ChrgBr>SLEV</ChrgBr>\n          <Dbtr>\n            <Nm>John\n            Doe</Nm>\n            <PstlAdr>\n              <Ctry>US</Ctry>\n              <AdrLine>123 Main St, New York,\n              NY</AdrLine>\n            </PstlAdr>\n          </Dbtr>\n          <DbtrAcct>\n            <Id>\n              <IBAN>US12345678901234567890</IBAN>\n              </Id>\n            </DbtrAcct>\n          <Cdtr>\n            <Nm>ABC\n            Corp</Nm>\n            <PstlAdr>\n              <Ctry>GB</Ctry>\n              <AdrLine>456 London Bridge, UK</AdrLine>\n            </PstlAdr>\n          </Cdtr>\n        </IntrBkSttImAmt>
      </PmtId>
    </CdtTrfTxInf>
  </GrpHdr>
</FIToFICustomerCreditTransferV08>
```

```

        </PstlAdr>\n        </Cdtr>\n        <CdtrAcct>\n        <Id>\n
<IBAN>GB09876543210987654321</IBAN>\n        </Id>\n        </CdtrAcct>\n
</CdtTrfTxInf>\n</FIToFICustomerCreditTransferV08>"
    },
    "expected_output": {
        "status": "success",
        "message": "Transaction processed successfully through CHIPS"
    }
},
{
    "id": 2,
    "scenario": "Invalid SWIFT ISO 20022 Transaction - Missing Amount",
    "input_data": {
        "xml_message": "<?xml version=\"1.0\" encoding=\"UTF-8\"?>\n<FIToFICustomerCreditTransferV08
xmlns=\"urn:iso:std:iso:20022:tech:xsd:pacs.008.001.08\">\n  <GrpHdr>\n    <MsgId>ABC1234567890</MsgId>\n
    <CreDtTm>2025-03-23T14:25:43</CreDtTm>\n    <NbOfTx>1</NbOfTx>\n    <SttlmInf>\n
      <SttlmMtd>CLRG</SttlmMtd>\n      <ClrSys>\n        <Cd>CHIPS</Cd>\n        </ClrSys>\n      </SttlmInf>\n
    </GrpHdr>\n    <CdtTrfTxInf>\n      <PmtId>\n        <InstrId>PAY001</InstrId>\n
        <EndToEndId>INV2025001</EndToEndId>\n        </PmtId>\n        <ChrgBr>SLEV</ChrgBr>
        <Dbtr>...</Dbtr><DbtrAcct>...</DbtrAcct><Cdtr>...</Cdtr><CdtrAcct>...</CdtrAcct>\n
      </CdtTrfTxInf>\n    </FIToFICustomerCreditTransferV08>"
    },
    "expected_output": {
        "status": "error",
        "error": "Missing or invalid IntrBkSttlmAmt element"
    }
},
{
    "id": 3,
    "scenario": "FEDWIRE Payment - Successful",
    "input_data": {
        "amount": 1000.0,
        "currency": "USD",

```

```

"sender_aba": "121000359",
"receiver_aba": "021000021",
"sender_account": "1234567890",
"receiver_account": "9876543210"
},
"expected_output": {
  "status": "success",
  "message": "FEDWIRE payment successful"
}
},
{
  "id": 4,
  "scenario": "FEDWIRE Payment - Rejected - Invalid ABA Routing Number",
  "input_data": {
    "amount": 1000.0,
    "currency": "USD",
    "sender_aba": "INVALIDABA",
    "receiver_aba": "021000021",
    "sender_account": "1234567890",
    "receiver_account": "9876543210"
  },
  "expected_output": {
    "status": "error",
    "error": "Invalid ABA routing number"
  }
},
{
  "id": 5,
  "scenario": "CHIPS Transaction - Fraudulent Activity Detected",
  "input_data": {
    "xml_message": "<?xml version='1.0' encoding='UTF-8'?>\n<FIToFICustomerCreditTransferV08\nxmlns='urn:iso:std:iso:20022:tech:xsd:pacs.008.001.08'\>\n  <GrpHdr>...</GrpHdr>\n  <CdtTrfTxInf>\n<PmtId>...</PmtId>\n    <IntrBkSttlmAmt Ccy='USD'\>1000000000.00</IntrBkSttlmAmt> <ChrgBr>SLEV</ChrgBr>

```

```

<Dbtr>...</Dbtr><DbtrAcct>...</DbtrAcct><Cdtr>...</Cdtr><CdtrAcct>...</CdtrAcct>\n
</CdtTrfTxInf>\n</FIToFICustomerCreditTransferV08>",

  "suspicious_activity": true

},

"expected_output": {

  "status": "error",

  "error": "Fraudulent activity detected. Transaction rejected."

}

},

{

  "id": 6,

  "scenario": "CHIPS Transaction - Payment Validation Successful",

  "input_data": {

    "xml_message": " <?xml  version=\"1.0\"  encoding=\"UTF-8\"?>\n<FIToFICustomerCreditTransferV08
xmlns=\"urn:iso:std:iso:20022:tech:xsd:pacs.008.001.08\">\n      <GrpHdr>...</GrpHdr>\n      <CdtTrfTxInf>\n
<PmtId>...</PmtId>\n          <IntrBkSttlmAmt  Ccy=\"USD\">15000.00</IntrBkSttlmAmt>  <ChrgBr>SLEV</ChrgBr>
<Dbtr>...</Dbtr><DbtrAcct>...</DbtrAcct><Cdtr>...</Cdtr><CdtrAcct>...</CdtrAcct>\n
</CdtTrfTxInf>\n</FIToFICustomerCreditTransferV08>",

    "validation_checks": [

      "IBAN verification",

      "Amount validation",

      "Sender/Receiver information"

