



**REQUEST FOR PROPOSALS FOR**

**ORACLE ERP (ENTERPRISE RESOURCE PLANNING)  
PRODUCTION SUPPORT AND ENHANCEMENT  
CONSULTING SERVICES**

**ISSUING OFFICE**

**PENNSYLVANIA LIQUOR CONTROL BOARD  
BUREAU OF PURCHASING AND CONTRACT ADMINISTRATION  
ROOM 316, NORTHWEST OFFICE BUILDING  
HARRISBURG, PENNSYLVANIA 17124**

**RFP NUMBER 20140325**

**DATE OF ISSUANCE: NOVEMBER 20, 2014**

**REQUEST FOR PROPOSALS FOR  
ORACLE ERP PRODUCTION SUPPORT AND ENHANCEMENT CONSULTING  
SERVICES**

**TABLE OF CONTENTS**

<b>CALENDAR OF EVENTS</b>	<b>PAGE iii</b>
<b>PART I—GENERAL INFORMATION</b>	<b>PAGES 1-10</b>
<b>PART II—PROPOSAL REQUIREMENTS</b>	<b>PAGES 11-15</b>
<b>PART III—CRITERIA FOR SELECTION</b>	<b>PAGES 16-20</b>
<b>PART IV—WORK STATEMENT</b>	<b>PAGES 21-32</b>
<b>APPENDIX A, IT CONTRACT TERMS AND CONDITIONS</b>	
<b>APPENDIX B, SPECIAL CONTRACT TERMS AND CONDITIONS</b>	
<b>APPENDIX C, LIQUOR CODE SECTION, LAWS OF PENNSYLVANIA</b>	
<b>APPENDIX D, SAMPLE CONTRACT</b>	
<b>APPENDIX E, DOMESTIC WORKFORCE UTILIZATION CERTIFICATION</b>	
<b>APPENDIX F, COST SUBMITTAL TEMPLATE</b>	
<b>APPENDIX G, PROPOSAL COVER SHEET</b>	
<b>APPENDIX H, CORPORATE SIGNATORY DELEGATION AUTHORIZATION</b>	
<b>APPENDIX I, TRADE SECRET/CONFIDENTIAL PROPRIETARY INFORMATION NOTICE</b>	
<b>APPENDIX J, SMALL DIVERSE BUSINESS LETTER OF INTENT</b>	
<b>APPENDIX K, ERP AND ORCO INFRASTRUCTURE</b>	
<b>APPENDIX L, ORACLE ERP SUPPORT POSITION MATRIX</b>	

**APPENDIX M, APPLICATION INVENTORY**

**APPENDIX N, ORACLE FINANCIAL AND RETAIL SOFTWARE VERSIONS**

**APPENDIX O, RETAIL OPERATIONS APPLICATIONS AT-A-GLANCE**

**APPENDIX P, JAVA STANDARDS AND GUIDELINES**

**APPENDIX Q, BI PUBLISHER STANDARDS AND GUIDELINES**

**APPENDIX R, HOLIDAY CALENDAR FOR 2015**

**APPENDIX S, SQL STANDARDS AND GUIDELINES**

**APPENDIX T, BATCH INTERFACE CODING STANDARDS**

**APPENDIX U, REPORTING STANDARDS AND GUIDELINES**

**APPENDIX V, FILE ENCRYPTION STANDARDS AND GUIDELINES**

**APPENDIX W, APPLICATION TECH STACK LOGGING STANDARDS AND GUIDELINES**

**APPENDIX X, SERVER NAMING STANDARDS AND GUIDELINES**

**APPENDIX Y, UNIX LINUX PRINTING STANDARDS AND GUIDELINES**

**APPENDIX Z, TECHNICAL LANDSCAPE**

**APPENDIX AA, PLCB BATCH JOB AND SCRIPT CODING FOR MIGRATION**

**APPENDIX BB, RELEASE MANAGEMENT POLICY**

**APPENDIX CC, CHANGE MANAGEMENT POLICY**

**APPENDIX DD, SYSTEM DEVELOPMENT LIFE CYCLE STANDARDS AND GUIDELINES**

## CALENDAR OF EVENTS

The Pennsylvania Liquor Control Board will make every effort to adhere to the following schedule:

Activity	Responsibility	Date
Deadline to submit Questions via email to <a href="mailto:beward@pa.us">beward@pa.us</a>	Potential Offerors	10:00 a.m. EST December 2, 2014
Pre-proposal Conference Room 117, Northwest Office Building, 910 Capital Street, Harrisburg, PA 17124.	Issuing Office/Potential Offerors	2:00 p.m. EST December 9, 2014
Answers to Potential Offeror questions posted to the Pennsylvania Department of General Services website ( <a href="http://www.emarketplace.state.pa.us/Search.aspx">http://www.emarketplace.state.pa.us/Search.aspx</a> ) no later than this date.	Issuing Office	December 16, 2014
Please monitor website for all communications regarding the RFP.	Potential Offerors	Regularly until proposal due date
Sealed proposals must be received by the Issuing Office at the Pennsylvania Liquor Control Board, Purchasing and Contract Administration Division, Room 316 Northwest Office Building, Harrisburg, PA 17124	Offerors	1:00 p.m. EST January 6, 2015

## PART I

### GENERAL INFORMATION

**I-1. Purpose.** This request for proposals ("RFP") provides to those interested in submitting proposals for the subject procurement ("Offerors") sufficient information to enable them to prepare and submit proposals for the Pennsylvania Liquor Control Board's ("PLCB") consideration on behalf of the Commonwealth of Pennsylvania ("Commonwealth") to satisfy a need for *Oracle ERP Production Support and Enhancement Consulting Services* ("Project").

**I-2. Issuing Office.** The PLCB ("Issuing Office") has issued this RFP on behalf of the Commonwealth. The sole point of contact in the Commonwealth for this RFP shall be Beverly Ward, Bureau of Purchasing and Contract Administration, Room 316 Northwest Office Building, 910 Capital Street, Harrisburg, PA 17124, [beward@pa.gov](mailto:beward@pa.gov), the Issuing Officer for this RFP. Please refer all inquiries to the Issuing Officer.

**I-3. Scope.** This RFP contains instructions governing the requested proposals, including the requirements for the information and material to be included; a description of the service to be provided; requirements which Offerors must meet to be eligible for consideration; general evaluation criteria; and other requirements specific to this RFP.

**I-4. Problem Statement.** The PLCB is a multi-faceted agency responsible for the sale and control of beverage alcohol throughout the Commonwealth and is one of the largest purchasers of wine and spirits in the country. The general objective of this project is to provide production support, maintenance, and enhancement consulting services for the PLCB's major business system, built on Oracle ERP, with Financial, Retail, and Point of Service (POS) functionality. This data system is mission critical to the PLCB's two billion dollar (\$2,000,000.00) a year retail business.

The PLCB is seeking innovative and fresh approaches to the leadership, management, production support and enhancement consulting services of the ERP System. Proposals should demonstrate not only a comprehensive understanding of the COTS system and the technologies used for custom code, but also novel and inventive approaches that recognize emerging technology while remaining responsive enough to take timely action on changes (hotfixes and patchsets) provided by Oracle.

This RFP is divided into three (3) Lots: **Lot 1 – Financial Operations; Lot 2 – Retail Operations;** and **Lot 3 – Point of Service Operations.** Offerors must submit a separate complete proposal (technical, cost and Small Diverse Business proposals) for each Lot for which they wish to be considered. If an Offeror wishes to propose a discounted cost in the event of an award of more than one (1) Lot to that Offeror, then the Offeror should include that discounted cost on the total cost

worksheet in addition to individual Lot cost worksheets. **In no event may an Offeror disclose cost discounting within the technical submittal.**

Each Lot consists of a rate card and a production support worksheet. Enhancement consulting services will be negotiated and contracted pursuant to the Commonwealth's Change Order protocol as the need arises in each Lot. If an Offeror cannot provide all of the services listed in a particular Lot, then the Offeror is ineligible to submit a proposal on that Lot.

Additional detail is provided in **Part IV** of this RFP.

**I-5. Type of Contract.** If the Issuing Office enters into a contract as a result of this RFP, it will be a labor-hour contract, which is a subset of time and materials contracts but having no delivery of materials. This labor-hour contract will have only direct labor hours at specified fixed hourly rates (which rates include direct and indirect labor, overhead, expenses including but not limited to travel, and profit). This labor-hour contract will also contain the IT Standard Contract Terms and Conditions as shown in **Appendix A** and available at [http://www.dgsweb.state.pa.us/comod/CurrentForms/IT Terms and Conditions.doc](http://www.dgsweb.state.pa.us/comod/CurrentForms/IT_Terms_and_Conditions.doc) as well as the Special Contract Terms and Conditions as shown in **Appendix B** and the Liquor Code Section as shown in **Appendix C**. The Issuing Office, in its sole discretion, may undertake negotiations with Offerors whose proposals, in the judgment of the Issuing Office, show them to be qualified, responsible, and capable of performing the Project.

**I-6. Rejection of Proposals.** The Issuing Office reserves the right, in its sole and complete discretion, to reject any or all proposals received as a result of this RFP.

**I-7. Incurring Costs.** The Issuing Office is not liable for any costs the Offeror incurs in preparation and submission of its proposal, in participating in the RFP process or in anticipation of award of the contract.

**I-8. Questions & Answers.** If an Offeror has any questions regarding this RFP, the Offeror must submit the questions by email (**with the subject line "RFP 20140325 Question"**) to the Issuing Officer named in **Part I, Section I-2** of the RFP. If the Offeror has questions, they must be submitted via email **no later than** the time and date indicated on the Calendar of Events. The Offeror shall not attempt to contact the Issuing Officer by any other means and questions may not be submitted through any other method. In accordance with **Part I, Section I-21**, the Offeror shall not contact any other employee of the PLCB regarding the RFP. The Issuing Officer shall post the answers to the questions on the DGS website by the date stated on the Calendar of Events.

All questions and responses as posted on the DGS website are considered as an addendum to, and part of, this RFP in accordance with RFP **Part I, Section I-10**. Each Offeror shall be responsible to monitor the DGS website for new or revised RFP information. The Issuing Office shall not be bound by any verbal information

nor shall it be bound by any written information that is not either contained within the RFP or formally issued as an addendum by the Issuing Office. The Issuing Office does not consider questions to be a protest of the specifications or of the solicitation. The required protest process for Commonwealth procurements is described on the DGS website <http://www.dgsweb.state.pa.us/comod/ProtestProcedures.doc>.

**I-9. Pre-proposal Conference.** The Issuing Office will hold a Pre-proposal conference as specified in the Calendar of Events. The purpose of this conference is to provide opportunity for clarification of the RFP. Offerors should forward all questions to the Issuing Office in accordance with **Part I, Section I-8** to ensure adequate time for analysis before the Issuing Office provides an answer. Offerors may also ask questions at the conference. In view of the limited facilities available for the conference, Offerors should limit their representation to two (2) individuals per Offeror. The Pre-proposal conference is for information only. **Any answers furnished during the conference will not be official until they have been verified, in writing, by the Issuing Office.** All questions and written answers will be posted on the [Department of General Services' \("DGS"\) website](#) as an addendum to, and shall become part of, this RFP. Attendance at the Pre-proposal Conference is optional.

**I-10. Addenda to the RFP.** If the Issuing Office deems it necessary to revise any part of this RFP before the proposal response date, the Issuing Office will post an addendum to the DGS website. It is the Offeror's responsibility to periodically check the website for any new information or addenda to the RFP. Answers to the questions asked during the **Part I, Section I-9 Pre-proposal Conference** will be posted to the website as an addendum to the RFP.

**I-11. Response Date.** To be considered for selection, hard copies of proposals must arrive at the Issuing Office on or before the time and date specified in the RFP Calendar of Events. The Issuing Office will **not** accept proposals via email or facsimile transmission. Offerors who send proposals by mail or other delivery service should allow sufficient delivery time to ensure timely receipt of their proposals. If, due to inclement weather, natural disaster, or any other cause, the Commonwealth office location to which proposals are to be returned is closed on the proposal response date, the deadline for submission will be automatically extended until the next Commonwealth business day on which the office is open, unless the Issuing Office otherwise notifies Offerors. The hour for submission of proposals shall remain the same. The Issuing Office will reject, unopened, any late proposals.

**I-12. Proposals.** To be considered, Offerors should submit a complete response to this RFP to the Issuing Office, using the format provided in **Part II**, providing **twelve (12) paper copies of the Technical Submittal and two (2) paper copies of the Cost Submittal and two (2) paper copies of the Small Diverse Business (SDB) participation submittal for each Lot proposed.** In addition to the paper copies of the proposal, Offerors shall submit two CD-ROM or Flash drives each containing a **complete and exact** copy of the entire proposal (Technical, Cost

and SDB submittals, along with all requested documents) in Microsoft Office or Microsoft Office-compatible format. The electronic copy must be an exact image of the paper copy and any spreadsheets must be in Microsoft Excel. Offerors may not lock or protect any cells or tabs. Offerors should ensure that there is no costing information in the technical submittal. Offerors should not reiterate technical information in the cost submittal. The CD or Flash drive should clearly identify the Offeror and include the name and version number of the virus scanning software that was used to scan the CD or Flash drive before it was submitted. Offerors shall make no other distribution of its proposal to any other Offeror or Commonwealth official or Commonwealth consultant. Each proposal page should be numbered for ease of reference.

**An official authorized to bind the Offeror to its provisions must sign the proposal.** If the official signs the Proposal Cover Sheet (**Appendix G**) and the Proposal Cover Sheet is attached to the Offeror's proposal, the requirement will be met. For this RFP, the proposal must remain valid until a contract is fully executed. If the Issuing Office selects the Offeror's proposal for award, the contents of the selected Offeror's proposal will become, except to the extent the contents are changed through Best and Final Offers or negotiations, contractual obligations.

Each Offeror submitting a proposal specifically waives any right to withdraw or modify it, except that the Offeror may withdraw its proposal by written notice received at the Issuing Office's address for proposal delivery prior to the exact hour and date specified for proposal receipt. An Offeror or its authorized representative may withdraw its proposal in person prior to the exact hour and date set for proposal receipt, provided the withdrawing person provides appropriate identification and signs a receipt for the proposal. An Offeror may modify its submitted proposal prior to the exact hour and date set for proposal receipt only by submitting a new sealed proposal or sealed modification which complies with the RFP requirements.

**I-13. Small Diverse Business Information.** The Issuing Office encourages participation by small diverse businesses as prime contractors, and encourages all prime contractors to make a significant commitment to use small diverse businesses as subcontractors and suppliers.

A Small Diverse Business is a DGS-verified minority-owned business, woman-owned business, veteran-owned business or service-disabled veteran-owned business.

A small business is a business in the United States which is independently owned, not dominant in its field of operation, employs no more than one hundred (100) full-time or full-time equivalent employees, and earns less than \$7 million in gross annual revenues for building design, \$20 million in gross annual revenues for sales and services and \$25 million in gross annual revenues for those businesses in the information technology sales or service business.

Questions regarding this Program can be directed to:



Department of General Services  
Bureau of Small Business Opportunities  
Room 611, North Office Building  
Harrisburg, PA 17125  
Phone: (717) 783-3119  
Fax: (717) 787-7052  
Email: [gs-bsbo@pa.gov](mailto:gs-bsbo@pa.gov)  
Website: [www.dgs.state.pa.us](http://www.dgs.state.pa.us)

The Department's directory of BSBO-verified minority, women, veteran and service disabled veteran-owned businesses can be accessed from:

<http://www.dgsweb.state.pa.us/mbewbe/VendorSearch.aspx>

**I-14. Economy of Preparation.** Offerors should prepare proposals simply and economically, providing a straightforward, concise description of the Offeror's ability to meet the requirements of the RFP.

**I-15. Alternate Proposals.** The Issuing Office has identified the basic approach to meeting its requirements, allowing Offerors to be creative and propose their best solution to meeting these requirements. The Issuing Office will not accept alternate proposals.

**I-16. Discussions for Clarification.** Offerors may be required to make an oral or written clarification of their proposals to the Issuing Office to ensure thorough mutual understanding and Offeror responsiveness to the solicitation requirements. The Issuing Office will initiate requests for clarification. Clarifications may occur at any stage of the evaluation and selection process prior to contract execution.

**I-17. Prime Contractor Responsibilities.** The contract will require the selected Offeror to assume responsibility for all services offered in its proposal whether it produces them itself or by subcontract. The Issuing Office will consider the selected Offeror to be the sole point of contact with regard to contractual matters.

**I-18. Proposal Contents.**

- A. Confidential Information.** The PLCB is not requesting, and does not require, confidential proprietary information or trade secrets to be included as part of Offerors' submissions in order to evaluate proposals submitted in response to this RFP. Accordingly, except as provided herein, Offerors should not label proposal submissions as confidential or proprietary or trade secret protected. Any Offeror who determines that it must divulge such information as part of its proposal must submit the signed written statement described in subsection C. below and must additionally provide a redacted version of its proposal, which removes only the confidential proprietary information and trade secrets, for required public disclosure purposes.

- B. Commonwealth Use.** All material submitted with the proposal shall be considered the property of the Commonwealth of Pennsylvania and may be returned only at the Issuing Office's option. The Commonwealth has the right to use any or all ideas not protected by intellectual property rights that are presented in any proposal regardless of whether the proposal becomes part of a contract. Notwithstanding any Offeror copyright designations contained on proposals, the Commonwealth shall have the right to make copies and distribute proposals internally and to comply with public record or other disclosure requirements under the provisions of any Commonwealth or United States statute or regulation, or rule or order of any court of competent jurisdiction.
- C. Public Disclosure.** After the award of a contract pursuant to this RFP, all proposal submissions are subject to disclosure in response to a request for public records made under the Pennsylvania Right-to-Know-Law, 65 P.S. § 67.101, et seq. If a proposal submission contains confidential proprietary information or trade secrets, a signed written statement to this effect (**Appendix I**) must be provided with the submission in accordance with 65 P.S. § 67.707(b) for the information to be considered exempt under 65 P.S. § 67.708(b)(11) from public records requests. Financial capability information submitted in response to **Part II, Section II-6** of this RFP is exempt from public records disclosure under 65 P.S. § 67.708(b)(26).

#### **I-19. Best and Final Offers.**

- A.** While not required, the Issuing Office reserves the right to conduct discussions with Offerors for the purpose of obtaining "Best and Final Offers." To obtain Best and Final Offers from Offerors, the Issuing Office may do one or more of the following, in any combination and order:
- 1.** Schedule oral presentations;
  - 2.** Request revised proposals;
  - 3.** Conduct interviews; and
  - 4.** Enter into pre-selection negotiations.
- B.** The following Offerors will **not** be invited by the Issuing Office to submit a Best and Final Offer:
- 1.** Those Offerors determined by the Issuing Office to be not responsible or whose proposals the Issuing Office has determined to be not responsive.
  - 2.** Those Offerors, which the Issuing Office has determined in accordance with **Part III, Section III-5** do not possess the financial capability,

experience or qualifications to assure good faith performance of the contract.

3. Those Offerors whose score for their technical submittal of the proposal is less than seventy percent (70%) of the total amount of technical points allotted to the technical criterion.

The Issuing Office may further limit participation in the Best and Final Offer process to those remaining responsible Offerors which the Issuing Office has, within its discretion, determined to be within the top competitive range of responsive proposals.

- C. The Evaluation Criteria found in **Part III, Section III-4**, shall also be used to evaluate the Best and Final Offers.
- D. Dollar commitments to Small Diverse Businesses can be reduced only in the same percentage as the percent reduction in the total price offered through negotiations.

**I-20. News Releases.** Offerors shall not issue news releases, Internet postings, advertisements or any other public communications pertaining to this Project without prior written approval of the Issuing Office, and then only in coordination with the Issuing Office.

**I-21. Restriction of Contact.** From the issue date of this RFP until the Issuing Office selects a proposal for award, the Issuing Officer is the sole point of contact concerning this RFP. Any violation of this condition may be cause for the Issuing Office to reject the offending Offeror's proposal. If the Issuing Office later discovers that the Offeror has engaged in any violations of this condition, the Issuing Office may reject the offending Offeror's proposal or rescind its contract award. Offerors must agree not to distribute any part of their proposals beyond the Issuing Office. An Offeror who shares information contained in its proposal with other Commonwealth personnel and/or competing Offeror personnel may be disqualified.

**I-22. Issuing Office Participation.** Offerors shall provide all services, supplies, facilities, and other support necessary to complete the identified work, except as otherwise provided in this section.

The selected Offeror's team must work at the PLCB's Central Office in the Northwest Office Building, Harrisburg, PA unless otherwise agreed to by the PLCB. The PLCB will provide work space for the selected Offeror's team members at the Northwest Office Building. The amount of work space provided will be at the PLCB's discretion. Work space will consist of a desk or table and a personal computer attached to the PLCB's network with the PLCB's standard software and configuration. No telephone or clerical support will be provided.

**I-23. Term of Contract.** The term of the contract will commence on the Effective Date and will end two (2) years from effective date with three (3) two (2) year

renewal options to be exercised at the PLCB's discretion. The Issuing Officer may renew the contract incrementally or in one (1) six (6)-year step with written notification to the Selected Offeror. The Issuing Office will fix the Effective Date after the contract has been fully executed by the selected Offeror and by the PLCB and all approvals required by PLCB contracting procedures have been obtained. The selected Offeror shall not start the performance of any work prior to the Effective Date of the contract and the PLCB shall not be liable to pay the selected Offeror for any service or work performed or expenses incurred before the Effective Date of the contract.

**I-24. Offeror's Representations and Authorizations.** By submitting its proposal, each Offeror understands, represents, and acknowledges that:

- A.** All of the Offeror's information and representations in the proposal are material and important, and the Issuing Office may rely upon the contents of the proposal in awarding the contract(s). The PLCB shall treat any misstatement, omission or misrepresentation as fraudulent concealment of the true facts relating to the Proposal submission, punishable pursuant to 18 Pa. C.S. § 4904.
- B.** The Offeror has arrived at the price(s) and amounts in its proposal independently and without consultation, communication, or agreement with any other Offeror or potential Offeror.
- C.** The Offeror has not disclosed the price(s), the amount of the proposal, nor the approximate price(s) or amount(s) of its proposal to any other firm or person who is an Offeror or potential Offeror for this RFP, and the Offeror shall not disclose any of these items on or before the proposal submission deadline specified in the Calendar of Events of this RFP.
- D.** The Offeror has not attempted, nor will it attempt, to induce any firm or person to refrain from submitting a proposal on this contract, or to submit a proposal higher than this proposal, or to submit any intentionally high or noncompetitive proposal or other form of complementary proposal.
- E.** The Offeror makes its proposal in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive proposal.
- F.** To the best knowledge of the person signing the proposal for the Offeror, the Offeror, its affiliates, subsidiaries, officers, directors, and employees are not currently under investigation by any governmental agency and have not in the last **four (4)** years been convicted or found liable for any act prohibited by State or Federal law in any jurisdiction, involving conspiracy or collusion with respect to bidding or proposing on any public contract, except as the Offeror has disclosed in its proposal.

- G.** To the best of the knowledge of the person signing the proposal for the Offeror and except as the Offeror has otherwise disclosed in its proposal, the Offeror has no outstanding, delinquent obligations to the Commonwealth including, but not limited to, any state tax liability not being contested on appeal or other obligation of the Offeror that is owed to the Commonwealth.
- H.** The Offeror is not currently under suspension or debarment by the Commonwealth, any other state or the federal government, and if the Offeror cannot so certify, then it shall submit along with its proposal a written explanation of why it cannot make such certification.
- I.** The Offeror has not made, under separate contract with the Issuing Office, any recommendations to the Issuing Office concerning the need for the services described in its proposal or the specifications for the services described in the proposal.
- J.** Each Offeror, by submitting its proposal, authorizes Commonwealth agencies to release to the Commonwealth information concerning the Offeror's Pennsylvania taxes, unemployment compensation and workers' compensation liabilities.
- K.** Until the selected Offeror receives a fully executed and approved written contract from the Issuing Office, there is no legal and valid contract, in law or in equity, and the Offeror shall not begin to perform.

#### **I-25. Notification of Selection.**

- A. Contract Negotiations.** The Issuing Office will notify the Offeror selected for negotiations after the Issuing Office has determined, taking into consideration all of the evaluation factors, the proposal that is the most advantageous to the Issuing Office.
- B. Award.** Offerors whose proposals are not selected will be notified when contract negotiations have been successfully completed and the Issuing Office has received the final negotiated contract signed by the selected Offeror.

**I-26. Debriefing Conferences.** Upon notification of award, Offerors whose proposals were not selected will be given the opportunity to be debriefed. The Issuing Office will schedule the debriefing at a mutually agreeable time. The debriefing will not compare the Offeror with other Offerors, other than the position of the Offeror's proposal in relation to all other Offeror proposals. An Offeror's exercise of the opportunity to be debriefed does not constitute nor toll the time for filing a protest (See Section I-27 of this RFP).

**I-27. RFP Protest Procedure.** The RFP Protest Procedure is on the DGS website at <http://www.dgsweb.state.pa.us/comod/ProtestProcedures.doc>. A protest by a party not submitting a proposal must be filed within **seven (7)** days after the

protesting party knew or should have known of the facts giving rise to the protest, but no later than the proposal submission deadline specified in the Calendar of Events of the RFP. Offerors may file a protest within **seven (7)** days after the protesting Offeror knew or should have known of the facts giving rise to the protest, but in no event may an Offeror file a protest later than **seven (7)** days after the date the notice of award of the contract is posted on Treasury's website (<http://contracts.patreasury.gov/search.aspx>). The date of filing is the date of receipt of the protest. A protest must be filed in writing with the Issuing Office. To be timely, the protest must be received by 4:00 p.m. on the seventh day.

**I-28. Use of Electronic Versions of this RFP.** This RFP is being made available by electronic means. If an Offeror electronically accepts the RFP, the Offeror acknowledges and accepts full responsibility to ensure that no changes are made to the RFP. In the event of a conflict between a version of the RFP in the Offeror's possession and the Issuing Office's version of the RFP, the Issuing Office's version shall govern.

**I-29. Information Technology Policies.** This RFP is subject to the Information Technology Policies (ITPs) (formerly known as Information Technology Bulletins) issued by the Office of Administration, Office for Information Technology (OA-OIT). These policies may be found at <http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=210791&mode=2>

All proposals must be submitted on the basis that all ITPs are applicable to this procurement. It is the responsibility of the Offeror to read and be familiar with the ITPs. Notwithstanding the foregoing, if the Offeror believes that any ITP is not applicable to this procurement, it must list all such ITPs in its technical submittal, and explain why it believes the ITP is not applicable. The Issuing Office may, in its sole discretion, accept or reject any request that an ITP not be considered to be applicable to the procurement. The Offeror's failure to list an ITP will result in its waiving its right to do so later, unless the Issuing Office, in its sole discretion, determines that it would be in the best interest of the Commonwealth to waive the pertinent ITP.

## PART II

### PROPOSAL REQUIREMENTS

Offerors must submit their proposals in the format, including heading descriptions, outlined below. To be considered, the proposal must respond to all requirements in this part of the RFP. Offerors should provide any other information thought to be relevant, but not applicable to the enumerated categories, as an appendix to the proposal. All cost data relating to this proposal and all Small Diverse Business cost data should be kept separate from and not included in the Technical Submittal.

Offerors must submit a separate proposal for each Lot for which they wish to be considered. If an Offeror chooses to offer discounted rates in the event of a multiple-lot award, that discount must be set forth on the total cost worksheet in addition to individual Lot cost worksheets. In no event may an Offeror disclose cost discounting within the technical submittal.

Each proposal shall consist of the following **three (3) separately sealed** (each enclosed in a taped or glued envelop of appropriate size) submittals:

- A. Technical Submittal, which shall be a response to RFP Part II, Sections II-1 through II-8 and Section II-11;**
- B. Small Diverse Business participation submittal, in response to RFP Part II, Section II-9; and**
- C. Cost Submittal, in response to RFP Part II, Section II-10.**

The Issuing Office reserves the right to request additional information which, in the Issuing Office's opinion, is necessary to assure that the Offeror's competence, number of qualified employees, business organization, and financial resources are adequate to perform according to the RFP.

The Issuing Office may make investigations as deemed necessary to determine the ability of the Offeror to perform the Project, and the Offeror shall furnish to the Issuing Office all requested information and data. The Issuing Office reserves the right to reject any proposal if the evidence submitted by, or investigation of, such Offeror fails to satisfy the Issuing Office that such Offeror is properly qualified to carry out the obligations of the RFP and to complete the Project as specified.

**II-1. Statement of the Problem.** State in succinct terms your understanding of the problem presented or the service required by this RFP.

**II-2. Management Summary.** Include a narrative description of the proposed effort and a list of the items to be delivered or services to be provided. All requirements listed in **Part IV-3** must be included in this description.

**II-3. Work Plan.** Describe in narrative form your technical plan for accomplishing the production support work. Use the Lot descriptions in **Part IV** of this RFP as your reference point. Offerors must submit a separate proposal for each Lot for which they wish to be considered. Modifications of the task descriptions are permitted, but must be clearly noted. Reasons for changes should be fully explained. Indicate the number of person hours allocated to each production support task. Include a Program Evaluation and Review Technique chart (PERT) or similar type display, time related, showing each event. If more than one approach is apparent, comment on why you chose this approach.

**II-4. Prior Experience.** Include experience in supporting the products and services in **Appendix N** listing the Oracle modules and **Appendix O** for Lots 1, 2, 3 of the RFP. Experience shown should be work done by individuals who will be assigned to this Project as well as that of your company. Studies or projects referred to must be identified and the name of the customer shown, including the name, address, and telephone number of the responsible official of the customer, company, or agency who may be contacted. Also note any special expertise that would enhance your company's qualifications, such as membership in professional organizations and/or certifications, etc. List any current contracts that may present a conflict of interest. If there are none, provide a statement to that effect.

At least three (3) references should be identified and the name of the customer shown for the prime contractor and any subcontractors relative to **PART IV** of this RFP, including the name, address, and telephone number of the responsible official of the customer, company, or agency who may be contacted.

**II-5. Personnel.** An organizational chart should be included with the number of developers, analysts, application technology support personnel, etc., who will be engaged in the work. Show where these personnel will be physically located during the time they are engaged in the Project. Include a resume for each proposed staff member that identifies their experience with specific Oracle ERP modules, with RICEW (Reports, Interfaces, Conversions, Extensions, and Workflow) custom objects developed for Oracle ERP, and general IT experience. Also include an Organizational chart which shows each person's percent of time and specific role on the project. Resumes must include the employee's name, education and experience in the products and services in **Appendix N** listing the Oracle modules and **Appendix O** for the Lots that correlate with the technical submission. Indicate the responsibilities each individual will have in this Project and how long each has been with your company. Identify by name any subcontractors you intend to use and the services they will perform.

**II-6. Training.** Knowledge transfer to PLCB staff shall be continuous throughout the project through specific sessions and through participation and collaboration on all activities.

**II-7. Financial Capability.** Describe your company's financial stability and economic capability to perform the contract requirements. Provide your company's complete financial statements (audited, if available) for the past three (3) fiscal



years. Financial statements must include the company's Balance Sheet and Income Statement or Profit/Loss Statements. Also include an Experian Business Credit Report or a Dun & Bradstreet comprehensive report, if available. If your company is a publicly traded company, please provide a link to your financial records on your company website in lieu of providing hardcopies. The PLCB reserves the right to request additional information it deems necessary to evaluate an Offeror's financial capability.

**II-8. Objections and Additions to Standard and/or Special Contract Terms and Conditions.** The Offeror will identify which, if any, of the terms and conditions (contained in **Appendices A and B**) it would like to negotiate and what additional terms and conditions the Offeror would like to add to the contract terms and conditions. The Offeror's failure to make a submission under this paragraph will result in its waiving its right to do so later, but the Issuing Office may consider late objections and requests for additions if to do so, in the Issuing Office's sole discretion, would be in the best interest of the PLCB. The Issuing Office may, in its sole discretion, accept or reject any requested changes to the contract terms and conditions. The Offeror shall not request changes to the other provisions of the RFP, nor shall the Offeror request to completely substitute its own terms and conditions for **Appendices A and B**. All terms and conditions must appear in one integrated contract. The Issuing Office will not accept references to the Offeror's, or any other, online guides or online terms and conditions contained in any proposal.

**Regardless of any objections set out in its proposal, the Offeror must submit its proposal**, including the cost submittal, on the basis of the terms and conditions set out in **Appendices A and B**. The Issuing Office will reject any proposal that is conditioned on the negotiation of the terms and conditions set out in **Appendices A and B or to other provisions of the RFP as specifically identified above**.

**II-9. Small Diverse Business Participation Submittal.**

- A.** To receive credit for being a Small Diverse Business or for subcontracting with a Small Diverse Business (including purchasing supplies and/or services through a purchase agreement), an Offeror must include proof of Small Diverse Business qualification in the Small Diverse Business participation submittal of the proposal, as indicated below:

A Small Diverse Business verified by BSBO as a Small Diverse Business must provide a photocopy of their verification letter.

- B.** In addition to the above verification letter, the Offeror must include in the Small Diverse Business participation submittal of the proposal the following information:

- 1. All** Offerors must include a numerical percentage which represents the total percentage of the work (as a percentage of the total cost in the Cost

Submittal) to be performed by the Offeror and not by subcontractors and suppliers.

2. **All** Offerors must include a numerical percentage which represents the total percentage of the total cost in the Cost Submittal that the Offeror commits to paying to Small Diverse Businesses (SDBs) as subcontractors. To support its total percentage SDB subcontractor commitment, Offeror must also include:
    - a) The percentage and dollar amount of each subcontract commitment to a Small Diverse Business;
    - b) The name of each Small Diverse Business. The Offeror will not receive credit for stating that after the contract is awarded it will find a Small Diverse Business.
    - c) The services or supplies each Small Diverse Business will provide, including the timeframe for providing the services or supplies.
    - d) The location where each Small Diverse Business will perform services.
    - e) The timeframe for each Small Diverse Business to provide or deliver the goods or services.
    - f) A subcontract or letter of intent signed by the Offeror and the Small Diverse Business (SDB) for each SDB identified in the SDB Submittal. The subcontract or letter of intent must identify the specific work, goods or services the SDB will perform, how the work, goods or services relates to the Project, and the specific timeframe during the term of the contract and any option/renewal periods when the work, goods or services will be performed or provided. In addition, the subcontract or letter of intent must identify the fixed percentage commitment and associated estimated dollar value that each SDB will receive based on the total value of the initial term of the contract as provided in the Offeror's Cost Submittal. Attached is a letter of intent template which may be used to satisfy these requirements (**Appendix J**).
    - g) The name, address and telephone number of the primary contact person for each Small Diverse Business.
  3. The total percentages and each SDB subcontractor commitment will become contractual obligations once the contract is fully executed.
  4. The name and telephone number of the Offeror's Project (contact) person for the Small Diverse Business information.
- C.** The Offeror is required to submit **two (2)** copies of its Small Diverse Business participation submittal. The submittal shall be clearly identified as Small Diverse Business information and sealed in its own envelope, separate from the remainder of the proposal.
- D.** A Small Diverse Business can be included as a subcontractor with as many prime contractors as it chooses in separate proposals.

- E. An Offeror that qualifies as a Small Diverse Business and submits a proposal as a prime contractor is not prohibited from being included as a subcontractor in separate proposals submitted by other Offerors.

**II-10. Cost Submittal.** The information requested in this **Part II, Section II-10** shall constitute the Cost Submittal (**Appendix F**). **The Cost Submittal shall be placed in a separate sealed envelope** within the sealed proposal, separated from the Technical Submittal. **The Cost Submittal must be clearly marked "Cost Submittal – RFP 20140325 (Lot n) where "n" is the Lot number on which the Offeror is proposing.** Offerors should **not** include any assumptions in their cost submittals. If the Offeror includes assumptions in its cost submittal, the Issuing Office may reject the proposal. Offerors should direct in writing to the Issuing Office pursuant to **Part I, Section I-8**, of this RFP any questions about whether a cost or other component is included or applies. All Offerors will then have the benefit of the Issuing Office's written answer so that all proposals are submitted on the same basis. The total proposed cost shall be broken down into the components listed on **Appendix F**. (See instructions for this appendix.)

Offerors must submit a separate cost submittal for each Lot for which they wish to be considered. If an Offeror wishes to propose a discounted cost in the event of an award of more than one (1) Lot to that Offeror, then the Offeror should include that discounted cost in the total cost worksheet in addition to individual Lot cost worksheets. In no event may an Offeror disclose cost discounting within the technical submittal. Monthly invoices must be sent to the "Bill To" address listed on the purchase order. Invoices must be a mirror image of the approved PLCB Purchase Order. No additional charges will be paid.

This RFP will result in a labor-hours contract, in which hourly rates per resource are as set forth on the cost submittal(s) to this RFP. These rates are all-inclusive, meaning that no additional reimbursements will be made for travel expenses, administrative expenses, or otherwise. The PLCB will not pay for travel time, regardless of the reason. The PLCB will pay for the time spent resolving issues off-hours at the regular hourly rate.

**The Issuing Office will reimburse the selected Offeror for work satisfactorily performed after execution of a written contract and the start of the contract term, in accordance with contract requirements, and only after the Issuing Office has issued a notice to proceed.**

**II-11. Domestic Workforce Utilization Certification.** Complete and sign the Domestic Workforce Utilization Certification contained in **Appendix E** of this RFP. Offerors who seek consideration for this criterion must submit in hardcopy the signed Domestic Workforce Utilization Certification Form **in the same sealed envelope with the Technical Submittal.**

## PART III

### CRITERIA FOR SELECTION

**III-1. Mandatory Responsiveness Requirements.** To be eligible for selection, a proposal must be:

- A. Timely received by the Issuing Office;
- B. Properly signed by the Offeror. For guidance on proper signatory protocol in Pennsylvania procurements, please click on the following link: [http://www.portal.state.pa.us/portal/server.pt/document/642846/pt\\_i\\_ch\\_3\\_1\\_contract\\_signatures\\_pdf](http://www.portal.state.pa.us/portal/server.pt/document/642846/pt_i_ch_3_1_contract_signatures_pdf). **Appendix H, Corporate Signatory Delegation Authorization** should be used if a resolution exists to grant signature authorization to the person signing the proposal.

**III-2. Technical Nonconforming Proposals.** The two (2) Mandatory Responsiveness Requirements set forth in **Section III-1 (A-B)** above are the only RFP requirements that the PLCB will consider to be *non-waivable*. The Issuing Office reserves the right, in its sole discretion, to: (1) waive any other technical or immaterial nonconformities in an Offeror's proposal, (2) allow the Offeror to cure the nonconformity, or (3) consider the nonconformity in the scoring of the Offeror's proposal.

**III-3. Evaluation.** The Issuing Office has selected a committee of qualified personnel to review and evaluate timely submitted proposals. Independent of the committee, BSBO will evaluate the Small Diverse Business participation submittal and provide the Issuing Office with a rating for this component of each proposal. The Issuing Office will notify in writing of its selection for negotiation the responsible Offeror whose proposal is determined to be the most advantageous to the PLCB as determined by the Issuing Office after taking into consideration all of the evaluation factors.

**III-4. Evaluation Criteria.** Except as specifically requested in **Part II-7** of this RFP as it relates to corporate financial records, references to outside information, such as links to websites contained in any submittal will not be accessed or included in the evaluation process. The following criteria will be used in evaluating each proposal:

- A. **Technical:** The Issuing Office has established the weight for the Technical criterion for this RFP as **fifty percent (50%)** of the total points. Evaluation will be based upon the following in order of importance:
  - 1. **Personnel Qualifications** refers to, but is not limited to, the proposed personnel's education and experience in specific Oracle ERP modules, with RICEW custom objects developed for Oracle ERP, and general IT experience.

**2. Offeror Qualifications** refers to, but is not limited to, a measurement of the Offeror's experience in supporting the products and services in **Appendix N** listing the Oracle modules and **Appendix O** for Lots 1, 2, 3 of the RFP. The Offeror's financial ability to undertake a project of this size will also be evaluated in this category

**3. Understanding the Problem and Soundness of Approach** refers to, but is not limited to, the Offeror's accurate assessment of the PLCB's objectives in seeking the services, and the nature and scope of the work involved.

The final Technical scores are determined by giving the maximum number of technical points available to the proposal with the highest raw technical score. The remaining proposals are rated by applying the Technical Scoring Formula set forth at the following webpage:

[http://www.portal.state.pa.us/portal/server.pt/community/rfp\\_scoring\\_formulas\\_overview/20124](http://www.portal.state.pa.us/portal/server.pt/community/rfp_scoring_formulas_overview/20124).

**B. Cost:** The Issuing Office has established the weight for the Cost criterion for this RFP as **thirty percent (30%)** of the total points. The cost criterion is rated by giving the proposal with the lowest total cost the maximum number of Cost points available. The remaining proposals are rated by applying the Cost Formula set forth at the following webpage:

[http://www.portal.state.pa.us/portal/server.pt/community/rfp\\_scoring\\_formulas\\_overview/20124](http://www.portal.state.pa.us/portal/server.pt/community/rfp_scoring_formulas_overview/20124)

**C. Small Diverse Business Participation:** BSBO has established the weight for the Small Diverse Business (SDB) participation criterion for this RFP as **twenty percent (20%)** of the total points. Each SDB participation submittal will be rated for its approach to enhancing the utilization of SDBs in accordance with the below-listed priority ranking and subject to the following requirements:

- 1.** A business submitting a proposal as a prime Offeror must perform sixty percent (60%) of the total contract value to receive points for this criterion under any priority ranking.
- 2.** To receive credit for an SDB subcontracting commitment, the SDB subcontractor must perform at least fifty percent (50%) of the work subcontracted to it.
- 3.** A significant subcontracting commitment is a minimum of five percent (5%) of the total contract value.
- 4.** A subcontracting commitment less than five percent (5%) of the total contract value is considered nominal and will receive reduced or no additional SDB points depending on the priority ranking.

**Priority Rank 1:** Proposals submitted by SDBs as prime Offerors will receive 150 points. In addition, SDB prime Offerors that have significant subcontracting commitments to additional SDBs may receive up to an additional 50 points (200 points total available).

