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APPENDIX E SOURCE CODE REVIEW REPORT

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Unisyn Voting System Software Review Summary 2009-06-01

This review covers the Unisyn voting system software. The review involved evaluation of its compliance with the Election Assistance Commission (EAC) 2005 Voluntary Voting System Guidelines (VVSG). This evaluation included, but was not limited to, the following considerations:

Readability How straightforward and apparent was the design? Understandability How complicated was the code to implement it?

Modularity How well was the code divided into logical, functional units?

Robustness How well does the code handle error conditions or unexpected inputs?

Security Does the code protect the integrity of voting data at all times?

Maintainability How easy would it be to extend, fix, or modify this code in the future?

Consistency Was the design of the code coherent throughout?

Documentation Does the code contain useful and frequent comments?

Usability Does the code inform the user about progress or errors?

Flow control Are control constructs and entry/exit points logical and controlled?

The technical reports detail specific instances where it was felt that the code fell short in some areas being reviewed, and lists directories, file names, line numbers, and notes to notify the maintainers of the standards violations.

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Unisyn Voting System Software

1. Initial Observations

The submitted source code consisted of files organized by functionality into major subdirectories: BallotLayout, Common, ElectionManager, ElectionSever, OCSInstaller, RegKeyBuilder, SoftwareServer, Tabulator, TabulatorClient, TabulatorReports, TabulatorService, Validator, Scripter, OVO, and OVI. The project was written in Java. Some modules included SQL statements and there was one cpp file.

2. Summary Assessment Findings

In general, review of the source code modules comprising the submitted Unisyn voting system software found that most of the code was written and commented to EAC 2005 VVSG standards. The majority of anomalies discovered during the review process consisted of issues dealing with comments, which is discussed in more detail below. Other deviations from the standards include:

- Non-conforming variable names (either one character names, names not differing by more than one character, or non-descriptive names)
- Non-permissible source code constructs (e.g., multiple exits from loops)
- Source code lines that exceeded the maximum allowed length
- Instances of over five levels of indented scope
- Cases of no message upon exit
- Exceptions thrown without a comment to describe where it is caught
- Incomplete file reference in module header
- Incorrect revision history in module header
- Incorrect units called in module header
- Non-uniform commenting style

The following observations are intended to provide a summary of the most common commenting problems identified during the source code review.

i. Module Purpose

- a. The purpose is more cryptic than descriptive, lacking detail, and using generic terms that can be applied to source code other than the module it is attempting to describe;
- Poor language skills and/or spelling is used, which makes it very difficult to follow the intent of the comment.

ii. Variable Comments

- a. The most common problem with variable comments is the comment does not provide a clear description of how the variable is being used in the code.
- b. Variables holding SQL statements are often too generic, lacking detail.

iii. Inline Comments

a. The reviewed source code contains many inline comments, which is very good; however, at times it appeared that inline comments were inserted into the source

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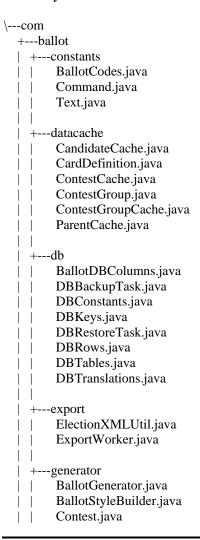
- code merely for the exercise of it and not to provide additional information or description;
- b. Many problems identified with inline comments had to do with the comments being too cryptic or lacking in detail;
- c. The comments were often lacking a clear description of what the source code is doing.

3. Code Review Process

The source code went through several iterations of standards violations being identified by Wyle and Unisyn attempting to bring the code up to standards. Code changes were made during the code review process that also had to be brought up to standards. All identified standards violations of the code, were corrected during this process.

