System-Link Best Practices

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Best Practice

• A “best practice” is a method or technique that has consistently shown superior results
• Some consider “best practice” as a business buzzword
• Sometimes a “best practice” is not applicable or is inappropriate for a particular organization’s needs
System-Link Best Practices

• System-Link is a best practice!
• Directly writing to XA files should be avoided
  • Bypasses business rules and ION
  • Extension files and fields
• Offline load is so over
  • Not supported in R10
  • Limited to a few files (Purchase order?)
  • No standard offline load
System-Link Characteristics

• Programmatically invoke Power-Link functions
  • Same attributes can be populated
  • Same edits are enforced
• System-Link can be a transaction processor
  • Processing controls should be enforced
  • Exception handling
  • Auditability
  • Management of large volumes of transactions
Generate XML Document

- Many repeatable parts
- Especially request header, System-Link tag, login tag, request tag
- If using the LPI, use ILE/RPG to write reusable procedures
- Templates are an option, but not flexible
- If developing a client based solution, use Web Services or .Net

```xml
<?xml version='1.0' encoding='UTF-8'?>
<!DOCTYPE System-Link SYSTEM 'SystemLinkRequest.dtd'>
<System-Link>
  <Login userId='&%userid&' password='&%password%&' maxIdle='900000'
    properties='com.mapics.cas.domain.EnvironmentId=BS,
    com.mapics.cas.domain.SystemName=GUIDE.GUIDETECHNOLOGIES.COM,
    com.mapics.cas.user.LanguageId=en'/>
  <Request sessionHandle='&%sessionHandle&' workHandle='*new'
    broker='EJB'
    maxIdle='900000'>
    <StartTransactionGroup/>
    <Create name='160302190939475'
      domainClass='com.mapics.csm.CustomerOrder'
      retainResult='true'>
      <DomainEntity>
        <Key>
          <Property path='orderType'>
            <Value>1</Value>
          </Property>
          <Property path='company'>
            <Value>1</Value>
          </Property>
          <Property path='customer'>
            <Value>801</Value>
          </Property>
          <Property path='relatedSalesOrderExtension.purchaseOrder'>
            <Value>DAN</Value>
          </Property>
          <Property path='warehouse'>
            <Value>1</Value>
          </Property>
        </Key>
      </DomainEntity>
    </Create>
    <Create name='160302190939515'
      domainClass='com.mapics.csm.CoLineItem'
      retainResult='false'>
      <DomainEntity>
        <Key>
          <Property path='company'>
            <ValueRef><!(CDATA[(160302190939475).company])></ValueRef>
          </Property>
          <Property path='orderType'>
            <ValueRef><!(CDATA[(160302190939475).orderType])></ValueRef>
          </Property>
          <Property path='order'>
            <ValueRef><!(CDATA[(160302190939475).order])></ValueRef>
          </Property>
        </Key>
        <Property path='internalItem'>
          <Value>1000</Value>
        </Property>
        <Property path='orderQuantityInOrderUnitOfMeasure'>
          <Value>25</Value>
        </Property>
      </DomainEntity>
    </Create>
    <Create name='160302190939534'
      domainClass='com.mapics.csm.CoLineItem'
      retainResult='false'>
      <DomainEntity>
        <Key>
          <Property path='company'>
            <ValueRef><!(CDATA[(160302190939475).company])></ValueRef>
          </Property>
          <Property path='orderType'>
            <ValueRef><!(CDATA[(160302190939475).orderType])></ValueRef>
          </Property>
          <Property path='order'>
            <ValueRef><!(CDATA[(160302190939475).order])></ValueRef>
          </Property>
        </Key>
        <Property path='internalItem'>
          <Value>1003</Value>
        </Property>
        <Property path='orderQuantityInOrderUnitOfMeasure'>
          <Value>5</Value>
        </Property>
      </DomainEntity>
    </Create>
    <Create name='160302190939541'
      domainClass='com.mapics.csm.CoLineItem'
      retainResult='false'>
      <DomainEntity>
        <Key>
          <Property path='company'>
            <ValueRef><!(CDATA[(160302190939475).company])></ValueRef>
          </Property>
          <Property path='orderType'>
            <ValueRef><!(CDATA[(160302190939475).orderType])></ValueRef>
          </Property>
          <Property path='order'>
            <ValueRef><!(CDATA[(160302190939475).order])></ValueRef>
          </Property>
        </Key>
        <Property path='internalItem'>
          <Value>1101</Value>
        </Property>
        <Property path='orderQuantityInOrderUnitOfMeasure'>
          <Value>2</Value>
        </Property>
      </DomainEntity>
    </Create>
  </Request>
</System-Link>
```
Logging Into System-Link