Subcontracting commitments to additional SDBs are evaluated based on the proposal offering the highest total percentage SDB subcontracting commitment. All other Offerors will be scored in proportion to the highest total percentage SDB subcontracting commitment within this ranking. See *formula below*.

**Priority Rank 2:** Proposals submitted by SDBs as prime Offerors, with no or nominal subcontracting commitments to additional SDBs, will receive 150 points.

**Priority Rank 3:** Proposals submitted by non-small diverse businesses as prime Offerors, with significant subcontracting commitments to SDBs, will receive up to 100 points. Proposals submitted with nominal subcontracting commitments to SDBs will receive points equal to the percentage level of their total SDB subcontracting commitment.

SDB subcontracting commitments are evaluated based on the proposal offering the highest total percentage SDB subcontracting commitment. All other Offerors will be scored in proportion to the highest total percentage SDB subcontracting commitment within this ranking. See *formula below*.

**Priority Rank 4:** Proposals by non-small diverse businesses as prime Offerors with no SDB subcontracting commitments shall receive no points under this criterion.

To the extent that there are multiple SDB Participation submittals in Priority Rank 1 and/or Priority Rank 3 that offer significant subcontracting commitments to SDBs, the proposal offering the highest total percentage SDB subcontracting commitment shall receive the highest score (or additional points) available in that Priority Rank category and the other proposal(s) in that category shall be scored in proportion to the highest total percentage SDB subcontracting commitment. Proportional scoring is determined by applying the following formula:

$$\frac{\text{SDB \% Being Scored}}{\text{Highest \% SDB Commitment}} \times \frac{\text{Points/Additional}}{\text{Points Available}^*} = \frac{\text{Awarded/Additional}}{\text{SDB Points}}$$

*Priority Rank 1 = 50 Additional Points Available*

*Priority Rank 3 = 100 Total Points Available*

Please refer to the following webpage for an illustrative chart which shows SDB scoring based on a hypothetical situation in which the Commonwealth receives proposals for each Priority Rank:

[http://www.portal.state.pa.us/portal/server.pt/community/rfp\\_scoring\\_form\\_ulas\\_overview/20124](http://www.portal.state.pa.us/portal/server.pt/community/rfp_scoring_form_ulas_overview/20124)

- D. Domestic Workforce Utilization:** Any points received for the Domestic Workforce Utilization criterion are bonus points in addition to the total points for this RFP. The maximum amount of bonus points available for this criterion is **three percent (3%)** of the total points for this RFP.

To the extent permitted by the laws and treaties of the United States, each proposal will be scored for its commitment to use domestic workforce in the fulfillment of the contract. Maximum consideration will be given to those Offerors who will perform the contracted direct labor exclusively within the geographical boundaries of the United States or within the geographical boundaries of a country that is a party to the World Trade Organization Government Procurement Agreement. Those who propose to perform a portion of the direct labor outside of the United States and not within the geographical boundaries of a party to the World Trade Organization Government Procurement Agreement will receive a correspondingly smaller score for this criterion. See the following webpage for the Domestic Workforce Utilization Formula:

[http://www.portal.state.pa.us/portal/server.pt/community/rfp\\_scoring\\_form\\_ulas\\_overview/20124](http://www.portal.state.pa.us/portal/server.pt/community/rfp_scoring_form_ulas_overview/20124). Offerors who seek consideration for this criterion must submit in hardcopy the signed Domestic Workforce Utilization Certification Form in the **same sealed envelope with the Technical Submittal**. The certification will be included as a contractual obligation when the contract is executed.

**III-5. Offeror Responsibility.** To be responsible, an Offeror must submit a responsive proposal and possess the capability to fully perform the contract requirements in all respects and the integrity and reliability to assure good faith performance of the contract.

In order for an Offeror to be considered responsible for this RFP and therefore eligible for selection for Best and Final Offers or selection for contract negotiations:

- A.** The total score for the technical submittal of the Offeror's proposal must be greater than or equal to **seventy percent (70%)** of the **available technical points**; and
- B.** The Offeror's financial information must demonstrate that the Offeror possesses the financial capability to assure good faith performance of the contract. The Issuing Office will review the Offeror's previous three (3) financial statements, any additional information received from the Offeror, and any other publicly-available financial information concerning the Offeror, and assess each Offeror's financial capacity based on calculating and analyzing various financial ratios, and comparison with industry standards and trends.

An Offeror which fails to demonstrate sufficient financial capability to assure good faith performance of the contract as specified herein may be considered by the Issuing Office, in its sole discretion, for Best and Final Offers or contract negotiation contingent upon such Offeror providing contract performance security for the first contract year cost proposed by the Offeror in a form acceptable to the Issuing Office. Based on the financial condition of the Offeror, the Issuing Office may require a certified or bank (cashier's) check, letter of credit, or a performance bond conditioned upon the faithful performance of the contract by the Offeror. The required performance security must be issued or executed by a bank or surety company authorized to do business in the Commonwealth. The cost of the required performance security will be the sole responsibility of the Offeror and cannot increase the Offeror's cost proposal or the contract cost to the Commonwealth.

Further, the Issuing Office will award a contract only to an Offeror determined to be responsible in accordance with the most current version of Commonwealth Management Directive 215.9, Contractor Responsibility Program.

### **III-6. Final Ranking and Award.**

- A.** After any Best and Final Offer process conducted, the Issuing Office will combine the evaluation committee's final technical scores, BSBO's final small diverse business participation scores, the final cost scores, and (when applicable) the Domestic Workforce Utilization scores, in accordance with the relative weights assigned to these areas as set forth in this Part.
- B.** The Issuing Office will rank responsible Offerors according to the total overall score assigned to each, in descending order.
- C.** The Issuing Office must select for contract negotiations the Offeror with the highest overall score; PROVIDED, HOWEVER, THAT AN AWARD WILL NOT BE MADE TO AN OFFEROR WHOSE PROPOSAL RECEIVED THE LOWEST TECHNICAL SCORE AND HAD THE LOWEST COST SCORE OF THE RESPONSIVE PROPOSALS RECEIVED FROM RESPONSIBLE OFFERORS. IN THE EVENT SUCH A PROPOSAL ACHIEVES THE HIGHEST OVERALL SCORE, IT SHALL BE ELIMINATED FROM CONSIDERATION AND AWARD SHALL BE MADE TO THE OFFEROR WITH THE NEXT HIGHEST OVERALL SCORE.
- D.** The Issuing Office has the discretion to reject all proposals or cancel the request for proposals, at any time prior to the time a contract is fully executed, when it is in the best interests of the Commonwealth. The reasons for the rejection or cancellation shall be made part of the contract file.



## PART IV

### WORK STATEMENT

#### IV-1. Objectives.

**A. General.** The general objective of this project is to provide production support, maintenance, and enhancement consulting services for the PLCB's major business system, based on Oracle ERP, with Financial, Retail, and Point of Service (POS) functionality. This data system is mission critical to the PLCB's two billion dollar (\$2,000,000.00) a year retail business. PLCB cannot risk being without knowledgeable technicians with advanced training and skill sets in the technologies utilized in the system.

The PLCB is seeking innovative and fresh approaches to the leadership, management, production support, and enhancement consulting services of the Oracle ERP system. Proposals should demonstrate not only a comprehensive understanding of the commercial off-the-shelf (COTS) system and the technologies used for custom code, but also novel and inventive approaches that recognize emerging technology while remaining responsive enough to take timely action on changes (hotfixes and patchsets) provided by Oracle. Selected Offeror(s) shall have the skills, knowledge, and abilities to support the PLCB's Oracle ERP system, while remaining within fiscal constraints, driving out-of-the-box functionality and change of PLCB business processes before reverting to custom code.

The Oracle ERP system is a collection of COTS applications and custom extensions that support the PLCB's financial, retail and point of sale operations.

In general, the PLCB's application portfolio consists of three major areas:

#### 1. Financial Operations

- a) E-Business Suite (EBS)
- b) Hyperion

#### 2. Retail Operations – Retail Operations constitutes the largest portion of the portfolio and consists of applications mostly from Oracle such as:

- a) Retail Merchandizing System (RMS), Retail Sales Audit (ReSA), Retail Pricing Module (RPM), Retail Invoice Matching (ReIM), Allocations
- b) Store Inventory Management (SIM)
- c) Retail Integration Bus (RIB)
- d) BPEL (Service Oriented Architecture suite)
- e) Retail Data Warehouse
- f) Retail Demand Forecasting (RDF)
- g) Product Data Quality (PDQ)

- h) Automic Software, Inc.'s (formerly known as UC4) Appworx (job scheduling)

### 3. Point of Service Operations

- a) Oracle Retail Central Office (ORCO)
- b) Oracle Retail Back Office (ORBO)
- c) Oracle Retail Point-of-Service (ORPOS)

NOTE: The applications above are generally referred to as the PLCB's Oracle ERP system.

The complete list of applications, as of September 2014 is found in:

**Appendix O** - Retail Operations Applications at-a-Glance

**Appendix N** - Oracle Financial and Retail Software Versions

File Transfer Standards will be provided to the selected Offeror.

The PLCB's staffing level is designed to support the existing systems and some small projects. The PLCB is not adequately staffed to support enhancement projects that are over three hundred (300) hours.

**B. Specific.** This RFP is divided into three (3) Lots: **Lot 1 – Financial Operations; Lot 2 – Retail Operations; and Lot 3 – Point of Service Operations.** Offerors must submit a separate proposal for each Lot for which they wish to be considered. If an Offeror wishes to propose a discounted cost in the event of an award of more than one (1) Lot to that Offeror, then the Offeror should include that discounted cost on the total cost worksheet, in addition to individual Lot cost worksheets. In no event may an Offeror disclose cost discounting within the technical submittal.

If an Offeror cannot provide all of the services listed in a particular Lot, then the Offeror is ineligible to submit a proposal on that Lot.

The primary objective of this RFP is to select one or more Offerors to:

Lot 1. Provide application and technology production support staff for EBS and other financial applications and technologies as outlined in Table A of **Appendix L**, Oracle ERP Position Support Matrix.

Lot 2. Provide application and technology production support staff as for Oracle retail applications and other applications and technologies as outlined in Table B of **Appendix L**, Oracle ERP Position Support Matrix.

Lot 3. Provide application and technology production support staff for Oracle's Point of Service applications as outlined in Table C of **Appendix L**, Oracle ERP Position Support Matrix.

To assist Offerors in evaluating the effort and resources required, the PLCB has prepared several appendices:

**Appendix K** – ERP and ORCO Infrastructure – An overview of the server, network and database infrastructure of the PLCB centralized financial and retail operations.

**Appendix L should be completed by the Offeror and included in the technical submittal.**

**Appendix M** – Application Inventory – A list of all applications at the PLCB.

**Appendix N** - Oracle Financial, Retail and POS Software Versions – A list of the versions of the Oracle applications. These applications are the most complicated and have the largest amount of data. Please note these are the existing versions as of the writing of this RFP which are subject to change. A new list will be provided upon written request of the selected Offeror(s)

**Appendix O** – Retail Operations Applications at-a-Glance – An overview of the relationships of the applications that make up the PLCB retail operations; the largest set of applications at the PLCB

**Appendices P through AA** - PLCB application and technology standards and guidelines, as follows:

**Appendix P** – Java Standards and Guidelines

**Appendix Q** – BI Publisher Standards and Guidelines

**Appendix R** – Holiday Calendar for 2015 The PLCB  
Headquarters observes these identified Holidays  
which are consistent across calendar years.

**Appendix S** – SQL Standards and Guidelines

**Appendix T** – Batch Interface Coding Standards

**Appendix U** – Reporting Standards and Guidelines

**Appendix V** – File Encryption Standards and Guidelines

**Appendix W** – Application Tech Stack Logging Standards and Guidelines

**Appendix X** – Server Naming Standards and Guidelines

**Appendix Y** - Unix Linux Printing Standards and Guidelines

**Appendix Z**– Technical Landscape – A set of lists of the PLCB’s server, database and network infrastructure

**Appendix AA** - PLCB Batch Job and Script Coding for Migration

**Appendix BB** – Release Management Policy – The PLCB’s application release management policy.

**Appendix CC** – Change Management Policy – The PLCB’s application and infrastructure change management policy.

## **Appendix DD – System Development Life Cycle Policy – The PLCB’s SDLC management policy.**

**IV-2. Nature and Scope of the Project.** The work to be performed under the resulting contract encompasses both project-oriented and production support. Successful Offeror(s) shall be required to produce and maintain various project artifacts. Successful Offeror(s) shall support and maintain the Oracle ERP system using knowledgeable technicians with advanced training and skill sets in the Oracle technologies as well as the technologies utilized within the system for custom objects.

Maintaining current and continuously updated documentation in a common, centralized SharePoint location is critical to providing effective knowledge transfer and continuity.

The PLCB requires continued production support for the Oracle ERP System. To facilitate uninterrupted support, there shall be a three (3) month transition period with the previous service provider at the beginning of this proposed contract.

Also, up to nine (9) months prior to the end of this contract, when directed by the OITS ERP Project Manager, the selected Offeror(s) shall create a plan for performing final knowledge and responsibility transfer of the ERP system to a subsequent Offeror(s) and/or Commonwealth staff. At the direction of the PLCB, the selected Offeror(s) shall perform knowledge transfer sessions with resources from the subsequent Offeror and/or Commonwealth staff. The selected Offeror(s) shall continue to provide knowledge transfer and ERP system support for the duration of the transition period as directed by the PLCB.

### **IV-3. Requirements**

#### **A. Contractor Personnel Changes.**

- 1.** The PLCB must approve or disapprove all planned bid/proposed staffing substitutions and changes. Once the personnel are assigned to this Project, the selected Offeror(s) must not re-assign personnel to another project without written consent from the PLCB.
- 2.** Any planned key or lead staffing substitutions must be submitted to the PLCB’s Project Managers **forty-five (45) business days prior to the substituted or replaced staff starting work.** Substitutions for all other selected Offeror(s) personnel must be submitted to the PLCB’s Project Managers at least **twenty (20) business days prior to the substituted or replaced staff starting work.** The PLCB must not incur any Project delays due to knowledge transfer to new personnel resulting from staffing substitutions or replacement. It is the selected Offeror’s responsibility to train replacement staff.

3. Although use of subcontractors is allowable, the prime selected Offeror(s) is wholly responsible for the performance of any subcontractor. Any use of subcontractors by a selected Offeror(s) must be identified in the proposal. During the Project period, the PLCB must pre-approve in writing the use of any subcontractors not previously identified in the selected Offeror's proposal. The selected Offeror(s) must not transfer or sublet any portion of the work covered by these specifications without prior written consent of the PLCB Project Manager(s).

**B. Collaboration and Transitions.** The PLCB may engage other contractors for specific medium to large scale projects to add or change existing functionality within the Oracle systems. Those projects typically include a plan under which the knowledge, documentation, code, etc., required to support the new or changed functionality is transitioned to the PLCB's support teams.

The selected Offeror(s) for Lots 1, 2, and 3 make up parts of those support teams along with PLCB staff. Therefore, the selected Offeror(s) must participate in the transition and subsequent maintenance and support of the new or changed functionality as part of this RFP, regardless of whether the selected Offeror(s) is the same one used for medium to large scale project. In addition, when the PLCB engages other contractors for specific medium to large scale projects to add or change existing functionality within the Oracle systems, the selected Offeror(s) for Lots 1, 2, and 3 are expected to participate in those projects in their roles as defined in this RFP as if they were members of the PLCB's staff. Furthermore, the selected Offeror(s) may not re-assign staff to work on the medium to large scale project without the express written permission of the PLCB.

At the beginning of the contract period, the selected Offeror(s) shall work with the PLCB and its existing support contractors to ensure a smooth transition. This includes participating in knowledge transfers sessions, turnover of documentation, user accounts, etc. Finally, at the end of the contract period, the selected Offeror(s) shall work with the PLCB and any subsequent support contractors to ensure a smooth transition. This includes holding knowledge transfers sessions, turnover of documentation, user accounts, etc.

**C. Emergency Preparedness.** To support continuity of operations during an emergency, including a pandemic, the Commonwealth needs a strategy for maintaining operations for an extended period of time. One part of this strategy is to ensure that essential contracts that provide critical business services to the Commonwealth have planned for such an emergency and put contingencies in place to provide needed goods and services.

1. Describe how you anticipate such a crisis will impact your operations.

2. Describe your emergency response continuity of operations plan. Please attach a copy of your plan, or at a minimum, summarize how your plan addresses the following aspects of pandemic preparedness:
- a) Identify employee training (describe your organization’s training plan, and how frequently your plan will be shared with employees)
  - b) Identify essential business functions and key employees (within your organization) necessary to carry them out
  - c) Identify contingency plans for:
    - i. Short-term contingency planning – temporary interruption of normal business operations (e.g., electrical power outages)
    - ii. Short term contingency planning – temporary interruption of information technology operations
    - iii. Long-term contingency planning – several months disruption of normal business operations due to a catastrophic event (e.g., fire, tornado, etc.)
    - iv. How employees in your organization will carry out the essential functions if contagion control measures prevent them from coming to the primary workplace.
  - d) Identify how your organization will communicate with staff and suppliers when primary communications systems are overloaded or otherwise fail, including key contacts, chain of communications (including suppliers), etc.
  - e) Provide an assessment of how various crises (e.g., natural disasters, weather conditions, labor strikes, etc.) would be managed to reduce the impact on operations
  - f) Identify how and when your emergency plan will be tested, and if the plan will be tested by a third-party.

#### **IV-4. Tasks.**

**A. Work Generally.** The applications to be supported are listed at Part **IV-1.A** above and the noted Appendices. Customized applications include those built upon the Oracle business application technology such as Oracle’s Oracle Applications Framework, e.g., Order Portal, Store Portal, Vendor Collaboration Portal and Vendor Portal and technologies based on Oracle’s application technology frameworks such as Oracle Application Development Framework.

As part of production support, the selected Offeror(s) will be responsible for collaborating on creating, modifying, testing and maintaining the interfaces to and from the Oracle modules including the Point of Services (POS) System. The selected Offeror(s) will be responsible for collaborating on identifying, researching, testing and implementing two (2) yearly patch updates to all Oracle modules.

**B. Production Support.** Production support service resources will be expected to analyze and help resolve "Level II" and "Level III" production support issues related to the applications and databases as directed by PLCB. Level II and Level III production support issues are those issues that cannot be resolved by the PLCB Level I Help Desk. Level II issues are those which are to be handled by the selected Offeror(s) and PLCB Staff. Level III issues are those issues which must be escalated to the software vendor for assistance in resolution. As described in Part **IV-3.B** above, production support services may also include support for new projects and initiatives.

**C. Administrative Issues.** All production support services will be conducted from the PLCB's Northwest Office Building to ensure the transfer of knowledge to the PLCB's staff. At a minimum, the selected Offeror(s) staff will be on-site from 10:00 AM Monday through 4:00 PM Thursday with off-site working arrangements permitted on Friday as agreed to with the PLCB. The PLCB will conduct quarterly resource planning sessions with the selected Offeror(s) to assess the staffing requirements.

The PLCB's Oracle applications support its retail stores, which operate seven (7) days per week. With the addition of batch jobs, the PLCB operates nearly twenty-four (24) hours per day, seven (7) days per week. Because of this, production support services must be delivered on that same twenty-four (24) hours per day, seven (7) days per week schedule, although the majority of work will naturally occur during normal business hours.

Production support services will be provided at an average of forty-five (45) hours per week per individual. However, there may be weeks during which additional hours may be required due to production outages or operational necessities. There may be weeks when individuals will work less than forty-five (45) hours per week. All hours are paid at straight time. All work over forty-five (45) hours per week per person must be approved by the PLCB. The selected Offeror's staff must be available off-hours through an on-call rotation; however, an initial callback within fifteen (15) minutes of notification must occur during their on-call rotation.

Each Contractor (or sub-contractor) resource must provide or be provided with the following by the selected Offeror(s):

- Commonwealth security IDs for its on-site staff. (There is a \$20 charge for each ID.)

- Criminal Background Check
- A cellular telephone
- A portable computer that is capable of running Microsoft's Terminal Services client and the Commonwealth's VPN solution (currently a Juniper client)
- A high-speed Internet connection at their place of residence. A 4G cellular wireless connection is also acceptable.

The PLCB may conduct interviews of all candidates for production support services and maintains the right to reject any candidates. PLCB also reserves the right to request the removal of any production support staff. Such rejections or requests for removal will not be unreasonably made.

**D. Maintenance.** The PLCB performs weekly maintenance on its Oracle applications in order to keep applications functioning, maintain performance, and install updates or enhancements to programs that cannot be done when the applications are up and running. These changes are done during the PLCB's weekly maintenance window which is currently Sunday mornings between 6:00 AM and 11:00 AM. At least one (1) Oracle Application Technology Support and Database Administration resource is required to work each weekend to perform that week's tasks. A maintenance rotation schedule is used to ensure that the same person does not work every weekend.

**E. Knowledge Transfer.** The PLCB considers knowledge transfer to the PLCB's staff a critical component of Support Services. Knowledge transfer must be an element of:

- Break/fix activities
- Enhancements, patches, migrations, operational changes or new development

In **Appendix L**, the PLCB has identified the following minimum roles and skillsets needed for the various categories in order to support the PLCB Oracle ERP system; however Offerors are not limited to those identified. Offerors should evaluate the PLCB's requirements based on their understanding of this RFP and make additional recommendations on skill sets and roles needed to meet the production support requirements. For purposes of production support staffing, except in the event of exigent circumstances and at the PLCB's sole discretion, no roles or resources will be permitted to participate in the contracted work if they have not been identified by the Offeror(s) in the technical proposal and cost submittal.



**F. Ongoing Production Support Staffing.** The PLCB reserves the right to negotiate proposed staffing levels with selected Offeror(s) prior to contract award.

The PLCB reserves the right to adjust the quantities and skillsets of some or all of the proposed staffing on a quarterly basis based on requirements for support services. The PLCB will provide reasonable notice of any personnel changes.

**G. Enhancement Consulting Services for All Lots.** At the PLCB's discretion, the selected Offeror(s) will provide consulting and project management services to evaluate, develop, and deploy enhancement projects for ERP. Upon request, the selected Offeror(s) will provide the PLCB with a fixed-price written quote describing the service to be provided, the level of effort required by the PLCB, the number of individuals and estimated hours required to complete the task, and the cost associated with each requested task.

The quote will consist of ten (10) high-level Tasks: Planning/Initiation/Project Management, Detailed Requirements Gathering, Fit/Gap Assessment, Designing, Configuration/Build and Unit Testing, Integration and Regression Testing, Training, User Acceptance Testing, Implementation, and transition to be part of Enhancement Consulting Services and will additionally include specific deliverables for each high-level task. [User Acceptance Criteria includes no critical or high importance issues as determined by the PLCB and PLCB acceptance of all deliverables.]

In addition, each quote for an enhancement consulting services project must also include a resume for each proposed staff member that identifies their experience with specific Oracle ERP modules, with RICEW (Reports, Interfaces, Conversions, Extensions, and Workflow) custom objects developed for Oracle ERP, and general IT experience. Also include an Organizational chart, which shows each person's percent of time and specific role on the project.

Final agreement regarding services, level of effort/cost, and payment will be mutually agreed upon by the PLCB and the selected Offeror prior to the initiation of the requested service.

**IV-5 Reports and Project Control.** The selected Offeror(s) shall submit reports, receipts, forms and/or controls as the PLCB shall require.

**A. Project Plan.** The selected Offeror(s) must prepare, maintain and provide to the PLCB a detailed project plan for each project. The plan must clearly identify the work elements of each task, the resources assigned to each element, the time allotted to each element, task dependencies and deliverable items to be produced. Where appropriate, a PERT or GANTT chart display should be used to show project, task, and time relationship.

The project plan must be updated on a biweekly basis (every other week) or more frequently as required.

**B. Progress Reports.** The selected Offeror(s) shall prepare and submit to the PLCB written weekly progress reports during each project addressing project status, significant accomplishments during the reporting period, issues and risks affecting cost and schedule, and recommendations for resolution and knowledge transfer/mentoring activities of note. Reports must be in electronic format to the PLCB Project Manager by Tuesday of each week for the previous week and will show progress through the entire week.

**C. Project Meetings.** During the course of work, the selected Offeror's Project Manager and PLCB will hold weekly meetings at mutually agreeable times. The meetings will take place in Harrisburg, Pennsylvania. The PLCB Project Manager will schedule all meetings. The purpose of these meetings may include, but will not be limited to, project status and presenting recommendations and strategies.

**D. Risk Reporting.** The selected Offeror's Project Manager must submit to the PLCB Project Manager, risk identification reports for risks relating to any component of each project (from requirements through implementation) as well as any other items that impact the project. For definition purposes, a risk is a potential problem; an issue is a current problem. The risk report must include:

1. A description of the risk;
2. A categorization of the risk (such as technical, procurement, training or communications);
3. An analysis of the causes of the risk; and
4. Several mitigation approaches and associated consequences

**E. Issue Reporting.** The selected Offeror's Project Manager must submit to the PLCB Project Manager, a problem identification report for requirements, design and development issues, staffing problems and other issues that may impact each project scope, schedule and work products. The issue report must include:

1. A description of the issue;
2. Resource(s) assigned to resolve the issue;
3. A categorization of the issue (such as technical, procurement, resources, training or communications);
4. An analysis of the causes of the problem;

5. A proposed solution;
6. An assessment of its impact on the schedule and completed work products and services.
7. At a minimum, the issue report must be submitted on a weekly basis with the status report; however, it may be required more frequently depending on the number and type of open issues at any given time, and mutually determined by the PLCB and selected Offeror's Project Managers.

**F. Final Report. A turnover report to include:**

1. Work in Progress, including all Oracle Service Requests, and recognized issues and risks.
2. Sign off that all data has been returned to the PLCB.
3. Contact names and numbers for questions.
4. Include sign-off that all supporting documentation; e.g., flow-charts, forms, questionnaires, etc. have been updated on SharePoint.

**IV-6. Contract Requirements—Small Diverse Business Participation.** All contracts containing Small Diverse Business participation must also include a provision requiring the selected contractor to meet and maintain those commitments made to Small Diverse Businesses at the time of proposal submittal or contract negotiation, unless a change in the commitment is approved by the BSBO. All contracts containing Small Diverse Business participation must include a provision requiring Small Diverse Business subcontractors to perform at least **fifty (50%)** of the subcontracted work.

The selected Offeror's commitments to Small Diverse Businesses made at the time of proposal submittal or contract negotiation shall, to the extent so provided in the commitment, be maintained throughout the term of the contract and through any renewal or extension of the contract. Any proposed change must be submitted to BSBO, which will make a recommendation to the Issuing Officer regarding a course of action.

If a contract is assigned to another Offeror, the new Offeror must maintain the Small Diverse Business participation of the original contract.

The selected Offeror shall complete the Prime Contractor's Quarterly Utilization Report (or similar type document containing the same information) and submit it to the Issuing Officer and BSBO within **ten (10)** workdays at the end of each quarter the contract is in force. This information will be used to determine the actual dollar amount paid to Small Diverse Business subcontractors and suppliers. Also, this information will serve as a record of fulfillment of the commitment the selected

Offeror made and for which it received Small Diverse Business participation points. If there was no activity during the quarter then the form must be completed by stating "No activity in this quarter."

NOTE: EQUAL EMPLOYMENT OPPORTUNITY AND CONTRACT COMPLIANCE STATEMENTS REFERRING TO COMPANY EQUAL OPPORTUNITY POLICIES OR PAST CONTRACT COMPLIANCE PRACTICES DO NOT CONSTITUTE PROOF OF SMALL DIVERSE BUSINESS STATUS OR ENTITLE AN OFFEROR TO RECEIVE CREDIT FOR SMALL DIVERSE BUSINESS UTILIZATION.

# **APPENDIX A**

## **IT CONTRACT TERMS AND CONDITIONS**

The IT Contract Terms and Conditions may be accessed at the following link:  
[http://www.dgsweb.state.pa.us/comod/CurrentForms/IT\\_Terms\\_and\\_Conditions.doc](http://www.dgsweb.state.pa.us/comod/CurrentForms/IT_Terms_and_Conditions.doc)

Item (f) (1) of Section 2, Purchase Orders on Page 2 is changed as follows: "A handwritten signature shall be required in order for the Contract to be legally enforceable."

The Pennsylvania Liquor Control Board uses the Oracle system instead of the SAP system used by other commonwealth agencies. The Selected Offeror, therefore, will be required to register with the PLCB's Supplier Unit. Registration information is available at the following link:

[http://www.portal.state.pa.us/portal/server.pt/community/logistics/17480/supplier\\_registration/611701](http://www.portal.state.pa.us/portal/server.pt/community/logistics/17480/supplier_registration/611701).

## **APPENDIX B**

# **SPECIAL CONTRACT TERMS AND CONDITIONS**

# **SPECIAL CONTRACT TERMS AND CONDITIONS**

---

## **1. INSURANCE REQUIREMENTS**

CONTRACTOR shall procure and maintain at its expense the following types of insurance issued by companies and evidenced by policies, both of which are acceptable to the PLCB and authorized to conduct such business under the laws of the PLCB:

- a. Worker's compensation insurance for all CONTRACTOR's employees and those of any subcontractor, engaged in work at the site of the project in accordance with the Worker's Compensation Act of 1915 and any supplements or amendments thereof.
- b. Comprehensive General Liability, and Property Damage Insurance to protect the PLCB, CONTRACTOR, and any and all subcontractors from claims for damages for personal injury (including bodily injury), sickness or disease, accidental death, and damage to property, including loss of use resulting from any property damage, which may arise out of the services performed under this Contract, whether such performance be by CONTRACTOR, by any subcontractor, or anyone directly or indirectly employed by either. The limits of such insurance shall be in an amount not less than one million dollars (\$1,000,000.00 for injury to or death of one person in a single occurrence and three million dollars (\$3,000,000.00) for injury to or death of more than one person in a single occurrence and two million five hundred thousand dollars (\$2,500,000.00) for a single occurrence of property damage. The insurance must cover, at a minimum, any loss, shortage, breakage, burglary or theft of PLCB merchandise or other Commonwealth property that occurs in the performance of this contract.

Such policies shall be occurrence rather than claims-made policies and shall name the PLCB as an additional insured. The insurance shall not contain any endorsements or any other form designed to limit and restrict any action by the PLCB, as an additional insured, against the insurance coverage in regard to work performed for the PLCB.

Prior to commencement of work under this Contract, the CONTRACTOR shall provide the PLCB with current certificates of insurance. These certificates shall contain a provision that coverage afforded under the policies shall not be cancelled or changed until at least thirty (30) days prior written notice has been given the PLCB. Copies of such notification shall be sent to the PLCB Contract Administrator.

CONTRACTOR also agrees to authorize any provider of insurance coverage required under this Contract, to notify the Issuing Officer of any notices or premiums due by sending a copy of such notice to the Contract Administrator. The PLCB reserves the right, in the event of any default by



the CONTRACTOR on any premiums due hereunder, to cure said default and to deduct such premiums from any monies due the CONTRACTOR.

**2. DISCHARGE**

If during the term of the Contract, or any additional period or extension thereof, the PLCB is required to discontinue operations due to actions or inactions taken by the courts, the Federal government, the Legislature of the Commonwealth of Pennsylvania, or some other cause beyond the control of the PLCB, this Contract shall immediately expire and both parties are discharged from all terms, conditions, and covenants in this Contract. However, a final settlement of this Contract is required and shall survive expiration of this Contract.

## **APPENDIX C**

# **LIQUOR CODE SECTION, LAWS OF PENNSYLVANIA**

## **LIQUOR CODE SECTION, LAWS OF PENNSYLVANIA**

The Contractor shall comply with Liquor Code Sections 210 and 214 [47 P.S. §§ 2210, 2-214], which provide as follows:

### **Section 2-210. Restrictions on members of the board and certain employees of Commonwealth**

- (a) A member or employee of the board or enforcement bureau or a member of the immediate family of a member or employee of the board or enforcement bureau shall not be directly or indirectly interested or engaged in any other business or undertaking within the Commonwealth dealing in liquor, alcohol, or malt or brewed beverages, whether as owner, part owner, partner, member of syndicate, holder of stock exceeding five percent (5%) of the equity at fair market value of the business, independent contractor or manager of a licensed establishment required under 40 Pa. Code §5.23 (relating to appointment of managers), and whether for his own benefit or in a fiduciary capacity for some other person. For the purpose of this subsection only, "employee of the board or Enforcement Bureau" shall mean any individual employed by the board or Enforcement Bureau who is responsible for taking or recommending official action of a non-ministerial nature with regard to:
  - (1) Contracting or procurement;
  - (2) Administering or monitoring grants or subsidies;
  - (3) Planning or zoning;
  - (4) Inspecting, licensing, regulating or auditing any person; or
  - (5) Any other activity where the official action has an economic impact of greater than a de minimis nature on the interests of any person.
- (b) No member or employee of the board or enforcement bureau or a member of the immediate family of a member or employee of the board or enforcement bureau nor any employee of the Commonwealth shall solicit or receive, directly or indirectly, any commission, remuneration or gift whatsoever, from any person having sold, selling or offering liquor or alcohol for sale to the board for use in Pennsylvania Liquor Stores.
- (c) No person convicted of an infamous crime may be employed as a member or employee by the board or enforcement bureau.
- (d) No member or employee of the board or enforcement bureau may use his position with the board or enforcement bureau, or any confidential information received through his position with the board or enforcement bureau, to obtain financial gain, other than compensation provided by

law, for himself, a member of his immediate family or a business with which he is associated.

- (e) No person may offer or give to a member or employee of the board or enforcement bureau or a member of his immediate family or a business with which he is associated, and no member or employee of the board or enforcement bureau may solicit or accept anything of value, including a gift, loan, political contribution, reward or promise of future employment, based on an understanding that the vote, official action or judgment of the member or employee of the board or enforcement bureau would be influenced thereby.
- (f) No member or employee of the board or enforcement bureau or a member of his immediate family or any business in which the member or employee or a member of his immediate family is a director, officer or owner or holder of stock exceeding five percent (5%) of the equity at fair market value of the business may enter into any contract valued at five hundred dollars (\$500.00) or more to provide goods or services to the board or enforcement bureau unless the contract has been awarded to the lowest responsible bidder through an open and public process, including prior public notice and subsequent public disclosure of all proposals considered and contracts awarded.
- (g) No former member or employee of the board or enforcement bureau may represent a person, with or without compensation, on any matter before the board or enforcement bureau for one year after leaving the board or enforcement bureau.
- (h) No member or employee of the board or enforcement bureau or an advisor or consultant thereto having recommended to the board or enforcement bureau either the making of a contract or a course of action of which the making of a contract is an express or implied part, may, at any time thereafter, have an adverse interest in that contract.
- (i) No member or employee of the board or enforcement bureau may influence or attempt to influence the making of, or supervise or deal with, a contract with the board or enforcement bureau in which he has an adverse interest.
- (j) No member or employee of the board or enforcement bureau may have an adverse interest in a contract with the board or enforcement bureau.
- (k) No person having an adverse interest in a contract with the board or enforcement bureau may become an employee of the board or enforcement bureau until the adverse interest has been wholly divested.
- (l) No member or employee of the board or enforcement bureau, except in the performance of his duties as such employee, may, for remuneration,

directly or indirectly, represent a person upon a matter pending before the board or enforcement bureau.

(m) (1) Any person who violates the provisions of this section shall have his employment by the board or enforcement bureau immediately terminated by the appropriate person having the power to terminate and shall be liable to the board or enforcement bureau to reimburse the board or enforcement bureau for all compensation received by him from the board or enforcement bureau while employed in violation of subsection (c).

(2) Any person who violates the provisions of subsections (b), (d) or (e) shall be guilty of a felony and, upon conviction thereof, shall be sentenced to pay a fine of not more than ten thousand dollars (\$10,000.00) or to undergo imprisonment for not more than five (5) years, or both.

(3) Any person who violates the provisions of subsections (a) or (f) through (l) shall be guilty of a misdemeanor and, upon conviction thereof, shall be sentenced to pay a fine of not more than one thousand dollars (\$1,000.00) or to undergo imprisonment for not more than one (1) year, or both.

(4) Any person who obtains financial gain from violating any provisions of this section, in addition to any other penalty provided by law, shall pay into the accounts of the board a sum of money equal to three (3) times the financial gain resulting from the violation.

(5) Any person who violates the provisions of this section shall be barred for a period of five (5) years from engaging in any business or contract with the board or enforcement bureau.

(6) The penalties and sanctions provided by this subsection shall supersede any similar penalties and sanctions provided by the act of July 19, 1957 (P.L. 1017, No. 451), known as the "State Adverse Interest Act" and the act of October 4, 1978 (P.L. 883, No. 170), referred to as the Public Official and Employee Ethics Law.

(n) As used in this section, the following words and phrases shall have the meanings given to them in this subsection:

"Business" shall mean a corporation, partnership, sole proprietorship, firm, enterprise, franchise, association, organization, self-employed individual, holding company, joint-stock company, receivership, trust or legal entity organized for profit or as a not-for-profit corporation or organization.

"Immediate family" shall mean a spouse residing in the person's household and minor dependent children.

"Infamous Crime" shall mean a violation and conviction for an offense which would disqualify an individual from holding public office pursuant to section 6 of Article II of the Constitution of Pennsylvania; a conviction within the preceding ten (10) years for a violation of this section or of 18 Pa.C.S. § 4113 (relating to misapplication of entrusted property and property of government or financial institutions), Ch. 47 (relating to bribery and corrupt influence), Ch. 49 (relating to falsification and intimidation), Ch. 51 (relating to obstructing governmental operations) or Ch. 53 (relating to abuse of office); or a violation of the laws of this Commonwealth or another state or the Federal Government for which an individual has been convicted within the preceding ten (10) years and which is classified as a felony.

**Section 2-214. Prohibitions**

- (a) The board may not make a contract or otherwise do business with a corporation, vendor or service contractor that has not complied with the regulatory and statutory requirements of any other administrative agency.
  
- (b) The board may not make a contract or otherwise do business with a transportation carrier for hire of liquor, wine or malt or brewed beverages which (carrier) has not obtained the proper permits from the Pennsylvania Public Utility Commission under 66 Pa. C.S. Ch. 25 (relating to contract carrier by motor vehicle and broker).

**APPENDIX D**  
**SAMPLE CONTRACT**

SAMPLE

## **SAMPLE CONTRACT**

**THIS CONTRACT** to provide production support, maintenance, and enhancement consulting services for the PLCB's major business system for *Oracle ERP Production Support and Enhancement Consulting Services* ("Contract") is entered into this \_\_\_\_\_ day of \_\_\_\_\_, 201\_, by and between the Commonwealth of Pennsylvania, acting through the Pennsylvania Liquor Control Board ("PLCB"), and \_\_\_\_\_ ("CONTRACTOR").

### **WITNESSETH:**

**WHEREAS**, the PLCB issued a Request For Proposals for *Oracle ERP Production Support and Enhancement Consulting Services*, RFP No. 20140325 ("RFP"); and

**WHEREAS**, CONTRACTOR submitted a proposal in response to the RFP; and

**WHEREAS**, the PLCB determined that CONTRACTOR's proposal, was the most advantageous to the Commonwealth after taking into consideration all of the evaluation factors set forth in the RFP and selected CONTRACTOR for contract negotiations; and

**WHEREAS**, the PLCB and CONTRACTOR have negotiated this Contract as their final and entire agreement in regards to providing support to the PLCB for its applications, databases, and application technology stacks.

**NOW THEREFORE**, intending to be legally bound hereby, the PLCB and CONTRACTOR agree as follows:

1. CONTRACTOR shall, in accordance with the terms and conditions of this Contract, provide a strategy to the PLCB to provide production support, maintenance, and enhancement consulting services for the PLCB's major business system as more fully defined in the RFP, which is attached hereto and made part of this Contract.
2. CONTRACTOR agrees that the services shall be performed during the contract period of twenty-four (24) months following the date of the Notice to Proceed of this Contract by the PLCB. PLCB's Issuing Officer may renew the contract incrementally or in one step, for a period of up to sixty (60) months by written notification to the CONTRACTOR. This right to extend the Contract in no way minimizes the PLCB's right to the timely receipt of the project deliverables as specified in the RFP.
3. The PLCB shall pay the CONTRACTOR during the existence of this Contract for work completed in accordance with the terms and conditions of the Contract, the maximum amount of XXXXXXXX Dollars and XXXXX



Cents (\$\_\_\_\_\_) for the time period set forth in #2 above of this Contract.

4. The PLCB and CONTRACTOR agree to be bound by the IT Contract Terms and Conditions, 8-K-1620, which is attached hereto and made part of this Contract.
5. The PLCB and CONTRACTOR agree to be bound by the Special Contract Terms and Conditions, which is attached and made part of this Contract.
6. The PLCB and CONTRACTOR agree to be bound by the Liquor Code Section, Laws of Pennsylvania, which is attached and made part of this Contract.
7. CONTRACTOR agrees to provide a strategy for *Oracle ERP Production Support and Enhancement Consulting Services* as described in its Technical Submittal, which is attached hereto and made part of this Contract, at the prices listed in its Cost Submittal, which is attached hereto and made part of this Contract.
8. CONTRACTOR agrees to meet and maintain the commitments to Small Diverse Business Submittal, if applicable.
9. This Contract is comprised of the following documents, which are listed in order of precedence in the event of a conflict between these documents:
  - a. The Special Contract Terms and Conditions.
  - b. The Liquor Code Section, Laws of Pennsylvania
  - c. The IT Contract Terms and Conditions, 8-K-620.
  - d. The CONTRACTOR's Cost Submittal and any addenda, if applicable.
  - e. The RFP and any addenda, including all referenced Appendices.
  - f. The CONTRACTOR's Technical Submittal and any addenda, if applicable.

**[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]**

IN WITNESS WHEREOF, the PARTIES to this Contract have executed it through their respective duly authorized officers.