4. Source Files

BallotLayout



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	FormatBallotStyle.java
	InsertBallotStyle.java
	inscribanousty ie. java
 +gi	ni
	AddEditCandidatePanel.java
	AddEditContestPanel.java
	AddEditDistrictPanel.java
	AddEditDistrictType.java
	AddEditHeader.java
	AddEditInstructionsPanel.java
	AddEditMeasurePanel.java
	AddEditPartyPanel.java
	AddEditPrecinctPanel.java
	BallotDesktop.java
	BallotPreferences.java
	ContestCellRenderer.java
	DistrictPanel.java
	Districti anci.java DistrictPrecinctAssignmentPanel.java
	District TypePanel.java
	EditTranslationsPanel.java
	ElectionBallotPanel.java
	Election Contest Panel. java
	ElectionDisplayContainer.java
	ElectionHomePanel.java
	ElectionIcon.java ElectionIcon.java
	ElectionReportsPanel.java
	GroupAssignmentPanel.java
	IntegerTextField.java
	LanguageAssignmentPanel.java
	PartyPanel.java
	PrecinctDistrictAssignmentPanel.java
	PrecinctPanel.java
	PreferenceDisplay.java
	SetupPanel.java
	setupi anei.java
+m	
	BallotMainMenu.java
	ElectionFrameMenu.java
	UnisynPermissionPanel.java
	UnisynSingleSelectionModel.java
'	UpdateListener.java
+re	
+	-ballotproof
	BallotProofData.java
	BallotProofTask.java
	1.11.
+	-ballots
	BallotStyleData.java
	CandidateBean.java
	ContestBean.java
	IDMarkBean.java
	JasperBallotParameters.java
	PreviewBallotWorker.java
	PrintBallotsUtil.java
1 1 1	

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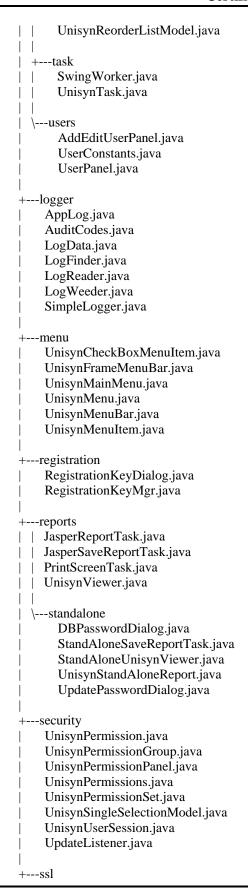
Common

\---com \---unisyn

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+	-beans
	BallotBean.java
	BallotStyleBean.java
	CandidateBean.java
	CandidateOrderBean.java
ĺ	ContestBean.java
i	ContestOrderBean.java
i	DistrictBean.java
i	DistrictTypeBean.java
i	ElectionBean.java
i	Field.java
i	FieldValidator.java
i	LanguageBean.java
i	PartyBean.java
i i	PrecinctBean.java
i i	1 reemet Beam, java
+	-crypto
i	Cryptor.java
	CryptorException.java
	CryptoUtil.java
I	EncryptDecryptFactory.java
l I	Hex.java
l I	UnisynKey.java
l I	Ollisylikey.java
+	-dh
i	DBUtil.java
i	ElectionFileCom.java
i	MySQLDBCom.java
İ	UnisynDBCom.java
İ	UnisynDBFactory.java
i	ChisynDD1 actory.java
+	-exception
i	ApplicationException.java
i	rippiicutonizacoptionijuvu
+	-gui
1.1	LogPanel.java
ii	UnisynAbout.java
	UnisynButton.java
	UnisynCheckBox.java
	UnisynComboBox.java
	UnisynDesktop.java
	UnisynDesktopPane.java
	UnisynDisplay.java
	UnisynDisplayContainer.java
	UnisynLon.java UnisynLon.java
	UnisynIconManager.java
	UnisynMsgDialog.java
	UnisynPanel.java
	UnisynPasswordDialog.java
	UnisynProgressBar.java
	UpdatePasswordDialog.java
	list
- '	ParentChildCellRenderer.java
	UnisynList.java
	UnisynListModel.java

