

Non-Inheritance Extract Class Refactoring Suggestions		
Original Class [N _{split}]	Extract Class	
	New Class [Superclass] [Subclass]	Methods/Fields
DisplayControl [3]	DisplayControl_new_1 [-] [-]	getShowBoundingBox() getShowAxes() getModeAxes() getAxes() getBoundingBox() getColorAxes() getColorAxesText() recalcAxes() axesManager NOLABELS MB_WIREFRAME logError(String) DEFORM ATOMCHARGE MB_NEVER MB_SMALL SYMBOLS COLOR AXES_BBOX ROTATE ATOMTYPE AXES_UNIT makeMenuItem(String) AXES_NONE NUMBERS ZOOM getChemModel() ROTATE_Z PROP_CHEM_FRAME QUICKDRAW MEASURE XLATE NONE INVISIBLE SLAB_PLANE getChemFile() DELETE marMultipleBondSmallMaximum BOX

		SHADING MB_ALWAYS PROP_CHEM_FILE WIREFRAME setMeasureWatcher(MeasureWatcher) measureWatcher measureSelection(int) POPUP_MENU TYPES PICK showChemModel(ChemModel) setChemFile(String,String,ChemFile) showChemFile(ChemFile) iterNull DisplayControl(String,Component) iterBond() iterAtom() getBondTolerance() getMinBondDistance() getAutoBond() getBondFudge() getFrame() setBondTolerance(double) setMinBondDistance(double) setAutoBond(boolean) setCenterAsSelected() setCenter(Point3d) getBoundingBoxCenter() getBoundingBoxCorner() getRotationRadius() getRotationCenter() setBondFudge(double) getFrames() removePropertyChangeListener(PropertyChangeListener) removePropertyChangeListener(String,PropertyChangeListener) findAtomsInRectangle(Rectangle) getChemFileIterator() getCurrentFrameAtoms() getModelName() getChemFrameIterator(BitSet) findNearestAtomIndex(int, int) haveFile()
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		getJmolChemFile() numberOfAtoms() getNumberOfFrames() modelManager addPropertyChangeListener(String,PropertyChangeListener) addPropertyChangeListener(PropertyChangeListener) clear() setFrame(int) setFrame(ChemFrame) rebond() setShowBoundingBox(boolean) setModeAxes(byte) setStructuralChange() structuralChange resetStructuralChange() hasStructuralChange() deleteAtom(int) setChemFile(ChemFile) render(Graphics,Rectangle) evalFile(String) getEval() eval haltScriptExecution() evalString(String) notifyFileNotLoaded(String,String) notifyFileLoaded(String,String,String,Object) setJmolStatusListener(JmolStatusListener) jmolStatusListener scriptEcho(String) popupMenu(MouseEvent) scriptStatus(String) manageScriptTermination() getCurrentFrameNumber()
	DisplayControl_new_2 [-] [-]	toRadians(int) rotateByX(int) rotateByZ(int) rotateByY(int) rotateToX(int) rotateToZ(int) rotateToY(int) translateByZPercent(int) translateByYPercent(int)