• Use a service profile
  • Create a user profile to use for all System-Link transactions
  • Create/Change user is this profile

• Or use *LPIUSER
  • System-Link runs as current user
  • Create/change user is the current user
  • Recently introduced feature, may require a PTF

• XA Infor ERP Security
  • Is enforced for service profile and *LPIUSER
Staying Logged Into System-Link

- Retrieve Session Handle from initial log on
  - Reuse Session Handle for subsequent requests
  - Reset work handle for groups of transaction
  - Log out when no more requests

- Watch time-out value
  - System-Link has an inactivity timer
  - Value set at log in
  - Session handle is deactivated for inactivity

- Pool Session Handles
  - Session Alias

Request:
```
<Request sessionHandle='&%sessionHandle%\&'
  workHandle='*new'
  broker='EJB'
  maxIdle='900000'>'
```

Response:
```
<Response sessionHandle='-10aba436:153379dfeef:-7d38'
  workHandle='-10aba436:153379dfeef:-7d37'
```
Grouping Transactions

• Combine transactions improve performance
  • Combine requests into one XML document

• Combine transaction for functionality
  • Create C.O. with system-assigned key
  • C.O. Line references C.O. Header for order number

• Combine transaction for complete transaction
  • Process document as transaction group
  • If error, prior transactions are rolled back
Exception Handling

- Is the System-Link Server running?
  - Can be determined programmatically by attempting to log in
  - What happens if log in is unsuccessful
  - What happens to transactions if not logged in
Errors in System-Link

• System-Link requests edited the same as Power-Link
  • Errors appear in System-Link response
  • Use RPG operation codes XML-Into and XML-SAX to parse response

• Action name
  • Each System-Link action must have a unique name
  • Use name to link back to individual transactions

```xml
<Create name='160302190939475' domainClass='com.mapics.csm.CustomerOrder'>
  <CreateResponse name='160302190939475' requestedDomainClass='com.mapics.csm.CustomerOrder' actionSucceeded='true'>
```

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Display System-Link Errors

• Make errors available to the user

(E) Cost technique code "R" is not valid for item types 3=Raw material or 4=Purchased.

Explanation . . : Cost technique code "R" is not valid for item types 3=Raw material or 4=Purchased because the routing cannot be used to calculate labor, overhead, or the cost of outside operations. For item types Raw material and Purchased purchase content, labor content and overhead content can be entered or calculated from the labor/overhead table. Your action . . : Change the cost technique code to blank or "T", or change the item type.
Resolving System-Link Errors

• Fix the error, resubmit
Tracking System-Link Errors

• Track progress in getting errors resolved
• Historical text object
Who Owns the Errors

- IT department is not ideal, assign owners
- Display transactions with workspaces
Exception Notification

- Subscription and notification
  - Based on status
- Can provide Netlink hyperlink
Viewing XML

- Easy to read, paste to System-Link Simulator
- Parser is needed
- Free on the client side
Load Balancing

• For best performance, dedicated System-Link engines with JAVA apps loaded
• Spread the load to multiple engines if pushing a large volume of transactions
• Isolate long running processes
• Manage System-Link license usage
• Store transactions while System-Link server is stopped
Visual Load Balancing

- Dashboard to manage queues
- Start or stop
- Add a queue
- View entries
- Move entries
Auditability

- When was group created
  - By whom
- When was the group processed
- What was the status of the process
- Was the group reprocessed
Resources

• System-Link User’s Guide
• Enterprise Integrator User’s Group
• Infor Knowledge Zone
  • Introduction to System-Link
  • System-Link Performance
• Navigation > System-Link Request
• Document your own processes
Load From Spreadsheet

- Users want it
- Great for quickie one time loads
- Set up a format for reusable spreadsheets
- VBA - XLPARSER
Customizable

- Ability to add objects to the mix
- Ability to add, change System-Link queues
- Ability to change the attributes of an queue
- Ability to change how groups are processed
- Ability to change who processes groups
- Ability to assign and reassign owners

- Ability to do all this without making program changes!
Summary

• System-Link is a best practice
• XML Generation Tools
• Logging in, Sessions
• Grouping transactions
• Exception handling
• Error detection, display and resolution

• Transaction owners
• Load balancing
• Auditability
• Customization
• Spreadsheets
• Documentation
Questions wake people up. They prompt new ideas. They show people new places, new ways of doing things.

Michael Marquardt