**CONTRACTOR**

BY: \_\_\_\_\_  
NAME DATE

TITLE: \_\_\_\_\_

FEDERAL ID NO: \_\_\_\_\_

*If a Corporation, only the Chairman, President, Vice President, Senior Vice President, Executive Vice President, Assistant Vice President, Chief Executive Officer or Chief Operating Officer must sign; if one of these officers is not available, please attach a resolution. If a sole proprietorship, only the owner must sign; if a partnership, only one partner needs to sign; if a limited partnership, only a general partner may sign. If a Limited Liability Company ("LLC"), only one member needs to sign, unless it is a manager-based LLC, then a manager must sign. If a Municipality, Authority, or other entity, please attach a resolution.*

**DO NOT WRITE BELOW THIS LINE--FOR COMMONWEALTH USE ONLY**

**COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA LIQUOR CONTROL BOARD**

BY: \_\_\_\_\_  
NAME DATE

TITLE: \_\_\_\_\_

**APPROVED FOR FORM AND LEGALITY:**

BY \_\_\_\_\_  
OFFICE OF CHIEF COUNSEL (PLCB) DATE

BY \_\_\_\_\_  
OFFICE OF ATTORNEY GENERAL DATE

THIS DOCUMENT IS APPROVED FOR FISCAL RESPONSIBILITY AND BUDGETARY APPROPRIATENESS.

BY \_\_\_\_\_  
For Comptroller DATE

## **APPENDIX E**

# **DOMESTIC WORKFORCE UTILIZATION CERTIFICATION**

**DOMESTIC WORKFORCE UTILIZATION CERTIFICATION**

To the extent permitted by the laws and treaties of the United States, each proposal will be scored for its commitment to use the domestic workforce in the fulfillment of the contract. Maximum consideration will be given to those Offerors who will perform the contracted direct labor exclusively within the geographical boundaries of the United States or within the geographical boundaries of a country that is a party to the World Trade Organization Government Procurement Agreement. Those who propose to perform a portion of the direct labor outside of the United States and not within the geographical boundaries of a party to the World Trade Organization Government Procurement Agreement will receive a correspondingly smaller score for this criterion. In order to be eligible for any consideration for this criterion, Offerors must complete and sign the following certification. This certification will be included as a contractual obligation when the contract is executed. Failure to complete and sign this certification will result in no consideration being given to the Offeror for this criterion.

I, \_\_\_\_\_ **[title]** of \_\_\_\_\_ **[name of Offeror]** a \_\_\_\_\_ **[place of incorporation]** corporation or other legal entity, ("Offeror") located at \_\_\_\_\_, having a Social **[address]**, having a Social Security or Federal Identification Number of \_\_\_\_\_, do hereby certify and represent to the Commonwealth of Pennsylvania ("Commonwealth") (Check **one** of the boxes below):

All of the direct labor performed within the scope of services under the contract will be performed exclusively within the geographical boundaries of the United States or one of the following countries that is a party to the World Trade Organization Government Procurement Agreement: Armenia, Aruba, Austria, Belgium, Bulgaria, Canada, Chinese Taipei, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Liechtenstein, Lithuania, Luxemburg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

OR

\_\_\_\_\_ **percent** (\_\_\_%) **[Offeror must specify the percentage]** of the direct labor performed within the scope of services under the contract will be performed within the geographical boundaries of the United States or within the geographical boundaries of one of the countries listed above that is a party to the World Trade Organization Government Procurement Agreement. Please identify the direct labor performed under the contract that will be performed outside the United States and not within the geographical boundaries of a party to the World Trade Organization Government Procurement Agreement and identify the country where the direct labor will be performed:

\_\_\_\_\_  
[Use additional sheets if necessary]

The Pennsylvania Liquor Control Board shall treat any misstatement as fraudulent concealment of the true facts punishable under Section 4904 of the *Pennsylvania Crimes Code*, Title 18, of Pa. Consolidated Statutes.

Attest or Witness:

\_\_\_\_\_  
Corporate or Legal Entity's Name

\_\_\_\_\_  
Signature/Date

\_\_\_\_\_  
*Printed Name/Title*

\_\_\_\_\_  
*Printed Name/Title*

## **APPENDIX F**

### **COST SUBMITTAL TEMPLATE**

**INSTRUCTIONS**

- 1.)** Offerors must submit a separate cost submittal for each Lot for which they wish to be considered. The cost submittal must be clearly marked marked "Cost Submittal - RFP 20140325 (Lot n) where "n" is the Lot number on which the Offeror is proposing.
- 2.)** Complete the Rate Card and Production Support Worksheets for every Lot on which you are proposing to compete. For example, if your technical submittal includes a plan for Lot 1, complete the worksheets for Lot 1 Rate Card and Total Cost worksheets. Offerors are also encouraged to provide a proposal integrating more than one (1) Lot if such would result in savings to the PLCB. An Offeror may submit a cost proposal covering Lots 1, 2, and 3 or Lots 1 and 3 or any combination thereof. Separate cost submittal worksheets are provided for each Lot.
- 3.)** The positions listed for each Lot are required minimum resources. As set forth in Part IV-4 and Appendix L of the RFP, Offerors must disclose in the cost submittal all resources proposed to be used. Add additional lines if needed. An average blended rate should be calculated for all additional resources. One hourly rate will be paid for all additional resources.
- 4.)** The fixed hourly rates are all all-inclusive, meaning that no additional reimbursements will be made for expenses or for travel time, regardless of the reason.
- 5.)** The hours given in the "Est. Hours" column equals forty-five (45) hours per week per individual times one hundred four (104) weeks (two (2) years).
- 6.)** Formulas are imbedded in the worksheets. Offerors must verify that all calculations and costs are accurate.

Please contact the Issuing Officer with any questions or concerns.

RFP 20140325  
 IBMS ON-GOING SUPPORT AND MAINTENANCE

Lot 1 (Financial Operations) Rate Card

Positions	Fixed Hourly Rate Initial Contract Period (Years 1 & 2)	Fixed Hourly Rate First Renewal Period (Years 3 & 4)	Fixed Hourly Rate Second Renewal Period (Years 5 & 6)	Fixed Hourly Rate Third Renewal Period (Years 7 & 8)
Sr. EBS Oracle Database Administration with Application Technology Support				
Sr. EBS Oracle Applications Business/Systems Analyst/Functional Expert				
Sr. Oracle Cross-Functional Technology Applications Developer				
Sr. Web Services/Oracle ADF/Java Applications Developer				
Other (Specify)				
Other (Specify)				
Other (Specify)				
Other (Specify)				
Average Blended Rate for Additional Positions	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

**Offeror's Company Name**

RFP 20140325  
IBMS ON-GOING SUPPORT AND MAINTENANCE

**Production Support for Lot 1 (Financial Operations)**

Position	Initial Contract Period (Years 1 & 2)			First Renewal (Years 3 & 4)			Second Renewal (Years 5 & 6)			Third Renewal (Years 7 & 8)		
	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost
Sr. EBS Oracle Database Administration with Application Technology Support	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Sr. EBS Oracle Applications Business/Systems Analyst/Functional Expert	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Sr. Oracle Cross-Functional Technology Applications Developer	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Sr. Web Services/Oracle ADF/Java Applications Developer	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Average Blended Rate for Additional Positions	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!
<b>Lot 1 Production Support Totals</b>			#DIV/0!			#DIV/0!			#DIV/0!			#DIV/0!



**Lot 2 (Retail Operations) Rate Card**

Position	Fixed Hourly Rate Initial Contract Period (Years 1 & 2)	Fixed Hourly Rate First Renewal Period (Years 3 & 4)	Fixed Hourly Rate Second Renewal Period (Years 5 & 6)	Fixed Hourly Rate Third Renewal Period (Years 7 & 8)
Sr. Retail Oracle Database Administration with Application Technology Support				
Jr. Cross-Functional Oracle Application Technology Support and Database Administration				
Sr. Retail Oracle Applications Business/Systems Analyst/Functional Expert				
Jr. RMS Oracle Applications Business/Systems Analyst/Functional Expert				
Sr. Oracle Cross-Functional Technology Applications Developer				
Jr. Oracle Cross-Functional Technology Applications Developer				
Other (Specify)				
Other (Specify)				
Other (Specify)				
Other (Specify)				
Average Blended Rate For Additional Positions	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

**Offeror's Company Name**

RFP 20140325  
IBMS ON-GOING SUPPORT AND MAINTENANCE

**Production Support for Lot 2 (Retail Operations)**

Position	Initial Contract Period (Years 1 & 2)			First Renewal (Years 3 & 4)			Second Renewal (Years 5 & 6)			Third Renewal (Years 7 & 8)		
	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost
Sr. Retail Oracle Database Administration with Application Technology Support	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Jr. Cross-Functional Oracle Application Technology Support and Database Administration	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Sr. Retail Oracle Applications Business/Systems Analyst/Functional Expert	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Jr. RMS Oracle Applications Business/Systems Analyst/Functional Expert	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Sr. Oracle Cross-Functional Technology Applications Developer	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Jr. Oracle Cross-Functional Technology Applications Developer	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Average Blended Rate For Additional Positions	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!
<b>Lot 2 Production Support Totals</b>			#DIV/0!			#DIV/0!			#DIV/0!			#DIV/0!

RFP 20140325  
IBMS ON-GOING SUPPORT AND MAINTENANCE

Lot 3 (Point of Service Operations) Rate Card

Position	Fixed Hourly Initial Contract Period (Years 1 & 2)	Fixed Hourly First Renewal Period (Years 3 & 4)	Fixed Hourly Second Renewal Period (Years 5 & 6)	Fixed Hourly Third Renewal Period (Years 7 & 8)
Sr. ORBO/ORCO Retail Oracle Database Administration				
ORPOS Programmer/Analyst				
ORBO/ORCO Programmer/Analyst				
Payment Business/Systems Analyst				
POS Business/Systems Administrator				
Other (Specify)				
Other (Specify)				
Other (Specify)				
Other (Specify)				
Average Blended Rate for Additional Positions	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

**Offeror's Company Name**

RFP 20140325  
IBMS ON-GOING SUPPORT AND MAINTENANCE

**Production Support for Lot 3 (Point of Service Operations)**

Position	Initial Contract Period (Years 1 & 2)			First Renewal (Years 3 & 4)			Second Renewal (Years 5 & 6)			Third Renewal (Years 7 & 8)		
	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost	Fixed Hourly Rate	Est. Hours	Cost
Sr. ORBO/ORCO Retail Oracle Database Administration	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
ORPOS Programmer/Analyst	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
ORBO/ORCO Programmer/Analyst	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Payment Business/Systems Analyst	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
POS Business/Systems Administrator	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00	\$0.00	4,680	\$0.00
Average Blended Rate for Additional Positions	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!	#DIV/0!	4,680	#DIV/0!
<b>Lot 2 Production Support Totals</b>			#DIV/0!			#DIV/0!			#DIV/0!			#DIV/0!

**Total Cost**

The following chart should automatically calculate the cost for each lot. Offerors must manually calculate discounts.

	Initial Contract Period (Years 1 & 2)	First Renewal (Years 3 & 4)	Second Renewal (Years 5 & 6)	Third Renewal (Years 7 & 8)	Grand Total (Years 1-8)
Lot 1 Production Support Cost	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Lot 2 Production Support Cost	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Lot 3 Production Support Cost	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Discount % if Awarded Two Lots					
--------------------------------	--	--	--	--	--

Discount % if Awarded Two Lots					
--------------------------------	--	--	--	--	--

Offeror's Company Name

**APPENDIX G**

**PROPOSAL COVER SHEET**

**PROPOSAL COVER SHEET  
COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA LIQUOR CONTROL BOARD  
RFP 20140325**

**Enclosed in three separately sealed submittals is the proposal of the Offeror identified below for the above-referenced RFP:**

<b>Offeror Information:</b>	
Offeror Name	
Offeror Mailing Address	
Offeror Website	
Offeror Contact Person	
Contact Person's Phone Number	
Contact Person's Facsimile Number	
Contact Person's E-Mail Address	
Offeror Federal ID Number	

<b>Submittals Enclosed and Separately Sealed:</b>	
<input type="checkbox"/>	Technical Submittal
<input type="checkbox"/>	Small Diverse Business Submittal
<input type="checkbox"/>	Cost Submittal

<b><i>Signature</i></b>	
Signature of an official authorized to bind the Offeror to the provisions contained in the Offeror's proposal:	
Printed Name	
Title	

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM WITH THE OFFEROR'S PROPOSAL MAY RESULT IN THE REJECTION OF THE OFFEROR'S PROPOSAL**

# **APPENDIX H**

## **CORPORATE SIGNATORY DELEGATION AUTHORIZATION**



**CORPORATE SIGNATORY DELEGATION AUTHORIZATION**

I, \_\_\_\_\_, of \_\_\_\_\_, City of \_\_\_\_\_,  
(Name) (Address)

County of \_\_\_\_\_, State of \_\_\_\_\_, certify that I am the  
\_\_\_\_\_ of \_\_\_\_\_, a corporation organized  
(Title/Capacity) (Name of Corporation)

under the laws of the State of \_\_\_\_\_, having its principal office at  
\_\_\_\_\_, City of \_\_\_\_\_, County of \_\_\_\_\_,  
(Address)

State of \_\_\_\_\_; and that the following is a true and complete copy of a  
resolution duly adopted by the Board of Directors of  
\_\_\_\_\_ at a meeting held by them on \_\_\_\_\_ day of  
(Name of Corporation)

\_\_\_\_\_, 20\_\_\_\_, at which a quorum was present; and that this resolution has not  
been altered, amended, repealed, rescinded or otherwise modified and that it is still in  
full force and effect. RESOLVED THAT

\_\_\_\_\_ of \_\_\_\_\_, City of \_\_\_\_\_,  
(Name) (Address)

County of \_\_\_\_\_, State of \_\_\_\_\_ is hereby  
authorized to execute contracts on behalf of the corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the  
corporation this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
(Signature of Certifying Official) (SEAL)

\_\_\_\_\_  
(Typed or Printed Name)

\_\_\_\_\_  
(Title)

# **APPENDIX I**

**TRADE SECRET/CONFIDENTIAL  
PROPRIETARY INFORMATION NOTICE**

## **Trade Secret/Confidential Proprietary Information Notice**

Instructions:

The Commonwealth may not assert on behalf of a third party an exception to the public release of materials that contain trade secrets or confidential proprietary information unless the materials are accompanied, at the time they are submitted, by this form or a document containing similar information.

It is the responsibility of the party submitting this form to ensure that all statements and assertions made below are legally defensible and accurate. The Commonwealth will not provide a submitting party any advice with regard to trade secret law.

**Name of submitting party:**

**Contact information for submitting party:**

**Please provide a brief overview of the materials that you are submitting (e.g. bid proposal, grant application, technical schematics):**

**Please provide a brief explanation of why the materials are being submitted to the Commonwealth (e.g. response to bid #12345, application for grant XYZ being offered by the Department of Health, documents required to be submitted under law ABC)**

**Please provide a list detailing which portions of the material being submitted you believe constitute a trade secret or confidential proprietary information, and please provide an explanation of why you think those materials constitute a trade secret or confidential proprietary information. Also, please mark the submitted material in such a way to allow a reviewer to easily distinguish between the parts referenced below. (You may attach additional pages if needed)**

**Note:** The following information will not be considered a trade secret or confidential proprietary information:

- Any information submitted as part of a vendor's cost proposal
- Information submitted as part of a vendor's technical response that does not pertain to specific business practices or product specification
- Information submitted as part of a vendor's technical or disadvantaged business response that is otherwise publicly available or otherwise easily obtained
- Information detailing the name, quantity, and price paid for any product or service being purchased by the Commonwealth

<u>Page Number</u>	<u>Description</u>	<u>Explanation</u>
--------------------	--------------------	--------------------

## **Acknowledgment**

The undersigned party hereby agrees that it has read and completed this form, and has marked the material being submitted in accordance with the instructions above. The undersigned party acknowledges that the Commonwealth is not liable for the use or disclosure of trade secret data or confidential proprietary information that has not been clearly marked as such, and which was not accompanied by a specific explanation included with this form.

The undersigned agrees to defend any action seeking release of the materials it believes to be trade secret or confidential, and indemnify and hold harmless the Commonwealth, its agents and employees, from any judgments awarded against the Commonwealth in favor of the party requesting the materials, and any and all costs connected with that defense. This indemnification survives so long as the Commonwealth has possession of the submitted material, and will apply to all costs unless and until the undersigned provides a written statement or similar notice to the Commonwealth stating that it no longer wishes to exempt the submitted material from public disclosure.

The undersigned acknowledges that the Commonwealth is required to keep all records for at least as long as specified in its published records retention schedule.

The undersigned acknowledges that the Commonwealth reserves the right to reject the undersigned's claim of trade secret/confidential proprietary information if the Commonwealth determines that the undersigned has not met the burden of establishing that the information constitutes a trade secret or is confidential. The undersigned also acknowledges that if only a certain part of the submitted material is found to constitute a trade secret or is confidential, the remainder of the submitted material will become public; only the protected information will be removed and remain nonpublic.

If being submitted electronically, the undersigned agrees that the mark below is a valid electronic signature.

Signature

Title

Date

# **APPENDIX J**

## **SMALL DIVERSE BUSINESS LETTER OF INTENT**

[DATE]

[SDB Contact Name  
Title  
SDB Company Name  
Address  
City, State, Zip]

Dear [SDB Contact Name]:

This letter serves as confirmation of the intent of [Offeror] to utilize [Small Diverse Business (SDB)] on RFP 20140325, *Oracle ERP Production Support and Enhancement Consulting Services*, issued by the Pennsylvania Liquor Control Board.

If [Offeror] is the selected Offeror, [SDB] [identify the specific work, goods or services the SDB will perform, and the specific timeframe during the term of the contract and any option/renewal periods when the work, goods or services will be performed or provided].

These services represent [identify fixed numerical percentage commitment] of the total cost in the [Offeror's] cost submittal for the initial term of the contract. Dependent on final negotiated contract pricing and actual contract usage or volume, it is expected that [SDB] will receive an estimated [identify associated estimated dollar value that the fixed percentage commitment represents] during the initial contract term.

[SDB] represents that it meets the small diverse business requirements set forth in the RFP and all required documentation has been provided to [Offeror] for its SDB submission.

We look forward to the opportunity to serve the Pennsylvania Liquor Control Board on this project. If you have any questions concerning our small diverse business commitment, please feel free to contact me at the number below.

Sincerely,

Acknowledged,

Offeror Name SDB Name

Title Title

Company Company

Phone number Phone number

# **APPENDIX K**

## **ERP AND ORCO INFRASTRUCTURE**



## **B-1. Background**

The PLCB currently runs its Oracle financial, retail and point-of-service applications on the following combinations of hardware and software:

- IBM p-series physical servers split into multiple logical partitions (LPARs)<sup>1</sup> and running AIX 7.1, 6.1 or 5.3.
- VMware based virtual machines running SuSE Linux Enterprise Server 11, RedHat Enterprise Linux 5, Windows Server Standard, Enterprise or Datacenter editions 2003/2008
- A small number of physical servers running any of the above operating systems.
- Multiple Storage Area Network (SAN) disk storage, including IBM DS8300/6800/4000/5000 series SANs. The DS3000/4000/5000 series SANs perform some wide area network, disk to disk replication.

The production and test servers are located at the Data PowerHouse, run by the Commonwealth's outsourced systems management vendor, Unisys. Please note location and vendor of the Data PowerHouse is subject to change; as the Commonwealth is moving forward with a new RFP for its outsourced systems management. The movement to a potential new datacenter service model is anticipated to be underway prior to the start of work covered under this RFP.

The DS4300's are located at the PLCB's distribution centers but are noted here because the target of their data replication is a DS5100 at 1400A Cameron St. This needs to be taken into consideration during the Planning/Initiation and Design phases as well a replacement implemented as part of this project.

The PLCB also owns two IBM p-series servers at the Commonwealth's Internet DMZ located at the EDC, in an area known as CoLocation. These servers run the production and one of the test copies of the Oracle eBusiness application used for some externally facing application. The e-Commerce servers are located at the Commonwealth's EDC, but in an area known as Managed Services Lite (MSL) and are not owned by the PLCB.

With the exception of the servers located at the EDC, the servers are not directly accessible from the Internet.

In addition to the systems at the Data PowerHouse, the PLCB has a disaster recovery (D/R) installation at 1400A Cameron St. Oracle Data Guard is used to replicate the production databases to IBM p-series servers at the D/R site. AIX/Linux rsync is used to replicate other filesystems to the IBM p-series servers at the D/R site.

---

<sup>1</sup> For the purposes of this appendix, *server* refers to an LPAR on a *physical server*.

The training copy of the Oracle applications is also housed at 1400A Cameron St. Development copies are housed at 1400A Cameron St and the NWOB.

### **B-1.1. Environments**

The PLCB maintains the following environments: Development – 2 copies. This is the technical environment for development of objects such as reports, interfaces, conversions, extensions/customizations and workflow. Initial configurations are also performed here. This environment is used for unit testing and is located at the PLCB and at 1400A Cameron St.

- Integration Test – 1 copy. This is the environment used to refine design and configuration. Components are placed into this environment when they are ready for “string” testing, i.e. inter-component testing. This environment is located at the PLCB and at 1400A Cameron St.
- User Acceptance Test – 2 copies. This environment is used for final testing and sign-off of components as well as load testing. This environment is located at the DPH. One of the two environments duplicates the full production configuration and is suitable for load testing.
- Training – 1 copy. This is the environment used for training of store and central office staff. In the event of a disaster, this copy would be shut down and its capacity added to the disaster recovery copy. This environment is located at the 1400A Cameron St.
- Production – 1 copy. Final production environment. Periodically “cloned” to all other environments for development and testing purposes. This environment is located at the DPH.
- Disaster recovery – 1 copy. This copy of production is kept up to date using Oracle DataGuard and AIX/Linux rsync. This copy is located at 1400A Cameron St.

### **B-1.2. Oracle environment naming conventions**

Oracle environments are typically named as follows:

<Application><Environment><ServerSet><Series> where:

- <Application> is a single letter code for the application.
  - E – eBusiness Suite
  - H – Hyperion
  - R – RMS (RMS, REIM, ReSA, RPM, ARI, Allocations)
  - S – SIM
  - D – RDW

- R – RIB
  - P – RPAS
  - B – BPEL
  - C – Oracle Retail Central Office
- <Environment> is a single letter code for the environment.
    - D – Development
    - W – Integration Test
    - A – UAT
    - P – Production
  - <ServerSet> is a number that defines on which set of servers it exists. (See server naming conventions)
  - <Series> is a number that indicates if there is more than one. For example, if there are two eBusiness applications on the same server set, the first one will be 1 (one) and the second will be 2 (two).

### **B-1.3. Oracle Tiers**

Oracle applications, by their design, are two tier applications.

- The first tier is a combination web server and application server. By convention, these are called application servers.
- The second tier is a database server. However, unlike typical database servers, Oracle’s ERP database servers also run significant portions of the applications including workflow, interfaces, some business logic and almost all batch processing.

Some of Oracle’s applications were built by Oracle. Some, especially the retail applications, were recently purchased from a variety of vendors. Because of this, there are exceptions to almost every rule, especially within the retail applications.

### **B-1.4. Server naming conventions**

Servers are typically named as follows:

lb<Application><Environment><Type><ServerSet><Series> where:

- “lb” is a constant required by the Office of Administration for PLCB servers.
- <Application> is a short letter code for the application:
  - EBS – eBusiness Suite
  - HYP – Hyperion
  - RMS – RMS (RMS, REIM, ReSA, RPM, ARI, Allocations)
  - SIM – SIM
  - RDW – RDW

- INT – RIB (for instances of RIB where they do not reside on a server with an application)
  - PLN – RPAS
  - BPEL – BPEL
  - APP – Appworx
  - SSO – Single Oracle application logon service
  - ORCO – Oracle Retail Central Office
  - NFS – Network File System (Common mount point for shared data within an environment)
- <Environment> is a short letter code for the environment:
    - DEV – Development
    - DEV – Integration Test
    - UAT – UAT
    - PRD – Production
  - <Type> is either:
    - APP – for an application server
    - DB – for a database server. Some servers have both the application and database on them and so are named as database servers. Examples include:
      - BPEL
      - APPWORX
      - RPAS
  - <ServerSet> is a number that defines on which set of servers it exists. For example, all of the servers that provide one of the UAT environments have a “9” in this position. This number makes it easy to link an Oracle environment to the servers on which it resides.
  - <Series> is a number that indicates if there is more than one. For example, if there are two (2) eBusiness application servers, on the same server set, the first one will be 1 (one) and the second will be 2 (two).

Other servers and environments typically follow these conventions although there are exceptions.

## **B-2. Network Load Balancing**

The PLCB uses a load balancer from Cisco on its EBS and SIM application servers, as well as for Common Unix Printing System (CUPS) and FTP. No other application servers are load balanced.

The Oracle SIM application servers are load balanced through a Cisco ACE Module using least connections as its load balancing algorithm. When a client connection is load balanced to one of the application servers, it remains “stuck” to that server by source IP address until the client has been idle for 120 minutes.

The internal Oracle EBS application servers are load balanced through a Cisco ACE Module using round robin as its load balancing algorithm. Client connections are SSL encrypted, the SSL encryption terminates at the ACE Module. When a client connection is load balanced to one of the application servers, it remains "stuck" to that server by both source and destination IP address until the client has been Idle for 480 minutes.

The external, Internet facing Oracle EBS application servers are load balanced through equipment at the Commonwealth Technology Center. This equipment is managed by the Office of Administration. It is set up to use round robin as its load balancing algorithm. Client connections are SSL encrypted, the SSL encryption terminates at the load balancer. When a client connection is load balanced to one of the application servers, it remains "stuck" to that server by both source and destination IP address until the client has been idle for 480 minutes.

The Common Unix Printing System, CUPS, is load balanced through a Cisco ACE Module using an active/passive load balancing method. Printouts go to a common URL in each environment. All traffic for a particular environment will go to the active server, unless it is unavailable, in which it would be switched to the passive server by the load balancer.

The external FTP servers are load balanced through equipment at the Commonwealth Technology Center. This equipment is managed by the Office of Administration. It is set up using a manual primary/secondary load balancing method. All traffic will get routed to the primary server. If this server becomes unavailable, the load balancer traffic must be manually switched to the secondary server.

### **B-3. High Availability**

The PLCB's applications require high availability of the underlying hardware and operating system software. The PLCB has rarely experienced failures of either one. To provide high availability at low cost, the PLCB has employed a number of facilities:

- IBM Live Partition Mobility and all prerequisites to allow the PLCB to manually load balance and manually move running IBM LPARs between frames.
- VMWare clusters (vMotion, Distributed Resource Scheduling, and Storage vMotion) which allow the PLCB to automatically load balance and automatically move running virtual machines between hosts.

This architecture has allowed the PLCB to enjoy high availability without complexity or impact on its applications.

In addition, the PLCB uses:

- IBM FlashCopy of all disks to mitigate the effects of user error on operations. FlashCopies are performed every morning at 6:00am, including during the Sunday maintenance window. FlashCopies allow the PLCB to restore its disks quickly.
- VMWare Snapshots when upgrading or making major application changes. Snapshots allow changes to be rolled back quickly. Snapshots have an impact on performance and so are only used when necessary.

The PLCB does not use Oracle Real Application Clusters (RAC), IBM HA (formerly IBM High Availability Cluster Multiprocessing) or Microsoft Windows clusters.

## **B-4. Other Information**

### **B-4.1. Non-production Stores for Testing**

The PLCB maintains at least one and sometimes more non-production stores within the Northwest Office Building for testing point-of-service interfaces and connectivity to ERP environments.

These non-production stores contain, at minimum:

- One (1) or more cash registers
- One (1) store controller
- One (1) or more business PCs. The business PC is currently a Microsoft Windows/XP system with, at minimum, the software listed in the table below.:
- One (1) or more Motorola (formerly Symbol) handheld scanners used for receiving and inventory.
- One (1) or more printers.

## **B-5. Printing**

Most of the ERP servers use the Common Unix Printing System (CUPS) to communicate with the printers, especially the printers in the 600+ stores. (However, there are a small number of printers within EBS that still use Line Printer Remote protocol/ Line Printer Daemon protocol (LPR/LPD)). Each environment contains a pair of CUPS logical servers with the DNS hostname:

LBCUPS<ServerSet><Series>.

Where

- <ServerSet> is a number that defines on which set of servers it exists. For example, all of the servers that provide one of the UAT environments have a "9" in this position. This number makes it easy to link an Oracle environment to the servers on which it resides.

- <Series> is a number that indicates if there is more than one. For example, if there are two (2) eBusiness application servers, on the same server set, the first one will be 1 (one) and the second will be 2 (two).

The logical CUPS servers are co-located on other application servers.

#### **B-6. Authentication**

All of the ERP servers use the Commonwealth's Active Directory for authentication. Authorization is done via the normal operating system files. The PLCB has developed Kerberos configurations to provide Active Directory authentication.

#### **B-7. Cloning**

All non-production systems are periodically copied or "cloned" from production using various mechanisms. The copies include:

- The application code
- The databases

Note that due to limitations of the Oracle applications, all development , integration and UAT environments contain a 100% copy of production data.

While the PLCB will provide the documentation in its possession on the cloning process after the contract is awarded, the vendor is encouraged to use its own cloning tools or processes if they are more efficient, faster or require less staff to execute.

#### **B-8. Crystal Reports and SQL/Server**

While most ERP reports are written using Oracle's BI Publisher application, some are written using Crystal Reports. In addition, some ERP data is extracted into Microsoft SQL/Server databases where it then used by other applicatons.

There is a set of one SQL/Server database instance, one Crystal Reports server and one ASP.NET front end server per ERP environment.

# **APPENDIX L**

## **ORACLE ERP POSITION SUPPORT MATRIX**



**COMPLETE THE ACTUAL YEARS EXPERIENCE COLUMN AND INCLUDE WITH THE TECHNICAL SUBMITTAL**

**Table A – Positions for Lot 1 (minimum one of each position)**

<b>Experience/Skill Preferred</b>	<b>Position</b>
A.1	Senior EBS Oracle Database Administration with Application Technology Support
A.2	Senior EBS Oracle Applications Business/Systems Analyst/Functional Expert
A.3	Senior Oracle Cross-functional Technology Applications Developer
A.4	Senior Web Services/Oracle ADF/Java Applications Developer

**Table A.1 – Senior EBS Oracle Database Administration with Application Technology Support Duties**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Database Administration (11g) of Large scale (> 500 GB) database management with multi-hundred million row tables	<ul style="list-style-type: none"> <li>• Start, stop, back up databases</li> <li>• Reorganize data</li> <li>• Purge and/or archive outdated data</li> <li>• Install, update, delete stored procedures, tables, indexes, etc.</li> <li>• Configure, monitor and manage data replication</li> <li>• “Clone” applications, databases and environments in support of projects and production support issues</li> <li>• Coordinate batch job schedule, module or parameter changes with the PLCB’s Operations Staff.</li> <li>• Maintain the patch inventory and patch logs</li> </ul>	4	
Oracle eBusiness Suite Administration	Oracle application technology administration and support.	4	
Oracle Hyperion	Oracle application technology administration and support	1	

Oracle Forms Server to include Oracle Application Framework (OAF) and Oracle Application Development Framework (ADF)Administration	Oracle application technology administration and support.	2	
Oracle (or BEA) Weblogic Administration	Oracle application technology administration and support.	1	
Oracle SOA Suite (BPEL) Administration	Oracle application technology administration and support.	2	
Linux/Unix use and shell scripting	Fundamental Linux/Unix skillset	2	

**Table A.2– Senior EBS Oracle Applications Business/Systems Analyst/Functional Expert**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
eBusiness Suite (EBS). Including but not limited to: General Ledger, Fixed Assets, I-Supplier Portal, Accounts Payable, Accounts Receivable, Cash Management, Project Costing, Property Manager, Purchasing and Order Management business/systems analysis	<ul style="list-style-type: none"> <li>• Work with PLCB production support resources to analyze the root cause of the problem</li> <li>• Develop new functional specifications (MD50's/MD60's) for new projects, enhancements or production support updates.</li> <li>• Make changes in application setups (configuration)</li> <li>• Make changes in application security setups</li> <li>• Design and support the development and test of changes to existing custom programs (RICEW objects) required to resolve production support or in support of projects or enhancements</li> <li>• Perform programmatic corrections to production data</li> <li>• Work with Oracle Support to resolve application-related issues</li> <li>• Test Oracle-provided patches</li> <li>• Provide Knowledge Transfer of solutions design and Oracle products</li> <li>• Participate in capacity planning</li> <li>• Participate in disaster recovery exercises</li> </ul>	5	
Hyperion business/systems analysis	Oracle application technology administration and support.	2	
Oracle Application Framework business/systems analysis	Oracle application technology administration and support.	3	
Ability to write SQL Queries to query data	Fundamental SQL skillset	4	

**Table A.3 – Senior Oracle Cross-Functional Technology Applications Developer**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle's BI Publisher (10g and 11g) development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
Oracle Forms development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
BPEL or similar enterprise service bus products such as WebMethods or MQ Series development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Crystal Reports or similar tools	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
PL/SQL and SQL development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
Java, ProC, .Net	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Oracle Database Administration	Fundamental database administration skillset	1	
Unix / Linux Shell or equivalent Scripting Experience	Fundamental Linux/Unix skillset	1	

**Table A.4– Senior Web Services/Oracle ADF/Java Applications Developer**

<b>Experience/Skills Preferred</b>	<b>Tasks to be performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle ADF – Development with production application deployments utilizing ADF as the primary framework.	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
Java – Experience developing large scale (multi-tier or high volume) applications in Java	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	3	

**Table B – Positions for Lot 2 (minimum one of each position)**

<b>Experience/Skill Preferred</b>	<b>Position</b>
B.1	Senior Retail Oracle Database Administration with Application Technology Support
B.2	Junior Cross-functional Oracle Application Technology Support and Database Administration
B.3	Senior Retail Oracle Applications Business/Systems Analyst/Functional Expert
B.4	Junior RMS Oracle Applications Business/Systems Analyst/Functional Expert
B.5	Senior Oracle Cross-Functional Technology Applications Developer
B.6	Junior Oracle Cross-Functional Technology Applications Developer

**Table B.1– Senior Retail Oracle Database Administration with Application Technology Support Duties**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Database Administration (11g) Large scale (> 1 TB) database management with multi-hundred million row tables	<ul style="list-style-type: none"> <li>• Start, stop, back up databases</li> <li>• Reorganize data</li> <li>• Purge and/or archive outdated data</li> <li>• Install, update, delete stored procedures, tables, indexes, etc.</li> <li>• Configure, monitor and manage data replication</li> <li>• “Clone” applications, databases and environments in support of projects and production support issues</li> <li>• Coordinate batch job schedule, module or parameter changes with the PLCB’s Operations Staff.</li> <li>• Maintain the patch inventory and patch logs</li> </ul>	4	
Oracle Forms Server to include Oracle Application Development Framework (ADF) Administration	Oracle application technology administration and support.	2	
Oracle Merchandizing Operations Management (RMS, Allocations, REIM, RPM, ReSA) Administration	Oracle application technology administration and support.	2	
Oracle SIM Administration	Oracle application technology administration and support.	2	
Oracle RIB Administration	Oracle application technology administration and support.	2	
Oracle RDW Administration	Oracle application technology administration and support.	2	
Oracle RDF Administration	Oracle application technology administration and support.	1	
Oracle (or BEA) Weblogic Administration	Oracle application technology administration and support.	1	
Oracle SOA Suite (BPEL) Administration	Oracle application technology administration and support.	2	

AppWorx Administration	Fundamental AppWorx skillset	2	
------------------------	------------------------------	---	--

**Table B.2 – Junior Cross-functional Oracle Application Technology Support and Database Administration**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Database Administration (11g) Large scale (> 1 TB) database management with multi-hundred million row tables	<ul style="list-style-type: none"> <li>• Start, stop, back up databases</li> <li>• Reorganize data</li> <li>• Purge and/or archive outdated data</li> <li>• Install, update, delete stored procedures, tables, indexes, etc.</li> <li>• Configure, monitor and manage data replication</li> <li>• “Clone” applications, databases and environments in support of projects and production support issues</li> <li>• Coordinate batch job schedule, module or parameter changes with the PLCB’s Operations Staff.</li> <li>• Maintain the patch inventory and patch logs</li> </ul>	2	
Oracle eBusiness Suite Administration	Oracle application technology administration and support.	1	
Oracle Merchandizing Operations Management (RMS, Allocations, REIM, RPM, ReSA) Administration	Oracle application technology administration and support.	1	
Oracle SIM Administration	Oracle application technology administration and support.	1	
Oracle RDW Administration	Oracle application technology administration and support.	1	
Oracle Forms Server including Oracle Application Development Framework (ADF) Administration	Oracle application technology administration and support.	1	



Oracle (or BEA) Weblogic Administration	Oracle application technology administration and support.	1	
Oracle SOA Suite (BPEL) Administration	Oracle application technology administration and support.	1	
Oracle Retail Central Office, Back Office Administration	Oracle application technology administration and support.	1	
Linux/Unix use and shell scripting	Fundamental Linux/Unix skillset	2	

**Table B.3 – Senior Retail Oracle Applications Business/Systems Analyst/Functional Expert**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Merchandizing Operations Management (RMS, Allocations, REIM, RPM, ReSA) business/systems analysis	<ul style="list-style-type: none"> <li>• Analyze and help resolve “Level II” and “Level III” production support issues related to the applications</li> <li>• Work with PLCB production support resources to analyze the root cause of the problem</li> <li>• Develop new functional specifications (MD50’s/MD60’s) for new projects, enhancements or production support updates.</li> <li>• Make changes in application setups (configuration)</li> <li>• Make changes in application security setups</li> <li>• Design and support the development and test of changes to existing custom programs (RICEW objects) required to resolve production support or in support of projects or enhancements</li> <li>• Perform programmatic corrections to production data</li> <li>• Work with Oracle Support to resolve application-related issues</li> <li>• Test Oracle-provided patches</li> <li>• Provide Knowledge Transfer of solutions design and Oracle products</li> <li>• Participate in capacity planning</li> <li>• Participate in disaster recovery exercises</li> </ul>	5	
Oracle SIM business/systems analysis	Oracle application technology administration and support.	5	
Oracle RDF business/systems analysis	Oracle application technology administration and support.	3	
Oracle BI Publisher business/systems analysis	Oracle application technology administration and support.	2	
Ability to write SQL Queries to query data	Fundamental SQL skillset	4	

**Table B.4 – Junior RMS Oracle Applications Business/Systems Analyst/Functional Expert**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Merchandizing Operations Management (RMS, Allocations, REIM, RPM, ReSA) business/systems analysis	<ul style="list-style-type: none"> <li>• Work with PLCB production support resources to analyze the root cause of the problem</li> <li>• Develop new functional specifications (MD50's/MD60's) for new projects, enhancements or production support updates.</li> <li>• Make changes in application setups (configuration)</li> <li>• Make changes in application security setups</li> <li>• Design and support the development and test of changes to existing custom programs (RICEW objects) required to resolve production support or in support of projects or enhancements</li> <li>• Perform programmatic corrections to production data</li> <li>• Work with Oracle Support to resolve application-related issues</li> <li>• Test Oracle-provided patches</li> <li>• Provide Knowledge Transfer of solutions design and Oracle products</li> <li>• Participate in capacity planning</li> <li>• Participate in disaster recovery exercises</li> </ul>	3	
Oracle SIM business/systems analysis	Oracle application technology administration and support.	2	
Oracle RDF business/systems analysis	Oracle application technology administration and support.	2	
Ability to write SQL Queries to query data	Fundamental SQL skillset	2	

**Table B.5– Senior Oracle Cross-Functional Technology Applications Developer**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Vendor Staff – To be completed by Offeror</b>
Oracle Merchandizing Operations Management (RMS, Allocations, REIM, RPM, ReSA, etc.) and SIM development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
Oracle Forms development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
RIB or similar enterprise service bus products such as WebMethods or MQ Series development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Crystal Reports or similar tools	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
PL/SQL and SQL development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	2	
Java, ProC, .Net	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Oracle Database Administration	Fundamental database administration skillset	1	
Unix / Linux Shell or equivalent Scripting Experience	Fundamental Linux/Unix skillset	1	

**Table B.6– Junior Oracle Cross-Functional Technology Applications Developer**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Merchandizing Operations Management (RMS, Allocations, REIM, RPM, ReSA, etc.) and SIM development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Oracle Forms development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
RIB or similar enterprise service bus products such as WebMethods or MQ Series development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Crystal Reports or similar tools	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
PL/SQL and SQL development	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Java, ProC, .Net	Design and/or redesign, program, unit test and support migration of changes to new or existing RICEW (Reports, Interfaces, Conversions, Extensions and Workflow) objects	1	
Oracle Database Administration	Fundamental database administration skillset	1	
Unix / Linux Shell or equivalent Scripting Experience	Fundamental Linux/Unix skillset	1	

**Table C – Positions for Lot 3 (minimum one of each position)**

<b>Experience/Skill Preferred</b>	<b>Position</b>
C.1	Senior ORBO/ORCO Retail Oracle Database Administration
C.2	ORPOS Programmer/Analyst
C.3	ORBO/ORCO Programmer/Analyst
C.4	Payment Business/Systems Analyst
C.5	POS Business/Systems Administrator

**Table C.1– Senior ORBO/ORCO Retail Oracle Database Administration**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle Database Administration (11g) Large scale (> 1 TB) database management with multi-hundred million row tables	<ul style="list-style-type: none"> <li>• Start, stop, back up databases</li> <li>• Reorganize data</li> <li>• Purge and/or archive outdated data</li> <li>• Install, update, delete stored procedures, tables, indexes, etc.</li> <li>• Configure, monitor and manage data replication</li> <li>• “Clone” applications, databases and environments in support of projects and production support issues</li> <li>• Coordinate batch job schedule, module or parameter changes with the PLCB’s Operations Staff.</li> <li>• Maintain the patch inventory and patch logs</li> </ul>	4	
Oracle Retail Central Office Administration and Oracle Retail Back Office Administration	Oracle application technology administration and support.	1	
Oracle (or BEA) Weblogic Administration	Oracle application technology administration and support.	<b>1</b>	
Linux/Unix use and shell scripting	Fundamental Linux/Unix skillset	<b>2</b>	