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```
+---client
      UnisynClientTrustManager.java
      UnisynSecureClientSocketFactory.java
  \---server
      SSLCertificateManager.java
      UnisynServerTrustManager.java
      UnisynSSLServer.java
+---systemtools
    CDDrive.java
    DriveUpdateHandler.java
    DriveUpdateListener.java
+---tools
    ZipFileEntryBean.java
    ZipFileReader.java
+---util
    BuildInfo.java
    ChecksumCRC32Mgr.java
    Constants.java
    ConvertUtil.java
    CopyUtil.java
    CustomComboBox.java
    DateUtil.java
    DisplayConstants.java
    DisplayFormat.java
    DisplayObject.java
    ElectionManifest.java
    EncResourceBundle.java
    EncryptedStatusFile.java
    FileFilter.java
    GenericBean.java
    GenericComparator.java
    GenericCompEntry.java
    Hex.java
    IString.java
    JSizePasswordField.java
    JSizeTextArea.java
    JSizeTextField.java
    Preference Not Set Exception. java \\
    Preferences.java
    PropertyManager.java
    SpringUtilities.java
    Status.java
    StreamGobbler.java
    TagNames.java
    TransactionStatus.java
    UniqueApp.java
    UnisynConstants.java
    UnisynUtil.java
    UploadProperties.java
    ZipProcessor.java
\---xml
```

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XMLElementInfo.java XMLFileDecryptor.java XMLFileDef.java

ElectionManager

\com
+em
+db
DBColumns.java DBConstants.java DBName.java ElectionBackup.java
DBConstants.java
DBName.java
ElectionBackup.java
+gui
BallotPreviewContainer.java
ContestOptionPanel.iava
ElectionDisplayContainer.java
ElectionHomePanel.java
ElectionIcon.java
ElectionDisplayContainer.java ElectionHomePanel.java ElectionIcon.java ElectionOptionsPanel.java ElectionPasswordDialog.java
EMDesktop.java
LogViewWindow.java
OverwriteDialog.java
PreferenceDisplay.java
ReportsPanel.java
ScreenConstants.java
SoundDisplayPanel.java
TextButton.java
tpause.gif
tplay.gif
tplayh.gif
UserManagementPasswordDialog.java
UserManagementPasswordDialog.java ViewNotLoadedFilesDialog.java
BackupTask.java
BuildElectionFilesTask.java
LoadElectionTask.java
RestoreTask.java
UploadFilesTask.java
tmamt
\tmgmt
Directory.java
FileManager.java
LogParser.java

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```
ContestXMLFile.java
        ContestXMLFiles.java
        DataVerification.java
        ElectionStateMgr.java
        ElectionXMLFile.java
        ElectionXMLTag.java
        ElectionXMLUtil.java
        ImageUtil.java
        ManifestPropertiesFile.java
        OutputXMLFile.java
        OVOCPropertiesFile.java
        OVOSPropertiesFile.java
        PasswordAndKeyGenerator.java
        PasswordPropertiesFile.java
        PlayThread.java
        PrecinctXMLFile.java
        PrecinctXMLFiles.java
         SoundPlayer.java
        SoundUtil.java
        SoundZipFactory.java
        TranslationUtil.java
\---props
    db.src
    text_en.src
    uploadsystem.src
```

ElectionSever

```
\---com
 +---es
 | +---gui
 ESDesktop.java
      LogDeleteTask.java
      LogViewPanel.java
      MenuCommand.java
      OVOCViewPanel.java
 ActiveMachineModel.java
        LogModel.java
        ModelFactory.java
    \---task
        LoadElectionTask.java
  +---menu
      ESMainMenu.java
 +---parser
      ElectionBean.java
      ElectionBeanXMLHandler.java
      ElectionXMLParserFactory.java
```

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OCSInstaller

```
\---com
  +---images
       BallotLayout.gif
       ElectionManager.gif
       ElectionServer.gif
       SoftwareServer.gif
       TabulatorClient.gif
       TabulatorMonitor.gif
       TabulatorReports.gif
  \---unisyn
    \---installer
       | ApplicationIcon.java
         InstallerDesktop.java
         InstallPanel.java
       +---task
           InstallApplicationTask.java
            ListApplicationTask.java
       \---util
            InstallUtil.java
            ReleaseProperties.java
            StreamGobbler.java
```

RegKeyBuilder

```
\---com
\---admin
BuildRegKey.java
BuildUtil.java
EncodeData.java
EncryptReports.java
```