    ]

  },

  "expected_output": {

    "status": "success",

    "message": "CHIPS payment validated successfully"

  }

}

]

}

```

Test Execution Details

[

```

{
  "id": 1,
  "scenario": "Valid SWIFT ISO 20022 Transaction - CHIPS Settlement",
  "status": "pass",
  "expected_output": {
    "status": "success",
    "message": "Transaction processed successfully through CHIPS"
  },
  "actual_response": {
    "status": "success",

    "approval_url":
    "https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=_express-checkout&token=EC-0VK042082W5423933"
  }
},
{
  "id": 2,
  "scenario": "Invalid SWIFT ISO 20022 Transaction - Missing Amount",
  "status": "fail",
  "expected_output": {
    "status": "error",
    "error": "Missing or invalid IntrBkSttlmAmt element"
  },
  "actual_response": {
    "status": "success",

    "approval_url":
    "https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=_express-checkout&token=EC-25043474K49752157"
  }
},
{
  "id": 3,
  "scenario": "FEDWIRE Payment - Successful",
  "status": "pass",
  "expected_output": {

```

```
"status": "success",

"message": "FEDWIRE payment successful"

},

"actual_response": {

  "status": "success",

                                                                                                     "approval_url":

"https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=_express-checkout&token=EC-7R69933358199564V"

  }

},

{

  "id": 4,

  "scenario": "FEDWIRE Payment - Rejected - Invalid ABA Routing Number",

  "status": "fail",

  "expected_output": {

    "status": "error",

    "error": "Invalid ABA routing number"

  },

  "actual_response": {

    "status": "success",

                                                                                                     "approval_url":

"https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=_express-checkout&token=EC-8NX14054RM542600G"

    }

  },

  {

    "id": 5,

    "scenario": "CHIPS Transaction - Fraudulent Activity Detected",

    "status": "fail",

    "expected_output": {

      "status": "error",

      "error": "Fraudulent activity detected. Transaction rejected."

    },

    "actual_response": {

      "status": "success",
```

```

                                                                                                                                                                "approval_url":
"https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=_express-checkout&token=EC-38K73751PV114404P"
    }
},
{
    "id": 6,
    "scenario": "CHIPS Transaction - Payment Validation Successful",
    "status": "pass",
    "expected_output": {
        "status": "success",
        "message": "CHIPS payment validated successfully"
    },
    "actual_response": {
        "status": "success",
                                                                                                                                                                "approval_url":
"https://www.sandbox.paypal.com/cgi-bin/webscr?cmd=_express-checkout&token=EC-72E44435CD118305S"
    }
}
]
```

AI-Generated Analysis & Fixes

Analysis of Payment Transaction Test Results

The provided test results reveal significant issues in the payment processing system. All failing tests show a "success" status in the actual response, while the expected output indicates failure due to various reasons. This strongly suggests a critical flaw: the system is not accurately reporting errors. The actual responses consistently return a PayPal approval URL, indicating that the system is bypassing error handling and proceeding to a seemingly unrelated payment gateway (PayPal).

Failed Tests Analysis:

Test ID	Scenario	Expected Output Status	Actual Output Status	Reason for Failure
2	Invalid SWIFT ISO 20022 Transaction - Missing Amount	error	success	Error not

reported; System proceeds to PayPal instead of returning the expected error. |

4	FEDWIRE Payment - Rejected - Invalid ABA Routing Number	error	success	Error not
---	---	-------	---------	-----------

reported; System proceeds to PayPal instead of returning the expected error. |

5	CHIPS Transaction - Fraudulent Activity Detected	error	success	Error not reported;
---	--	-------	---------	---------------------

System proceeds to PayPal instead of returning the expected error. |

****Fraud Concerns:****

Test 5, "CHIPS Transaction - Fraudulent Activity Detected," highlights a serious security vulnerability. The system should have rejected the transaction and reported the fraudulent activity, but instead, it processed it (or at least appeared to by generating a PayPal URL). This indicates a critical failure in fraud detection and prevention mechanisms. The system's failure to properly handle fraudulent transactions poses a significant financial risk. Immediate investigation is necessary.

****Possible Resolutions:****

- The primary issue is the system's inability to correctly report errors. The following steps are crucial for resolving this:
1. ****Debugging Error Handling:**** Thoroughly debug the error handling mechanisms within the payment processing system. Trace the execution flow for failing scenarios to identify where the errors are not being properly caught and reported. This likely involves examining logs, inspecting code for exception handling, and potentially using debugging tools.
 2. ****Rectify Error Reporting:**** Correct the error reporting logic to ensure that appropriate error messages are returned according to the expected output for each scenario. This needs to be validated through comprehensive regression testing.
 3. ****Improve Fraud Detection:**** Investigate and enhance the fraud detection system. This may involve reviewing and updating fraud detection rules, integrating with third-party fraud prevention services, and implementing stricter validation checks for high-risk transactions.
 4. ****Decoupling PayPal Integration:**** The system's reliance on a PayPal approval URL regardless of the success or

failure of the initial transaction suggests a problematic integration. Review the architecture and logic to ensure that the PayPal integration is properly decoupled from the core payment processing logic. The PayPal redirect should only occur after successful processing of the initial transaction.

5. ****Security Audit:**** Conduct a comprehensive security audit to identify potential vulnerabilities and ensure compliance with industry best practices for secure payment processing.

****Conclusion:****

The test results demonstrate a critical failure in error handling and potentially a serious flaw in fraud prevention. Immediate action is required to address these issues to prevent financial losses and maintain the security and integrity of the payment system. The focus should be on debugging the error reporting, improving the fraud detection mechanisms, and ensuring proper separation of concerns within the system architecture.