**Table C.2 – ORPOS Programmer/Analyst**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Oracle POS, ORCO and ORBO Customization Development	Design and/or redesign, program, unit test and support migration of changes to new or existing POS objects	3	
Java Development	Design and/or redesign, program, unit test and support migration of changes to new or existing POS objects	3	
Oracle Advaned Queues/Weblogic Development	Design and/or redesign, program, unit test and support migration of changes to new or existing POS objects	2	
Oracle Database Development	Assist with monitoring store operations, including extracts, application, databases, reboots, register freezes, network issues and performance, store conduits, end of day status, payment switch operation	1	
SUSE Linux Administration	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	1	
Basic network and register hardware trouble shooting	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	1	
PL/SQL Development	Fundamental SQL skillset	3	
Linux/Unix shell scripting	Fundamental Linux/Unix skillset	3	

**Table C.3 – ORBO/ORCO Programmer/Analyst**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
Java Development	Design and/or redesign, program, unit test and support migration of changes to new or existing POS objects	3	
Oracle ORBO and ORCO Customization Development	Design and/or redesign, program, unit test and support migration of changes to new or existing POS objects	3	
Oracle Advanced Queues/WebLogic Development	Design and/or redesign, program, unit test and support migration of changes to new or existing POS objects	2	
Oracle Database Development	Assist with monitoring store operations, including extracts, application, databases, reboots, register freezes, network issues and performance, store conduits, end of day status, payment switch operation	1	
SUSE Linux Administration	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	1	
Basic network trouble shooting	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	1	
PL/SQL Development	Fundamental SQL skillset	3	
Oracle Retail accelerator integration and trouble shooting	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	1	
Unix / Linux Shell Scripting	Fundamental Linux/Unix skillset	3	



**Table C.4– Payment Business/Systems Analyst**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Vendor Staff – To be completed by Offeror</b>
ORPOS, ORBO and ORCO, RMS and POS Pricing Business/Systems Analysis	<ul style="list-style-type: none"><li>• Work with applications team and project managers to prioritize tasks and projects</li><li>• Provide work effort estimates and task plan for new programs or program changes</li><li>• Assist with data analysis required to resolve production support issues or to support new projects or enhancements</li><li>• Assist with providing scripts for data fixes</li></ul>	3	
Payment System Integration	<ul style="list-style-type: none"><li>• Assist with monitoring performance of the payment card system.</li><li>• Assist with trouble shooting, diagnostic, and service issues with the system hardware and software</li></ul>	2	
ReSA Integration with POS	<ul style="list-style-type: none"><li>• Assist with repairing any missing transactions or financial discrepancies that occur within the POS environment.</li><li>• Assist with the reconciliation of invoice issues, SLO issues, Gift Card Issues, Charge Back issues.</li></ul>	2	

**Table C.5 – POS Business/Systems Administrator**

<b>Experience/Skills Preferred</b>	<b>Tasks to be Performed</b>	<b>Years Experience Desired</b>	<b>Actual Years Experience of Proposed Offeror Staff – To be completed by Offeror</b>
ORPOS, ORBO and ORCO, RMS and POS Pricing Business/Systems Analysis	<ul style="list-style-type: none"> <li>• Work with applications team and project managers to prioritize tasks and projects</li> <li>• Provide work effort estimates and task plan for new programs or program changes</li> <li>• Assist with data analysis required to resolve production support issues or to support new projects or enhancements</li> <li>• Assist with providing scripts for data fixes</li> </ul>	3	
Troubleshoot POS Hardware	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	2	
Linux SUSE Administration	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	2	
VeriFone or similar pinpad configuration/administration	Assist with trouble shooting, diagnostic, and service issues with the system hardware and software	1	

**APPENDIX M**

**APPLICATION INVENTORY**

Application Name or Acronym	Business Unit(s)	Annual Transaction Volumes	Number of Users	Application Age	Application Category	Application Location	Database Technology	Software Technologies	Recovery Time Objective	Disaster Recovery Plan Exists
Advisory Opinion Maintenance	Legal	500 to 1,000	< 16	4 to 8 years	Custom Built	PLCB	MS SQL Server	Classic ASP	1-day to 1-week	Yes
Android Mobile App	Retail Sales, Citizens	500,001 to 1,000,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008	Java	1-day	No
Bulk Purchase Order System - Intranet	Product Selection	500 to 1,000	< 16	< 4 years	Custom Built	PLCB	SQL 2008 R2	ASP.net	1-day to 1-week	Yes
Case Information Access, Search & Hearing Schedule System	Licensing; ALJ, Legal, HR, LCE	10,001 to 50,000	501 to 1500 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
Cost Center Information Access & Search System - CCIAS	Licensing; HR	3,001 to 5,000	101 to 250 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
Designated Healthcare	HR	N/A	501 to 1500	4 to 8 years	Custom Built	PLCB	N/A	HTML	1-day to 1-week	Yes
eCommerce	Marketing	50,001 to 100,000	> 5000 users	9 to 15 years	Commercial off-the-shelf	Enterprise Data Center	DB2	JAVA; J2EE ; JSP;	1-day	Yes
Ecommerce Maintenance (online catalog)	Marketing	10,001 to 50,000	< 16	9 to 15 years	Custom Built	PLCB	MS SQL Server	Classic ASP	1-day to 1-week	Yes
EDU 08 Update	Alcohol Education	10,001 to 50,000	1501 to 5000	4 to 8 years	Custom Built	Enterprise Data Center	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
EDU County Resources	Alcohol Education	10,001 to 50,000	1501 to 5000	4 to 8 years	Custom Built	Enterprise Data Center	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
EDU Event Registration- (Internet)	Alcohol Education/RAMP, Public	10,001 to 50,000	1501 to 5000 users	4 to 8 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No

## ORACLE ERP PRODUCTION SUPPORT AND ENHANCEMENT CONSULTING SERVICES

Application Name or Acronym	Business Unit(s)	Annual Transaction Volumes	Number of Users	Application Age	Application Category	Application Location	Database Technology	Software Technologies	Recovery Time Objective	Disaster Recovery Plan Exists
EDU Event Tracking	Alcohol Education/RAMP, Public	3,001 to 5,000	< 16	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
EDU Materials - (Internet)	Alcohol Education/RAMP, Public	3,001 to 5,000	1501 to 5000 users	4 to 8 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
EDU Materials Maintenance	Alcohol Education	3,001 to 5,000	< 16	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Electronic Store Journal	Store Operations,	500 to 1,000	< 16	4 to 8 years	Commercial off-the-shelf	PLCB	MS SQL Server	COTS	1-day to 1-week	Yes
E-Licensing System - Internet	Licensing	10,001 to 50,000	> 5000 users	4 to 8 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
Employee Information Access & Search	Licensing; HR	10,001 to 50,000	101 to 250 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
ERP Reporting	All	N/A	101 to 250 users	4 to 8 years	Commercial off-the-shelf	Data Power House (DPH)	Oracle 11g	BI - Publisher, Crystal Reports,	N/A	N/A
FileNet Imaging System (Licensing/Chief	Licensing, ALJ, Legal, LCE	10,001 to 50,000	501 to 1500 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP, Visual Basic, FileNet Image	1-day to 1-week	Yes
Fraud and Abuse Management System - Intranet	EEO	3,001 to 5,000	< 16	< 4 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Gift Card Balance Lookup - (Internet)	Product Mgmt/Store Operations,	50,001 to 100,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008	Java/GWT	Greater than 3 weeks	No
Higher Education - (Internet)	Alcohol Education,	3,001 to 5,000	< 16	< 4 years	Custom Built	Enterprise Data Center	SQL 2008	HTML	Greater than 3 weeks	No
IBMS	Agency wide	> 5,000,000	1501 to 5000	4 to 8 years	Commercial off-the-shelf	Data Power House (DPH)	Oracle 11g	Multiple	1-day	Yes

## ORACLE ERP PRODUCTION SUPPORT AND ENHANCEMENT CONSULTING SERVICES

Application Name or Acronym	Business Unit(s)	Annual Transaction Volumes	Number of Users	Application Age	Application Category	Application Location	Database Technology	Software Technologies	Recovery Time Objective	Disaster Recovery Plan Exists
Investigations Report/Query Request/Daily Assignment	Licensing	5,001 to 10,000	101 to 250 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
iPhone Mobile App	Retail Sales, Citizens	500,001 to 1,000,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008	C	1-day	No
Legal Search	Legal	N/A	> 5000 users	4 to 8 years	Custom Built	Enterprise Data Center	MS SQL Server	Classic .ASP	N/A	No
Licensee Information Access, Search and Remittance	Licensing, ALJ, Legal, LCE	10,001 to 50,000	501 to 1500 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
Licensing Case Management	Licensing; ALJ, Legal, HR, LCE	10,001 to 50,000	501 to 1500 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP, Visual Basic, Filenet Image Services,	1-day to 1-week	Yes
Mailing Labels	All	N/A	< 16	4 to 8 years	Custom Built	Data Power House (DPH)	SQL Server, Oracle	.Net, .ASP	N/A	N/A
Manugistics	Planning & Procurement	50,001 to 100,000	16 to 50 users	9 to 15 years	Commercial off-the-shelf	PLCB	Oracle 9i	JAVA; J2EE; JSP	1-day	Yes
Mobile App Barcode Resolver Web Service	Retail Sales, Citizens	500,001 to 1,000,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008	Java	1-day	No
NABCA Interfaces	N/A	N/A	< 16	< 4 years	Custom Built	Data Power House (DPH)	DB2	PL/SQL, SQL	1-day	No
Online Reports/Reports Dictionary	All	N/A	51 to 100 users	< 4 years	Custom Built	Data Power House (DPH)	SQL Server	.Net, Crystal Reports	1-day	N/A
Oracle Point of Sale	Retail Operations	> 5,000,000	> 5000 users	< 4 years	Commercial off-the-shelf	Data Power House (DPH)	Oracle 11g	Multiple	1-day	Yes

## ORACLE ERP PRODUCTION SUPPORT AND ENHANCEMENT CONSULTING SERVICES

Application Name or Acronym	Business Unit(s)	Annual Transaction Volumes	Number of Users	Application Age	Application Category	Application Location	Database Technology	Software Technologies	Recovery Time Objective	Disaster Recovery Plan Exists
Oracle UCM	External Affairs, Citizens	1,000,001 to 5,000,000	> 5000 users	< 4 years	Commercial off-the-shelf	Enterprise Data Center (EDC)	SQL 2008	COTS	1-day	No
PA License Search System - Internet	Licensing; ALJ, Legal, LCE	100,001 to 500,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
PLCB Parking	Records Management Division	3,001 to 5,000	16 to 50 users	4 to 8 years	Custom Built	Data Power House (DPH)	DB2	VB, .ASP	1-day	Yes
Product Lookup - Intranet	Product Management	10,001 to 50,000	501 to 1500	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	1-day	No
RAMP (Internal)	Alcohol Education/RAMP, Licensees	3,001 to 5,000	< 16	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
RAMP Login/Registration	Alcohol Education/RAMP, Licensees	5,001 to 10,000	101 to 250 users	4 to 8 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
RAMP Owner Manager Mandate Tracking	Alcohol Education/RAMP, Licensees	10,001 to 50,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008	Java/GWT	1-day to 1-week	No
RAMP Seller Server Vendor Web Service	Alcohol Education/RAMP, Licensees	1,001 to 3,000	< 16	< 4 years	Custom Built	PLCB	SQL 2008	PHP	1-day	No
Registered Malt or Brewed Beverage Brands -	Licensing, Licensees, Citizens	5,001 to 10,000	> 5000 users	4 to 8 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Search Adjudications - (Internet)	ALJ/Legal, Licensees, Citizens	1,001 to 3,000	251 to 500 users	4 to 8 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Store Hours Maintenance	Store Operations	101 to 500	< 16	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	1-day to 1-week	No

## ORACLE ERP PRODUCTION SUPPORT AND ENHANCEMENT CONSULTING SERVICES

Application Name or Acronym	Business Unit(s)	Annual Transaction Volumes	Number of Users	Application Age	Application Category	Application Location	Database Technology	Software Technologies	Recovery Time Objective	Disaster Recovery Plan Exists
Store Locator - (Internet)	Product Mgmt/Store Operations, Citizens, Retail Sales	50,001 to 100,000	> 5000 users	4 to 8 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Store Portal - Barcode/Shelf	Store Operations &	50,001 to 100,000	> 5000 users	< 4 years	Custom Built	PLCB	SQL 2008	Java/GWT	1-day	No
Store Time and Attendance	Store Operations; HR	1,000,001 to 5,000,000	501 to 1500	< 4 years	Custom Built	PLCB	SQL 2008 R2	ASP.net	1-day to 1-week	Yes
Tip Line - (Internet)	Equal Opportunities, Citizens	500 to 1,000	251 to 500 users	< 4 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Vehicle Information Access and	Support Services	3,001 to 5,000	< 16	< 4 years	Custom Built	PLCB	SQL 2008 R2	Classic ASP	1-day to 1-week	Yes
Vendor SCC and Item Information - (Intranet)	Supply Chain	3,001 to 5,000	101 to 250 users	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	1-day to 1-week	No
Wine Tasting Calendar - (Internet)	Product Mgmt, Citizens, Retail Sales	1,001 to 3,000	101 to 250 users	< 4 years	Custom Built	Enterprise Data Center (EDC)	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No
Wine Tasting Calendar -	Product Management	500 to 1,000	< 16	4 to 8 years	Custom Built	PLCB	SQL 2008	ASP/ASP.NET	Greater than 3 weeks	No



## **APPENDIX N**

# **ORACLE FINANCIAL AND RETAIL SOFTWARE VERSIONS**

## Summary information

<b>Product</b>	<b>Acronym</b>	<b>Version</b>
E-Business	EBS	12.1.3
SOA	SOA	11.1.1.6
Single Sign-On		10.1.4.3
Retail Merchandising System	RMS	13.2.4
Retail Price Management	RPM	13.2.4
Allocation		13.2.4
Retail Invoice Matching	REIM	13.2.4
Store Inventory Management	SIM	13.2.4
Retail Integration Bus	RIB	13.2.4
Retail Predictive Application Server	RPAS	13.2
UC4 (Appworx) Applications Manager <sup>1</sup>	Appworx	V8
Retail Data Warehouse / OBIEE	RDW	
Hyperion EPM		11.1.2.2
Robocom Inventory Management System (WMS)	RIMS	5.0
Manugistics	Manugistics	7.1
POS Oracle Central Office Server	ORCO	13.1.1
POS Oracle Back Office Server	ORBO	13.1.1
POS Oracle Point of Service	ORPOS	13.1.1
POS Gift Cards	ISD gift card	V2/AIX
POS Payment Switch	ISD payment switch	Ver. 6.5
Oracle Application Server <sup>2</sup>	OAS	10.1.3
Oracle Weblogic Server <sup>2</sup>	Weblogic	11g
Oracle Database Enterprise Edition		11g R1
Oracle Database Enterprise Edition		11g R2
Oracle Data Guard (log shipping)		11g

---

<sup>1</sup> Job scheduler (1 of 3). The others are EBS Concurrent Manager and Quartz

<sup>2</sup> A J2EE server used by some products

<b>Product</b>	<b>Acronym</b>	<b>Version</b>
Oracle Advanced Queues		11g
Oracle Enterprise Service Bus		11g
Oracle Advanced Security (Tablespace Encryption)		11g
Oracle Database Enterprise Edition		9i <sup>3</sup>
Oracle Enterprise Manager	OEM	12c
Microsoft SQL/Server		2008
Progress Database <sup>4</sup>		9.0
Crystal Reports / Business Objects	Crystal Reports	Crystal Report 2011/Business Intelligence 4.0
DB/2 <sup>5</sup>		9
Websphere Commerce Professional Edition		7
Websphere Application Server		7
HP Business Availability Center	BAC	8
HP LoadRunner and Quality Center		11.5.2
AAMVA EDI		
HP Systems Insight Manager		6.3
IP Switch's WhatsUpGold	WhatsUpGold	16
Novell SLEPOS Admin Server <sup>6</sup>		11
SuSE Linux Enterprise Point-of-Sale Branch Server		11
SuSE Linux Enterprise Point-of-Sale Device		11
IBM AIX	AIX	7.1
IBM AIX	AIX	6.1
IBM AIX	AIX	5.3 <sup>7</sup>
SuSE Linux Enterprise Server	SLES	11

---

<sup>3</sup> Required by Manugistics

<sup>4</sup> Used only by RIMS

<sup>5</sup> Used by Websphere Commerce Professional Edition

<sup>6</sup> Register and Branch server management

<sup>7</sup> No longer supported by IBM, but still used on the old RIMS servers

<b>Product</b>	<b>Acronym</b>	<b>Version</b>
RedHat Enterprise Linux	RHEL	5.8
Microsoft Windows Server 2003		2003
Microsoft Windows Server 2008		2008
IIS 7.0/ASP.NET		7.0
Novell Zenworks		
Microsoft Sharepoint <sup>8</sup>		2010
Microsoft Team Foundation Server <sup>9</sup>	TFS	2010
BlackStrata LogStorm <sup>10</sup>		4.2
Tripwire Enterprise File Integrity Manager <sup>10</sup>		

:

---

<sup>8</sup> Document and change control repository

<sup>9</sup> Code repository

<sup>10</sup> Payment Card Industry Data Security Specification compliance

## **Detailed information for some products**

### **Oracle E-Business 12.1.3**

- Oracle Application Server J2EE to 10.1.3.5
- Oracle Application Server Forms and Reports to 10.1.2.3
- Java Developer Kit (JDK) 6.0
- JRE 6.0
- OA Framework
- Oracle Applications Manager
- AD utilities
- Database 11.2.0.3
  - 11.2.0.3 Oracle Home
  - Database upgrade from 10.2.0.3 to 11.2.0.3
  - July 2012 CPU applied
  - Column level compression
  - Oracle Net listener
  - New Context file for Oracle 11.2.0.3 Oracle Home

### **Oracle SOA 11g (11.1.1.6)**

- Oracle Fusion Middleware 11.1.1.6
- Oracle Weblogic Server (64-bit) 10.3.6 (generic)
- Java Developer Kit (JDK) 6.0
- JRE 6.0
- RCU 11.1.1.6
- Oracle SOA Suite 11.1.1.6 (generic)
- JDeveloper 11.1.1.6 (generic)
- Oracle Service Bus 11.1.1.6 (generic)
- Database 11.2.0.3
  - ✓ Fresh installation of 11.2.0.3 Oracle Home
  - ✓ Fresh installation of 11.2.0.3 database
  - ✓ July 2012 CPU applied
  - ✓ Oracle Net listener

### **Oracle Single Sign-On (10.1.4.3)**

- ✓ Oracle Application Server infrastructure Server 10.1.4.0.1
- ✓ Oracle Application Server Patchset 10.1.4.3
- ✓ Oracle Application Server Patchset 10.1.2.3
- ✓ Oracle Metadata Repository Creation Assistant 10.1.4.0.1
- ✓ Oracle Database 10.2.0.4
  - ✓ Fresh installation of 10.2.0.1 Oracle Home
  - ✓ Fresh installation of 10.2.0.1 database
  - ✓ Upgrade Oracle Home to 10.2.0.4
  - ✓ Upgrade database to 10.2.0.4
  - ✓ Oracle Net listener

### **Retail Merchandising System (13.2.4)**

- ✓ Oracle WebLogic Server 11g Release 1 (10.3.4)
- ✓ Java Developer Kit (JDK - 1.6.0+ 64 bit )
- ✓ Oracle BI Publisher 10g (10.1.3.4)
- ✓ Oracle SSO Server 10.1.4.3
- ✓ Oracle Internet Directory 10.1.4.3
- ✓ Oracle Web Tier (11.1.1.4)
- ✓ Oracle Forms Services 11g Release 1 (11.1.1.4)
- ✓ OEM Agent 12c
- ✓ Oracle Database (11.2.0.2)
  - Database Patchset Update 11.2.0.2.7 (Includes CPU July 2012)
  - RMAN 11.2.0.2

### **Retail Price Management (13.2.4)**

- ✓ Oracle WebLogic Server 11g Release 1 (10.3.4)
- ✓ Java Developer Kit (JDK - 1.6.0+ 64 bit )
- ✓ Oracle SSO Server 10.1.4.3
- ✓ Oracle Internet Directory 10.1.4.3
- ✓ Oracle Web Tier (11.1.1.4)
- ✓ OEM Agent 12c

### **Allocation (13.2.4)**

- ✓ Oracle WebLogic Server 11g Release 1 (10.3.4)
- ✓ Java Developer Kit (JDK - 1.6.0+ 32 bit )
- ✓ Oracle SSO Server 10.1.4.3
- ✓ Oracle Internet Directory 10.1.4.3
- ✓ Oracle Web Tier (11.1.1.4)
- ✓ OEM Agent 12c

### **Retail Invoice Matching (13.2.4)**

- ✓ Oracle WebLogic Server 11g Release 1 (10.3.4)
- ✓ Java Developer Kit (JDK - 1.6.0+ 64 bit )
- ✓ Oracle SSO Server 10.1.4.3
- ✓ Oracle Internet Directory 10.1.4.3
- ✓ Oracle Web Tier (11.1.1.4)
- ✓ OEM Agent 12c

### **Store Inventory Management (13.2.4)**

- ✓ Oracle WebLogic Server 11g Release 1 (10.3.4)
- ✓ Java Developer Kit (JDK - 1.6.0+ 64 bit )
- ✓ Oracle BI Publisher 10g (10.1.3.4)
- ✓ Oracle SSO Server 10.1.4.3
- ✓ Oracle Internet Directory 10.1.4.3
- ✓ Oracle Web Tier (11.1.1.6)
- ✓ OEM Agent 12c
- ✓ Oracle Database (11.2.0.3)
  - 14038787 (Includes CPU July 2012)
  - RMAN 11.2.0.3

### **Retail Integration Bus (13.2.4)**

- ✓ Oracle WebLogic Server 11g Release 1 (10.3.4)
- ✓ Java Developer Kit (JDK - 1.6.0+ 64 bit )
- ✓ OEM Agent 12c
- ✓ Oracle Database (11.2.0.2)
  - Database Patchset Update 11.2.0.2.7 (Includes CPU July 2012)
  - RMAN 11.2.0.2

### **Retail Predictive Application Server (13.2)**

- ✓ Java Developer Kit (JDK - 1.6.0+ 64 bit )
- ✓ Oracle Retail Predictive Server 13.2
- ✓ Oracle Retail Demand Forecasting (13.2)
- ✓ Oracle Retail Configuration Management (13.2)

### **UC4 (Appworx) Applications Manager V8**

- Application manager
- RMI Server
- Java Developer Kit (JDK) 6.0
- JRE 6.0
- Apache
- Applications Manager Agents
- Database 11.2.0.3
  - 11.2.0.3 Oracle Home
  - July 2012 CPU applied
  - Column level compression
  - Oracle Net listener
  - New Context file for Oracle 11.2.0.3 Oracle Home

### **Oracle Retail Data Warehouse (13.1.5)**

- Oracle Business Intelligence Enterprise Edition 11.1.1.5
- Oracle Weblogic Server (64-bit) 10.3.5 (generic)
- Java Developer Kit (JDK) 6.0
- JRE 6.0
- RCU 11.1.1.5
- Oracle Business Intelligence Publisher 11.1.1.5
- Database 11.2.0.3
  - ✓ Fresh installation of 11.2.0.3 Oracle Home
  - ✓ Fresh installation of 11.2.0.3 database
  - ✓ July 2012 CPU applied
  - ✓ Oracle Net listener

### **Oracle Hyperion EPM 11.1.2.2**

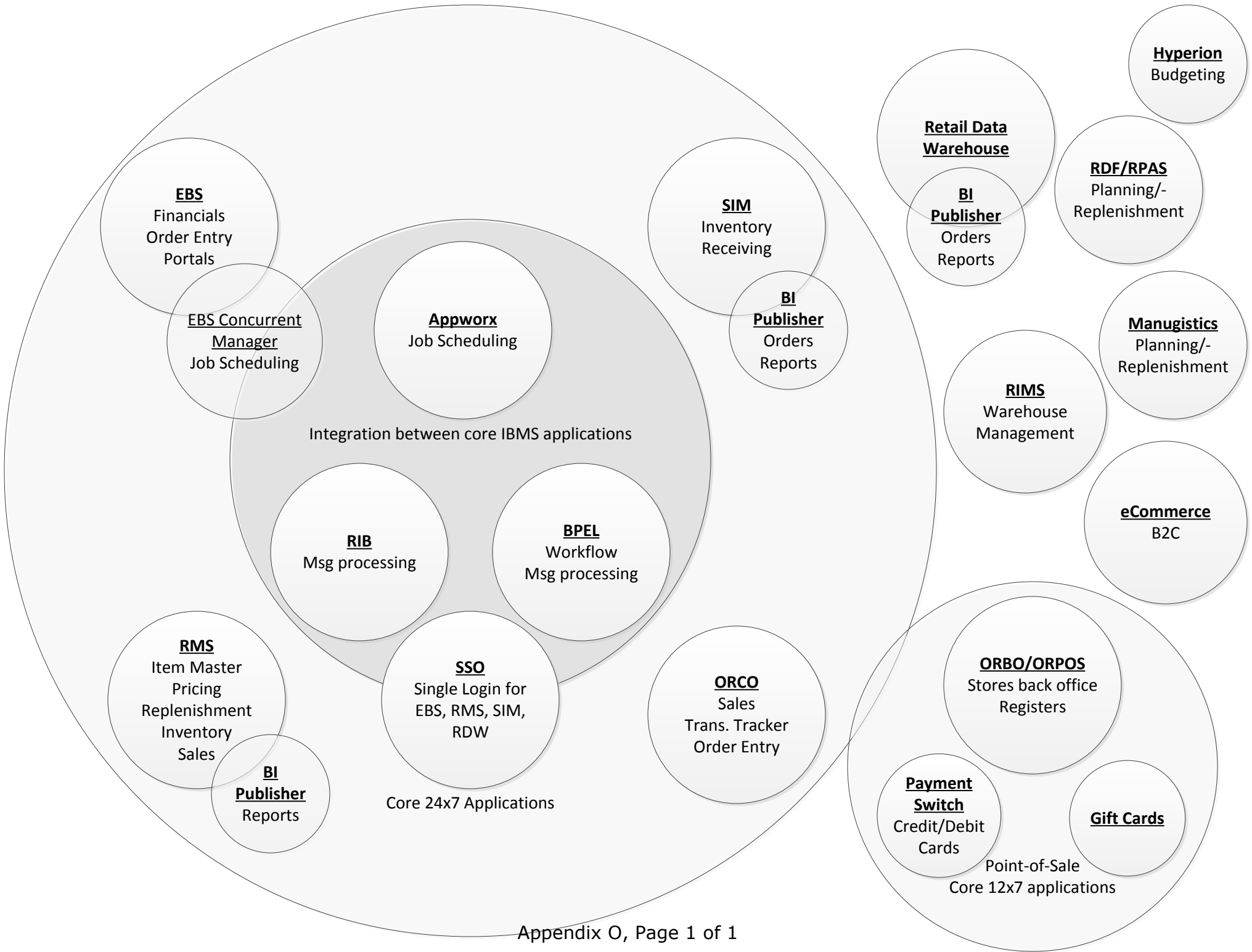
## **Robocom Inventory Management System (RIMS) 5.0**

Progress Database 9.0



## **APPENDIX O**

### **RETAIL OPERATIONS APPLICATIONS AT-A-GLANCE**



# **APPENDIX P**

## **JAVA STANDARDS AND GUIDELINES**

# Information Technology Standard

## Office of Information Technology Services

<b>Subject:</b> Java Standards and Principles	<b>Number:</b> 2.0
<b>Date:</b> July 9, 2012	<b>By Direction Of:</b>

### Importance of Coding Standards

To develop reliable, maintainable applications and reduce development cost as well as time, you must follow coding standards. In short, advantages of coding standards are:

- Improve the readability of the code.
- Easy to understand and maintain by others.
- Maintainable applications.
- Remove complexity.

### Common Development Standards

- Avoid hard coding values that may need to be changed. Instead, use mechanisms that allow for changes at run-time. This may include configuration files, command line arguments, or database tables for values.
- Code must be readable to be maintained.
- Platform and environment: Specific code should be avoided except where absolutely necessary.
- Structured code: Aim to improve the clarity, quality and development time by making use of subroutines, block structures and "for and while" loops, and limiting the "goto" statement which can lead to "spaghetti code" (for those languages that allow "goto" statements).
- Build generic or components packages for functionality that is used across the system.

- Always use a global debug flag to enable informational logging, as and when required. Default informational logging in itself is an extremely costly activity that slows the entire processing down.
- Always use “wrappers” to enhance code before customizing COTS products.
- All code should always be tuned for the best possible performance, on both server and client side. Appropriate indexes and caching techniques must be utilized during coding and special attention given to writing code that performs efficiently.
- Basic tuning and testing for performance should be done when coding and unit testing, therefore mitigating potential issues prior to full performance testing.
- Any output should allow for sorting and filtering.
- Whenever changes are made to code, comments must be added to the code to clarify the changes made.
- Unless specified and requested by the user/requestor, all displays or printouts of item information should be done in code order (ascending). Any deviation of this standard by the user must be documented. This would be for any new development or anytime existing code is opened to fix or change it.
- Any file/data that is deemed confidential must be transferred in a secure manner. OA ITB SEC031 (Encryption Standards for Data In Motion) states the methods that are permitted and the minimum encryption level. PLCB policy requires credit card information, social security numbers and HR information are deemed confidential and must be encrypted. OA ITB SEC019 also states where confidential information can be transmitted to. OA ITB standards are available at the following location.
  - ITB SEC031 – Encryption Standards for Data In Transit  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/om\\_d/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec031.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop_general_government_operations/oa/oa_portal/om_d/p_and_p/itbs/domains/security/itbs/itb_sec031.html)
  - ITB SEC019 – Policies and Procedures for Protecting Commonwealth Electronic Data  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/om\\_d/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec019.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop_general_government_operations/oa/oa_portal/om_d/p_and_p/itbs/domains/security/itbs/itb_sec019.html)

## Specific Development Standards

- Additional coding standards are further detailed for the respective language/tool/framework in specific documents as noted below:
  - 1.0 .Net Coding Standards
  - 2.0 Java Coding Standards and Guidelines
  - 3.0 BI Publisher Standards and Guidelines
  - 4.0 File Transfer Standards and Guidelines
  - 5.0 SQL Standards and Guidelines
  - 6.0 Batch Interface Coding Standards
  - 7.0 Reporting Standards
- Error handling – All errors must be handled and planned for. Optimal error handling ensures that the program continues and does not crash in case an error is encountered. Errors must be logged appropriately. In case of fatal errors, the program stops processing, reports the error, and exits gracefully.

Example for PL/SQL:

```
Begin
Select emp_id, employee_name into p_emp_id, p_employee_name from
employees where department_id=p_dept_id;
End;
```

This block of code, without the corresponding "exception" block, will not handle "no rows found" or "too many rows found" errors. For a select statement, both these clauses are expected and must be handled, as an appropriate error handling mechanism. The "when others" clause can be used to catch the unexpected error, clean up after the unexpected error, and exit or propagate the error outside the program.

## Code Documentation Principles

Java code must be documented using JavaDoc, and all necessary information for the usage of a class/method/variable etc. must be included in a JavaDoc format. Additional comments that are not relevant to the usage of the class, such as implementation details, loop invariants, TODOs, etc. should be commented in a non-JavaDoc format.

- All non-private classes, including inner classes must be documented. The documentation must include a short and long description of what the class is used for, the @author tag, and versioning information if it is not tracked in a source repository.
- All non-private methods in a class must be documented. The documentation must include a short sentence describing what the method does, documentation

for each parameter (trivial parameters may include no description but the @param line must exist), and documentation for all exceptions that the method throws, including unchecked exceptions that are directly thrown.

- All non-private member variables and types in a class must be documented. The documentation must include a short description of the variable, which should not include the type of the variable (i.e. "contains the user's first name", not "a string containing the user's first name").
- Improve clarity, quality, and maintainability (1, 3, 4, 5 sourced from: Introduction to Programming in Java – Robert Sedgewick, Kevin Wayne / <http://introcs.cs.princeton.edu/java/11style/>).
- Keep programs and methods short and manageable.
- Break complex methods up into manageable pieces by calling private methods to do part of the work.
- Use language-specific idioms.
- Use straightforward logic and flow-of-control.
- Avoid magic numbers (numbers other than -1, 0, 1, and 2); instead, give them meaningful symbolic names.
- Make use of design patterns where applicable and document their use (i.e. this class is a singleton).

It is recommended to configure Eclipse to automatically add the appropriate comment blocks, and to configure the automatic blocks to contain the items required above. This can be done through Window->Preferences->Java->Code Style->Code Templates. Eclipse shortcut for JavaDoc: Alt-Shift-J

### **Example:**

#### **File: Product.java**

```
import java.io.StringWriter;
/**
 * The Product class represents a LCB product that is available for sale.
 * (First sentence is a concise, detailed statement about the class.) The rest
 is for more details and notes on how to use the object, etc.
 * @author Some Guy
 *
 */
public class Product {
    private String productName, productDescription;
    /**
```

```

    * The count for this product (Example documentation of a public
    member variable)
    */
    public int somePublicNumber = 5;
    /**
    * The buildProduct method is a convenience method for constructing a
    Product object via the product web service call. It should be used whenever
    a
    * complete product object is needed, as otherwise, the user would
    have to set all the product information manually.
    * @param catalog The catalog to search for the product
    * @param code The product code for the Product that is to be
    constructed, with leading zeros removed
    * @return The Product object corresponding to the given catalog and
    code.
    * @throws ItemNotFoundException Thrown if an item with the code
    is not found in the LCB catalog of products
    * @throws WebService.ServiceUnavailable Thrown if the Product
    cannot be created because the web service is unavailable.
    * @throws IllegalArgumentException This is thrown if the code is -1.
    * (Example of declaring an exception in the Javadoc that is not part of
    the throws clause of the method declaration)
    */
    public Product(Catalog catalog, String code) throws
    ItemNotFoundException, WebService.ServiceUnavailable {
        ProductDetailHandler productDetailHandler = new
        ProductDetailHandler();
        // Non Javadoc comments can be included as needed. This is
        just an example of explicitly throwing an unchecked exception
        if (code.equals("-1"))
            throw new IllegalArgumentException("Code is -1");
        StringWriter body = new StringWriter();
        body.write("<prod:GetProductDetail><prod:StoreId>10051</prod:St
        oreId>");
        body.write("    <prod:CatalogId>" + catalog +
        "</prod:CatalogId>");
        body.write("    <prod:PartNumber>" + code +
        "</prod:PartNumber>");
        body.write("</prod:GetProductDetail>");
        WebService.serviceCall("http://localhost/NewOperation",
        body.toString(), productDetailHandler);
        if (productDetailHandler.fault)
            throw new ItemNotFoundException();
    }
    /* (non-Javadoc)
    * @see java.lang.Object#toString()
    */
    public String toString() {

```



```

        return productName + ": " + productDescription;
    }
    // Passed to the web service call, doesn't require Javadoc because it is
private
    private      class      ProductDetailHandler      extends
org.xml.sax.helpers.DefaultHandler {
    public boolean fault;
    public ProductDetailHandler() {}
    public void startElement(String uri, String name, String
qName, org.xml.sax.Attributes atts) {}
    public void endElement(String uri, String name, String qName)
{}
    public void characters(char ch[], int start, int length) {}
}
}
}

```

# **APPENDIX Q**

## **BI PUBLISHER STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> BI Publisher Standards and Guidelines	<b>Number:</b> 3.0
<b>Date:</b> July 10, 2012	<b>By Direction Of:</b>

### **Importance of Coding Standards**

To develop reliable, maintainable applications and reduce development cost as well as time, you must follow coding standards. In short, advantages of coding standards are:

- Improve the readability of the code.
- Easy to understand and maintain by others.
- Maintainable applications.
- Remove complexity.

### **Common Development Standards**

- Avoid hard coding values that may need to be changed. Instead, use mechanisms that allow for changes at run-time. This may include configuration files, command line arguments, or database tables for values.
- Code must be readable to be maintained.
- Platform and environment: Specific code should be avoided except where absolutely necessary.
- Structured code: Aim to improve the clarity, quality and development time by making use of subroutines, block structures and "for and while" loops, and limiting the "goto" statement which can lead to "spaghetti code" (for those languages that allow "goto" statements).
- Build generic or components packages for functionality that is used across the system.
- Always use a global debug flag to enable informational logging, as and when required. Default informational logging in itself is an extremely costly activity that slows the entire processing down.
- Always use "wrappers" to enhance code before customizing COTS products.

- All code should always be tuned for the best possible performance, on both server and client side. Appropriate indexes and caching techniques must be utilized during coding and special attention given to writing code that performs efficiently.
- Basic tuning and testing for performance should be done when coding and unit testing, therefore mitigating potential issues prior to full performance testing.
- Any output should allow for sorting and filtering.
- Whenever changes are made to code, comments must be added to the code to clarify the changes made.
- Unless specified and requested by the user/requestor, all displays or printouts of item information should be done in code order (ascending). Any deviation of this standard by the user must be documented. This would be for any new development or anytime existing code is opened to fix or change it.
- Any file/data that is deemed confidential must be transferred in a secure manner. OA ITB SEC031 (Encryption Standards for Data In Motion) states the methods that are permitted and the minimum encryption level. PLCB policy requires credit card information, social security numbers and HR information are deemed confidential and must be encrypted. OA ITB SEC019 also states where confidential information can be transmitted to. OA ITB standards are available at the following location:
  - ITB SEC031 – Encryption Standards for Data In Transit  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec031.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec031.html)
  - ITB SEC019 – Policies and Procedures for Protecting Commonwealth Electronic Data  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec019.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec019.html)

### **Specific Development Standards**

- Additional coding standards are further detailed for the respective language/tool/framework in specific documents as noted below:
  - 1.0 .Net Coding Standards
  - 2.0 Java Coding Standards and Guidelines
  - 3.0 BI Publisher Standards and Guidelines

- 4.0 File Transfer Standards and Guidelines
  - 5.0 SQL Standards and Guidelines
  - 6.0 Batch Interface Coding Standards
  - 7.0 Reporting Standards
- Error handling: All errors must be handled and planned for. Optimal error handling ensures that the program continues and does not crash in case an error is encountered. Errors must be logged appropriately. In case of fatal errors, the program stops processing, reports the error, and exits gracefully.

Example for PL/SQL:

Begin

```
Select emp_id, employee_name into p_emp_id, p_employee_name from employees where department_id=p_dept_id;
```

End;

This block of code, without the corresponding "exception" block, will not handle "no rows found" or "too many rows found" errors. For a select statement, both these clauses are expected and must be handled, as an appropriate error handling mechanism. The "when others" clause can be used to catch the unexpected error, clean up after the unexpected error, and exit or propagate the error outside the program.

### **BI Publisher Reports standard**

For BI Publisher Report formatting, follow these guidelines if the Functional/ Technical Specifications do not state otherwise:

#### **Fonts**

- Report Title: Courier, Size 16pts, Style Bold.
- Column Headers: Courier, Size 12 pts, Style Bold.
- Column Data: Courier, Size 10 pts, Style Regular.

#### **Report layout**

- Left Side: PLCB Logo
- Center: Print Report Title
- Right Side: Display Report Number, Report Date, Page No at the upper right side of each page (Page : 1 of 2).
- Repeat above details for every page.
- Printing Parameter details depend on Report requirements.

- Display \*\*\*\*\* End of Report \*\*\*\*\* on the last page of the Report, to indicate the end of Report.
- Display \*\*\*\*\* No Data Found \*\*\*\*\* after the column headings, if the report does not return any data.
- Unless specified and requested by the user/requestor all displays or printouts of "item information" should be done in code order (ascending). Any deviation of this standard by the user must be documented. This would be for any new development or anytime existing code is opened to fix or change it.

**File Names for templates should follow similar standards as other objects**

- Report Name: XXL CB RMS <Description> Report
- Parameters Name: P\_<Description>
- Data set: <Description>\_ds
- List of values: <Description>\_lv
- Layouts: <Description>\_lo
- Template Name: XXL CB<DESC>.rtf

**Sorting**

- All On-line reports should be sortable and filterable on and column if applicable.

# **APPENDIX R**

## **HOLIDAY CALENDAR FOR 2015**

# Administrative Circular

Commonwealth of Pennsylvania  
Governor's Office

14-13  
Number

**Subject:**  
Holidays - 2015

**Date:**  
September 24, 2014

**By Direction of:**

  
Kelly Powell Logan, Secretary of Administration

**Expiration Date:**

September 24, 2015

**Contact Agency:**

Office of Administration, Office for Human Resources Management, Bureau of Employee Absences and Safety, Telephone 717.346.4667

Pursuant to *Sections 221 and 709(e.1) of The Administrative Code of 1929*, the Executive Board has determined that the administrative offices of State Government shall be closed on the following holidays for 2015 for the purpose of transacting public business.

## 2015

New Year's Day .....	January 1
Dr. Martin Luther King, Jr. Day .....	January 19
Presidents' Day .....	February 16
Memorial Day .....	May 25
Independence Day .....	July 3
Labor Day .....	September 7
Columbus Day .....	October 12
Veterans Day .....	November 11
Thanksgiving Day .....	November 26
Day After Thanksgiving .....	November 27
Christmas Day .....	December 25



**APPENDIX S**

**SQL STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> SQL Standards and Guidelines	<b>Number:</b> 5.0
<b>Date:</b> July 10, 2012	<b>By Direction Of:</b>

### **Importance of Coding Standards**

To develop reliable, maintainable applications and reduce development cost as well as time, you must follow coding standards. In short, advantages of coding standards are:

- Improve the readability of the code.
- Easy to understand and maintain by others.
- Maintainable applications.
- Remove complexity.