		<p> getPerspectiveDepth() getSlabValue() getSlabEnabled() getCameraDepth() getModeSlab() getCameraZ() getZoomPercent() getSlabPercentSetting() getZoomPercentSetting() setPerspectiveDepth(boolean) calcViewTransformMatrix() homePosition() rotateToZ(double) rotateToX(double) rotateToY(double) translateToZPercent(int) translateToXPercent(int) translateToYPercent(int) getTranslationYPercent() getTranslationZPercent() rotateByY(double) rotateByX(double) zoomToPercent(int) setZoomEnabled(boolean) slabToPercent(int) setSlabEnabled(boolean) rotate(AxisAngle4d) scaleFitToScreen() setScreenDimension(Dimension) scaleToScreen(int, int) transformPoint(Point3d) rotateXYBy(int, int) translateXYBy(int, int) slabBy(int) rotateZBy(int) slabByPercent(int) setModeSlab(int) zoomByPercent(int) zoomBy(int) rotateFront() scaleToScreen(int, double) transformPoint(Point3d,Point3d) transformManager getPovRotateMatrix() </p>
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		<p>getPovTranslateMatrix() getBoundingBoxCenterX() getBoundingBoxCenterY() getScreenDimension() setCameraDepth(double) rotateByZ(double) getTranslationXPercent() translateByXPercent(int)</p>
	<p>DisplayControl_new_3 [-] [-]</p>	<p>getDistanceMeasurements() getAngleMeasurements() getDihedralMeasurements() clearMeasurements() defineMeasure(int[]) defineMeasure(int, int) measurementManager defineMeasure(int, int, int) defineMeasure(int, int, int, int) jvm12orGreater getAwtComponent() awtComponent getRasmolHydrogenSetting() setRasmolHydrogenSetting(boolean) rasmolHydrogenSetting getRasmolHeteroSetting() setRasmolHeteroSetting(boolean) rasmolHeteroSetting jvm14orGreater strJvmVersion getModeMouse() setModeMouse(int) mouseManager getRubberBandSelection() bondRenderer atomRenderer setGraphicsContext(Graphics,Rectangle) renderStringOutside(String,Color, int, int, int) labelRenderer renderStringOffset(String,Color, int, int, int, int, int) frameRenderer measureRenderer openFile(File) getInputStreamFromName(String) openStringInline(String)</p>

		setAppletContext(URL,URL,String) fileManager getURLFromName(String) openFile(String) transparentGrey() transparentRed() transparentBlue() transparentGreen() imageCache flushCachedImages() getColorBackground() getColorRubberband() getModeAtomColorProfile() getColorVector() getColorDihedral() getColorDistance() getColorAngle() getColorOutline() getColorLabel() getShowDarkerOutline() getColorBond() getColorAtom(Atom) getColorSelection() getColorTransparent(Color) getColorAtomOutline(byte,Color) setColorBackground(String) setColorAngle(Color) setColorDihedral(Color) setColorDistance(Color) getDarker(Color) getColorFromString(String) setModeTransparentColors(boolean) getColorAtom(byte,Atom) colorManager setColorLabel(Color) setColorVector(Color) setShowDarkerOutline(boolean) setColorSelection(Color) setColorOutline(Color) setColorBackground(Color) getSelectionSet() invertSelection() toggleSelection(int) addSelection(int)
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		addSelection(BitSet) selectionManager clearSelection() selectAll() excludeSelectionSet(BitSet) setSelectionSet(BitSet) isSelected(int) getBooleanProperty(String) getBondSelectionModeOr() setBondSelectionModeOr(boolean) bondSelectionModeOr getSelectionHaloEnabled() setSelectionHaloEnabled(boolean) selectionHaloEnabled java12 hasSelectionHalo(Atom, int) hasSelectionHalo(Atom) getWantsGraphics2D() getWantsAntialiasAlways() getWantsAntialias() getInMotion() getFastRendering() setWantsAntialias(boolean) setWantsAntialiasAlways(boolean) setWantsGraphics2D(boolean) setInMotion(boolean) requestRepaintAndWait() refresh() popHoldRepaint() pushHoldRepaint() notifyRepainted() setFastRendering(boolean) repaintManager getUseGraphics2D() defaultStroke(Graphics) maybeDottedStroke(Graphics) maybeEnableAntialiasing(Graphics) takeSnapshot() getStyleLabel() getLabelAtom(Atom) getFontOfSize(int) getLabelFont(int) setLabelFontSize(int) getLabelAtom(String, Atom)
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		getLabelAtom(byte,Atom) labelManager getDebugShowAxis() setShowAxes(boolean) getShowMeasurementLabels() getShowMultipleBonds() getModeMultipleBond() getPropertyStyleString() getShowAtoms() getShowBonds() getShowHydrogens() getShowVectors() getShowMeasurements() getWireframeRotation() getMarAtom() getPercentVdwAtom() getMarBond() getStyleAtom() getStyleBond() getArrowLengthScale() getArrowHeadRadius() getArrowHeadSize() getArrowHeadSize10() getMeasureFont(int) setShowAtoms(boolean) setShowMeasurementLabels(boolean) setModeMultipleBond(byte) setShowBonds(boolean) setShowMultipleBonds(boolean) styleManager setShowVectors(boolean) setShowHydrogens(boolean) setWireframeRotation(boolean) setPropertyStyleString(String) setArrowHeadRadius(double) setArrowLengthScale(double) setModeAtomColorProfile(byte) setColorBond(Color) setStyleLabel(byte) setMarBond(short) setPercentVdwAtom(int) setStyleAtom(byte) setStyleBond(byte) setColorAtomScript(byte,Color)
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		distributor setStyleMarBondScript(byte, short) setStyleBondScript(byte) setLabelScript(String) setStyleMarAtomScript(byte, short) setStyleAtomScript(byte) setColorBondScript(Color) setArrowHeadSize(double) setShowMeasurements(boolean)
Compiler [2]	Compiler_new_1 [-] [-]	strToken logMessages addTokenToPostfix(Token) ltokenPostfix Compiler() loadFormats integerExpected() comparisonOperatorExpected() identifierOrResidueSpecificationExpected() badRGBColor() invalidAtomSpecification() invalidChainSpecification() resnoSpecificationExpected() integerExpectedAfterHyphen() clauseNot() clauseAnd() leftParenthesisExpected() numberExpected() commaExpected() residueSpecificationExpected() endOfExpressionExpected() badArgumentCount() clauseOr() rightParenthesisExpected() unrecognizedExpressionToken() clauseWildcard() itokenInfix atokenInfix compileExpression(int) tokenNext() clauseResSpec() tokPeek() processIdentifier(Token) clauseAtomSpec() clauseChain()