SoftwareServer

```
\---com
 +---loader
 | +---db
       DBCom.java
       DBFactory.java
       ReleaseFileCom.java
 | +---gui
 DeleteLogDialog.java
      FilesViewPanel.java
  MenuCommand.java
       ReleaseKeyDialog.java
     +---model
         ActiveMachineModel.java
         LogModel.java
 ModelFactory.java
 | | \---task
         LoadSoftwareTask.java
 +---logger
       LogFinder.java
       LogWeeder.java
       SimpleLogger.java
   +---menu
       LoaderMainMenu.java
   +---parser
       ReleaseBean.java
       ReleaseCDBean.java
       ReleaseZipFactory.java
       ScriptBean.java
       ScriptParser.java
   +---tools
       AuditTrail.java
       FileTool.java
       LoaderCodes.java
   +---util
       Config.java
       LoaderLogMgr.java
       LoaderUtil.java
       LogFileUtil.java
       RequestMessage.java
 | \---www
```

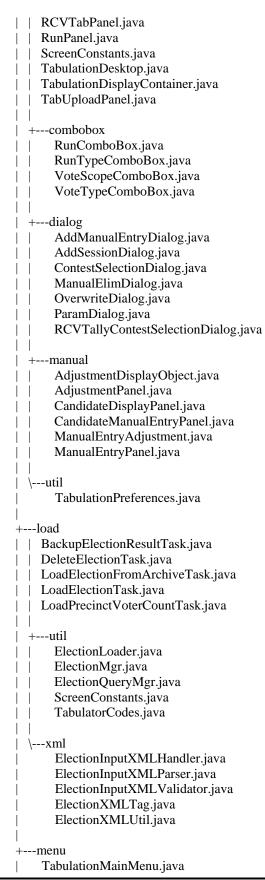
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```
| Service.java
| WebServer.java
| |
| \---ssl
| HttpsService.java
|
\---props
| db.src
| permissions.src
```

Tabulator

```
\---com
  +---images
      activity_blk.gif
      activity_grn.gif
      activity_off.gif
      activity_red.gif
      activity_ylw.gif
  +---props
      db.src
      text_en.src
      uploadsystem.src
  \---tabulation
    +---ballot
         BallotConverter.java
         ReadData.java
         ReaderVote.java
    +---beans
         Ballot.java
         BallotBean.java
         CandidateBean.java
         CandidateRCVResult.java
         ContestBean.java
         ContestRCVResult.java
         RCVResultBean.java
         RCVSelectionBean.java
         RCVVoteBean.java
         SelectionBean.java
         VoteBean.java
    +---db
         DBConstants.java
         DBKeys.java
         DBName.java
         DBTables.java
         ElectionBackup.java
      | ActivityLight.java
        ElectionIcon.java
        PreferenceDisplay.java
        RCVParameterPanel.java
```

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```
+---rcvtab
    GroupVoteBean.java
    RCVTabTask.java
    RCVTally.java
    VoteCounter.java
    VoteFileHandler.java
+---reports
    CrosstabDataEntryBean.java
    CrosstabMainEntryBean.java
    RCVData.java
    RCVReportTask.java
\---util
    Constants.java
    FileUtil.java
    RunDisplayObject.java
    TabulatorStatus.java
    Toolbox.java
```

TabulatorClient

```
\---com
+---images
    activity_blk.gif
    activity_grn.gif
    activity_off.gif
    activity red.gif
    activity_ylw.gif
+---props
    db.src
    permissions.src
    text_en.src
    uploadsystem.src
\---tc
  +---fileutil
       FileManager.java
       TabulatorStatus.java
       TransportedFile.java
       TransportedFileSet.java
       TransportMedia.java
       UploadStatus.java
  +---gui
    | ActivityLight.java
      ActivityPanel.java
      ScreenConstants.java
      Standards.java
      TabStatusPanel.java
      TCDesktop.java
      TextField.java
       UPLoadColor.java
      UploadedMachineList.java
```

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```
| | VoteUploadScreen.java
| |
| \---task
| LoadElectionTask.java
|
+---menu
| TCMainMenu.java
|
\---util
| DateUtility.java
| Validate.java
```

TabulatorReports