### **Common Development Standards**

- Avoid hard coding values that may need to be changed. Instead, use mechanisms that allow for changes at run-time. This may include configuration files, command line arguments, or database tables for values.
- Code must be readable to be maintained.
- Platform and environment specific code should be avoided except where absolutely necessary.
- Structured code - Aim to improve the clarity, quality and development time by making use of subroutines, block structures and "for and while" loops, and limiting the "goto" statement which can lead to "spaghetti code" (for those languages that allow "goto" statements).
- Build generic or components packages for functionality that is used across the system.
- Always use a global debug flag to enable informational logging, as and when required. Default informational logging in itself is an extremely costly activity that slows the entire processing down.

- Always use “wrappers” and “global debug flag” to enhance code before customizing COTS products. They must be clearly defined.
- All code should always be tuned for the best possible performance, on both server and client side. Appropriate indexes and caching techniques must be utilized during coding and special attention given to writing code that performs efficiently.
- Basic tuning and testing for performance should be done when coding and unit testing, therefore mitigating potential issues prior to full performance testing.
- Any output should allow for sorting and filtering.
- Whenever changes are made to code, comments must be added to the code to clarify the changes made.
- Unless specified and requested by the user/requestor, all displays or printouts of item information should be done in code order (ascending). Any deviation of this standard by the user must be documented. This would be for any new development or anytime existing code is opened to fix or change it.
- Any file/data that is deemed confidential must be transferred in a secure manner. OA ITB SEC031 (Encryption Standards for Data In Motion) states the methods that are permitted and the minimum encryption level. PLCB policy requires credit card information, social security numbers and HR information are deemed confidential and must be encrypted. OA ITB SEC019 also states where confidential information can be transmitted to. OA ITB standards are available at the following location:
  - ITB SEC031 – Encryption Standards for Data In Transit  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/om\\_d/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec031.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop_general_government_operations/oa/oa_portal/om_d/p_and_p/itbs/domains/security/itbs/itb_sec031.html)
  - ITB SEC019 – Policies and Procedures for Protecting Commonwealth Electronic Data  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/om\\_d/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec019.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publish/edcontent/publish/cop_general_government_operations/oa/oa_portal/om_d/p_and_p/itbs/domains/security/itbs/itb_sec019.html)

### **Specific Development Standards**

- Additional coding standards are further detailed for the respective language/tool/framework in specific documents as noted below:

- 1.0 .Net Coding Standards
  - 2.0 Java Coding Standards and Guidelines
  - 3.0 BI Publisher Standards and Guidelines
  - 4.0 File Transfer Standards and Guidelines
  - 5.0 SQL Standards and Guidelines
  - 6.0 Batch Interface Coding Standards
  - 7.0 Reporting Standards
- Error handling – All errors must be handled and planned for. Optimal error handling ensures that the program continues and does not crash in case an error is encountered. Errors must be logged appropriately. In case of fatal errors, the program stops processing, reports the error, and exits gracefully.

Example for PL/SQL:

Begin

```
Select emp_id, employee_name into p_emp_id, p_employee_name from
employees where department_id=p_dept_id;
End;
```

This block of code, without the corresponding “exception” block, will not handle “no rows found” or “too many rows found” errors. For a select statement, both these clauses are expected and must be handled, as an appropriate error handling mechanism. The “when others” clause can be used to catch the unexpected error, clean up after the unexpected error, and exit or propagate the error outside the program.

## SQL Standards

PL/SQL supports four different SQL DML (Data Manipulation Language) statements: INSERT, UPDATE, DELETE, and SELECT. Each can have several clauses, making SQL very complex. Use uppercase for all SQL reserved words. Left align the reserved words to create a vertical border between them and the SQL code body.

SELECT	INSERT	UPDATE	DELETE
FROM	INTO	SET	FROM
WHERE	VALUES	WHERE	WHERE
AND	INSERT		
OR	INTO		
GROUP	BY	SELECT	
HAVING		FROM	
AND		WHERE	
OR			
ORDER BY			

- In a where clause (or having clause), constants or bind variables should always be on the right hand side of the operator.
- Never use unqualified inserts. Always specify the list of columns.
- Do not use compound sub-queries when the same end may be achieved by an equivalent join query.
- Whenever possible, use existence tests instead of sub-queries, IN, or NOT IN.
- Multiple objects associated with a key word, such as a list of columns, should each be on a separate line.
- The SELECT key word for sub-queries should be indented from the WHERE key word above it. The normal formatting rules apply to sub-queries.
- Always use a space on both sides of an operator. For example, use col1 = col2, not col1=col2.
- Make the table alias meaningful, not just a, b, c.

### **Formatting examples:**

```

SELECT co.name,
       co.ceo,
       c_addr.city,
       c_addr.state
INTO   v_name,
       v_ceo,
       v_city,
       v_state
FROM   companies co,
       company_addresses c_addr
WHERE  co.id = c_addr.id
AND    co.start_date = trunc(sysdate) - 200
AND    c_addr.type = 'HOME'
AND    exists
       (select 1
        from company_definitions def,
             company co
        where def.outline = co.outline)
ORDER BY co.name,
         co.ceo;
INSERT
INTO some_table
   (column1,
    column2,

```

```

        column3,
        column4)
VALUES (123,
        'abc',
        sysdate,
        user);
UPDATE my_table
SET   some_column = 'Hello world'
WHERE another_column = 'TEST';

```

## Programming standards for PL/SQL

- The PL/SQL packages or code written must be modular and structured. Avoid the use of GO TO etc...
- Reserved words and key Oracle words to be Capitalized

SELECT FROM WHERE

- Source code indentation is essential.
- Database trigger size is limited to 60 lines of code. If the logic of the trigger requires more than 60 lines of code, it is better to create a PL/SQL package and call it from the trigger. The PL/SQL package is stored in the database and is already in a compiled state.
- Avoid triggers that duplicate any functionality already built into Oracle.
- Within a trigger, DDL statements are not allowed.
- No transaction control statements are allowed in a trigger (ROLLBACK, SAVEPOINT, COMMIT).
- Extensive comments need to be incorporated into the code.
- Initialize the variables prior to use within the source code.

## Cursor Definitions

- Cursor will refer to the object name(s) to which it is defined; be initcap, and prefixed with 'C'
- Use aliases will uniquely identify the fields:

```

CURSOR CurSoHdrLns IS
SELECT  a.order_number      order_number,
        b.inventory_item_id inventory_item_id

```

```

        b.warehouse_id    warehouse_id
FROM    so_lines         a
        so_headers      b
WHERE   a.header_id = b.header_id;

```

- Ensure that the driving table in all SELECT statements is placed last in the FROM clause.
- Ensure that for every OPEN CURSOR statement there is a corresponding CLOSE CURSOR statement.
- Wherever possible use FOR Record in Cursor LOOP rather than OPEN CURSOR statement.
- To debug the PL/SQL package, use the DBMS\_OUTPUT routine. SET SERVEROUTPUT ON SIZE 1000000 may be needed to generate the output. Note that the output is generated after the package completes or terminates with an error. For a given session, the DBMS\_OUTPUT buffer is not cleared. Do not use the routine to generate flat files or reports.
- Use the PL/SQL design to re-commence a terminated job; do not re-process the processed records unless there is an explicit requirement.
- Instead of incorporating the programming logic in the Trigger or an Alert, it is better to write the logic as a package procedure. The advantage is that the package is compiled, parsed and stored in the database and therefore it requires primarily for fetching and executing.

## Exception Handling

PL/SQL exception handling is designed to control three types of errors: system errors issued from the database, like 'duplicate index' and 'out of memory;' errors caused by a user action; and warnings issued to the user from the application. Each program block in PL/SQL, whether named or unnamed, can have its own exception section. Programmers should create nested blocks only to localize exception processing. Remember, once an exception is raised, either by the system or by the program, the execution stream passes to the exception section, and cannot be returned to the block's code body.

Do not use exception handlers for normal program exits. Using the exception handler for an exit, without raising a true exception is unstructured coding, similar to using a GOTO. Errors are declared as named or unnamed system errors, and named and unnamed programmer defined errors. If an error is not trapped in the local code block, it cascades up to the next higher block until it is trapped, or passes to the user as an unhandled exception and halts execution. The following table describes the types of errors and their scope.

**Named system exceptions** - These exceptions are globally available because they are not declared or confined to a particular block of code. You can raise and handle a named system exception in any block.

**Named programmer-defined exceptions** - These exceptions can only be raised and handled within the block they are declared, or in any nested child block.

**Unnamed system exceptions** - These errors can be handled in any PL/SQL block via the WHEN OTHERS clause.

**Unnamed programmer defined exceptions** - This exception is only defined in the call to RAISE\_APPLICATION\_ERROR, and is then passed back to the calling program.

All errors must be trapped by the application. No exception will be passed to the user unhandled. The use of the WHEN OTHERS clause is allowed where appropriate, but should not be abused; it does not allow for a very elegant error handling behavior or for formatted messages presented to the user. Programmers are encouraged to think about possible error conditions and trap them individually. Be aware of implicit save-points in PL/SQL.

Note: All possible exceptions should be trapped before executing WHEN OTHERS Exception at the end of program unit. DO NOT leave NULL statement in this clause and always use SQLERRM and return to the calling program.

Whenever PL/SQL executes a new block of code, it first issues a save point. When an exception is raised, it causes Oracle to roll back the transaction to the save point. Any changes to the database are rolled back. Also, any changes to OUT and IN OUT parameters are similarly rolled back.

It is considered good, structured PL/SQL programming to use named exceptions to trap problems specific to the application. Your program may need to trap conditions such as "negative balance for account" or "reservation date cannot be in the past." While significantly different from system errors, these are still exceptions to normal processing, and should therefore be handled in the same manner. One of the most useful aspects of the PL/SQL exception handling model is that it does not make any structural distinction between inter errors and application-specific errors.

"to debug the PL/SQL ... use **SET SERVEROUTPUT ON SIZE UNLIMITED** in **SQL\*PLUS**. **DBMS\_OUTPUT.ENABLE( NULL)** in PL/SQL

Application-specific errors are named in the declaration section of the PL/SQL block. Its scope is limited to the block in which it is declared. See the following example:  
PROCEDURE xmc\_014\_annual\_sales (company\_id IN company.company\_id%TYPE)  
IS

```
v_sales_balance          NUMBER(14,2);
```



```

invalid_company_id    EXCEPTION;
no_sales_for_company EXCEPTION;
negative_sales        EXCEPTION;
BEGIN
... code body ...
IF v_sales_balance = 0 THEN
    raise no_sales_for_company;
ELSIF v_sales_balance < 0 THEN
    raise negative_sales;
ELSE
    ... normal processing statements ...
END IF;
EXCEPTION
WHEN invalid_compay_id THEN
    ... exception processing statements ...
WHEN no_sales_for_company OR negative_sales THEN
    ... exception processing statements ...
WHEN NO_DATA_FOUND THEN
    ... exception processing statements ...
WHEN OTHERS THEN
    ... exception processing statements with relevant error messages
END;
```

### **Miscellaneous SQL / PL/SQL Guidelines**

- Avoid using the ROWID pseudo-column for table updates. The resulting code is difficult to read, and does not comply with the ANSI SQL standards. References to ROWID can also cause portability problems and problems when upgrading to a new database release.
- Use variable, function, and procedure names that help self-document the code. If the code does not read correctly as an English sentence, the name should be modified.
- In a compound IF statement (IF a OR b THEN, IF a AND b THEN), the PL/SQL interpreter fully evaluates BOTH expressions when determining the truth-value. If part of the expression is simple, and part complex, or if one or the other statement is likely to be false, break the condition into nested IF..THEN constructs to avoid evaluating the more expensive statement. This helps improve code performance.
- Take advantage of the %FOUND, %NOTFOUND, %ROWCOUNT, and %ISOPEN attributes when dealing with cursors. The %ROWCOUNT is great for operations like showing the top 10 values from a query.
- Do not use the COUNT(\*) SQL group function to check for the existence of a single table row. It is a very expensive operation, since a table scan is

almost always guaranteed. Also, a query of the record is still required even after the COUNT (\*) has determined that a record exists. Instead, use the FETCH on a cursor, with the %NOTFOUND attribute to perform the same function. If the %NOTFOUND is TRUE after the first fetch, then no records were returned. If a unique row is required, FETCH again. If on the second fetch, the %NOTFOUND attribute is TRUE, then the row is unique.

- When creating functions and procedures, their parameters normally cannot be declared with a size constraint. However, if the %TYPE and %ROWTYPE declaration is used to anchor the parameter to another variable or record, the size will be constrained to the anchor variable. The size is resolved at compile time.
- Avoid the use of IN OUT parameters. Do not have OUT parameters defined for functions. Always assign values to all OUT and IN OUT parameters. Remember that any values assigned in a procedure body get rolled back when an exception is raised.
- Comment out or remove DBMS\_OUTPUT statements after debugging the code and before deploying code to Production. Uncommented DBMS\_OUTPUT statements will have overhead on system resources (Esp. I/O operations) during the execution of PLSQL program. Alternatively, you can also use a parameter to suppress display/debug messages which can be turned on/off using a command line parameter (p\_debug\_flag varchar2(1) "Y" or "N").
- Avoid generating report outputs from a PLSQL program. Generating report outputs from PLSQL program is only possible through by calling FND\_FILE package. This package in turn calls UTL\_FILE writing outputs concurrent program log/output file. FND\_FILE package has been given to record major exceptions in the program and report in the output/log files. Using this package for showing transactions in output/log file will consume system resources (Esp. I/O operations). Minimize its usage. Consider temporary table or global temp table to capture the data.
- "Unless specified and requested by the user/requestor, all displays or printouts of item information should be done in code order (ascending). " is more appropriate as a reporting standard, not a SQL or PL/SQL standard.
- Who columns must be populated for auditing purposes when inserting/updating a table using PLSQL program. Use below table for guidance:

<b>Column Name</b>	<b>Type</b>	<b>Value Derivation</b>
CREATED_BY	Not Null	FND_GLOBAL.USER_ID
CREATION_DATE	Not Null	SYSDATE

LAST_UPDATED_BY	Not Null	FND_GLOBAL.USER_ID
LAST_UPDATE_DATE	Not Null	SYSDATE
LAST_UPDATE_LOGIN		FND_GLOBAL.LOGIN_ID
REQUEST_ID		FND_GLOBAL.REQUEST_ID
PROGRAM_APPLICATION_ID		FND_CONCURRENT_PROGRAM
PROGRAM_ID		FND_CONCURRENT_PROGRAM
PROGRAM_UPDATE_DATE		PROGRAM_UPDATE_DATE

# **APPENDIX T**

## **BATCH INTERFACE CODING STANDARDS**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> Batch Interface Coding Standards	<b>Number:</b> 6.0
<b>Date:</b> July 9, 2012	<b>By Direction Of:</b>

### **Importance of Coding Standards**

To develop reliable, maintainable applications and reduce development cost as well as time, you must follow coding standards. In short, advantages of coding standards are:

- Improve the readability of the code
- Easy to understand and maintain by others
- Maintainable applications
- Remove complexity

### **Common Development Standards**

- Avoid hard coding values that may need to be changed. Instead, use mechanisms that allow for changes at run-time. This may include configuration files, command line arguments, or database tables for values.
- Code must be readable to be maintained.
- Platform and environment specific code should be avoided except where absolutely necessary.
- Structured code - Aim to improve the clarity, quality and development time by making use of subroutines, block structures and "for and while" loops, and limiting the "goto" statement which can lead to "spaghetti code" (for those languages that allow "goto" statements).
- Build generic or components packages for functionality that is used across the system.
- Always use a global debug flag to enable informational logging, as and when required. Default informational logging in itself is an extremely costly activity that slows the entire processing down.
- Always use "wrappers" to enhance code before customizing COTS products. All code should always be tuned for the best possible performance, on both server and client side. Appropriate indexes and caching techniques must be utilized

during coding and special attention given to writing code that performs efficiently.

- Basic tuning and testing for performance should be done when coding and unit testing, therefore mitigating potential issues prior to full performance testing.
- Any output should allow for sorting and filtering.
- Whenever changes are made to code, comments must be added to the code to clarify the changes made.
- Unless specified and requested by the user/requestor, all displays or printouts of item information should be done in code order (ascending). Any deviation of this standard by the user must be documented. This would be for any new development or anytime existing code is opened to fix or change it.
- Any file/data that is deemed confidential must be transferred in a secure manner. OA ITB SEC031 (Encryption Standards for Data In Motion) states the methods that are permitted and the minimum encryption level. PLCB policy requires credit card information, social security numbers and HR information are deemed confidential and must be encrypted. OA ITB SEC019 also states where confidential information can be transmitted to. OA ITB standards are available at the following location:
  - ITB SEC031 – Encryption Standards for Data In Transit  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec031.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec031.html)
  - ITB SEC019 – Policies and Procedures for Protecting Commonwealth Electronic Data  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec019.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec019.html)

### **Specific Development Standards**

- Additional coding standards are further detailed for the respective language/tool/framework in specific documents as noted below:
  - 1.0 .Net Coding Standards
  - 2.0 Java Coding Standards and Guidelines
  - 3.0 BI Publisher Standards and Guidelines
  - 4.0 File Transfer Standards and Guidelines
  - 5.0 SQL Standards and Guidelines
  - 6.0 Batch Interface Coding Standards

- 7.0 Reporting Standards
- Error handling – All errors must be handled and planned for. Optimal error handling ensures that the program continues and does not crash in case an error is encountered. Errors must be logged appropriately. In case of fatal errors, the program stops processing, reports the error, and exits gracefully.

Example for PL/SQL:

Begin

```
Select emp_id, employee_name into p_emp_id, p_employee_name from  
employees where department_id=p_dept_id;  
End;
```

This block of code, without the corresponding “exception” block, will not handle “no rows found” or “too many rows found” errors. For a select statement, both these clauses are expected and must be handled, as an appropriate error handling mechanism. The “when others” clause can be used to catch the unexpected error, clean up after the unexpected error, and exit or propagate the error outside the program.

## **Scope of this document**

The scope of this document is to provide guidelines and standards for developing file oriented interfaces (sometimes known as “batch interfaces”) between applications.

## **Overview**

Standards are needed to ensure that data requests are processed:

- Accurately
- Efficiently
- Reliably

The PLCB recognizes that sometimes exceptions to the standards will be needed because of requirements outside of the PLCB’s control.

Extract, Transform, Load (ETL) is a process of importing and exporting to/from data from a database and/or file. ETL extracts data from an outside source, transforms the data to fit operational needs, and loads the data to the end target, which is; in most cases is a database.

Many different tools and technologies are available to extract, transform and load data. Those technologies are outside the scope of this document.

## Accuracy

Accuracy includes, but is not limited to:

- Verifying that all of the data is transferred
- Transferring only valid data
- Handling invalid data

**Verification** is the process of ensuring that all of the data sent, was received and loaded into the destination application. There are multiple ways to this, all of which involve control totals:

- Record, item or similar counts
- Hash totals of key fields
- Total dollars transferred or even credits vs. debits

For any of these to work, a control total is calculated when the data is extracted and then the control total is re-calculated when the data is loaded. If the totals match, all of the data was loaded. Control totals do not cover every possible problem, but they do cover the most common problems.

Another form of control total is a reconciliation of the source and destination applications that occurs immediately after the interface runs.

**Validation** is the process of ensuring that the data is valid. Valid data is data that is syntactically correct or passes referential integrity. It is not necessary data that is correct. The distinction is important. An interface can validate that a cost center exists. It cannot validate that an item should have been charged to that cost center as opposed to some other valid cost center.

Examples of validations include:

- Verifying that the date exists on the Gregorian calendar.
- Verifying that dates are in sequence (start date comes before the end date).
- Validating that data exists in its respective "master table". Ex: the cost center exists in the cost center table or the item exists in the item table.

**Handling invalid data** is the process of ensuring that data that cannot be processed is not lost and/or is easily recoverable. An interface that encounters invalid data must either log the problem and/or save the data for later processing. Examples include:

- Creating suspense file or tables to "hold" the data temporarily.
- 
- Generating error logs or reports detailing the problems encountered.



- Crafting joins or using other methods to ensure that invalid data does not cause transactions to be “lost”. For example, if RIMS reports inventory for an item whose item number does not exist in the RMS item table; the interface must ensure that the transaction does not “disappear” just because the SELECT statement’s join would fail. Allowances or consideration must be made to either handle or detect this condition. The possibly invalid inventory cannot disappear.

## **Efficiency**

Even though file oriented interfaces tend to be run as a batch job, they still need to carefully manage their use of system resources such as disk I/O and CPU time; and to complete in a reasonable timeframe.

Interfaces should be designed to manage time and disk space.

**Managing time** well includes such things as:

- Minimizing the number of steps (queries) or passes needed to retrieve the data.
- Providing sufficient selection criteria (on the where clause(s)) to quickly reduce the amount of data under consideration. This requires considering both technical and business requirements and is often unsuccessful without both.
- Extract only the data necessary from the tables necessary unless by extracting extra data, the number of passes through the database can be reduced. (In this case, intermediate files or tables may be needed.)
- Minimize record or table locks where possible

**Managing disk space** wisely includes such things as:

- Purging old data. Archiving without purging just moves the problem around. It does not solve it.
- Designing a directory strategy that uses deeper rather than wider directories. Directories with extremely large numbers of files perform very badly with GUI tools like Windows Explorer or WinSCP. A practical guideline would be 1,000 files in a single directory.

## **Reliability**

File oriented interfaces must be reliable. Interfaces that frequently fail tend to cause large quantities of manpower to be expended to find and fix problems after the fact.

**Reliable interfaces are visible to the centralized job scheduler.** Appworx is the PLCB's centralized, cross system, job scheduler. Using a single scheduler can help the PLCB minimize scheduling conflicts and makes schedule changes more straightforward. Appworx supports many built-in commands such as those for running SQL statements or stored procedures. In addition, almost any command or executable that can be run at a command line can be scheduled via Appworx.

**Reliable interfaces signal errors.** The steps of the interface must also set an exit status that can be read by Appworx, the operating system shell, etc. If a step fails, it should not allow the job to continue on as if no error has occurred. That often compounds the problem and makes clean-up even more difficult.

**Reliable interfaces handle "no data".** An example would be an interface that pulls data from stores. The interface must make allowances for the fact that there may be no data from a store on holidays. The job schedule should not have to change just to prevent problems with "no data". The opposite is also true. For some interfaces, "no data" is a fatal error and should be handled as such.

# **APPENDIX U**

## **REPORT STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> Report Standards and Guidelines	<b>Number:</b> 7.0
<b>Date:</b> July 10, 2012	<b>By Direction Of:</b>

### **Purpose of This Document**

The purpose of this document is to clearly state the standards and processes to be used throughout the PLCB business and technical communities for all reports and/or report request.

### **Creators of This Document**

This document was created by the PLCB Reporting Workgroup.

### **Definitions**

To better understand the common terms used in this document, we offer the following definitions of commonly used terms:

#### ***Report Processes***

- **Managed reporting** is needed to distribute prebuilt reports across an organization on a daily, weekly or monthly basis, often providing flexible prompting so users can run variations of reports themselves without the need to recreate the reports.
- **Ad-hoc reporting** is a critical aspect of enabling end-user self-service, giving business users instant access and interactivity with information to create their own ad-hoc reports. This type of reporting must be simple to use, with a drag and drop interface, and information must be presented in the context they understand.
- **Analytical reporting** allows business users to slice and dice information so they can easily understand the “why” behind critical issues, trends, and opportunities, with the ability to drill down further for detailed information.

#### ***Report Outputs***

- **Dashboards** help measure business performance and quickly communicate complex information to business users in compelling visual formats (chart or graph), so they have a clear picture of how the business is doing.
- **Production reports** provide high-quality detailed information such as invoices or statements, and these reports are highly formatted.
- **Operational or transactional reports** typically have detailed information from transactional systems, usually in the form of a data table, so ensuring secure and controlled data access is key.

<b>Process</b>	<b>Output(s)</b>	<b>Common Users</b>
Managed Reporting	Dashboards, Production reports, Operational reports	Management, Operations
Ad-hoc Reporting	Production reports, Operational reports	Operations, IT
Analytical Reporting	Dashboards, Production reports, Operational reports	Management, Operations

Note: The definition wording comes from an IBM white paper.

## **STANDARDS**

### ***Report Naming & Dictionary***

#### **Naming and Documenting Your Report**

Naming Conventions are useful for several reasons, they allow technicians and users to know at a glance if a report has been through the proper business process and seen by the required people. From the time of the publication of this standards document forward all reports which have gone through the required business process for report publication will begin with the letters "REP". (NOTE: Reports created prior to our standardization process and that do not begin with the letters "REP" will not be modified at this time to reflect the new standards.)

Documenting reports properly is important for several reasons as well. The primary reason is reports that have gone through the documentation process will be known to the technical community. Without proper documentation reports may be broken by upgrades, server moves or other common technical occurrences.

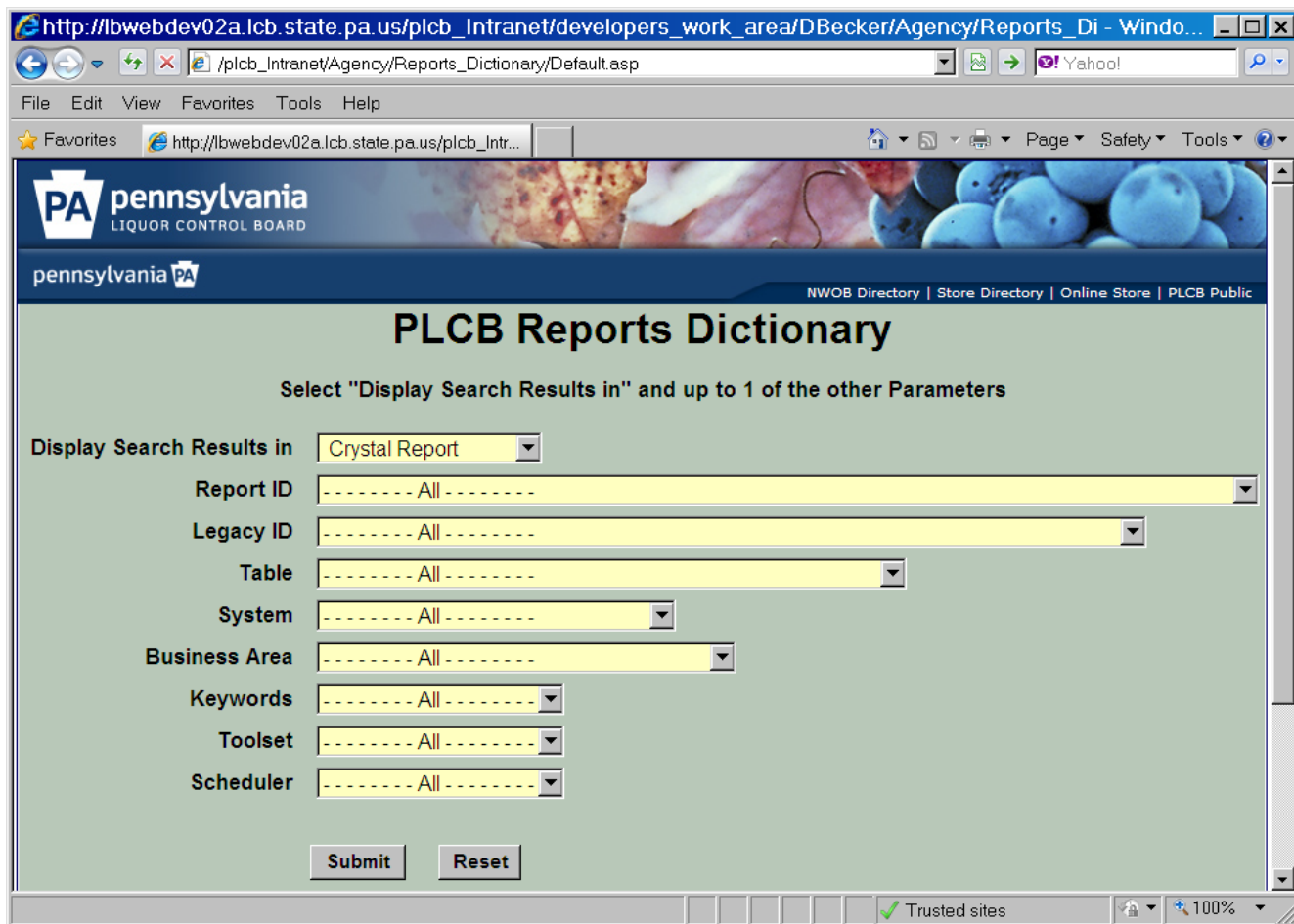
#### **Report Dictionary**

The Report Dictionary can be found here:

[http://lbwebdev02a.lcb.state.pa.us/plcb\\_Intranet/Agency/Reports\\_Dictionary/Default.asp](http://lbwebdev02a.lcb.state.pa.us/plcb_Intranet/Agency/Reports_Dictionary/Default.asp). The Report Dictionary is a tool which allows users and technicians alike to learn details about existing reports. The Report Dictionary is a central, standard, searchable, updateable, database which lists all production reports. Production reports include FSG (Financial Statement Generator in EBS), Hyperion, legacy Crystal Reports, published BI and Dashboard reports, and all operational reports produced with data from the ERP databases.. The Dictionary will allow for:

- ease of identification of reports,
- ease of maintenance by COE,
- ease of sharing reports
- and will help eliminate duplication of like reports.

All of these benefits will decrease employee time and frustration.



The front-end webpage (shown above) gives the user the ability to search the Report Dictionary by the following fields:

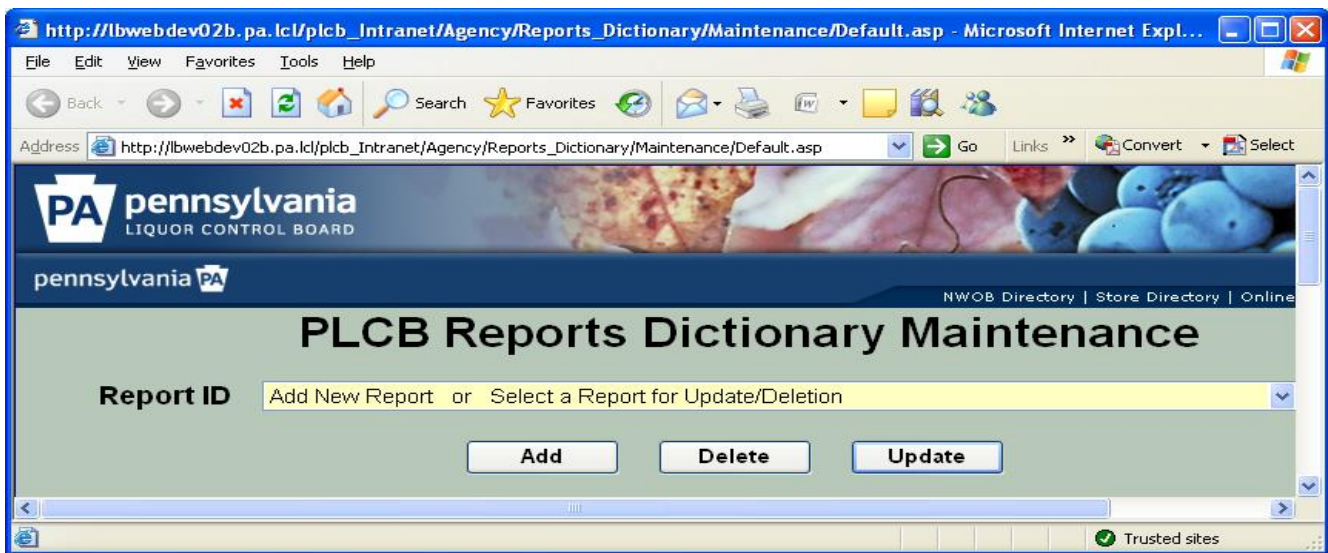
1. Display Search Results in dropdown – listing Crystal Report or Excel, this is how you want to see the list of reports you have searched for. Note that the Crystal Report can be exported to a PDF.
2. Report ID dropdown - ID and Report Title
3. Legacy ID dropdown - ID and Report Title (only used if the report is a recreation of a mainframe report)
4. Table dropdown - lists tables used in reports. This will give you any reports that use the table you choose from the dropdown.
5. System dropdown - lists the possible systems the reports could come from, with the acronym of the system broken down. Example, “RMS (Retail Management System)”
6. Business Area dropdown – lists all the Business Areas which will be taken from information already in Dictionary
7. Key Word dropdown – lists words entered by users to help identify the content / of the report. The dropdown will consist of category-type words, such as “Inventory – Warehouse,

Inventory – Store, Sales – Licensee, Sales – Retail, Sales – Ecommerce, etc.” The list will be agreed upon by both the business and technical communities.

8. Toolset dropdown - lists reports by the toolset used to deliver the report
9. Schedulers dropdown – lists possible scheduling tools the reports could be using. Simply click “Submit” after you have chosen how you are going filter your search. Inside the Report Dictionary, after you have searched for your report, you will find the following fields:
  - \*Report ID - LCB formal number, Oracle, or Business Area ID
  - \*Legacy ID - Old report ID’s (pre-ERP)
  - \*Title - Descriptive Title (found in the top center of each production report)
  - \*Description - Tells what the report provides and/or includes
  - Status – Active or Inactive
  - System - The source system (EBS, RDW, RMS, SIM)
  - Development Technology - What tools were used to develop report? Ex: SQL Developer, Crystal, OBIEE, Hyperion etc.
  - Delivery Technology – What tool is used to deliver the report? (BI Dashboard, BI Publisher, Crystal Reports, Hyperion, Oracle Reports)
  - Frequency (if scheduled) - How often and when (month/ week/day of week, time is the report run
  - Source Physical Tables - The names of the tables reported against. System and Table Name. Ex. RDW:SLS\_ITEM\_LD\_DM
  - Physical Table Status - Table status description. Ex: COTS Not in Production, Production COTS Data Loaded, Production COTS Not Loaded, COTS Altered, PLCB Custom, Data Partially Loaded
  - Sample - This will take you to a image or pdf of what the report looks like.
  - \* Business Area - Business Area
  - \*Business Owner/Contact - Primary Business User
  - \*Business Analyst Owner - Point of Contact for Changes in CoE
  - \*Author – Programmer
  - \*Keyword – Word entered by the Business or Functional Owner that encapsulates what the report is about and will help in the search capabilities.
  - \*Comments – Any other comments or notes about the reports

- \*Retention – How long will reports be saved electronically where it is retained on servers?
- \*Final Destination – Where the report resides. Dropdown includes: FTP Server, Share Drive, Email Only, Hardcopy, On-line Reports, and Dashboard
- \*Report Type – Form, Letter, Labels, Report
- \*Report Security– yes or no

**\*Note:** These fields are included in the “skeleton data” which will be filled out by the BA. In addition to the search tool, the Reports Dictionary is editable for a small group of users. This will keep the Dictionary clean, relevant and easy to use. The Maintenance group will be able to add, delete and update report data kept in the Dictionary.



### ***Report Storage& Retrieval***

Efforts have been made to create a one-stop-shop for all your reporting retrieval needs. See “How to Retrieve a Report” below.

### **Online Reports Tool Basic Information**

Who should use the Online Reports Tool:

- Anyone who needs to track their operations using reports
- Anyone who uses pre-run or ad hoc reports
- Anyone who receives a Right-to-Know request which can be covered by a report which is contained in this storage/retrieval tool. Note: If the report requested has been purged (see purging cycle below) we are **not** required to “find an old copy” of the report. Speak to your Records Retention Coordinator for retention standards for specific data.



What can be found in the Online Reports Tool:

- Links to Ad Hoc reports
- Reports which have always been in the Online Reports tool
- Resurrected Store Reports
- Scheduled reports which have been created by COE
- The purging cycle of pre-run operational reports (does not apply to ad hoc):
  - Daily reports kept 60 days
  - Weekly reports kept 6 months
  - Monthly reports kept 13 months
  - Yearly reports kept 3 years

## **REPORTING TOOLS**

### ***Purpose***

Presently the agency has two reporting tools available; they are Oracle's BI Publisher, and Crystal Reports. The use of any other reporting tool will require a waiver to use. This document is designed to show the differences between the products. To better help the end user, business analyst or developer better determine which is the proper tool to use depending on the requirements of the business object. When possible efforts to create reports that pull data from RDW vs. production if the data is in RDW.

### ***Overview***

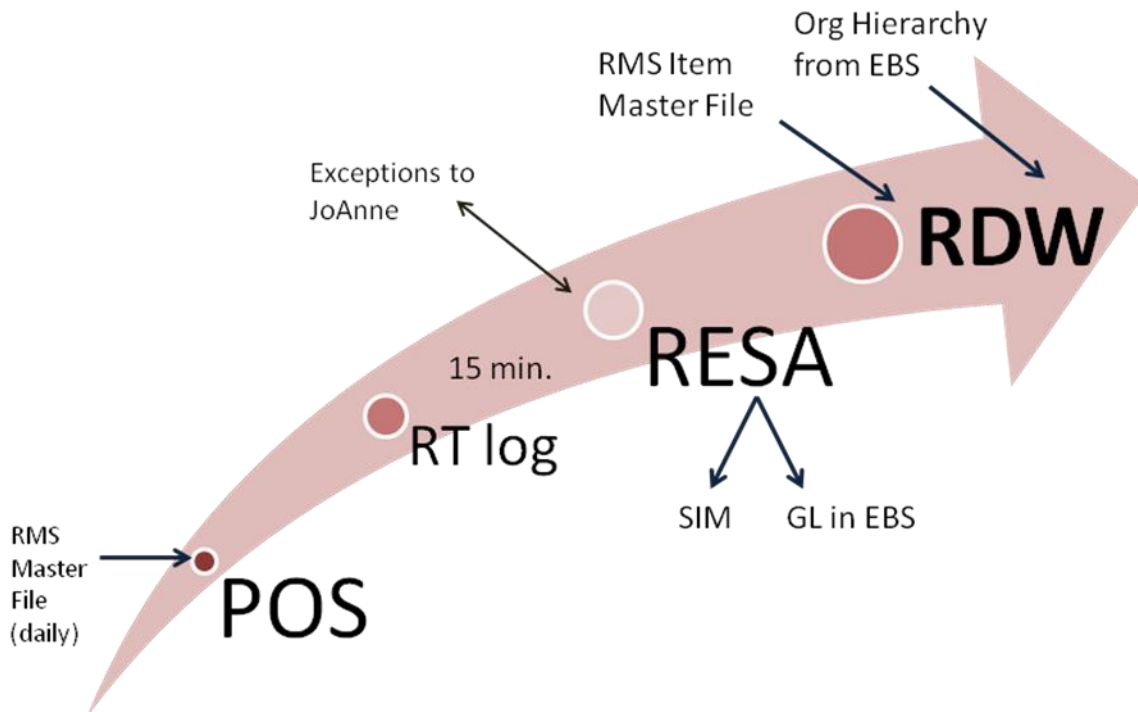
BI Publisher, and Crystal Reports are capable of producing reports, both simple and complex, to meet the agency's business needs. Beyond that statement, there are large differences in the ease of use, range, flexibility and capabilities of each product.

### ***Data Sources***

Crystal Reports comes with data drivers for: Oracle, MS SQL Server, Sybase, IBM's DB2, Ingres, Microsoft's Access, MySQL, Interbase, text files, Excel spreadsheets, XML files, any data source supporting ODBC connections, and many other sources. Most relevant to ERP reporting is that it can use the Oracle native connection driver and supports individual account connections to Oracle as well as accessing Oracle Packages, Procedures and functions.

BI Publisher is configured, out of the box, to use Oracle DBMS as a data source. Newer versions of the product can access SQL Server 2005, which we are currently using. Beyond this, the product can access any database which will support a JDBC connection. All other sources can be accessed only if intermediate programs are developed to render data in XML format and the resulting XML data file is placed into a specific directory address by BI Publisher. It does not appear that BI Publisher can be constrained to a single user account, nor does it use database packages, procedures or functions unless those packages, procedures and functions are exposed as Document/Literal Web Services providing XML data. In almost every case, other than Oracle DB, extra units of programming must be developed to collect useable data.

## Data Flow



## Report Formats

- Crystal Reports can produce reports in any of the following formats: Excel, PDF, XML, HTML, RTF, and more.
- BI Publisher can produce reports in any of the following formats: Excel, PDF, HTML, Word and RTF.

## Security

Crystal Reports supports individual connection accounts. Plus the use of packages, procedures and functions defined within the DBMS.

1. As applied in the PLCB, all database access SQL is encoded into a package / procedure. Individual access accounts are created and granted the authority to execute the specific package(s) needed for the report. The account has no other permissions or authorization.
2. Reports are either scheduled to run in batch mode or established to run, upon demand, from the agency's intranet home page(s). These pages are accessible from all PLCB locations but the permission to run the report can be restricted to individuals.

BI Publisher provides predefined connections to an Oracle instance. In theory, many connections can be defined which might restrict a developer's accesses, but in practice a more general access is created. This fact negates and prevents the tool from being used as an end user reporting tool.

1. In normal operation any authorized developer has access to any data file which exists in the instance. Written packages and Procedures are not immediately available as data sources.

2. Reports are either scheduled to run in batch mode or defined to run on demand from the BI Publisher server. The BI Publisher server is not accessible to remote PLCB sites such as stores.
3. After development is completed, the report is migrated to the production BI server where access to the report is controlled through user roles.

### ***Ease of Development***

Crystal Reports is a more complex development tool. The basics of creating simple reports can be learned from the tutorial packages which come with the tool. More advanced and complex reports are best handled after formal training. It must be noted that the PLCB has a substantial base of trained and capable Crystal Reports developers. It can support multiple, concurrent connections to multiple data sources – for example RMS, RDW and SQL Server data sources. The tables cannot be directly joined across the servers but the data from one server can construct the query to the next server. Crystal report does support programming logic in the combination of data sources.

BI Publisher is an easily learned product. It uses Word documents as templates (rich text format .RTF) then “merges” data into its body. Data may be pulled from multiple sources by either:

- a) creating a DBLINK across Oracle instance – this allows table joins across the servers but has large impact upon both or
- b) defining multiple data sources in BI Publisher, creating multiple SQL strings which can be passed to the different sources and publishing the results as separate reports on a page.