		clauseResNo() clauseWithin() clausePrimitive() clauseInteger() compileRGB(Token[], int,Token[]) atokenCommand compileCommand(Vector) compileColorParam() compileExpression() clauseComparator() clauseResName()
	Compiler_new_2 [-] [-]	invalidResidueNameSpecification(String) getErrorMessage() errorMessage compileError(String) errorLine filename getLineIndices() lineIndices getLineNumbers() lineNumbers getAatokenCompiled() aatokenCompiled error lineCurrent compile(String,String) commandExpected() cannotShow(String) unrecognizedToken() cannotSet(String) cchScript script ichToken cchToken compile0() lookingAtLoadFormat() lookingAtSpecialString() lookingAtLookupToken() lookingAtPositiveInteger() lookingAtLeadingWhitespace() lookingAtPositiveDecimal() lookingAtString() lookingAtEndOfStatement() lookingAtNegativeInteger()

		lookingAtEndOfLine() lookingAtComment() invalidExpressionToken(String) ichCurrentCommand
Vibrate [2]	Vibrate_new_1 [-] [-]	sleepiness saveChooser progressSlider control setFrame(int, boolean) inputFile currentFrame setVisible(boolean) propertyChange(PropertyChangeEvent) vibFile vibThread stop() playing start() run() actionPerformed(ActionEvent) getPreferredSize() setSize(Dimension) speedScale setLocation(int, int) centerDialog() getSize() getToolkit() pack() getContentPane() Vibrate(DisplayControl,JFrame) disableConflictingActions() restoreConflictingActions() conflictingActions addConflictingAction(Action) actionStates addWindowListener(WindowListener) inputFrameNumber vibCombo frameCombo frameIds isVisible() hasVibrations getAction(String) getActions()

		vibrateAction setChemFile(ChemFile) vibrationNumber
	Vibrate_new_2 [-] [-]	getNumberFrames() setNumberFrames(int) numberFrames getVectorScale() setVectorScale(double) vectorScale getAmplitudeScale() setAmplitudeScale(double) amplitudeScale static {} createVibration()
DisplayPanel [2]	DisplayPanel_new_1 [-] [-]	componentHidden(ComponentEvent) X_AXIS getWidth() getHeight() Y_AXIS Z_AXIS componentMoved(ComponentEvent) addComponentListener(ComponentListener) start() setMeasure(Measure) measure firePickedMeasure(int) getMenuListener() menuListener getSize() setDoubleBuffered(boolean) xlateAction numbersAction rotateAction homeAction aquickdrawAction wireframerotationAction boundboxAction hydrogensAction actypeAction deleteAction anoneAction bwireframeAction leftAction bboxAction