```
\---com
  +---props
      db.src
      text_en.src
  \---tabulation
    +---db
         DBConstants.java
         DBKeys.java
         DBName.java
    +---gui
      | ElectionIcon.java
        PreferenceDisplay.java
        RunPanel.java
        ScreenConstants.java
        TabReportsDesktop.java
         TabReportsPanel.java
        TabulationDisplayContainer.java
      +---combobox
           RunComboBox.java
      +---dialog
           Contest Selection Dialog. java\\
           OverUnderContestDialog.java
           SSOVContestSelectionDialog.java
           TabulationPreferences.java
    +---menu
         Tabulation Main Menu. java\\
    +---reports
      | Constants.java
        CrosstabDataEntryBean.java
        CrosstabMainEntryBean.java
        KeyValue.java
        TabReportUtil.java
     +---overunder
```

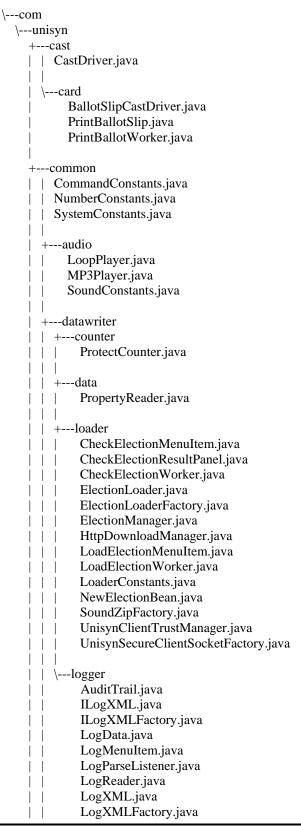
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```
OverUnderData.java
      Over Under Report Task. java \\
 +---sov
      SOVData.java
      SOVReportTask.java
 +---ssov
      SSOVData.java
      SSOVReportTask.java
  +---summary
      ElectionSummaryData.java
      ElectionSummaryReportTask.java
 +---tabresult
      TabResultData.java
      TabResultReportTask.java
 \---voterturnout
      VoterTurnoutData.java
      VoterTurnoutReportTask.java
\---util
    Constants.java
    ElectionLookup.java
    ParentCache.java
    PrecinctCache.java
    RunDisplayObject.java
```

TabulatorService

```
\---com
  +---props
      db.src
       uploadsystem.src
  \---unisyn
    \---tabserver
       | BaseDBServlet.java
       | IsAliveServlet.java
         IsUpdatedServlet.java
         RegistrationServlet.java
         UploadServlet.java
       +---db
           DBKeys.java
           DBName.java
       +---parser
           TallyFileDBParser.java
       \---util
           Constants.java
           TabServiceUtil.java
           TabVoteFile.java
```

OVI



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CompDoom ions
FontUtil.java
INIFile.java
ObjectFactory.java
Status.java
Toolbox.java
UnicodeUtil.java
Onicode Otti.java
1 1 1
=
ZipFileEntryBean.java
ZipFileExtractor.java
ZipFileReader.java
ZipProcessor.java
ii
+widgit
•
Bookend.java
•
ClockLabel.java
CustomToggleButton.java
DisplayTextPanel.java
FormatCodes.java
MultilineZoomLabel.java
RoundedHeader.java
SelectedLabel.java
•
ThreeDButton.java
=
UnisynSet.java
ZoomButton.java
ZoomLabel.java
ZooniLavei.java
! !
+worker
UnisynBaseWorker.java
WorkerStatus.java
WorkerStatus.java
! !
+xml
DE
ParserFactory.java
\xmlfile
XMLSplitFile.java
+election
+election
ElectionConstants.java
IntegrityCheckWorker.java
+data
CandidateBean.java
ContestBean.java
ElectionBean.java
ElectionTitleBean.java
LanguageBean.java
PartyBean.java
PartyDescriptionBean.java
PrecinctBean.java
=
SessionBean.java