As noted under data sources, external data sourced can require additional, external programming to generate XML data files.

### ***Unique Features***

#### Crystal Reports

1. Provides the means for some programming logic – IF / ELSE constructs which can control the reports choice of data records to report.
2. Reports can be run from WEB Servers – either internet or intranet – so that it can be used for public and in house reporting.
3. Scheduling of batch reports is done using standard, pre-existing, Windows scheduler.

#### BI Publisher

1. Has a built in “Bursting” feature. The feature will parse out a large report, according to defined keys, and dispatch the resulting sub-reports. The reports can be dispatched by email.
2. Individual fields within the RTF can be given IF / ELSE logic to control their display characteristics – including making them invisible.
3. Provides an extension to WORD which assist in creating the .RTF template for the report. This add-in simplifies the placement of data on the report as well as the creation of tables and repeating groups in the report output.

4. Scheduling of batch reports is done using a scheduler internal to the BI Publisher software.

**Tools and Output Summary**

All of the reporting tools have their own unique characteristics and do certain tasks well. For instance, if you have a requirement to store a copy of a monthly report for the last five years, then Crystal would be the correct choice. If you need a weekly report burst, then distributed via email, then Publisher is the tool to use. If summary level reporting with drill down capability is what you need, then the Dashboard is the logical choice.

Listed below is a consolidated list of the products and their high level capabilities.

	Output Formats					Capabilities							
	.pdf	.html	.csv	.xls	other	burst	size limit*	schedule	drill down	multiple source	email	ad hoc	ease of use
BI Publisher	Y	Y	Y	Y	.doc	Y	N	Y	N	Y	Y	N	2
Crystal Reports	Y	Y	N	Y	.rpt, .rtf	N	N	Y	Y**	Y***	N	N	3

\* = While technically there is no size limit, foreground reports that try to pull in too much data will time out.

\*\* = As links to other reports

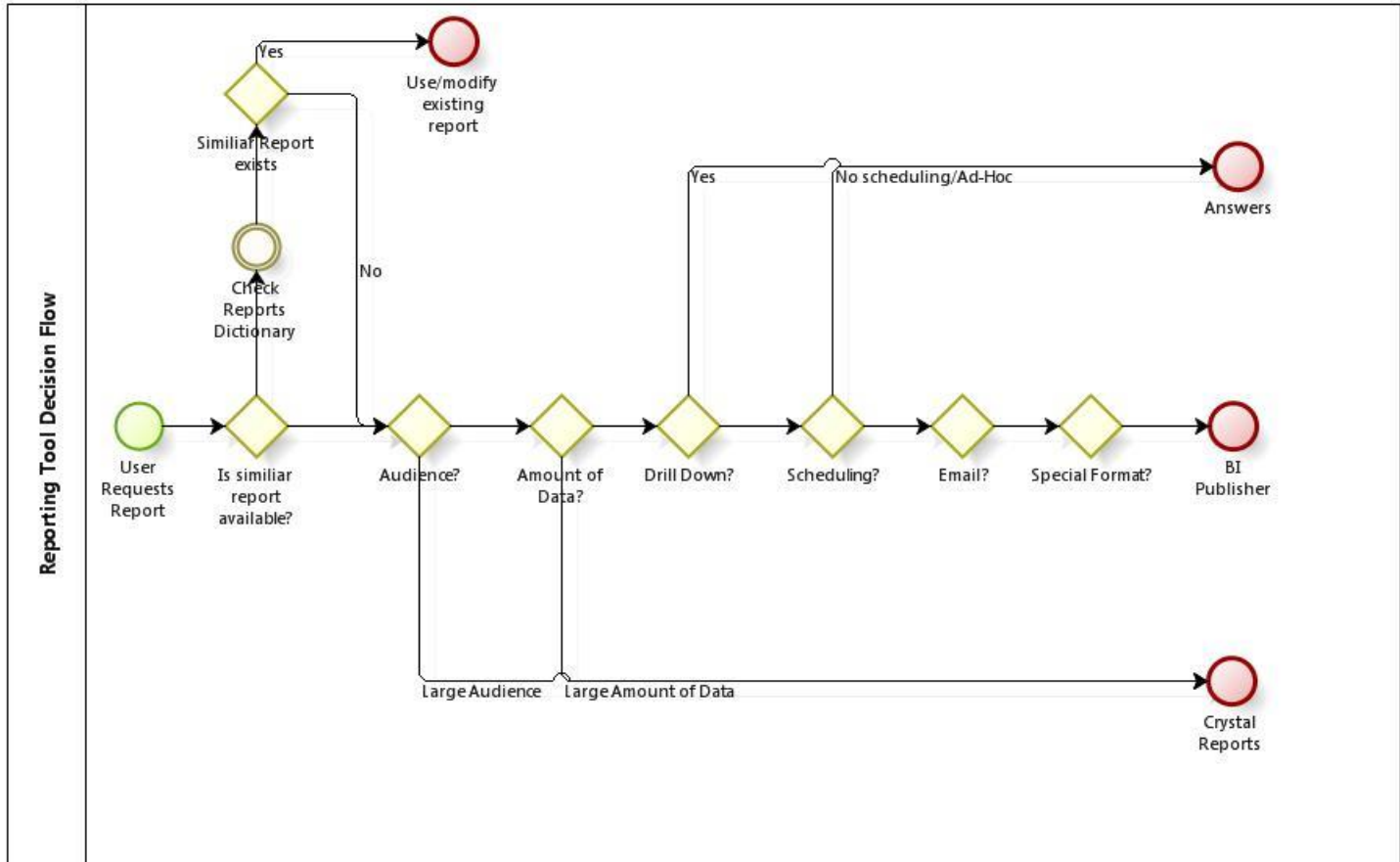
\*\*\* = Limit of two. It has to be coded as a main report with a sub-report.

Crystal Reports best handles raw data. Typical reports, which require no special handling or complicated layouts is what Crystal is best at. It can handle large amounts of data, run on a schedule and the output can be stored for an indefinite amount of time. This is most akin to the mainframe reports.

BI Publisher is best at form output. Publisher uses templates created in Word to provide the layout. For instance, you can create a Word document that looks like an Invoice, with all the associated graphics, such as logos, tables, boxes, shading, etc. Publisher will convert all data to XML, it then populates the fields on the template. The finished product is very seamlessly integrated and can be output into all popular formats. But since it has the associated overhead of converting all data to XML, it's best for small to medium quantities of output.

Most people will have a favorite tool of choice, but each individual request should be evaluated objectively by the developer. We should try to use each tool to optimum effect balancing user needs and resource capacity.

Below is a Reporting Tool Decision Flow to help end users, business analysts and developers alike in determining the proper tool to use for a reporting request. But the final decision depends on multiple factors. Each request is unique and should be treated that way. There may be special factors that are not covered in this document. So make the best decision you can based on the information available to you.



**Tool Selection: What Tool to Use When**

Crystal Reports

Crystal is the primary reporting tool for use by CoE for simple on demand reports and/or scheduled reports that query against a large volume of data. It should be given preference for any reports requiring long-term storage or up-to-the minute data, but that do not require busting/email distribution or highly formatted content. Development use of Crystal should be limited to CoE for reporting against primary production systems.

BI Publisher

BI Publisher is the tool of choice for form output reporting and/or reports that need to be emailed or deployed to multiple users on a scheduled basis. It should not be considered as the primary CoE reporting tool at the present time due to the computing capacity overhead required of its use. BI

Publisher development should be limited to trained CoE personnel, though trained business users may assist with template development for highly formatted reports.

## **APPENDIX V**

# **FILE ENCRYPTION STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> Encryption of files at rest - Standards and Guidelines	<b>Number:</b> 8.0
<b>Date:</b> March 25, 2013	<b>By Direction Of:</b>

**Any file** that contains data deemed sensitive or confidential must be encrypted while at rest. OA ITB ITB-SEC020, Encryption Standards for Data at Rest, Issued: 8/17/07, Revised: 01/21/11, states the methods that are permitted and the minimum encryption level. PLCB policy states that credit card information, social security numbers, bank account information and non-public personal information are deemed confidential and must be encrypted.

- OA ITB ITB-SEC020, Encryption Standards for Data at Rest  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec020.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec020.html)
- Where encryption keys are protected by or derived from passwords, agencies are to use passwords in accordance with ITB-SEC007 Minimum Standards for User IDs and Passwords  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec007.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec007.html)
- ITB SEC019 – Policies and Procedures for Protecting Commonwealth Electronic Data  
[http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop\\_general\\_government\\_operations/oa/oa\\_portal/omd/p\\_and\\_p/itbs/domains/security/itbs/itb\\_sec019.html](http://www.portal.state.pa.us/portal/server.pt?open=512&objID=416&PageID=200500&mode=2&contentid=http://pubcontent.state.pa.us/publishedcontent/publish/cop_general_government_operations/oa/oa_portal/omd/p_and_p/itbs/domains/security/itbs/itb_sec019.html)

### **Scope of this document**

The scope of this document is limited to ERP, POS or related projects capable of utilizing the "/apps" resource (ex: /apps/shared) from the Office of Information



Technology Services or providing solutions for or under the management of the Office of Information Technology Services.

## References

The PLCB's File Transfer Standards and Guidelines will be given to the selected Offeror.

## Overview

There are many interfaces between the modules of the PLCB's Oracle applications and many of those interfaces involve the exchange of files. The PLCB also exchanges files with outside organizations. To facilitate file transfers, the PLCB established a set of shared directories that exist across all ERP servers within each environment. Those directories are sometimes call "/apps/shared".

With this policy, the PLCB is establishing a location for files that need to be encrypted, "/apps/encrypted". Like "/apps/shared", "/apps/encrypted" exists across ERP servers within each environment. "/apps/encrypted":

- Is mounted on servers as needed. At minimum, it is mounted on the Appworx server (its point of origin) and the EBS database server (home of EBS' Concurrent Manager batch job scheduler) in each environment.
- Uses the Advanced Encryption Standard (AES) for symmetric encryption as per ITB SEC 020 with a 1,024 bit key.
- Uses the native Linux encrypted file system. No 3<sup>rd</sup> party software is needed.
- Is encrypted when unmounted or backed up.
- Allows files within it to be searchable via normal search commands such as grep when mounted.
- Requires no special programming to use, although path names may need to be changed.

The PLCB recognizes that sometimes exceptions to the standards will be needed because of requirements outside of the PLCB's control. Examples would include specialized security requirements from banks, limitations of the source or target operating systems, etc.

## Implementation

The underlying encrypted directory and exported NFS share is hosted on the Appworx servers in each environment. In production, that server is lbappprddb01.

Appworx is one of the 7 applications that must be up and running at all times for ERP to function. <sup>1</sup>Since all servers have the /apps directory, the shared, NFS directory "/encrypted" is underneath /apps. "/encrypted" is exported by NFS on Appworx and imported on, at minimum, the following servers:

- EBS (database server only)

Other PLCB servers, including Windows based servers, can be added on request so long as they have high-speed, highly reliable connections to the Appworx server. Unfortunately, that excludes the ORBO servers in the stores. It also excludes servers at external partners such as Treasury, NAABCA or wine and spirits vendors.

Because of the way that NFS works and that the directories are organized, the /apps/encrypted directory tree appears exactly the same and does not vary from server to server or even environment to environment. In addition, "/encrypted" never spans environments, i.e., The production "/encrypted" is different from the UAT 95 "/encrypted", etc.

The /encrypted directory exists in its own container file so that runaway applications do not impact other applications on the same server. This also means that its sized is fixed and cannot be easily extended without rebuilding the entire filesystem.

Below the /encrypted directory there exists at least one directory, /interfaces. Others can be added upon request. The following restrictions exist:

- The maximum number of files in a single directory must be limited to less than 100,000. Beyond that, the normal UNIX (AIX, Linux) directory commands begin to fail and managing the directory becomes very difficult.
- Retention criteria must be supplied for all files to manage exposure and limit disk space. Purging is done via a data file driven, operating system script run via an ERP Appworx job.

---

<sup>1</sup> The 7 applications are EBS (and the portals), RMS, and SIM and the applications that link them together, BPEL, Appworx, and RIB and single sign-on.

---

- Subdirectories can be created underneath /interfaces only by Database Administration.

## **Recommendations**

Under /interfaces, each interface, conversion, customization or extension should have its own unique directory, for example, /INT123. The structure should be the same as under /apps/shared.

Underneath each interface should be multiple directories for the data files (/data), the archive (/archive), if the interface archives its files, error logs or reports (/errors), if interface generates any, log files (/logs), if the interface generates any. Other directories may also be added under the interface.

Softlinks can be created where and if needed in order to allow /encrypted to be used by out-of-the-box interfaces that require a specific directory name. For example, if an application expects its input files to be in /apps/ep01/banks that directory could, if desired, be soft linked to /apps/encrypted/INTBank/data.

# **APPENDIX W**

## **APPLICATION TECH STACK LOGGING STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> Application Tech Stack Logging - Standards and Guidelines	<b>Number:</b> 9.0
<b>Date:</b> March 25, 2013	<b>By Direction Of:</b>

### **Importance of Application Technology Stack Logging**

Enabling applications such as web servers, Java 2 Enterprise Edition (J2EE) servers and databases usually create log files. Those log files are designed to aid in troubleshooting problems that occur after-the-fact and contain information about failures, application health information and sometimes debugging information, depending upon the logging level. More critically, these log files are not:

- Systems of record.
- Database transaction logs (a.k.a. “undo/redo” log, after-image journal files, archive logs).
- Application security logs.

### **Importance of Rollover and Retention**

Depending on the activity of the application and verbosity level of logging, the log files themselves can become quite voluminous making them difficult to use for troubleshooting. In addition, as time passes the diagnostic information in these log files becomes less and less relevant when troubleshooting problems. For example, if the failure of an application is not discovered until months after it occurred, the application log may be of little value in correcting the business data while the logs produced by the application itself may be critical to recovering the data. More critically, the fact that a problem is not discovered for months is a significant problem in itself.

### **Log Rollover and Retention Guidelines**

Whenever possible, log files should roll-over (i.e. be closed and a new one opened with a new name) once each day. Daily log files are intuitive because one day equals one log and easy to search because all of the day’s activity is together in

one file. Retention for daily logs should be anywhere from two to four weeks, depending on the log file and its utility and its size.

Some log files accumulate too much data to roll-over on a daily basis. These log files should be set to roll-over by size and purged whenever a fixed quantity of copies is reached. For example, the ORPOS log on the ORBO servers is set to roll over at 10 MB and keep 50 copies (i.e. 500 MB's worth or 2 ½ days' worth).

Whenever possible, log files should be stored on the central log storage directory. This directory, /apps/logs, is an NFS share that is exported to all of the servers within an ERP environment. Each environment has its own copy of /apps/logs. /apps/logs is a separate mountpoint (i.e. disk) and so in the unlikely event that it filled up, it would not cause the applications or databases to run out of disk space. /apps/logs is separate from all other mountpoints on all other servers, including but not limited to:

- /apps/shared
- Database mount points (ex: /oradata and /arch)
- Report directories including /apps/shared
- The /tmp directories used by some applications on each server
- The operating system
- 

/apps/logs is organized as a directory tree with the following levels:

1. /apps/logs; then
2. Servername (ex: /apps/logs/lbsimdevapp25/); then
3. Application name (ex: /apps/logs/lbsimdevapp25/sim/ or /apps/logs/lbsimdevapp25/wavelink); then
4. One or more optional levels representing components, sub-applications, virtual servers, etc. (ex: /apps/logs/lbsimdevapp25/sim/sim-server); then
5. One or more optional levels representing the type of log (ex: /apps/logs/lbsimdevapp25/sim/sim-server/diagnostic-images)

In some cases, it will be possible to point the application directly to /apps/logs. In other cases, it may be necessary to use a soft link to re-point a directory to /apps/logs. For example, Weblogic requires the use of a soft link as in the following example:

```
appsd25@lbsimdevapp25: /home/appsd25 $ ls -l
/apps/sd25/MW/user_projects/domains/SIMAPPDomain/servers/sim-server
total 24
```

```
drwxr-xr-x  4 appsd25 dba      256 Nov 08 12:31 cache
drwxrwxrwx  4 appsd25 dba      256 Jul 26 2012 cache.orig
drwxrwxrwx  5 appsd25 dba      256 Jul 25 2012 data
lrwxrwxrwx  1 appsd25 dba      44 Mar 07 14:52 logs ->
/apps/logs/lbsimdevapp25/sim/sim-server/logs
drwxrwxrwx  3 appsd25 dba     12288 Feb 23 13:54 logs.old
drwxrwxrwx  2 appsd25 dba      256 Nov 14 17:18 security
drwxrwxrwx  5 appsd25 dba      256 Dec 06 07:49 stage
drwxr-xr-x  5 appsd25 dba      256 Mar 19 15:37 tmp
drwxrwxrwx  5 appsd25 dba      256 Oct 01 01:08 tmp.orig
appsd25@lbsimdevapp25: /home/appsd25 $
```

### **Using “native” roll-over mechanisms**

Many applications technology components use a logging facility, whether their own, or a logging framework such as log4j. When a component provides its own logging framework, it is the preferred solution. An example is the Weblogic console. A sample configuration screenshot is below.

**Settings for sim-server**

Configuration Protocols **Logging** Debug Monitoring Control Deployments Services Security Notes

**General** HTTP

Click the **Lock & Edit** button in the Change Center to modify the settings on this page.

Save

Use this page to define the general logging settings for this server.

**Log file name:**  The name of the file that stores current log messages. Usually it is a computed value based on the name of the parent of this MBean. For example, for a server log, it is SERVER\_NAME.log. [More Info...](#)

---

**Rotation**

**Rotation type:**  Criteria for moving old log messages to a separate file. [More Info...](#)

**Rotation file size:**  The size (1 - 65535 kilobytes) that triggers the server to move log messages to a separate file. The default is 500 kilobytes. After the log file reaches the specified minimum size, the next time the server checks the file size, it will rename the current log file as SERVER\_NAME.lognnnnn and create a new one to store subsequent messages. (Requires that you specify a file rotation type of Size.) [More Info...](#)

**Begin rotation time:**  Determines the start time (hour and minute) for a time-based rotation sequence. [More Info...](#)

**Rotation interval:**  The interval (in hours) at which the server saves old log messages to another file. (Requires that you specify a file rotation type of TIME.) [More Info...](#)

**Limit number of retained files** Indicates whether to limit the number of log files that this server instance creates to store old messages. (Requires that you specify a file rotation type of SIZE or TIME.) [More Info...](#)

**Files to retain:**  The maximum number of log files that the server creates when it rotates the log. This number does not include the file that the server uses to store current messages. (Requires that you enable Number of Files Limited.) [More Info...](#)

When a component does not provide its own logging framework, logrotate is the next best solution. Logrotate is a standard Unix/Linux operating system facility designed to rotate and purge log files. A sample configuration is below. This sample rolls the Apache access log every day, adds the date to the end of the filename, and keeps only 14 copies (2 weeks' worth).

```
/apps/log/lbsleposadmin01/apache2/access_log {
    dateext
    daily
```



```
rotate 14
notifempty
missingok
create 644 root root
prerotate
/etc/init.d/apache2 check-reload
endscript
postrotate
/etc/init.d/apache2 reload
endscript
}
```

When the application has no logging framework and logrotate will not work for a particular application, a shell script may be needed. If so, it should be scheduled through Appworx.

Wavelink was an example of such an application until its startup was modified to allow it to be managed by logrotate. The Wavelink application tracked the end of its log file via a byte count and wrote data starting at that point. It did not "append" to its log file. The solution was to change the start of Wavelink to output to the UNIX tee facility instead of directly to the log file. The tee command is designed to append to a file. For example:

```
/usr/java6_64/bin/java -classpath <rest of command line omitted> | tee -a
./logs/wavelink.log
```

With that change, the Wavelink log was able to be rotated by logrotate.

## **Log Level**

Most logging APIs and native controls provide a method for setting log levels. When native controls or logging APIs have logging levels available, developers and operators should use appropriate logging levels to log system events. For example, informational messages should be logged at an INFO or DEBUG level, while system errors or partial failures should be logged at a WARNING or ERROR level.

When in production under normal operating conditions WARN and ERROR level messages should be enabled. This will reduce disk utilization and increase performance. An application should have the ability to modify its logging level to lower DEBUG, INFO, or TRACE levels for debugging and troubleshooting. In production these items should not be enabled unless they are being utilized to find or address a problem.

# **APPENDIX X**

## **SERVER NAMING STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> Server Naming - Standards and Guidelines	<b>Number:</b> 10.0
<b>Date:</b> May 15, 2013	<b>By Direction Of:</b>

**Importance of Server Naming Standards**

To support efficient operations and reduce the opportunity of errors, server names need to be understandable and provide clues as to the applications that they support and their interrelationship of the servers. Furthermore, the names of servers must fall within the standards and requirements of the Office of Administration/Office of Information Technology and the rules of the domain name service (DNS).

**Introduction**

At the PLCB, servers that are not in stores are typically named as follows: lb<Application><Environment><Type><ServerSet><Server#>.<dnssuffix> where:

- "lb" is a constant required by the Office of Administration/Office of Information Technology Services for PLCB servers.
- <Application> is a short letter code for the application. Examples include:
  1. EBS – eBusiness Suite
  2. HYP or ESS – Hyperion
  3. RMS – Retail Merchandizing system (RMS, ReIM, ReSA, RPM, ARI, Allocations)
  4. SIM – Store Inventory Management
  5. RDW – Retail Data Warehouse
  6. INT – Retail Integration Bus (for instances of RIB where they do not reside on a server with an application)

7. PLN – Retail Demand Forecasting
  8. BPEL – BPEL (service oriented architecture middleware)
  9. APP – Appworx cross-platform job schedule
  - 10.SP – Sharepoint
  - 11.DYN – Microsoft Dynamics (CRM)
  - 12.CRYRPT – Crystal Reports
  - 13.ORCO – Oracle Retail Central Office
  - 14.BO – Oracle Retail Back Office
- <Environment> is a short letter code for the environment. An environment is a group of applications and servers related by function and relationship to production. There can be one or more of each environment except production. There is only production environment. The environment names are:
    1. DEV – Development
    2. DEV – Integration Test
    3. UAT – UAT
    4. TRN – Training environment
    5. PRD – Production
  - <Type> describes the role of the server and it typically one of:
    1. WEB – for a standalone web server or the web server in a 3 tier application.
    2. APP – for an application server or an application server that also contains its web server in a 3 tier application. This is typical of Oracle applications.
    3. DB – for a database server. Some database servers also have the web, application and database on them and so are named as database servers. Examples include:
      - a. BPEL
      - b. APPWORX
      - c. Retail Demand Forecasting
  - <ServerSet> is a number that defines on which set of servers it exists and corresponds to one of a set of environments. There could be two sets of

environments, each with its own set of servers, but single set of servers would never correspond to more than one environment. For example, if there were two development environments, each one could have its own set of servers, for example, a "2" and "3" set. However, the "2" set of servers could belong to one and only one environment. This number makes it easy to link a group of related applications to the servers on which they reside. Currently, the sets of servers and their environments are:

1. 2 – Development
2. 3 – Development
3. 4 – Integration Test
4. 6 – Training
5. 8 – UAT
6. 9 – UAT suitable for load testing
7. 0 – Production

- <Server#> is a number that indicates the number of the server within the set of servers. For example, if there are two eBusiness application servers on the same server set, the first one might be 1, the second will be 2 and the third, 3.
- <dnssuffix> is the DNS suffix for the host. At the PLCB those include:
  - .pa.lcl – typically used for servers that are only accessible from inside the PLCB and may be accessible from inside the Commonwealth. Examples include Sharepoint and EBS.
  - .lcb.lcl – typically used for servers or other devices that are only accessible from inside the PLCB and, for security reasons, should only be visible from inside the PLCB. Examples include registers and routers.
  - .lcb.pa.gov – typically used for Internet accessible servers but can also be used for servers that are from inside the PLCB and from inside the Commonwealth. The PLCB has the ability to change the Intranet names quickly.
  - .lcb.state.pa.us – typically used for Internet accessible servers. The Office of Administration/Office of Information Technology is moving away from .state.pa.us and so this suffix should not be used for any new servers or applications.

At the PLCB, servers that are in stores are typically named as follows:

lb<Application><Environment><Type><ServerSet>-<store#>.lcb.lcl

All of the fields are the same as above, except that:

- The ServerSet is followed by a hyphen. The hyphen serves to delimit the store number.
- The 4 digit store numbers replaces the Server#. Store numbers are always 4 digits long (justified right, leading zero).
- The dnssuffix is always lcb.lcl. Store servers are currently in the PCI network segment within the stores and so should not be visible outside the PLCB.

### **Scope of this document**

The scope of this document is limited to projects controlled by or utilizing resources from the Office of Information Technology Services or providing solutions for or under the management of the Office of Information Technology Services. This solution does not include outsourced infrastructure services where the Office of Information Technology Services has no control or input into the names of servers.

### **References**

RFC 1034 and 1035 which define DNS.

[www.ietf.org/rfc/rfc1034.txt](http://www.ietf.org/rfc/rfc1034.txt)

[www.ietf.org/rfc/rfc1035.txt](http://www.ietf.org/rfc/rfc1035.txt)

### **Implementation**

Server names are assigned by the Server Support section under the Enterprise Infrastructure Division with the Office of Information Technology Services. The PLCB recognizes that sometimes exceptions to the standards will be needed because of requirements outside of the PLCB's control.

## **APPENDIX Y**

# **UNIX/LINUS PRINTING STANDARDS AND GUIDELINES**

<b>Information Technology Standard Office of Information Technology Services</b>	
<b>Subject:</b> Unix/Linux Printing - Standards and Guidelines	<b>Number:</b> 10.0
<b>Date:</b> March 25, 2013	<b>By Direction Of:</b>

### **Importance of Coding Standards**

To develop reliable, maintainable applications and reduce development cost as well as time, you must follow coding standards. In short, advantages of coding standards are:

- Improve the readability of the code.
- Easy to understand and maintain by others.
- Maintainable applications.
- Remove complexity.

### **Introduction**

As of 2013, the PLCB has more 650 printers installed at more than 600 locations. All of those printers are available for printing by the ERP applications. The ability to efficiently drive those printers, provide a central point for management and provide high availability is crucial to the agency's retail operations. This document describes the architecture, standards and guidelines for using the PLCB's printing architecture.

The PLCB uses CUPS to drive its printers. According to Wikipedia "CUPS (formerly an acronym for Common Unix Printing System, but now with no official expansion) is a modular printing system for Unix-like computer operating systems which allows a computer to act as a print server. A computer running CUPS is a host that can accept print jobs from client computers, process them, and send them to the appropriate printer.

CUPS consists of a print spooler and scheduler, a filter system that converts the print data to a format that the printer will understand, and a backend system that sends this data to the print device. CUPS uses the Internet Printing Protocol (IPP) as the basis for managing print jobs and queues. It also provides the traditional command line interfaces for the System V and Berkeley print systems, and provides support for the Berkeley print system's Line Printer Daemon protocol and limited



support for the server message block (SMB) protocol. The IPP protocol is “a standard network protocol for remote printing as well as for managing print jobs, media size, resolution, and so forth. IPP is implemented using the Hypertext Transfer Protocol (HTTP) and inherits all of the HTTP streaming and security features.”

CUPS is part of the AIX, RedHat Linux and SuSE Linux operating systems. It is installed by default on the Linux operating systems and it is a standard component available for installation on the AIX installation media. CUPS accepts and prints both PostScript files and PDF (which it can print directly or convert to PostScript).

The IPP protocol is available on almost all printers and is the standard protocol used by almost all modern network connected printers. IPP is also used by the ERP report writer, BI Publisher, to spool print files to printers. BI Publisher prints by connecting to a CUPS server using a URL such as “ipp://dnsname\_for\_cups:631/printername”.

### **Scope of this document**

The scope of this document is limited to projects printing from the ERP or ORCO environment utilizing resources from the Office of Information Technology Services or providing solutions for or under the management of the Office of Information Technology Services. This solution does not include printing from Windows-based application such as Crystal Reports.

### **References**

Unix/Linux CUPS administration <http://www.cups.org/>

### **Implementation**

The PLCB’s implementation of CUPS contains one primary CUPS server per environment and one backup CUPS server for each environment.

The production environment typically contains all of the printers available at the PLCB, however, non-production environments only contain those printers specifically requested by OITS users for testing or by the Bureau of Talent Management and Organizational Development for the training academies. In addition, in non-production environments, printers for stores are typically redirected to a printer at either the central office or at a training academy. That is done so that stores do not accidentally receive licensee orders, inventory reports or other reports that are being tested.

The URL for CUPS is implemented as "ipp://dnsname\_for\_cups:631/printername" where:

- dnsname\_for\_cups is the hostname for the CUPS server. At the PLCB, that name is LBCUPSnn.PA.LCL where nn is the ERP environment number such as 05 for production.
  - LBCUPSnn.PA.LCL is a virtual IP address (VIP) on a load balancer for the actual server on which CUPS resides.

The VIP points to an active/passive server farm where the primary server is the Appworx server for an ERP environment and the secondary (failover) server is the SSO server for an ERP environment.
  - There is an operating system environment variable and Appworx variable, CUPS\_HOST, in each ERP environment which points to LBCUPSnn.PA.LCL for that environment.
  - The management interface for each environment's CUPS installation is at the standard CUPS url, <http://LBCUPSnn.PA.LCL/>
- Printername is the name of the printer. For stores, that name is LBWSsssPn where:
  - "sss" is the 4 digit store number with leading zeroes
  - "n" is the printer number at the store. "1" is the primary printer used for licensee orders.

For example, the URL for the primary printer in the production store 1234 would be ipp://LBCUPS05.PA.LCL:631/LBWS1234P1.

BI Publisher also uses a "short name" for each printer which is just the final printer name. In the previous example, it would be LBWS1234P1.

BI Publisher has the ability to automatically import all of the printers defined on a CUPS server by "registering" the CUPS server via BI Publisher's administration application. So long as the printer names remain the same, migrating to a new CUPS server is as simple as deregistering the old CUPS server and registering the new CUPS server.

BPEL workflow tasks that produce BI Publisher reports (ex: licensee invoices), store the name of the CUPS server in a property which is changed via the BPEL Enterprise Manager.

The PLCB recognizes that sometimes exceptions to the standards will be needed because of requirements outside of the PLCB's control. Examples would include

specialized printers such as the receipt printers on the registers, barcode printers at warehouses, check printers, limitations of the operating system, printer or report writer.

## **APPENDIX Z**

### **TECHNICAL LANDSCAPE**

Technical Landscape - Servers

Environment Name (production or (copy of production))						prd 05		dev 25		dev 35		dev 45		uat 85		uat 95		trn 65		dr 01		non-prd		
Physical Location (unless otherwise noted)						DPH		PLCB		PLCB		PLCB		DPH		DPH		PLCB		PLCB		Varies		
Application	Application or database server	Operating System	Physical or Virtual	Total # of Servers	Total Storage (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs	Memory (GB)	Disk Space (GB)
BPEL	app+db	AIX	Virtual	8	3,640	3	16	2	12	2	12	2	12	2	12	3	16	2	12	2	8			455
EBS - 1 (int)	app		Virtual	8	992	8	11	3	9	3	9	3	9	3	9	4	11	3	9	2	6			124
EBS - 2 (int)	app	AIX	Virtual	2	248	4	11									4	11							124
EBS - 1 (ext)	app	AIX	Virtual	2	248	4	11									4	11							124
EBS -2 (ext)	app	AIX	Virtual	2	248	4	11									4	11							124
EBS	db	AIX	Virtual	8	10,400	8	65	6	43	6	43	6	43	6	43	8	58	6	43	4	29			1,300
RIB	app+db	AIX	Virtual	8	3,528	3	17	3	12	3	12	3	12	3	12	3	17	3	12	2	9			441
RMS	app	AIX	Virtual	8	936	2	20	2	12	2	12	2	12	2	12	2	15	2	12	1	6			117
RMS	db	AIX	Virtual	8	16,776	10	27	7	20	7	20	7	20	7	20	10	27	7	20	5	14			2,097
RMS (long term)	db	AIX	Virtual	1	908	2	4																	908
SIM - 1	app	AIX	Virtual	8	648	2	11	2	5	2	5	2	5	2	5	2	7	2	5	1	4			81
SIM - 2	app	AIX	Virtual	2	166	2	11									2	7							83
SIM	db	AIX	Virtual	8	4,536	5	24	4	18	4	18	4	18	4	18	5	24	4	18	3	12			567
cross envir.	nfs	AIX	Virtual	3	6,000	2	2													1	3	1	1	2,000
OEM	app+db	AIX	Virtual	2	256	2	16															1	16	128
Appworx	app+db	RedHat Linux	Virtual	8	4,000	3	6	2	4	2	4	2	4	2	4	3	6	2	4	2	3			500
Hyperion	app+db	RedHat Linux	Virtual	2	488	7	22									7	22							244
RDF	app	RedHat Linux	Virtual	8	3,520	4	10	3	8	3	8	3	8	3	8	4	10	3	8	2	6			440
RDW	app+db	RedHat Linux	Virtual	7	6,448	8	25	2	5	2	5	2	5	2	5	8	25	2	5					524
SSO	app+db	RedHat Linux	Virtual	8	24,000	2	4	2	3	2	3	2	3	2	3	2	4	2	3	1	2			3,000
Within envir	nfs	RedHat Linux	Virtual	8	2,800	2	4	2	3	2	3	2	3	2	3	2	4	2	3	1	2			350
ORCO	app	SuSE Linux	Virtual	8	960	4	14	3	10	3	10	3	10	3	10	4	14	3	10	4	14			120
ORCO	db	SuSE Linux	Virtual	8	10,800	4	25	3	18	3	18	3	18	3	18	4	25	3	18	4	25			1,350
Physical Location (unless otherwise noted)						EDC		PLCB		PLCB		PLCB		PLCB		EDC		PLCB		PLCB		Varies		
e-Comn - web	app	SuSE Linux	Virtual	3	120	2	6	2	6							2	6							40
e-Comn - web	app	SuSE Linux	Virtual	3	120	2	6	2	6							2	6							40
e-Comn - app	app	SuSE Linux	Virtual	3	105	3	10	3	10							3	10							35
e-Comn - app	app	SuSE Linux	Virtual	3	105	3	10	3	10							3	10							35
e-Comn - Srch	app	SuSE Linux	Virtual	3	66	2	12	2	12							2	12							22
e-Comn - Srch	app	SuSE Linux	Virtual	3	66	2	12	2	12							2	12							22
e-Comn - DB	app	SuSE Linux	Virtual	3	414	2	8	2	8							2	8							138
e-Comn - Mgm	app	SuSE Linux	Virtual	1	28	1	2																	28
Physical Location (unless otherwise noted)						PLCB		PLCB		PLCB		PLCB		PLCB		PLCB		PLCB		PLCB		Varies		
Payment switch	app+db	SuSE Linux	Virtual	3	678	2	8	2	6							2	6							226
SLEPOS Admin	app	SuSE Linux	Virtual	8	256	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4			32
HP Insight Mgr	app	SuSE Linux	Virtual	2	190	2	4													2	4			95
Manugistics	app+db	Windows	Virtual	4	1,600	4	8	4	8							4	8			4	8			400
SQL/Server	db	Windows	Virtual	4	1,600	4	8	4	8							4	8			4	8			400
Crystal Reports	app	Windows	Virtual	5	420	2	4	2	4	2	4	2	4	2	4	2	4							84
ASP.Net	app	Windows	Virtual	5	270	2	4	2	4	2	4	2	4	2	4	2	4							54
Sharepoint	web	Windows	Virtual	2	128	2	16	2	8															64

Technical Landscape - Servers

Environment Name (production or (copy of production))						prd 05		dev 25		dev 35		dev 45		uat 85		uat 95		trn 65		dr 01		non-prd		
Physical Location (unless otherwise noted)						DPH		PLCB		PLCB		PLCB		DPH		DPH		PLCB		PLCB		Varies		
Application	Application or database server	Operating System	Physical or Virtual	Total # of Servers	Total Storage (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs	Memory (GB)	Disk Space (GB)
Sharepoint	app	Windows	Virtual	2	128	2	8	2	8															64
Foundation S	app	Windows	Physical	1	40	4	4																	40
DNA	app	Windows	Virtual	1	40	1	4																	
AVA	app	Windows	Virtual	2	40	1	2																	
BAC	app	Windows	Virtual	1	36	4	4																	
COEV	app	Windows	Virtual	1	40																	2	4	
Crystal Reports	web	Windows	Virtual	1	38	2	3																	
Cisco Mgr	app	Windows	Virtual	1	40	2	2																	
M Director (PO	app	Windows	Virtual	2	47	2	2																	
IBM Director	app	Windows	Physical	1	300	4	4																	
DR Backup	app	Windows	Physical	1																				
Dynamics CRM	app	Windows	Virtual	3	120	4	8	4	4							2	8							
Dynamics CRM	web	Windows	Virtual	4	210	2	8									4	16							
ePO	app	Windows	Virtual	2	50	2	1																	
FileNet Web	web	Windows	Virtual	1	20											2	4							
FTP	web	Windows	Virtual	2	120	2	2									1	1							
Firewall Mgr	app	Windows	Virtual	2	300	2	4																	
Colocation	web	Windows	Physical	4	1,946	4	4																	
Fax	app	Windows	Physical	1	40	1	1																	
Load Test	app	Windows	Physical	4	1,100	2	8																	
MQ	app	Windows	Physical	1	130	4	4																	
NBOPSC	app	Windows	Virtual	1	20	2	2																	
Warehouse	app	Windows	Physical	3	1,392	4	4																	
Print Srv	app	Windows	Virtual	1	40	2	4																	
QA Test	app	Windows	Virtual	1	20											2	4							
Remote Deskto	app	Windows	Virtual	2	60	8	20																	
Terminal Servic	app	Windows	Virtual	3	122	10	10																	
SCCM	app	Windows	Physical	1	900	8	14																	
SECTW	app	Windows	Virtual	1	60	2	4																	
IME	app	Windows	Virtual	1	25	2	2																	
SSO	app	Windows	Virtual	1	20	2	4																	
SP TFS	app	Windows	Virtual	1	60	4	8																	
File Server	file	Windows	Physical	1	6,160	8	36																	
UCM	db	Windows	Virtual	1	25	2	2																	
UPK	app	Windows	Physical	1	68	8	16																	
VMWare	app	Windows	Physical	1	464	4	4																	
VM Backup	app	Windows	Physical	2	2,000	8	4																	
WAN	app	Windows	Virtual	3	50	2	2																	
What's Up Gold	app	Windows	Virtual	1	25	4	8																	
WMS (RIMS)	wms	AIX	Physical	1	80	2	4																	80
Crystal Reports	app	Windows	Physical	1	75	2	4																	75
WMS (RIMS)	wms	AIX	Physical	1	80	2	4																	80

Technical Landscape - Servers

Environment Name (production or (copy of production))						prd 05		dev 25		dev 35		dev 45		uat 85		uat 95		trn 65		dr 01		non-prd		
Physical Location (unless otherwise noted)						DPH		PLCB		PLCB		PLCB		DPH		DPH		PLCB		PLCB		Varies		
Application	Application or database server	Operating System	Physical or Virtual	Total # of Servers	Total Storage (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs or Cores	Memory (GB)	Virtual CPUs	Memory (GB)	Disk Space (GB)
Crystal Reports	app	Windows	Physical	1	75	2	4																	75
WMS (RIMS)	wms	AIX	Physical	1	80	2	2																	80
Crystal Reports	app	Windows	Physical	1	75	2	4																	75
WMS (RIMS)	wms	AIX	Virtual	1	80														2	4				80
Crystal Reports	app	Windows	Physical	1	75														2	4				75
Total				262	####																			

Technical Landscape Databases

Major database	Database Management System	Total size of all databases (GB)	Database Size in GB (each)
BPEL	Oracle 11g	1,659	207
EBS	Oracle 11g	7,174	897
RIB	Oracle 11g	112	14
RMS	Oracle 11g	11,392	1,424
SIM	Oracle 11g	1,869	234
Appworx	Oracle 11g	768	96
Hyperion	Oracle 11g (not inc. ESSBase)	13	6
RDW	Oracle 11g	12,556	1,794
SSO	Oracle 11g	80	10
ORCO	Oracle 11g	7,310	914
Payment switch	Oracle 10g R2	198	66
SQL/Server	SQL/Server 2008	468	117
e-Commerce	DB/2	160	80
Total		43,758	5,858



Technical Landscape - Networks

Location	Count	Data Circuits	Routers	Switches	Wireless Access Points
Stores	612	612	612	618	813
Warehouses	3	6	6	28	37
Regional Offices	12	12	12	28	5
Central Office	2	10	13	61	21
Total	629	640	643	735	876

Network Management Servers & Appliances					
	Count	Type	CPUs	Memory (GB)	Disk (GB)
WhatsUp Gold	1	Virt. Windows Server	4	8	25
CatTools (Network Management)	1	Virt. Windows Server	2	2	40
Cisco Prime (Network Management)	1	Virt. Linux	4	8	200
Cisco Wireless LAN Controler	4	Appliance			
Cisco Mobility Svcs Engine	1	Appliance			
Checkpoint Firewall Management Station	2	Virt. Windows Server	2	4	160
Checkpoint Firewalls	4	Linux	4	4	55
Total	14		16	26	480

## **APPENDIX AA**

# **PLCB BATCH JOB & SCRIPT CODING FOR MIGRATION**

Issued by:	Liquor Control Board Center of Excellence Standards Committee
Date Issued:	
Date Revised:	
Domain:	Application
Discipline:	Application Development
Technology:	Development Practices – Coding for Migration
Document Title:	PLCB Batch Job & Script Coding for Migration

**1. Introduction**

**1.1 Purpose**

The purpose of this document is to provide coding and design standards for making batch jobs, operating system scripts, other scripts, stored procedures and other components transportable between environments without requiring code or parameter changes.

**1.2 Scope**

The scope of this document is limited to project utilizing resources from the Business Solutions Center of Excellence.