		typesAction perspectiveAction bondsAction pickAction zoomAction defineCenterAction awireframeAction axesAction bottomAction topAction ainvisibleAction bnoneAction deselectallAction ashadingAction vectorsAction bshadingAction symbolsAction atomsAction plainAction rightAction DisplayPanel(StatusBar,GuiMap) getActions() bquickdrawAction frontAction selectallAction acchargeAction measurementsAction
	DisplayPanel_new_2 [-] [-]	fmt(int) displaySpeed status run showMemoryUsage() static {} timeLast timeCount timeTotal showTimes() resetTimes() recordTime(int) componentShown(ComponentEvent) componentResized(ComponentEvent) guimap showPaintTime createImage(int, int)

		rectClip timeBegin wereInMotion inMotion stopPaintClock() g2ScreenBuf biScreenBuf allocScreenBuf(Dimension) takeSnapshot() dimCurrent paint(Graphics) startPaintClock() setDisplayMenuState() updateSize() setDisplayControl(DisplayControl) getDisplayControl() control setRotateMode() propertyChange(PropertyChangeEvent) rotate(int, double) getFrame()
Atom [3]	Atom_new_1 [-] [-]	setY3D(double) setZ3D(double) setX3D(double) getProteinProp() pprop setProteinProp(ProteinProp) getAtomNumber() setAtomNumber(int) atomNumber isHydrogen() getCovalentRadius() baseAtomType control Atom(DisplayControl) bondOrders clearBondedAtoms() deleteBondedAtom() getBondOrder() addBondedAtom() delete() isBondedAtom() getBondedAtoms() bondedAtoms

		getBondedAtom(int) getBondedCount() Atom(DisplayControl,Atom) getScreenZ() getScreenY() getScreenX() getAtomShape() atomShape getScreenRadius() getScreenDiameter()
	Atom_new_2 [-] [-]	getAtomicNumber() getAtomTypeName() getSymbol() toString() setAtomicNumber(int) setAtomTypeName(String) setSymbol(String) setVanderwaalsRadius(double) setExactMass(double) setBondOrderSum(double) setProperty(Object,Object) setCovalentRadius(double) setMaxBondOrder(double)
	Atom_new_3 [-] [-]	getProperty(String) addProperty(PhysicalProperty) setProperties(Vector) properties getAtomicProperties() hasProperty(String) getDimValue(int) getVanderwaalsRadius() getPoint3D() getCharge() zeroPoint static {} getVectorMagnitude() getVector() setVector(Point3d) vector getScaledVector() hasVector()
Eval [3]	Eval_new_1 [-] [-]	scriptLevelMax logMessages colorExpected()

		numberExpected() invalidArgument() unrecognizedSetParameter() setspecialShouldNotBeHere() loadScript(String,String) run() Eval(DisplayControl) getResidueSet(int, int) getSpecAtom(String) getSpecNumber(int) getSpecChain(char) getResidueSet(int) getSpecName(String) notSet(BitSet) getResidueWildcard(String) getResidueSet(String) getHydrogenSet() getHeteroSet() loadScriptFileInternal(String) isWithin(double,Point3d,BitSet) animatePlay(boolean) setShowSelections() setPerspectivedepth() setWireframerotation() setMonitor() setBoundbox() setBonds() setHydrogen() setDisplay() setShowMeasurements() setHetero() setShowVectors() setShowHydrogens() control refresh() zap() reset() restrict() background() predefine(Token[]) unrecognizedCommand(Token) withinInstruction(Token,BitSet,BitSet) clearDefinitionsAndLoadPredefined() statement
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		notImplemented(int) define() select() center() label() script() instructionDispatchLoop() getSetBoolean() setBondmode() setAxes() colorAtom(int) getColorParam(int) getColorOrNoneParam(int) color() move() setFontSize() translate() rotate() zoom() slab() load() echo() animate() delay() wireframe() spacefill() comparatorInstruction(Token, BitSet) expression(Token[], int) monitor() set() notImplemented(Token) lookupValue(String, boolean) variables copyBitSet(BitSet) undefinedVariable() unrecognizedExpression()
	Eval_new_2 [-] [-]	booleanOrPercentExpected() unrecognizedSubcommand() numberOutOfRange() axisExpected() badAtomNumber() badArgumentCount() booleanExpected() integerExpected()