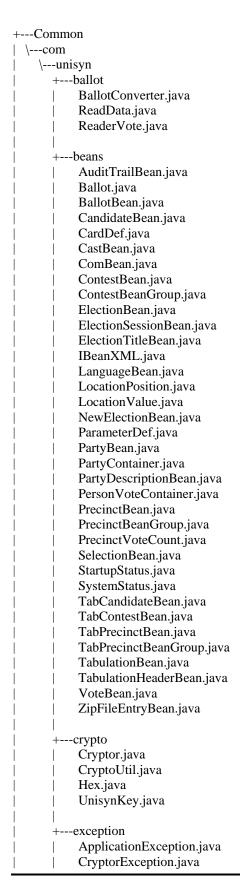
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```
\---reader
      Ballot Card XML Handler. java\\
      ContestBeanXMLHandler.java
      Election Bean XML Handler. java\\
      ElectionXMLParserFactory.java
      PrecinctBeanXMLHandler.java
\---ovi
    ApplicationConstants.java
    ColorConstants.java
    OVI.java
  +---data
      BallotCard.java
      CandidateData.java
      ContestData.java
      PartyData.java
      SessionData.java
  | | HardwareCheck.java
      OVIConstants.java
      OVIMain.java
   +---admin
        ChangeCloseTimeMenuItem.java
         ChangeCloseTimePanel.java
         checkbox disabled.gif
         CloseMenuItem.java
         CloseMenuReport.java
         ConfirmSpecialSession.java
         disabled_selected.gif
         DisplayAdminMenu.java
         InfoMenuItem.java
         ManualPrecinctInput.java
         ResetTrainingMenuItem.java
         selected.gif
         SpecialSessionItem.java
         unselected.gif
   +---diagnostics
        DiagnosticsAdminAudio.java
         DiagnosticsAudio.java
         DiagnosticsAudioList.java
         DiagnosticsAudioListElection.java
         DiagnosticsColorDisplay.java
         DiagnosticsHeadphones.java
         DiagnosticsKeyboard.java
         DiagnosticsMenuItem.java
         DiagnosticsPrinter.java
         DiagnosticsSelectLanguage.java
         DiagnosticsSipPuff.java
         DiagnosticsTouchscreen.java
  +---maintenance
```

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```
MaintenanceMenuItem.java
             PrintTestDeckWorker.java
             TestDeckMenuItem.java
             TestDeckPanel.java
        \---user
             ConfirmCancelBallot.java
             ConfirmContinueSession.java
             ConfirmOpenVoting.java
             DisplayBallot.java
             DisplayInstructions.java
             DisplayMessage.java
             DisplayProgress.java
             DisplaySummary.java
             SelectBallot.java
             SelectLanguage.java
             SelectParty.java
             STSelectParty.java
             WriteInKeyboard.java
      +---nav
           BallotKeyNavigator.java
           KeyboardNavigator.java
           SingleKeyNavigator.java
           SummaryKeyNavigator.java
      +---reports
           ReportFactory.java
           Reports.java
           ReportViewer.java
           CanPositionComparator.java
           ContestBeanOrderComparator.java
           ContestOrderComparator.java
           MaintLogin.java
           MediaRecovery.java
           RankContestValidator.java
       +---widget
           ContestDisplay.java
           ContestSummaryDisplay.java
           LanguageSelectButton.java
           MeasureTextPanel.java
           PartySelectButton.java
           SelectableCandidateDisplay.java
       \---worker
           DefaultCloseWorker.java
           DefaultOpenWorker.java
           PopulateBallotWorker.java
OVO
\---JNI
    scandllinterface.cpp
```