**1.3 References**

AppWorx V7.0 User’s Guide

ProTech’s Korn Shell Programing, Books 1 & 2

**1.4 Overview**

Coding and design standards for batch jobs, scripts and stored procedures are essential to improving the quality of applications and the speed with which they are developed.

The PLCB recognizes that certain standards are needed in order to facilitate moving batch jobs, scripts and stored procedures between environments. Currently, these objects must be manually changed whenever they are moved from one environment to another such as when production is “cloned” to UAT or an object is promoted from a development environment to a test environment or to production.

The changes to objects tend to be related to the differences between environments. Such differences include:

- Instance IDs
- Server names
- URLs

In the past, these items were hardcoded into Appworx jobs, Concurrent Manager requests, scripts, stored procedures, etc. Even when passed as a parameter to these objects, the facility passing the parameter needed to be changed when the object was moved.

These changes increase the possibility of error and lengthen migrations and cloning.

Through some standards and prebuilt variables, objects can be developed so that they move seamlessly between environments.

One key element is a list of "variables" whose names remain the same across all environments, but whose values change to reflect the environment in which the object will run. Those variables are:

Appworx Variable, Shell/Concurrent Manager Variable, Key name	Description
ERP_ENV	The three letter acronym for the Oracle financials and retail portion of this environment. Among other things, this variable can be used to construct server names. One of "dev", "uat", "prd".
ERP_SVR_SET	The numeric designator for this set of servers . Currently, 0 is production, 2, 3, and 4 are development or test environments, 8 and 9 are UAT environments
ORCO_ENV	The three letter acronym for the Oracle Retail Central Office environment. Among other things, this variable can be used to construct server names. One of "dev", "uat", "prd" or "sup". Because there are 4 ORCO environment and 6 ERP, the two do not always match. If there is no ORCO environment linked to this ERP environment, this variable should be empty.
ORCO_SVR_SET	The numeric designator for this set of servers. Currently, 0 is production, 2 is development, 9 is UAT and 7 is production support. If there is no ORCO environment linked to this ERP environment, this variable should be empty.
EBS_SID	The instance name for EBS in this environment. ex: ep01
RMS_SID	The instance name for RMS in this environment. ex: rp01
SIM_SID	The instance name for SIM in this environment. ex: sp01

Appworx Variable, Shell/Concurrent Manager Variable, Key name	Description
BPEL_SID	The instance name for BPEL in this environment. ex: bp01
APWRX_SID	The instance name for AppWorx in this environment. ex: ap01
RPAS_SID	The instance name for RPAS in this environment. ex: pp01
HYPRN_SID	The instance name for Hyperion in this environment. ex: ???p01. If Hyperion does not exist in this environment, then the string must be empty.
RDW_SID	The instance name for Hyperion in this environment. ex: ???p01. If the RDW does not exist in this environment, then the string must be empty.
ORCO_SID	The instance name for ORCO in this environment. ex: cp01. If ORCO is not connected to this environment, then the string must be empty.
EBS_DB	The hostname for the database server for EBS for this environment. ex: lbebsprddb01.pa.lcl
RMS_DB	The hostname for the database server for RMS for this environment. ex: lbebsprddb01.pa.lcl
SIM_DB	The hostname for the database server for SIM for this environment. ex: lbebsprddb01.pa.lcl
BPEL_DB	The hostname for the database server for BPEL for this environment. ex: lbebsprddb01.pa.lcl
APWRX_DB	The hostname for the database server for Appworx for this environment. ex: lbebsprddb01.pa.lcl
RPAS_DB	The hostname for the database server for RPAS for this environment. ex: lbebsprddb01.pa.lcl
HYPRN_DB	The hostname for the database server for Hyperion for this environment. ex: lbessprddb01.pa.lcl If Hyperion does not exist in this environment, then the string must be empty.
RDW_DB	The hostname for the database server for RDW for this environment. ex: lbrdwprddb01.pa.lcl If RDW does not exist in this environment, then the string must be empty.
ORCO_DB	The hostname for the database server for ORCO for this environment. ex: lborcoprddb01.lcb.lcl If ORCO does not exist in this environment, then the string must be empty.
EBS_HOST	The hostname portion of the internal URL for EBS for this environment. ex: ebs.pa.lcl
SIM_HOST	The hostname portion of the internal URL for SIM for this environment. ex: lbsimapp.pa.lcl
PROD_ENV	Equal to the string "TRUE" (all uppercase) if the environment is production, "FALSE" otherwise. Used to

Appworx Variable, Shell/Concurrent Manager Variable, Key name	Description
	test if this is a production environment or not.

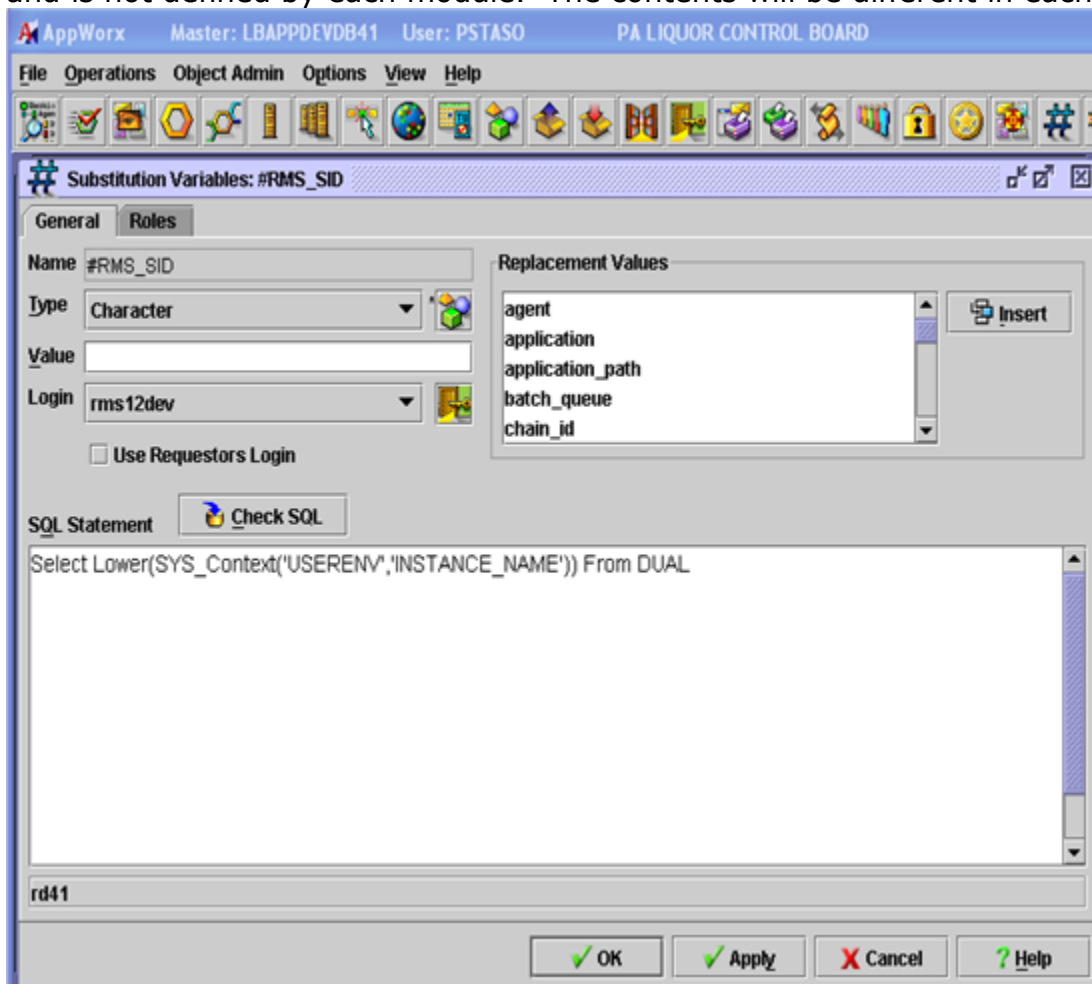
The variables are maintained as Appworx variables, operating system shell variables (also usable by Concurrent Manager) and in a database table called `XXLCB_ENVIRONMENT`.

The following pages show examples of how to use these variables in Appworx jobs, Concurrent Manager Requests, scripts and stored procedures.

Additional variables can be created by contacting the Application Development Division Chief.

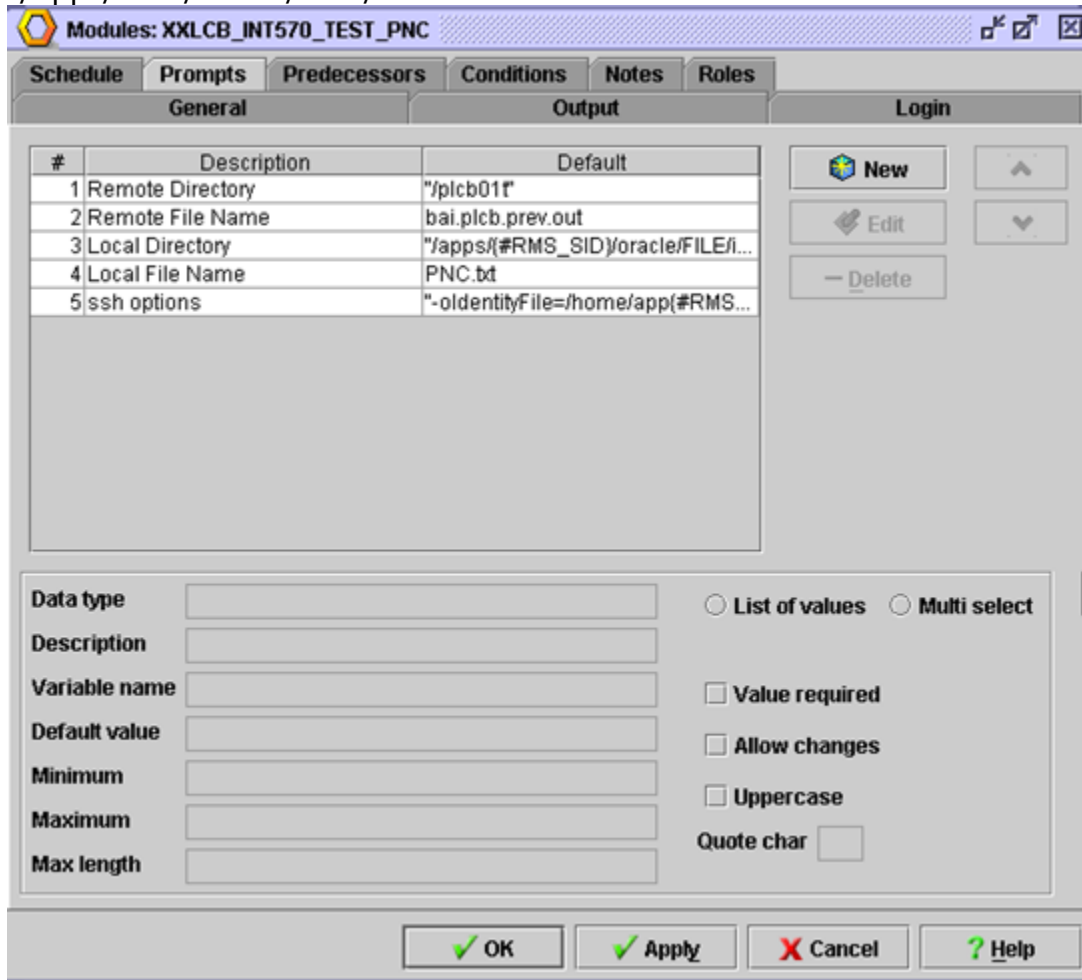
## 2. Appworx Example

Define the variable `RMS_SID` inside Appworx. This variable is predefined in Appworx and is not defined by each module. The contents will be different in each environment.



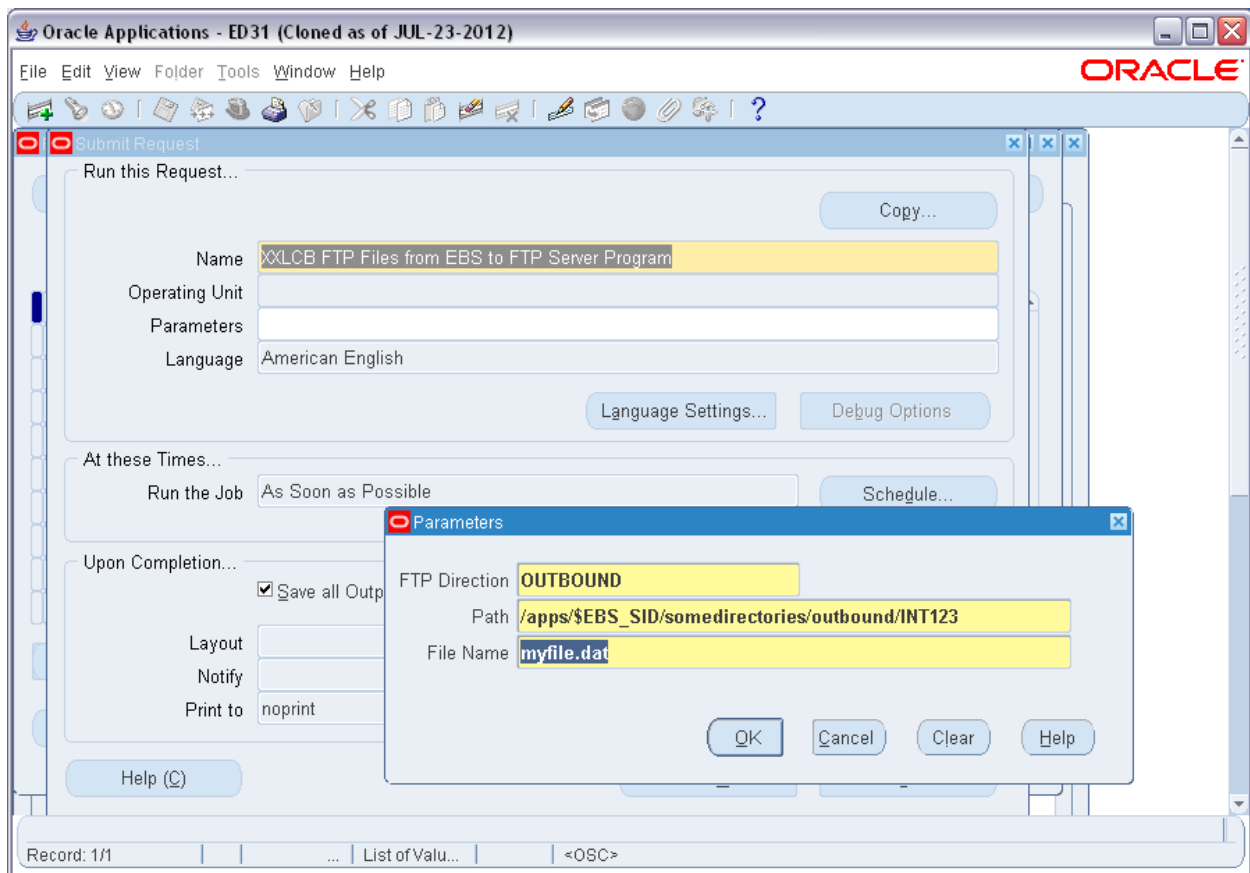
Define the module's input prompts (parameters). In this example, note that parameters 3 and 5 use the variable RMS\_SID. The contents of RMS\_SID, for example, "rd41" (see previous screenshot), will be transparently passed to the target of the module.

In this example, parameter #3 would look like the following "/apps/rd41/oracle/FILE/..."



### 3. Concurrent Manager Example

The example below shows the entries in a Concurrent Manager screen that substitutes the environment specific path /apps/ep01/somedirectories/outbound/INT123 with the environment independent path /apps/\$EBS\_SID/somedirectories/outbound/INT123. Note that this example only works for Concurrent manager requests that invoke shell scripts since it is the shell that completes the substitution.



#### 4. Korn Shell Script Examples

```

$ cat example.ksh
#!/usr/bin/ksh
#
# Example of using an instance in a script to check
# to see if a local file exists
#
echo List the contents of /apps/$APWRX_SID/appworx
ls -l /apps/$APWRX_SID/appworx/test.txt
#
# If the file test.txt exist, then do something
# else do something else
#
if [ -e /apps/$APWRX_SID/appworx/test.txt ]
then
    echo The file exists
else
    echo The file does not exist
fi
$ ./example.ksh
List the contents of /apps/ap01/appworx
-rw-r--r--  1 ap01  dba      12942 Sep 14 2009 /apps/ap01/appworx/test.txt
The file exists

```



```

$
$ cat example2.ksh
#!/usr/bin/ksh
#
# Example of using an instance and server
# in a script to copy a file from another system.
#
# Copy /apps/bp01/sqlnet.log from lbbpelprddb01
# to the current directory using an RSA key
# for login instead of a password
#
# Construct the source and destination
SRC=$BPEL_DB:/apps/$BPEL_SID/sqlnet.log
DST=foo.bar
#
# The location of the private key file for this user
RSAKEY=~/.ssh/id_rsa
#
echo "Execute command:"
echo scp -i $RSAKEY $SRC $DST
# Copy the file
scp -i $RSAKEY $SRC $DST
#
ls -l $DST
$ ./example2.ksh
Execute command:
scp -i /home/sweinbro/.ssh/id_rsa lbbpelprddb01.pa.lcl:/apps/bp01/sqlnet.log foo.bar
sqlnet.log          100% 1008   1.0KB/s   00:00
-rw-r--r--   1 sweinbro staff      1008 Mar 15 13:16 foo.bar
$

```

```

$ cat example3.ksh
#!/usr/bin/ksh
#
# Example of checking to see if this is or is not
# a production server and then setting some variables
# based on that.
#
case $PROD_ENV in
  TRUE)
    print "This is production"
    MANDTBANK="ftp.mantdbank.com"
    ;;
  FALSE)
    print "This is non-production"
    MANDTBANK="ftptest.mantdbank.com"
    ;;
*)

```

```
        print "Unexpected error, PROD_ENV is neither TRUE nor FALSE"
    exit 1;;
esac
#
# Print the variable and export it
#
print MANDTBANK=$MANDTBANK
export MANDTBANK
$
$ ./example3.ksh
This is production
MANDTBANK=ftp.mantdbank.com
$
```

# **APPENDIX BB**

## **RELEASE MANAGEMENT POLICY**

<b>Release Management Policy</b>	
<b>Information Technology Policy</b> <b>Office of Information Technology Services</b> Chief Information Office	
<b>Subject:</b> Release and Deployment Management	<b>Number:</b> RM 3.0.0
<b>Date:</b> February 2012	<b>By Direction Of:</b>  <b>Approval:</b>

**This Release and Deployment Management policy provides guidance and information on how the Office of Information Technology Services (OITS) will deploy software releases to the production environment.**

1. **Scope.** This policy applies to all individuals within OITS (e.g. employees, contractors, etc.) working or doing business with the Liquor Control Board (LCB).
  
2. **Purpose.** This policy will improve quality by maintaining the integrity of the organization's production environment during the implementation of scheduled releases. An effective release and deployment process allows OITS to:
  - Improve the quality of the services delivered to the agency, its vendors and licensees and the public.
  - Reduce the number of issues/bugs/defects in new or modified applications.
  - Facilitate life cycle management and operational consistency to reduce the time required of the business owners as well as others to perform user acceptance testing.
  
3. **Definitions:**
  - **Release.** A stable, executable version of a product intended for deployment to testing and production. A collection of new and changed code, data, parameters, etc. from one or more requests for change (RFCs) that implement new or changed functionality.
  - **Release Package.** All of the code, data, parameters, installation instructions, etc. needed to install a release.

- **Release Type.**
  - i. **Major.** A release of a piece of software which contains substantial new functionality or changes the application. **(Scheduled When Necessary).**
  - ii. **Minor.** A release of a product that does not add new features or content. Instead minor releases normally contain such things as security fixes, cosmetic changes, new reports on existing data, format changes to reports, or other changes that are very limited in scope and impact.
  - iii. **Emergency.** Fixes to production where there are no known work-around and that impact to the business is so substantial and so widespread that a correction to the code cannot wait until the next major or minor release. Correcting data either through the application itself or directly through the database is considered routine operations and not an emergency release. A legislative change or change due to a decision by the courts may also constitute an emergency change.
- **Release Calendar.** A set of published dates that detail when releases are planned to transition through the different environments (development, test and production). These dates will be published for the calendar year, and do not necessarily follow the PLCB's business calendar. In general, the release schedule is:
  - i. Emergency releases are done as deemed appropriate. However, by definition, there should be very few of these.
  - ii. Minor releases are done in the middle of each month, timed so as not to interfere with month end closing.
  - iii. Major releases 6 to 7 weeks after the end of a quarter, timed so as not to interfere with year, quarter or month end closing.
- 4. Classification and Submittal Policy.** Classification of the release type will be determined during the change/enhancement request phase. **(Ref. Change Management Policy). Exceptions must be submitted to the Chief Information Officer (CIO) or the Assistant CIO.**
- 5. Procedures.** The following explains how code will move through testing to production dependent upon classification type:
  - **Emergency Break/Fix.** Code classified as this type can be moved during the week prior to the Change Advisory Board (CAB) as long as at

least one CAB member approves it. This code be tagged as an Emergency Break/Fix and presented at the weekly change control meeting potentially after the fact. Documentation from integration and UAT testing must be submitted for review at the weekly change control meeting.

- **Minor Release.** This code will be tagged as such and will be presented at the weekly change control meeting for final release approval. This code will also need to show testing results from the Integration and the UAT environments.
- **Major Release.** All code associated with this release will be tagged as such. This will be presented at the weekly change control meeting for final release approval. During the migration process the developer must show testing results in each environment Integration and UAT prior to final release approval.

## 6. Testing.

**Note: All testing must be completed and documented properly prior to any approval for release. This is outlined in the change management policy.**

- Prior to a minor release all associated code must be loaded into the UAT environment prior to UAT testing. Once code has been moved, UAT testing can be completed. If code is not ready and tested with the minor release it was scheduled for, it will be moved to the next minor release.
- Prior to a major release, UAT testing must be performed with all final code in place and loaded in the UAT environment. Dates for UAT testing will be established for each release period. All code associated with the major release will be migrated at the same time to the UAT environment. If there are other reasonable accommodations needed for UAT testing they must be addressed during the submittal process. If code does not meet that window for completion it will be moved to the next release window.
- All testing will follow these guidelines. If code is not complete or must be rolled back to correct bugs it will be bumped to the next release cycle.

## 7. Members and Roles for Release Management.

- **Release Manager**
  - i. Schedules and coordinates all releases in the organization.
  - ii. Approves changes to be released pending CAB approval.
  - iii. Enforces release policy.

- **Change Manager**
  - i. Coordinates the changes.
  - ii. Chairs the CAB
  
- **Business Analysts / Developers**
  - i. Responsible for defining the processes and ensuring compliance and effective operation.
  
  - ii. Supply timely and accurate documentation.
  
  - iii. Ensure project plans and level of effort requests refer to the release windows for scheduling.
  
- **Business Owners**
  - i. Responsible for working with the business analysts to define their business requirements.
  
  - ii. Responsible for providing staff for user acceptance testing when required.
  
  - iii. Review user acceptance testing results with release manager and change manager.

**APPENDIX CC**

**CHANGE MANAGEMENT POLICY**



<b>Information Technology Policy</b> <b>Office of Information Technology Services</b> Chief Information Office	
<b>Subject:</b> Change Management	<b>Number:</b> 2.3.0
<b>Date:</b> October 7, 2014	<b>By Direction Of:</b>

**This change management policy provides guidance and information on how the Office of Information Technology Services will process change requests. The policy also outlines the steps required to submit a change request to the Change Advisory Board (CAB) for approval.**

**1. Scope.** This policy applies to all individuals (e.g., employees, contractors, etc.) working or doing business with the Liquor Control Board (LCB)

**2. Definitions:**

- a. Change Management (CM).** Change Management is an IT service management discipline that encompasses application, infrastructure, and process changes. The objective of CM is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes. Standardized methods and procedures minimize the number and impact of all related incidents upon service. CM will ensure standardized methods, processes, and procedures are used for all changes which will facilitate efficient and prompt handling of these changes, while maintaining the proper balance between the need for change and the potential detrimental impact of changes.
- b. Request for Change (RFC).** Formerly known as Activity Logs (AL). RFCs must be submitted by PLCB OITS staff for changes to the User Acceptance Testing (UAT) environment and PLCB production systems. All RFC's will be reviewed by the Change Manager and those targeting Production systems, approved by the Change Advisory Board (CAB).
- c. Infrastructure.** This is inclusive of all physical equipment and appliance configurations. Examples include server, handheld scanners, routers, firewall rules, network settings etc.
- d. Application.** Computer software designed to help the user to perform specific tasks.

- e. **Process Changes.** This type of change request covers modifications to the business process, information technology policies and procedures.

### 3. Classification and Submittal Policy.

#### a. Classification.

- i. **Emergency.** Any type of change to the production environment that requires immediate attention having **“no known work-around”**. Emergency Approvals will follow the procedure as outlined in Appendix One at the end of this document. To eliminate any conflicts of interest and in keeping with the segregation of duties policy, *only* the three following individuals have the authority to authorize emergency requests:

1. The CIO
2. The Assistant CIO
3. The Enterprise Change Manager or the Database Manager (only if all attempts to reach the others have failed. Please see [Emergency Change Request Procedure](#) in Appendix One below)

- ii. **Normal.** The addition, modification or removal of anything that could have an effect on IT services. This applies to enhancements, projects, or non-routine changes. These will go through the normal change control process

- iii. **Standard.** A change request that is low risk, relatively common and follows a predefined Procedure or Work Instruction. Standard requests will be submitted to the Change Manager for approval and follow the procedure as outlined in [Exhibit Two](#) Standard requests do not need to go through the Change Control Board but must be approved before being migrated.

#### Special Note:

**Only PLCB employees can create Emergency, Normal or Standard requests, no exceptions.**

- b. **Submittal.** All change requests must be submitted by a PLCB staff member. For RFC’s proposed for production, the following issues must be addressed in the RFC prior to CAB review. The presenter should be available during implementation and prepared for the following questions or documentation delivery.

- i. Are new objects involved in the change?
- ii. When can the migration be started and completed?

- iii. Does the migration require a server bounce for it to function?
  - iv. Are there any jobs or processes that need to be put on hold for migration?
  - v. If this is a data script, can it be executed during normal working hours?
  - vi. Does backup of current data need to be completed in order to prepare for a back out, or is the process reversible without back up?
  - vii. Specify the tables that need to be backed up if any.
  - viii. The name of the contact, and their contact information should be on the RFC for possible contact during the scheduled migration window.
  - ix. Any deployment documentation and its location must be specified.
  - x. If PLCB owned code, or data is being changed, then a peer reviewer must be in the deployment documentation.
  - xi. All deployment documentation needs a management reviewer entered.
  - xii. Back out instructions are needed for all changes either in the deployment documentation or the RFC.
  - xiii. Developers should include a sanity check for the deployment to determine whether or not the change was successful.
  - xiv. Some statement should be made as to the risk level, urgency of the request, and the impact that it may have on other systems.
- c. Backing out a Request for Change:** If a back out is required during migration, the RFC must be re-submitted to the CAB for scheduling or re-seek emergency approval. For backed out or failed requests, a Post Implementation Review will be held to determine the nature of the shortcoming.

#### **4. Procedures.**

- a. Timeline.** All requests for changes to IT environment, except emergency fixes, will adhere to the following timelines for approval.

Failure to meet these deadlines will result in the change request being delayed.

- i. Wednesday by 5:00 pm (EST).** This is the deadline for all non-emergency change requests to be submitted to the Change Manager (CM) for PreCAB review. At this point the CM and Quality Assurance Manager (QAM) will review the change requests and the associated documentation including the deployment and test documentation.
- ii. Thursday at 10:30 am (EST).** There will be a standing weekly technical review meeting of all change requests that were submitted for approval. If a change request has been submitted, the PLCB employee that submitted the request must be present to discuss the proposed change and answer any questions. Note that the PLCB employee may bring along any technical resources to assist as needed.
- iii. Friday at 10:30 am (EST).** The Change Advisory Board (CAB) will meet to review and approve / disapprove the weekly Standard change requests.

## 5. Members and Roles.

- a. Change Advisory Board (CAB) Roles:** The Change Advisory Board will decide what changes will move to production. **Members:** CIO, Assistant CIO, OITS Division Chiefs, Enterprise Change Manager, and the OITS Application Architect.
- b. Change Manager Role:** Is ultimately responsible for the entire change management process from request to approval and will manage the process documenting and mitigating the risk of moving, adding, removing, deleting, modifying, or supplementing infrastructure or software changes within the LCB effectively classifying all change requests. The Change Manager will also make recommendations to the CAB on the approval/disapproval of each Request for Change based on information collected from the requestors.
- c. Quality Assurance Manager Role:** Will review documentation related to testing and implementation of proposed changes prior to submittal to the CAB for approval.
- d. PLCB OITS Staff Role:** Will submit change requests, and participate in the weekly technical review meeting of submitted requests providing assistance and feedback.
- e. Implementers:** Any member(s) of a functionary team responsible for performing the type of work to properly service the request. Simply, the appropriate team or team member who completes the work of the request.

**Exhibit One**  
**Emergency Change Request Procedure**

1. Submit a request for change via the current change request tracking tool.
  - a. Fill in all the mandatory fields and in the **Severity** Field be sure to choose *Emergency* from the drop down list. In the other mandatory fields, enter the required information as appropriate.
  - b. Submit the request.
  - c. If there is no response to the request in 30 minutes, an attempt should be made to reach the **CIO** and or the **Assistant CIO** by phone for confirmation/ authorization. If a response is not received after one hour, the request can be approved by the **Enterprise Change Manager** or the **Database Manager**.
  - d. All completed testing documentation and paperwork associated with the emergency request must be delivered within 48 hours of the requested emergency change request.
  - e. When an emergency request has been completed successfully, the owner of the request should validate the change before closing the request.

**Exhibit Two**  
**Standard Change Request Procedure**

1. Submit a request for change via the current change request tracking tool.
  - a. Fill in all the mandatory fields making sure to choose *Standard* from the drop down list in the **Severity** Field.
  - b. In the other mandatory fields, enter the required information as appropriate.
  - c. Submit the request.
  - d. If there is no response to the request in 30 minutes, an attempt should be made to reach the **CIO** and or the **Assistant CIO** by phone for confirmation/ authorization. If a response is not received after one hour, the request can be approved by the **Enterprise Change Manager** or the **Database Manager**.
  - e. When an standard request has been completed successfully, the owner of the request should validate the change before closing the request.

# **APPENDIX DD**

## **SYSTEM DEVELOPMENT LIFE CYCLE STANDARDS AND GUIDELINES**



<b>Information Technology Policy</b> <b>Office of Information Technology Services</b> Chief Information Office	
<b>Subject:</b> System Development Lifecycle	<b>Number:</b> 4.0
<b>Date:</b> June 3, 2014	<b>By Direction Of:</b>

System Development Lifecycle (SDLC), by definition, is a series of stages that provide a model for the development and lifecycle management of software or applications. This SDLC policy provides a common framework for information technology development performed by Pennsylvania Liquor Control Board (PLCB) Office of Information Technology Staff (OITS) or external contractors.

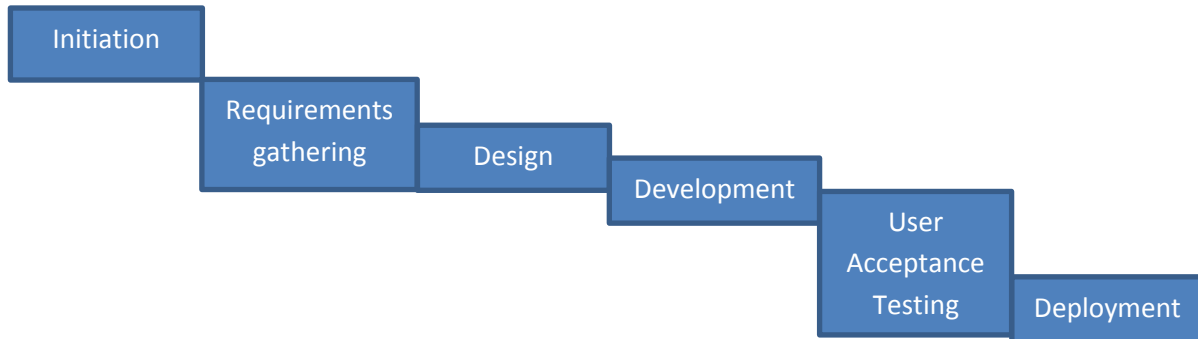
Use of this guide will ensure consistency and compliance with all OITS standards for all system and application development activities which will allow for a higher quality end product. This guide should be used as a resource to determine which activities and tasks should be performed or are necessary for each project. It will establish a method to document requirements and processes. All of the LCB specific information and process flow can be found in the Exhibit section.

Lifecycle Processes. Lifecycle processes guide and govern the steps within a system's lifecycle from inception to decommission in a structured manner. The processes are grouped based on function and are performed concurrently or iteratively to create the final product.

- Project Management
  - Planning
  - Assessment
  - Risk Management
  - Configuration Management
- Development and Support
  - Process Development
  - Process Testing
  - Process Implementation
  - Process Maintenance and Operations

- Enterprise Management
  - Resource Management
  - Quality Assurance Management

The system development life cycle model is based on the waterfall method illustrated below.



This policy is based on the model illustrated above; however, other models may be used as long as they follow a structured methodology. The waterfall method is a sequential model that allows for structured development, testing and deployment. Each step in the waterfall must be completed before the next step begins. This method can be used iteratively within other methods, such as agile development.

The life cycle begins with the initial idea or concept of the request, which includes preliminary requirements gathering including the feasibility of the project and the capacity of the organization to support the request. Once the request has been approved, specific requirements are gathered. These requirements are used to design and develop the request. The development phase includes unit and integration testing; should either testing fail, changes to the design or additional development will be needed. Once unit and integration testing is successful, the users are brought in to perform their acceptance testing. Again, if testing fails, changes are made and retested. If testing is successful the changes can only occur if:

- All pre deployment deliverables are signed on
- Go-no-go decision must be agreed to by all stakeholders with signoffs
- Production change is agreed to by the Change Advisory Board

## Initiation Activities

**Feasibility Study.** A feasibility study, either formally or informally, should be performed for all requests. The study will determine if the request should be fulfilled or rejected. The study should evaluate the technical, budgetary, operational and schedule requirements of the request. If the feasibility study

concludes that the request cannot be fulfilled, the request should be rejected or the request must be modified.

Technical considerations of a study include an examination of the practicality of the request, taking into account any limitations or restrictions within the current environment. Additionally, the availability of the technical skills and resources needed to implement and support the request should be reviewed.

Budgetary considerations of a study include an examination of the impact of the request to the current business process. Careful attention must be given to any request that could result in a reduction of service. A reduction in service can be caused by implementing a change as well as failure to implement a change.

Operational considerations of a study include an examination of the impact of the request to current resources. Personnel, infrastructure, capacity, among other resources, must be examined to ensure the request can be implemented and supported.

Schedule considerations of a study include an examination of the timeline of the request to ensure the request can be implemented in a reasonable amount of time with no negative impacts on existing or planned activities.

### **LCB Budget and Prioritization Process (See Exhibit 5.)**

**Project Management Activities.** Regardless of the size or scope of the request, project management activities need to be conducted at initiation of the project. These activities include defining the project scope, creating the project plan, developing a RACI matrix, etc.

### **Requirements – LCB Specific (See Exhibits 2 and 6.)**

Purpose: To identify the system and business needs of the request.

- **Entry Criteria:** Completed feasibility study and approval to move forward with the request.
- **Inputs:** Request For Service or Break/Fix
- **Activities:** Requirements Gathering
- **Outputs:** Requirements Document, Process Flow, Use Cases

**Requirements Gathering.** Requirements are collected and analyzed for all approved requests before any design or development activities commence. The

project team meets with the request owner to elicit the requirements of the request. The requirements are documented and reviewed by the request owner and other stakeholders for accuracy.

It is important that the requirements are complete and accurate to avoid design or development issues. Improper or inaccurate requirements can lead to scope creep, design issues, development issue or implementation issues.

Each requirement may address only one specific item. All requirements must be complete, current, consistent and verifiable. Requirements that are out of scope for the request may be documented for future development but care must be used to avoid scope creep.

To produce the specification, the analyst must build the data-flow diagrams (DFDs):

- **Physical DFD**

- Included will be references to data that is duplicated, or redundant, and that the data stores, if implemented as a set of database tables, would constitute an un-normalized (or de-normalized) relational database.

- **Logical DFD**

- Captures the data flow aspects of a system in a form that has neither redundancy nor duplication.

In the end, DFD's will show full descriptions of the data and its relationships. These will be used to produce definitions for every function the users will require of the system. The product of this stage is a complete requirements specification document which is made up of:

- An updated data catalogue
- An updated requirements catalogue
- Processing specification made up of:
  - user role/function matrix
  - function definitions
  - required logical data model

## **Design**

Purpose: To identify and document the construction of the request.

- **Entry Criteria:** Requirements gathering is complete
- **Inputs:** Request For Service or Break Fix, Requirements
- **Activities:** Application Design

- **Outputs:** Design Documents

## **Design Activities**

**Develop Design.** Requirements that are gathered during the requirements phase are used to document the system design. The design must meet all system design standards and best practices. The final design will include and identify all components of the request. These individual components include hardware (servers), software (application code) and infrastructure (network) components. Additionally, the design should identify any interfaces, batch processes or manual processes.

**Logical design.** The logical design specifies the main methods of interaction in terms of menu structures and command structures. One area of activity is the definition of the user dialogues. These are the main interfaces with which the users will interact with the system and the need to make inquiries about the data on the system. Both of these use function descriptions and effect correspondence diagrams produced during requirements gathering to determine how to update and read data in a consistent and secure way. The product of this stage is the logical design which is made up of:

- Data catalogue
- Required logical data structure
- Logical process model – includes dialogues and model for the update and inquiry processes
- Stress & Bending moment.

**Physical design.** This is the final stage where all the logical specifications of the system are converted to descriptions of the system in terms of real hardware and software. The logical data structure is converted into a physical architecture in terms of database structures. The exact structure of the functions and how they are implemented is specified. The physical data structure is optimized where necessary to meet size and performance requirements.

The product is a complete Physical Design which could tell software engineers how to build the system in specific details of hardware and software and to the appropriate standards.

**Build.** Functions and operations are described in detail and include:

- Screen layouts
- Business rules

- Process diagrams
- Other documentation

The output of this stage will describe the new system as a collection of modules or subsystems. The initial design input takes the requirements identified in the approved requirements document. For each requirement, a set of one or more design elements will be produced as a result of interviews, workshops, and/or prototype efforts. Design elements describe the desired system features in detail and can include:

- Functional hierarchy diagrams
- Screen layout diagrams
- Tables of business rules
- Business process diagrams
- Complete entity-relationship diagram with a full data dictionary.

These design elements are intended to describe the system in sufficient detail, such that skilled developers and engineers may develop and deliver the system with minimal additional input design.

**Testing and Validation.** This section defines the scope and objectives for application testing. It will define tasks, roles & responsibilities, and entrance/exit criteria for each level of testing. It will describe the overall test strategy for:

- Test Phases
- Testing approach for each test phase including the definition of common test execution and recording methods
- Roles and responsibilities
- Test data
- Test tracking
- Issue tracking
- Suspension criteria and resumption process

**1. Objectives:** Combined objectives of the test phases are:

- a. To determine if the delivered solution is built, configured and operates according to the defined PLCB business processes, and business requirements.
- b. The designed components integrate and operate together successfully as a composite entity.
- c. Ensure a uniformity and standardization of testing for each application implementation.
- d. Ensure that all issues and defects found during testing are properly categorized, recorded and dealt with prior to the software moving to a production environment.
- e. Determine if the application meets the agency disaster recovery standards and the business requirements if a failover situation should occur. (if applicable).

**2. Roles and Responsibilities:** Successful testing requires active involvement of core implementation team members, both functional and technical teams, as well as representation from the business functions impacted. Defining and executing the early stages of testing (Unit, Integration) are the responsibility of the core implementation teams. Executing the later User Acceptance Testing (UAT) is the responsibility of the business users. This UAT is a critical step in achieving acceptance from the business that the defined processes and configured applications will successfully operate for the business in accordance with the requirements given.

- a. **Technical Team:** The technical team will coordinate the developers' unit testing and basic performance testing efforts. Performance testing will be the responsibility of the technical team and the QA team. It is the technical team's responsibility to ensure testing expectations from the functional team are understood for each element. These tests are to be successfully executed by the developers prior to delivery of the code to the functional teams. Technical team responsibilities include coordination of test data in the developers' instance. The technical team will coordinate the performance test plan as defined in the functional requirements documentation.

**Technical Team Examples:** Technical teams can include the following groups: Infrastructure Support, Application Developers, Database Administrators, and Network Support.

- b. Functional Team:** The Quality Assurance and Testing team is responsible to coordinate the Functional Unit, Integration and User Acceptance testing. Each functional team is responsible to define the criteria necessary in their functional area to validate the processes and applications are sufficient to meet the business requirements. The defined test plans must then be executed by the functional teams. Upon completion, the teams will document results and summarize a final report to be used in a go-live readiness assessment.

**Functional Team Examples:** Business Annalists

- c. Stakeholder Teams:** Site teams are made up of representatives from the business functions included in the go-live. Each site team is responsible to understand the to-be business functions and the software used to support those functions. They are expected to become familiar enough with the process and systems that they can clearly judge the validity of the solutions. This will be achieved through the User Acceptance Test process. They must also be able to validate and in some cases execute training plans for the general populous of the go-live site(s).

**Site Team Example:** End users, PLCB customer(s)

- 3. Test Data.** Testing can only be as good as the data used to perform the testing activities. Therefore, existing Production data will be used where obtainable. This will be done not only to ensure that production or production-like data is tested before going into operation, but also to ensure that the software is tested to the maximum level possible. If data must be manufactured, the goal will be production-like data created within the system. If available test data should be related to the actual processes and incorporated into the test scripts. The Quality Assurance and Testing team will begin test planning with the business processes reflected by the business requirements, detail the testing required to validate these processes, and then define data required to fully perform the functional and system integration testing. Conversion of data for testing should be the goal rather than creating test data from scratch.