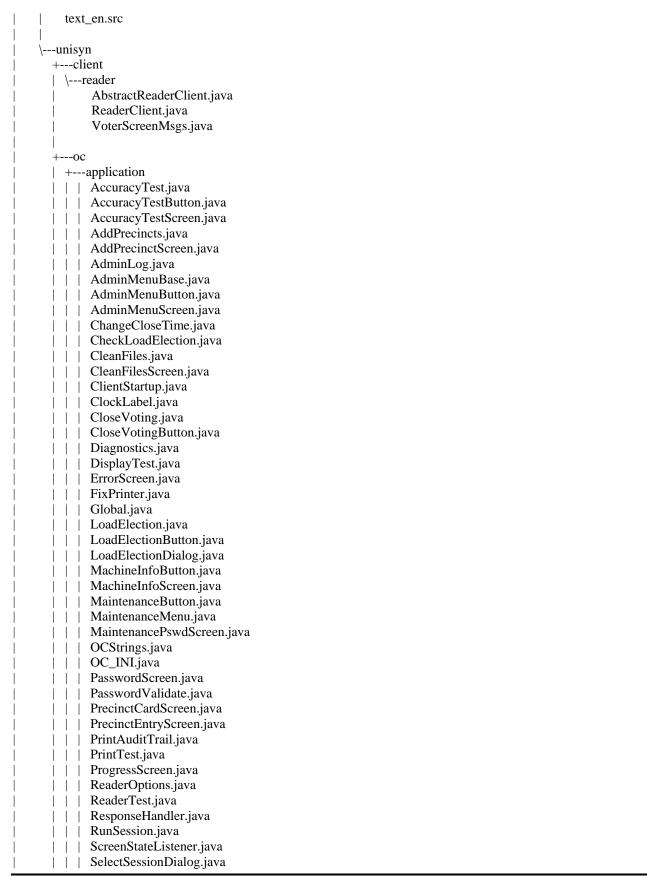
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```
ElectionException.java
           PostMortemException.java
           ValidationException.java
           VoteWriterException.java
      +---util
           BuildFile.java
           CheckStatus.java
           ChecksumCRC32Mgr.java
           Constants.java
           Election Encrypt Decrypt Factory. java\\
           EncResourceBundle.java
           IDebug.java
           ILogXML.java
           ILogXMLFactory.java
           LogData.java
           SimpleLogger.java
           Status.java
           SystemCodes.java
           Toolbox.java
           Txt2ImgFactory.java
           UnisynFileReader.java
           ZipFileReader.java
           ZipProcessor.java
      \---xmlfile
           XMLSplitFile.java
+---Help Files
| | help-files.bat
 \---com
    \---unisyn
      \---oc
         \---application
           \---help
                adminfunctions_en.html
                adminfunctions en.properties
                closevoting_en.html
                closevoting_en.properties
                diagnostics en.html
                diagnostics_en.properties
                mainscreen_en.html
                mainscreen_en.properties
                password_en.html
                password_en.properties
                shutdown\_en.html
                shutdown_en.properties
                startup_en.html
                startup_en.properties
                summary_en.html
                summary_en.properties
+---OC
 \---com
    +---props
```

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-	Shutdown.java
i	ShutdownBaseScreen.java
i	ShutdownScreen.java
i	StartupPanel.java
i	StartupScreen.java
i	TimerDialog.java
ľ	TouchTest.java
	TrainingOptions.java
	TrainingOptions.java TrainingReset.java
	ViewTally.java
	VoterScreen.java
	\summary
	ContestSummaryDisplay.java
	DisplaySummary.java
	MultipageDisplay.java
	WrappedColumnPanel.java
	+printer
	PCL.java
	PrinterConstants.java
	PrintReaderErrors.java
	PrintReceipt.java
	PrintTally.java
	PrintVote.java
	+reader
	Driver.java
	DriverStatusMonitor.java
	IDataStream.java
	LogFile.java
	ObservableObject.java
	ReaderConstants.java
	ReaderDriver.java
	ReaderStatusMonitor.java
	\pdiscanner
	PDIScanner.java
	ScanDLLInterface.java
	\util
	ApplicationButton.java
	ApplicationScreen.java
	BigBevelBorder.java
	ButtonPanel.java
	button_admin.gif
	button_admin_disabled.gif
	button_admin_down.gif
	checkbox_disabled.gif
	ColorUtil.java
	DataField.java
	DataLabel.java
	DataStream.java
ĺ	disabled_selected.gif
ĺ	Editor.java
i	EditorField.java

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```
EmptyButton.java
             ExitButton.java
             FontUtil.java
             GridPanel.java
             HelpButton.java
             IButton.java
             IDataInputByteArray.java
             IDataInputStream.java
             IDataOutputByteArray.java
             IDataOutputStream.java
             IDialog.java
             IKey.java
             InfoDialog.java
             IPanel.java
             IRadioButton.java
             IScrollPane.java
             IString.java
             KeyboardPanel.java
             Keypad.java
             KeypadPanel.java
             KeyPanel.java
             LabeledField.java
             NumberKeypad.java
             OKDialog.java
             OSService.java
             Parameter.java
             ProgressBar.java
             Screen.java
             selected.gif
             SendButton.java
             ServiceName.java
             SPanel.java
             Standards.java
             StatusPanel.java
             TallyUtil.java
             TextIcon.java
             TextPanel.java
             TextScreen.java
             ThreeDButton.java
             unselected.gif
             YesNoDialog.java
             ZoomButton.java
      \---printer
           IPrinter.java
           PrintManager.java
         \---citizen
             CitizenPOSPrinter.java
             CitizenPrinterPCL.java
\---OS
  \---com
    \---unisyn
       \---os
         +---beans
```

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ļ	OSElectionBean.java
	 +crypto
ı	OSCryptor.java
i	
-	+logreader
	LogParseListener.java
	LogReader.java
-	LogXML.java
-	LogXMLFactory.java
	LogXMLFile.java
	+service
ı	AuthorizePrecinct.java
i	BallotBeanXMLHandler.java
i	BallotFactory.java
ĺ	CallHandler.java
	CloseVotingProcess.java
	ContestBeanXMLHandler.java
	Counters.java
	ElectionBeanXMLHandler.java
-	ElectionInfoFactory.java
-	ElectionXMLParserFactory.java
	OCLogin.java
	OCService.java OCTallyUtil.java
	PrecinctBeanXMLHandler.java
	PrecinctService.java
i	SoundZipFactory.java
i	UnmountUSB.java
i	
ĺ	\electionmanager
	ElectionLoader.java
	ElectionLoaderFactory.java
	ElectionManager.java
	IElectionLoader.java
	 +tab
ı	CandidatePartyCount.java
i	ParseVotesFile.java
ĺ	PrecinctCandidate.java
	PrecinctContest.java
	PrecinctPartyCount.java
	PrecinctTally.java
	ReadTallyFile.java
	TabConstants.java
	TabHelper.java
	TabPrecincts.java
	Tabulation.java Tally.java
	i any java
	+util
	AuditTrail.java
ĺ	CanPositionComparator.java
	ContestOrderComparator.java
	HttpDownloadManager jaya

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```
| OSConstants.java
| TagNames.java
| TransactionID.java
| UnisynSecureClientSocketFactory.java
| ZipFileExtractor.java
| \---state
| ControlCenter.java
| StatusGroup.java
| \---votewriter
| VoteParseListener.java
| VoteWriter.java
| VoteXML.java
| VoteXMLFile.java
| VoteXMLFileListener.java
```

TOOLS

```
+---Scripter
 +---Build
      build.cmd
      build_dir.properties
      scripter_build.xml
 +---Deploy
      paths.xml
      run.cmd
 \---Source
    \---com
      \---unisyn
         \---scripter
            +---ap
                Scripter.java
            +---crypto
                ChecksumCRC32Mgr.java
                CryptoUtil.java
                Status.java
           \---fileutil
                DLLFile.java
                DownloadFile.java
                PasswordFile.java
                PathEntryName.java
                PathnameFile.java
                ReleaseFile.java
                ScriptFile.java
                SourceFile.java
\---Validator
  +---Build
      build.cmd
```

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```
build_dir.properties
    library.bat
    validator_build.xml
+---Deploy
| run
\---lib
\---Source
  \---com
    +---props
         text_en.src
    \---unisyn
       \---validator
         +---ap
              DisplayPanel.java
              FileHandler.java
              HttpDownloadManager.java
              OfflineDisplayPanel.java
              OnlineDisplayPanel.java
              PasswordScreen.java
              ShutdownButton.java
              ShutdownScreen.java
              UnisynSecureClientSocketFactory.java
              Validator.java
              ValidatorScreen.java
              VStrings.java
         +---crypto
              CryptorException.java
              CryptoUtil.java
              UnisynKey.java
         +---fileutil
              DLLFile.java
              DownloadFile.java
              LogFile.java
              ScriptFile.java
              TemporaryFile.java
         \---util
              BuildFile.java
              ButtonPanel.java
              Constants.java
              DataField.java
              DataLabel.java
              DataStream.java
              Editor.java
              EditorField.java
              EmptyButton.java
              EncResourceBundle.java
              GridPanel.java
              IPanel.java
              IScrollPane.java
              IString.java
```

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KeyboardPanel.java Keypad.java KeyPanel.java LabeledField.java MachineUtil.java NumberKeypad.java Screen.java SendButton.java Standards.java Status.java SystemCodes.java ThreeDButton.java VColor.java