- 4. Suspension Criteria and Resumption Process.** Testing of a set of features will be temporarily suspended when a "fatal error" occurs. A fatal error is any failure of the software or hardware that prevents the tester from continuing through the logical process of the application. The error will be documented in issue database or according to business impact, proper



communication with the teams. When errors are fixed, all testing must be repeated for the suspended area. Testers will resume testing on a suspended area, when the error has been fixed. If it is discovered that the error was not completely fixed or if a new fatal error is encountered, testing on that set of features will again be suspended, and the priority of the error will be raised.

## 5. Definitions.

- a. **Design Phase.** Establish the design requirements and review of the current setup and configuration using base code.
- b. **Conference Room Pilot (CRP).** The purpose of the conference room pilot is to validate a software application against the business processes of end-users of the software, by allowing end-users to use the software to carry out typical or key business processes using the new software. The net goal is to meet the requirements established by the end users.

## 6. Defect Classification.

**Special Note: No defect that can impact our fiduciary responsibilities, such as tax, ledger, or legal implications may never be classified lower than High and in most instances will be labeled critical automatically.**

- a. **Critical.** The defect results in the failure of the complete software system, or a subsystem, or of a software unit (program or module) within the system. Further development and/or testing cannot occur until the defect has been repaired. The system cannot be used until the repair has been effected.
- b. **High.** The defect results in the failure of the complete software system, of a subsystem, or a software unit (program or module) within the system. There is no way to make the failed component(s) work, however, there are acceptable processing alternatives which will yield the desired result. The defect must be resolved as soon as possible because it is impairing development/and or testing activities. System use will be severely affected until the defect is fixed.
- c. **Medium.** The defect does not result in a failure, but causes the system to produce incorrect, incomplete, or inconsistent results, or the defect impairs the systems usability. The defect should be resolved in the normal course of development activities. It can wait until a new build or version is created.

**d. Low.** This defect does not cause a failure, and does not impair usability, and the desired processing results are easily obtained by working around the defect. The defect is an irritant which should be repaired but which can be repaired after more serious defects have been fixed.

**7. Test Tracking.** Logging for each phase of testing is managed by each functional team. Comments and defects will be written down on the Test Scenario Control Sheet. At the end of each testing day all test defects will be logged into the Activity Tracking system and classified accordingly.

**8. Testing Phases.**

**Functional Unit Testing or Conference Room Pilot (CRP) (base code)**

<p><b>Scope</b></p>	<p>Testing will cover the processes defined in the Design Phase as well as any configuration setup. <b>(Examples:</b> Profiles, multi-org design, and integration between applications). Tests will be executed within an instance that has the basic configuration for the majority of the in-scope business processes. It may not be an entire organization test but a sampling of processes with-in the organization such as a Conference Room Pilot (CRP).</p>
<p><b>Test Objective</b></p>	<p>The test will validate requirements defined by the Design. If any exceptions are identified, these gaps will be documented and alternatives suggested. CRP testing is an opportunity to resolve as many general defects as possible in the software, and provides time to ensure a stable development environment. By ensuring the setup and configuration are done properly, the software functionality and data can be tested in future phases without having to focus on issues that result from base configuration setup.</p> <p><b>Objectives Can Include:</b></p> <ul style="list-style-type: none"> <li>• Map Application to a subset of Business Scenarios</li> <li>• Demo the Application, Showcase Functionality</li> <li>• Validate Reference Model</li> <li>• Keep Engaged with SME's/Business Groups</li> <li>• Address/Reduce/Remove Fear</li> <li>• Identify/Recognize Resistance</li> </ul> <p><b>Objectives Do Not Include:</b></p> <ul style="list-style-type: none"> <li>• System Test</li> <li>• Training</li> <li>• Review of all processes</li> </ul>

<b>Tasks</b>	<p>The Functional Team is responsible for:</p> <ul style="list-style-type: none"> <li>• Development of the functional unit test documentation in conjunction of the application developers.</li> <li>• Validation of configurable content to ensure accuracy prior to promotion into the future test phases</li> <li>• Preparation of test environment, data and scenarios for showcase with business users</li> </ul> <p>The QA and infrastructure Teams are responsible for:</p> <ul style="list-style-type: none"> <li>• Providing the necessary instance for testing</li> <li>• Coordinating instance availability during testing and showcases</li> <li>• Backups/restores as necessary to minimize functional rework</li> <li>• Ensure Appworx and Concurrent Manager are set up</li> <li>• Ensure security is configured properly.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Base-lined business requirements</li> <li>• Future Business Design</li> <li>• Module Configuration Documentation</li> <li>• Software installed in test environments</li> <li>• Functional Unit Test Cases</li> </ul>
<b>Entry Criteria</b>	<ul style="list-style-type: none"> <li>• Configuration test environment has been created and is stable</li> <li>• Configuration test plan has been created and approved</li> <li>• Software promoted to configuration test environment</li> <li>• Test cases and data documented by teams</li> </ul>
<b>Exit Criteria</b>	<ul style="list-style-type: none"> <li>• All test sets have been executed</li> <li>• All Critical and High issues have been corrected/addressed and re-tested</li> <li>• Medium and Low issues can exist as long as there is a workaround and mitigation plan for correcting these issues. If there are too many Medium or Low issues in one particular module the next phase may be held up until those are corrected.</li> <li>• Configuration test package approved by designated functional team representatives</li> <li>• Project sponsors approve movement to next project phase</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Set of test scripts, reusable in next test phase</li> <li>• Baseline of test data to build on for the next phase</li> <li>• Documentation of identified gaps</li> </ul>

### Technical Unit Testing

<b>Scope</b>	<p>Unit testing will cover individual units of source code, sets of one or more modules together associated with control data, usage procedures, and operating procedures, and tested to determine if they are fit for use. This testing is performed after the development team has completed their testing.</p>
<b>Test</b>	<p>The goal of unit testing is to isolate each part of the program and</p>

<b>Objective</b>	show that the individual parts are correct. The objective of the test will be to find problems early, facilitate change, simplify integration, produce documentation, and test design. Testing here provides a strict, written contract that a piece of code must satisfy.
<b>Tasks</b>	The IT Development team will be responsible for: <ul style="list-style-type: none"> <li>• Creation and maintenance of test data as required to verify the design steps defined for the system modules</li> <li>• Execution of all Unit Test Sets required to verify system</li> <li>• Development of Unit Test scripts</li> </ul> The Functional teams will be responsible for: <ul style="list-style-type: none"> <li>• Unit Testing the software after the development team to include Test Sets, Design Steps, and expected results for the system</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Functional specifications</li> <li>• Technical specifications</li> <li>• Configuration documentation</li> <li>• Approved test cases and scripts</li> <li>• Software installed in development/unit test environments</li> </ul>
<b>Entry Criteria</b>	<ul style="list-style-type: none"> <li>• Development/unit test environment has been created and is stable</li> <li>• Unit test plan has been created and approved</li> <li>• Software promoted to unit test environment</li> </ul>
<b>Exit Criteria</b>	<ul style="list-style-type: none"> <li>• All unit test sets have been executed</li> <li>• All Critical and High issues have been corrected/addressed and re-tested</li> <li>• Medium and Low issues can exist as long as there is a workaround and mitigation plan for correcting these issues. If there are too many Medium or Low issues in one particular module the next phase may be held up until those are corrected.</li> <li>• Unit test package approved by designated PLCB ERP representatives and development team leads</li> <li>• Custom codes have been approved and packaged for promotion to the next testing stage (Integration Test)</li> </ul>
<b>Outputs</b>	Any executable ready for movement to functional test environment

### Functional Unit Testing

<b>Scope</b>	Activities that will verify a specific action or function of the code. Tests are executed on an instance with configurations for in-scope business requirements.
<b>Test Objective</b>	The objective of this test will be to answer questions, "Can the user do this?", "Does this particular feature work?", and "Does it meet the defined standards?" Testing in this phase will validate that each element independently satisfies the purpose for which it was constructed. Performance

	testing will be completed in this test phase.
<b>Tasks</b>	<p>The Functional Teams are responsible for:</p> <ul style="list-style-type: none"> <li>• Definition of Configuration Test Model</li> <li>• Execution of all test sets required to validate configuration content</li> <li>• Design and entry of test data</li> <li>• Regular reporting of test results</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• business requirements</li> <li>• To-Be business requirements</li> <li>• Configuration documents</li> <li>• Software</li> <li>• Approved test cases and scripts</li> </ul>
<b>Entry Criteria</b>	<ul style="list-style-type: none"> <li>• Functional specifications</li> <li>• Technical specifications</li> <li>• Configuration documentation</li> <li>• Test environment has been created and is stable</li> <li>• Approved test cases and scripts</li> <li>• Software promoted to test environment</li> <li>• Elements successfully tested by Developers</li> <li>• Elements promoted to test environment</li> </ul>
<b>Exit Criteria</b>	<ul style="list-style-type: none"> <li>• All test scripts have been executed</li> <li>• All Critical and High issues have been corrected/addressed and re-tested</li> <li>• Medium and Low issues can exist as long as there is a workaround and mitigation plan for correcting these issues. If there are too many Medium or Low issues in one particular module the next phase may be held up until those are corrected.</li> <li>• Completion of test scripts is approved by designated representatives</li> <li>• Configurations have been approved and packaged for promotion to the next testing stage (Integration Test)</li> <li>• Elements have no pending design issues</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Completed Unit Test Package</li> <li>• Completed Unit Test Summary</li> <li>• Executable' s – ready for promotion to integration test environment</li> </ul>

### Integration Testing

<b>Scope</b>	<p>Integration testing will test the end-to-end flow of information of complete, real-world business processes crossing multiple functional teams defined in the business requirements. Testing is based on converted data where applicable. All components of a business process must be included. End to End testing will include 'functional' testing of the complete solution.</p>
--------------	--

<p><b>Test Objective</b></p>	<p>Integration tests will executes the business scenarios that exercise the integration points between systems; it is not intended to re-test the functions or features within a given module or application. The Integration Test is structured to address multiple objectives.</p> <ul style="list-style-type: none"> <li>• Integration Test ensures that the interfaces between application systems operate properly within the PLCB environment.</li> <li>• Integration Test confirms that business events, including those identified in the functional tests, are properly processed between all relevant applications from beginning to end of the Design Process.</li> <li>• Integration Test will utilize a subset of the data converted from production PLCB systems to ensure that converted production data can be processed. It will also ensure the validity or correctness of the converted data.</li> <li>• Transactions will be simulated over relevant time periods (month, quarter, or year-end close) to verify nominal IS business processes.</li> <li>• Testing will include any outside supplier systems and any other critical third parties that interface with our system.</li> <li>• This test phase first validates integration across processes within each functional team. Secondly it validates integration across functional teams.</li> </ul>
<p><b>Tasks</b></p>	<p>The Functional Teams are responsible for:</p> <ul style="list-style-type: none"> <li>• Definition of Integration Test Model including Test Cases, Scripts, and Expected Results</li> <li>• Creation and maintenance of test data as required for completing test conditions.</li> <li>• Execution of all integration test sets required to validate system requirements including: <ul style="list-style-type: none"> <li>○ Verification and validation of standard application capability</li> <li>○ Validation of data flow between modules and associated applications</li> <li>○ Validation of ability of the system to process converted legacy data</li> </ul> </li> <li>• Follow-up and re-test of issues encountered</li> <li>• Logging defects, tracking status, and assisting with resolution</li> </ul> <p>The Quality Assurance and Testing team is responsible for:</p> <ul style="list-style-type: none"> <li>• Test planning and coordination</li> </ul>
<p><b>Inputs</b></p>	<ul style="list-style-type: none"> <li>• Baseline Business Requirements</li> <li>• Future Business Design</li> <li>• Completed Functional Test Package and Test Status</li> </ul>

	<p>Reporting Process</p> <ul style="list-style-type: none"> <li>• Software promoted from Unit Test environment</li> <li>• Any Module Configuration Documentation</li> <li>• Approved Change Proposals/Requests</li> </ul>
<b>Entry Criteria</b>	<ul style="list-style-type: none"> <li>• Functional and Technical Unit Testing is complete and all critical and high priority issues from prior testing are resolved</li> <li>• Required legacy data has been converted and is available in the integration test environment.</li> <li>• The integration test environment is configured to mirror the defined production environment as closely as possible</li> <li>• Software has been promoted to the integration test environment from the functional test environment</li> </ul>
<b>Exit Criteria</b>	<ul style="list-style-type: none"> <li>• All Test Sets have been executed</li> <li>• All Critical and High issues have been corrected/addressed and re-tested</li> <li>• Medium and Low issues can exist as long as there is a workaround and mitigation plan for correcting these issues. If there are too many Medium or Low issues in one particular module the next phase may be held up until those are corrected.</li> <li>• Integration test scripts approved by IS representatives</li> <li>• Integration Test Summary Document approved by designated IS representatives</li> <li>• All modules have been approved and packaged for promotion to the next testing stage (UAT)</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Completed Integration Test Package</li> <li>• Completed Integration Test Summary</li> </ul>

### Performance / Regression Testing

<b>Scope</b>	<p>Performance and Regression Testing will be performed in a production-like environment, with similar size capacity and configuration of the production hardware and system software. Converted production data, with production level data profiles and transactions volumes, and any new processes introduced by to mimic production-level activities.</p>
<b>Test Objective</b>	<p>Performance Testing measures the execution and performance of the production system with the objective to optimize transaction speeds and reduce response times to the end user by simulating realistic workload scenarios. Test the system(s) to production-levels of activity to determine if processing performance is within acceptable limits.</p> <p>Performance Testing will be executed across all critical or widely used modules to ensure that the end-to-end business process can be performed within acceptable time frame expectations</p>

	<p>identified during the requirement analysis phase. For instance, following the data flow volume through each module for adequate handling, as well as to ensure that the transfer of data and control between applications is performed at acceptable performance levels.</p> <p>The Regression testing will ensure the modules are configured according to the business processes defined in the Design Phase and to meet any requirement(s). During testing, part of previous levels of testing (CRP, Unit, Integration, and Performance) may be re-executed following error fixes to ensure that no new errors have been introduced and to verify that changes have not negatively impacted the functionality or systems configuration. The regression test approach will be based on the risk introduced by the change: both in terms of the size and impact of the change, or the criticality of the business events affected. For example, changes made to a common or shared application module used by many mission-critical applications, will be rigorously regression tested at each level of test. As a code change is promoted into the Quality Assurance instance, documentation from the functional teams will include which test scripts to re-execute in order that regression testing is validated</p>
<b>Tasks</b>	<p>The Functional Teams are responsible for:</p> <ul style="list-style-type: none"> <li>• Definition of required scenarios for performance testing</li> <li>• Creation and maintenance of test data as required to complete test conditions</li> <li>• Creation and maintenance of adequate size test files</li> </ul> <p>The Technical Team is responsible for:</p> <ul style="list-style-type: none"> <li>• Definition of required test scripts (for technical testing... network, db sizing, failover, batch job executions, etc.)</li> <li>• Execution of all performance/regression test sets required to validate system performance</li> <li>• Follow-up and re-test of issues encountered</li> <li>• Logging defects, tracking status, and assisting with resolution</li> <li>• Coordination of all performance related testing across functional and technical teams</li> <li>• Execution of all performance/regression tests</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Performance Test plan and scripts</li> <li>• Converted production data</li> <li>• System performance targets</li> </ul>
<b>Entry Criteria</b>	<ul style="list-style-type: none"> <li>• Integration Testing is complete and all critical and high priority issues from prior testing are resolved</li> <li>• Required legacy data has been converted and is available in the environment (may be the same as integration test environment).</li> </ul>



	<ul style="list-style-type: none"> <li>• The performance/regression test environment is configured to mirror the defined production environment as closely as possible</li> <li>• Software has been promoted to this environment from the functional test environment</li> <li>• Performance/regression test scripts have been assembled</li> </ul>
<b>Exit Criteria</b>	<ul style="list-style-type: none"> <li>• All Performance/regression Test Sets are executed</li> <li>• Performance levels meet signed-off system performance requirements (performance tuning will be undertaken as an ongoing task)</li> <li>• All Critical and High issues have been corrected/addressed and re-tested</li> <li>• Medium and Low issues can exist as long as there is a workaround and mitigation plan for correcting these issues. If there are too many Medium or Low issues in one particular module the next phase may be held up until those are corrected.</li> <li>• The modules have been approved and packaged for promotion to the next testing stage (UAT)</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Completed Performance/regression Test Package</li> <li>• Completed Performance/regression Test Summary</li> </ul>

### User Acceptance Testing

<b>Scope</b>	The User Acceptance Test (UAT) provides assurance that the system meets defined user requirements for the business processes. Sign-off of the User Acceptance Test will constitute a formal acceptance of the processes and application by the users.
<b>Test Objective</b>	<p>During UAT, the end-users verify that business requirements are properly addressed by the application/system. In addition, the end-users validate that other quality requirements of the application/system are met, such as the systems usability features and basic performance. Because the user community has been involved in each phase of software/system solution, UAT should not present any significant issues to the end-users.</p> <p>The primary output of UAT is the users' completion of testing. Once testing has been completed the business users will sign-off on the agreement to proceed with implementation and rollout. Sign-off of the Go-Live Approval document will constitute a formal acceptance of the processes and application by the users.</p>
<b>Exit Criteria</b>	<ul style="list-style-type: none"> <li>• All Test Sets have been executed</li> <li>• All Critical and High issues have been corrected/addressed and re-tested</li> <li>• Medium and Low issues can exist as long as there is a workaround and mitigation plan for correcting these issues.</li> </ul>

	<p>If there are too many Medium or Low issues in one particular module, the next phase may be held up until those are corrected.</p>
<p><b>Tasks</b></p>	<ul style="list-style-type: none"> <li>• The UAT will leverage integration test sets for test execution; the UAT scripts will be further refined to consolidate and focus end-user involvement on targeted business processes.</li> <li>• Users verify that navigation through the system properly reflects the identified workflow for each major business process.</li> <li>• Users verify that the user interface accepts only correct data types and input for the entry fields and those specific functions are only enabled when appropriate conditions are met.</li> <li>• The UAT will use converted legacy data as input to the test planning and execution processes. Use of production data early in the test process is highly valuable in confirming requirements.</li> </ul>

## Exhibit 1 Implementation Plan Questions

The Implementation Plan will describe how the changes will be deployed, installed and transitioned into an operational system. The plan contains an overview of the system, a brief description of the major tasks involved in the implementation, the overall resources needed to support the implementation effort (such as hardware, software and personnel). The plan is developed during the Design Phase and is updated during the Development Phase; the final version is provided in the Integration and Test Phase and is used for guidance during the Implementation Phase. The outline shows the structure of the Implementation Plan.

- 1. INTRODUCTION.** This section provides an overview of the information system and includes any additional information that may be appropriate.
  - a. Purpose.** This section describes the purpose of the Implementation Plan. Reference the system name and identify information about the system to be implemented.
  - b. System Overview.** This section provides a brief overview of the system to be implemented, including a description of the system and its organization.
  - c. System Description.** This section provides an overview of the processes the system is intended to support. If the system is a database or an information system, provide a general discussion of the description of the type of data maintained and the operational sources and uses of those data.
  - d. System Organization.** This section provides a brief description of system structure and the major system components essential to the implementation of the system. It should describe both hardware and software, as appropriate. Charts, diagrams, and graphics may be included as necessary.
  - e. Project References.** This section provides a bibliography of key project references and deliverables that have been produced before this point in the project development.
  - f. Glossary.** Provide a glossary of all terms and abbreviations used in the manual. If it is several pages in length, it may be placed in an appendix.
- 2. MANAGEMENT OVERVIEW.** The subsequent sections provide a brief description of the implementation and major tasks involved in this section.
  - a. Description of Implementation.** This section provides a brief description of the system and the planned deployment, installation, and implementation approach.

**b. Points of Contact.** In this section, identify the System Proponent, the name of the responsible organization(s), and titles and telephone numbers of the staff who serve as points of contact for the system implementation. These points of contact could include the Project Manager, Program Manager, Security Manager, Database Administrator, Configuration Management Manager, or other managers with responsibilities relating to the system implementation. The site implementation representative for each field installation or implementation site should also be included, if appropriate. List all managers and staff with whom the implementation must be coordinated.

**c. Major Tasks.** This section provides a brief description of each major task required for the implementation of the system. Add as many subsections as necessary to this section to describe all the major tasks adequately. The tasks described in this section are not site-specific, but generic or overall project tasks that are required to install hardware and software, prepare data, and verify the system. Include the following information for the description of each major task, if appropriate:

- i.** What the task will accomplish
- ii.** Resources required to accomplish the task
- iii.** Key person(s) responsible for the task
- iv.** Criteria for successful completion of the task
- v.** Examples of major tasks are the following:
  - a.)** Providing overall planning and coordination for the implementation
  - b.)** Providing appropriate training for personnel
  - c.)** Ensuring that all manuals applicable to the implementation effort are available when needed
  - d.)** Providing all needed technical assistance
  - e.)** Scheduling any special computer processing required for the implementation
  - f.)** Performing site surveys before implementation

- g.) Ensuring that all prerequisites have been fulfilled before the implementation date
- h.) Providing personnel for the implementation team
- i.) Acquiring special hardware or software
- j.) Performing data conversion before loading data into the system
- k.) Preparing site facilities for implementation

**d. Implementation Schedule.** In this section, provide a schedule of activities to be accomplished during implementation. Show the required tasks (described in Section 2.c., Major Tasks) in chronological order, with the beginning and end dates of each task.

**e. Security.** If appropriate for the system to be implemented, include an overview of the system security features and requirements during the implementation.

**f. System Security Features.** In this section, provide an overview and discussion of the security features that will be associated with the system when it is implemented. It should include the primary security features associated with the system hardware and software. Security and protection of sensitive bureau data and information should be discussed, if applicable. Reference the sections of previous deliverables that address system security issues, if appropriate.

**g. Security during Implementation.** This section addresses security issues specifically related to the implementation effort, if any. For example, if LAN servers or workstations will be installed at a site with sensitive data preloaded on non-removable hard disk drives, address how security would be provided for the data on these devices during shipping, transport, and installation because theft of the devices could compromise the sensitive data.

**3. IMPLEMENTATION SUPPORT.** This section describes the support software, materials, equipment, and facilities required for the implementation, as well as the personnel requirements and training necessary for the implementation. The information provided in this section is not site-specific. If there are additional support requirements not covered by the subsequent sections, others may be added as needed.

**Hardware, Software.** In this section, list support software, materials, equipment, and facilities required for the implementation, if any.

**a. Hardware.** This section provides a list of support equipment and includes all

hardware used for testing time implementation. For example, if a client/server database is implemented on a LAN, a network monitor or "sniffer" might be used, along with test programs to determine the performance of the database and LAN at high-utilization rates. If the equipment is site-specific, list it in Section 7, Site Requirements.

**b. Software.** This section provides a list of software and databases required to support the implementation. Identify the software by name, code, or acronym. Identify which software is commercial off-the-shelf and which is State-specific. Identify any software used to facilitate the implementation process. If the software is site-specific, list it in Section 7.

**4. PERSONNEL.** This section describes personnel requirements and any known or proposed staffing requirements, if appropriate. Also describe the training, if any, to be provided for the implementation staff.

**Personnel Requirements and Staffing.** In this section, describe the number of personnel, length of time needed, types of skills, and skill levels for the staff required during the implementation period. If particular staff members have been selected or proposed for the implementation, identify them and their roles in the implementation.

**5. TRAINING OF IMPLEMENTATION STAFF.** This section addresses the training, if any, necessary to prepare staff for implementing and maintaining the system; it does not address user training, which is the subject of the Training Plan. Describe the type and amount of training required for each of the following areas, if appropriate, for the system:

Present a training curriculum listing the courses that will be provided, a course sequence, and a proposed schedule. If appropriate, identify which courses particular types of staff should attend by job position description.

If training will be provided by one or more commercial vendors, identify them, the course name(s), and a brief description of the course content.

If the training will be provided by State staff, provide the course name(s) and an outline of the content of each course. Identify the resources, support materials, and proposed instructors required to teach the course(s).

**6. PERFORMANCE MONITORING.** This section describes the performance monitoring tool and techniques and how it will be used to help decide if the implementation is successful.

**7. SITE REQUIREMENTS.** This section defines the requirements that must be met for the orderly implementation of the system and describes the hardware,

software, and site-specific facilities requirements for this area.

Any site requirements that do not fall into the following three categories and were not described in Section 3, Implementation Support, may be described in this section, or other subsections may be added following Facilities Requirements below:

- a. Hardware Requirements.** Describe the site-specific hardware requirements necessary to support the implementation (such as. LAN hardware for a client/server database designed to run on a LAN).
- b. Software Requirements.** Describe any software required to implement the system (such as, software specifically designed for automating the installation process).
- c. Data Requirements.** Describe specific data preparation requirements and data that must be available for the system implementation. An example would be the assignment of individual IDs associated with data preparation.

**8. SITE IMPLEMENTATION DETAILS.** This section addresses the specifics of the implementation for this site. Include a description of the implementation team, schedule, procedures, and database and data updates. This section should also provide information on the following:

- 1. Team.** If an implementation team is required, describe its composition and the tasks to be performed at this site by each team member.
- 2. Schedule.** Provide a schedule of activities, including planning and preparation, to be accomplished during implementation at this site. Describe the required tasks in chronological order with the beginning and end dates of each task. If appropriate, charts and graphics may be used to present the schedule.
- 3. Procedures.** Provide a sequence of detailed procedures required to accomplish the specific hardware and software implementation at this site. If necessary, other documents may be referenced. If appropriate, include a step-by-step sequence of the detailed procedures. A checklist of the installation events may be provided to record the results of the process.

If the site operations startup is an important factor in the implementation, then address startup procedures in some detail. If the system will replace an already operating system, then address the startup and cutover processes in detail. If there is a period of parallel operations with an existing system, address the startup procedures that include technical and operations support during the parallel cycle and the consistency of data within the databases of the two systems.

- 4. Database.** Describe the database environment where the software system and the database(s), if any, will be installed. Include a description of the different types of database and library environments (such as, production, test, and training databases).

Include the host computer database operating procedures, database file and library naming conventions, database system generation parameters, and any other information needed to effectively establish the system database environment. Include database administration procedures for testing changes, if any, to the database management system before the system implementation.

- 5. Data Update.** If data update procedures are described in another document, such as the operations manual or conversion plan, that document may be referenced here. The following are examples of information to be included:

- i.** Control inputs
- ii.** Operating instructions
- iii.** Database data sources and inputs
- iv.** Output reports
- v.** Restart and recovery procedures

- 9. BACK-OFF PLAN.** This section specifies when to make the go/no go decision and the factors to be included in making the decision. The plan then goes on to provide a detailed list of steps and actions required to restore the site to the original, pre-conversion condition.

- 10. POST IMPLEMENTATION VERIFICATION.** This section describes the process for reviewing the implementation and deciding if it was successful. It describes how an action item list will be created to rectify any noted discrepancies. It also references the Back-Off Plan for instructions on how to back-out the installation, if, as a result of the post-implementation verification, a no-go decision is made.



## **Exhibit 2 Artifacts, Deliverables and Workflow**

All projects or process will answer the following questions during the SDLC process:

### **What deliverables must be created?**

Service Now tickets, service requests, test scripts, decision documents, Activity Tracker entry, change request, code review etc. These are all examples of artifacts that are created during a production support fix or project. Deliverables to be created can vary by the size and scope of the system changes. The project lead and analyst are responsible for determining what artifacts are to be created.

### **How will the deliverables be created?**

The analyst or project lead will work with the development team or SME's to determine which software programs will be used to create the deliverables. They will assign tasks, as appropriate, and determine what processes and methodologies to use to complete each task and deliverable.

### **Who will create each deliverable?**

The analyst or project lead will identify the individuals who will complete each task and deliverable

### **When will the deliverables be created?**

Deliverables can be created at any point of the system development lifecycle. As a best practice the analyst or project lead should lay out what deliverables are required before or after each milestone (Development, Integration/Regression and UAT). The analyst and or project lead will ensure that all deliverables are complete and meet all OITS standards.

### **Where will everything be documented?**

All documents must be saved in SharePoint. Service Now and the Activity tracker must be updated. Do not attach any deliverable to the AT or Service Now ticket.

### Exhibit 3 Process Flow Breakdown

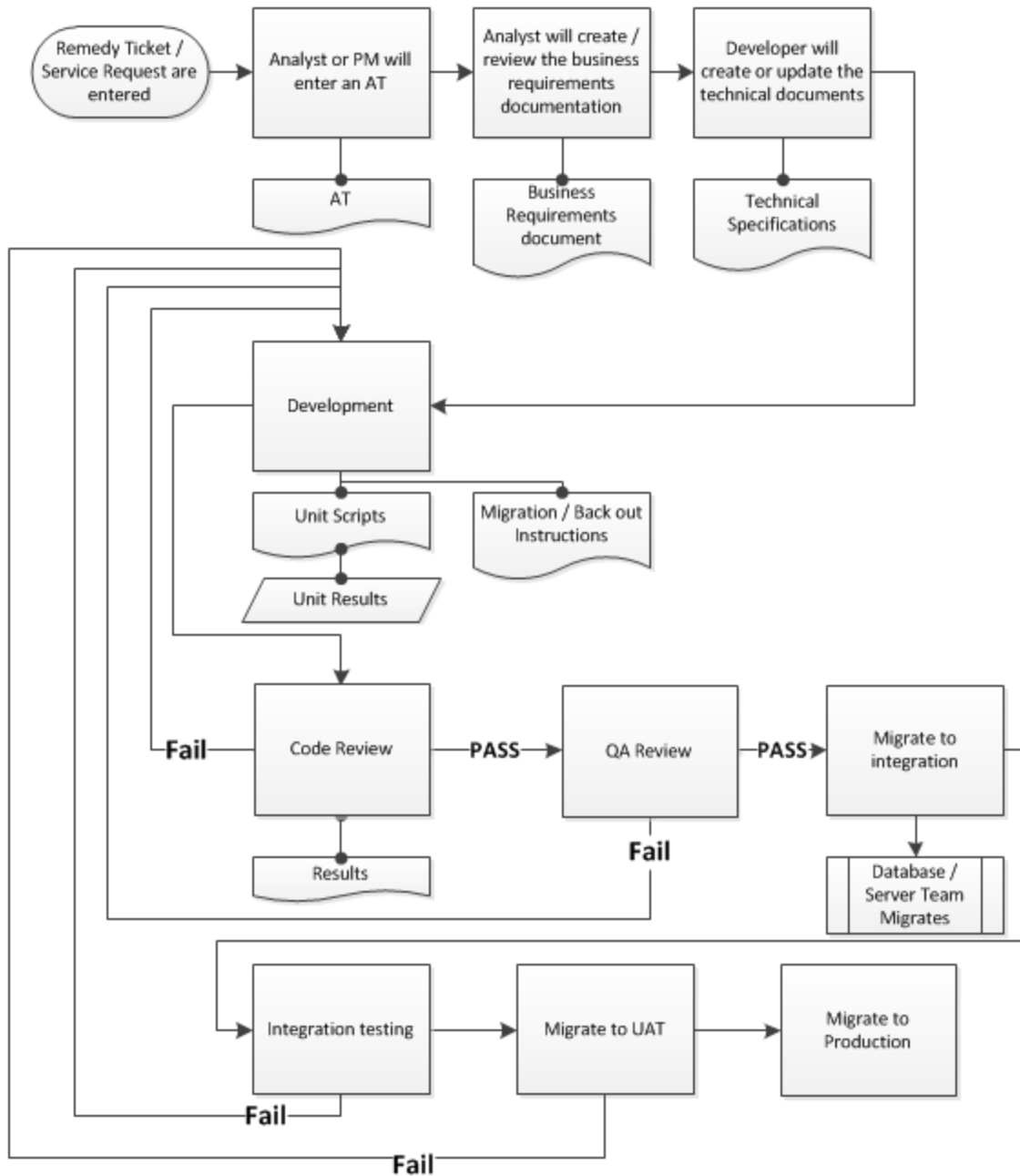
The following will break down each step of our process, and answer the questions from the purpose section.

<b>Development</b>			
<b>Task</b>	<b>Deliverable</b>	<b>Owner</b>	<b>Comment</b>
Service Now Ticket (if applicable)	Open Ticket	Analyst	Entered for break-fix issues: <ul style="list-style-type: none"> <li>Service Now ticket should be created by the helpdesk or analyst</li> </ul>
Service Request (if applicable)	Completed Service Request	Analyst / PMO	Entered for enhancements: <ul style="list-style-type: none"> <li>Service request should be completed by the business with the help from the PMO or business analyst.</li> </ul>
Activity (AT)	Created AT in SharePoint	Analyst	Must be entered before any development work begins
Unit Testing	Unit Test Scripts and results	Developer	All results and test scripts will be stored in SharePoint
Migration Instruction	Migration Instruction	Developer	In addition to migration instructions, the document must contain back out instructions as well.
Peer Code Review	Code review sign-off	PLCB Code Review Team	All code reviews will be completed by the PLCB Code Review Team
QA Approval	Sign-off on AT	QA Team	The AT will be reviewed along with all testing documentation and any other deliverables such as migration instructions or code review results.
Migrate to Integration	Migrate Code	Database/ Server Team	All code will be migrated by the server or database teams.

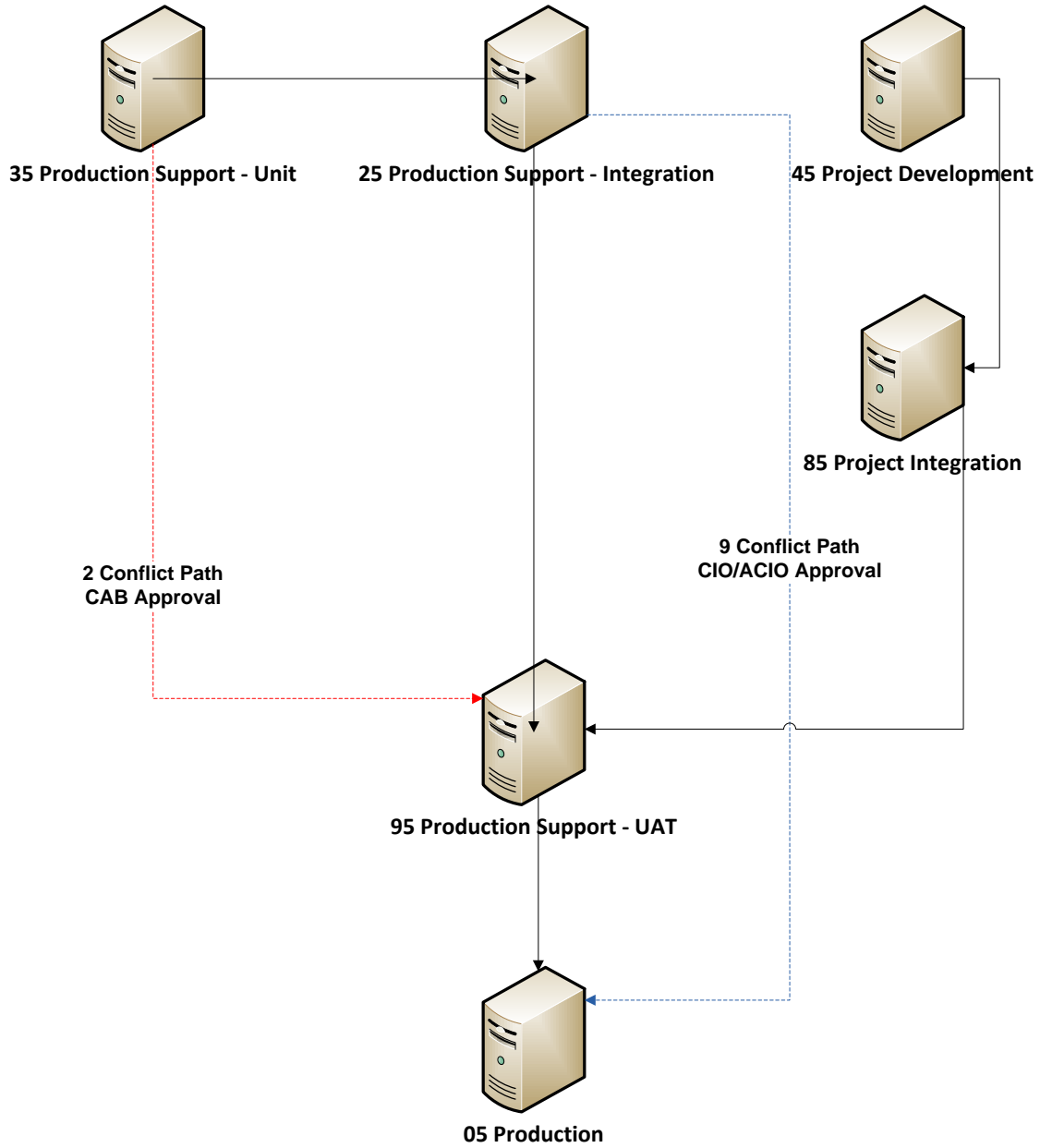
All documents will be stored in SharePoint. They will be kept in the individual RICEW object folder. If they are not a RICEW object they will reside in the respective project folder.

## **WORKFLOW AND CONDITIONS**

- 1.** Service Now ticket is entered and assigned to an analyst or the PM
- 2.** The analyst or PM will create a new activity in the Activity Tracking (AT) system.
- 3.** The analyst will create, review or update the business requirements documentation using the Requirements Traceability Matrix.
- 4.** The analyst will assign the AT to the individual that will be performing the developmental work.
- 5.** The developer will create, review or update the technical documents to reflect the new requirements. **(MD50 MD70 and Requirements Traceability Matrix)**
- 6.** The AT will then be placed in "In Development" status.
- 7.** During development the developer will create the necessary unit test scripts, collect results, and verify that the migration and back out instructions are correct. **(TE40 Testing, MD120 Migration and Back out)**
- 8.** (Random) When the developer feels the code is ready for the integration environment they will assign the AT to the PLCB Code Review Team.
- 9.** (Random) The PLCB code review team will complete the review of the code and produce a review summary. If there are changes that must be made, the AT will be reassigned to the developer. The process repeats itself until the code has passed review. If no changes are necessary, the code review team will assign the AT to the QA team for review.
- 10.** The QA team will review the AT and all documentation to ensure it is correct and complete. If there are any issues, the AT will be reassigned to the developer or analyst to be corrected. If there are no changes to be made, the QA team will assign the AT to the database/server team for migration to the integration environment.
- 11.** If there are any code modifications during integration, regression or user acceptance testing due to change requests or defects, the workflow will start over at "In Development" status and work its way back through the review and testing process.



# Exhibit 4 Instance Strategy



## **Exhibit 5 Budget and Prioritization Process**

- 1. LARGE PROJECTS PROCESS.** Generally the budget process begins 2 to 2 ½ years out – IT (we include the Budget Office) sits down with each program Director and ask what their thoughts are on future large projects involving IT. Those projects are then given an estimated cost and entered into the Budget. When it is time for Re-budget, (generally about 6 month before the fiscal year starts) we again sit with them and talk about which projects previously discussed are going forward for prioritization and/or if any new ones have cropped up that should be budgeted.
- 2. REQUEST FOR SERVICE PROCESS.** Can be any size project Under/Over 50 hours (including testing) or Break/Fix.
- 3. PRIORITIZATION PROCESS.** We have a Request for Service tracking mechanism for other smaller requests. Break/Fixes and smaller requests under 50 hours are worked into day to day business as they are able to be fit in. Large projects go into the agency’s 3x a year prioritization. We track all of this because significant projects require time and money and without proper tracking you run the risk of overlap on other priorities.

**Information Technology Project Prioritization Breakdown Uses a Two-Tiered Approach.** The prioritization is broken down as follows: 3 times per year Directorate Prioritization; Scored Priority Process Agency Prioritization

Prior to each project prioritization session, OITS pulls all the open work in the tracking system and breaks it down by program area.

### **a. 1<sup>st</sup> Meeting – Program Area Prioritization**

- i.** Each Program area submits their work requests throughout each quarter. Before the prioritization, all areas must be reminded to enter any additional service requests they have. The goal is for each business area to prioritize the work within their respective area.
- ii.** IT meets with the Program Director and his/her direct reports to discuss their requests. When finished they will have selected their top 3 to 5 requests.

- b. Preparation for 2<sup>nd</sup> Meeting.** Program areas take their top Requests and score them based on the following categories:
- i.** Strategic Business Alignment
  - ii.** Legislative/OA Compliance/Other Mandates like Treasury or PCI
  - iii.** Increase Sales/Profits
  - iv.** Cost Savings/Cost Avoidance
  - v.** Organizational Improvement
  - vi.** Impact on Service
- c. 2<sup>nd</sup> Meeting - Agency Prioritization**
- i.** All the directors meet and take the Top 3 to 5 requests from each program area. This will result in 18-30 projects to evaluate over 6 program areas.
  - ii.** Directors are asked to look at the requests from an agency perspective and decide which will have the biggest impact for the agency overall.
  - iii.** The goal is for the Directors to agree on the top 3 to 5 overall requests for the Agency

## **Exhibit 6 Required Documents for all Software Development**

- 1.** Requirements Traceability Matrix
- 2.** MD50 Build Specifications
- 3.** MD70 Technical Specifications
- 4.** MD120 – Migration and Backout Plan
- 5.** TE40 – Testing



## **Exhibit 7 Security**

- 1.** PLCB application development will identify and address the most widespread and critical development security errors that can lead to serious vulnerabilities. Application development "best practices" will be employed as defined in well-known publically available sources such as the CWE/SANS Top 25 Most Dangerous Software Errors, the Open Web Application Security Project (OWASP) Top 10 critical web application security flaws, and Oracle ADF Security framework documentation.
- 2.** PLCB application development planning will include PLCB OITS Security Team members who will ensure secure coding practices are employed. OITS Security Team members will assist with application vulnerability scanning and assessment and will assist developers addressing issues found. Application developers shall mitigate or remediate each vulnerability identified.