		booleanOrNumberExpected() IOError(String) FileNotFound(String) compiler loadScriptString(String) loadScriptFile(String) filenameExpected() errorLoadingScript(String) timeEndExecution timeBeginExecution getExecutionWalltime() interruptExecution start() isActive() myThread clearMyThread() haltExecution() resetTerminationNotification() hasTerminationNotification() terminationNotification stack scriptLevel lineIndices script aatoken linenumbers toString() pc getLinenumbr() filename evalError(String) pushContext() popContext() getLine() clearState() getErrorMessage() errorMessage error hadRuntimeError() LoadError(String)
	Eval_new_3 [-] [-]	getAtomID(Atom) getResno(Atom) getResID(Atom) getTemperature(Atom)

UnitCellBox [2]	UnitCellBox_new_1 [-] [-]	mulVec(Matrix3d,Point3d) setAtomType(int[]) atomType getBaseAtomType(int) cartToRed(double[[[]], double[[[]]]) spgroup getInfo() setInfo(String) info isPrimVectorsCartesian() isPrimVectorsCart getAngles() angles setPrimVectorsCrystallo(double[], double[]) UnitCellBox(double[[[]], double[],ChemFrame) UnitCellBox(double[[[]], double[], boolean, int[], double[[[]]]) UnitCellBox(double[], double[], boolean, int[], double[[[]]]) UnitCellBox() getRprim() rprim getAcell() acell getEdges() edges getRprimd() setPrimVectorsCartesian(double[[[]], double[])
	UnitCellBox_new_2 [-] [-]	matrix3dToArray(Matrix3d) arrayToMatrix3d(double[[[]]]) mulVec(double[[[]], double[]) redToCart(double[[[]], double[[[]]]) setReducedPos(double[[[]]]) getReducedPos() getAtomCount() getCartesianPos() atomPos setCartesianPos(double[[[]]])
ModelManager [2]	ModelManager_new_1 [-] [-]	getModelName() control getChemFrameIterator(BitSet, boolean) findNearestAtomIndex(int, int) getCurrentFrameAtoms() setRotationCenter(Point3d)

		findAtomsInRectangle(Rectangle) deleteAtom(int) rebond() numberOfAtoms() chemframe getChemFrameIterator(BitSet) getBoundingBoxCorner() getBoundingBoxCenter() haveFile() haveFile setCenterAsSelected() setAutoBond(boolean) autoBond setBondTolerance(double) bondTolerance setBondFudge(double) bondFudge setMinBondDistance(double) minBondDistance setFrame(ChemFrame) pcs addPropertyChangeListener(String,PropertyChangeListener) removePropertyChangeListener(String,PropertyChangeListener) removePropertyChangeListener(PropertyChangeListener) addPropertyChangeListener(PropertyChangeListener) ModelManager(DisplayControl)
	ModelManager_new_2 [-] [-]	getCurrentFrameNumber() currentFrameNumber getNumberOfFrames() nframes setFrame(int) getChemFile() setChemFile(ChemFile) chemfile getChemFileIterator() getRotationCenter() getRotationRadius() getFrames()
BaseAtomType [2]	BaseAtomType_new_1 [-]	getValueAt(int, int) setValueAt(Object, int, int)

	[-]	getBondOrderSum() getMaxBondOrder() setSymbol(String) setVanderwaalsRadius(double) setCovalentRadius(double) setExactMass(double) getAtomTypeName() getSymbol() getVanderwaalsRadius() getCovalentRadius() getID() getAtomicNumber() setAtomicNumber(int) atomicNumber hashCode equals(Object) hashCode() BaseAtomType(String,String) get(AtomType) getColor() setColor(Color) color toString() getExactMass()
		set(String, int, double, double, double) get(String,String, int, double, double, double) get(int) static {} get(String,String) exists(String) typePool
Jmol [2]	Jmol_new_1 [-] [-]	exportActionProperty pdfActionProperty revalidate() newAction labelSuffix saveasAction aboutAction recentFilesAction openFileProperty whatsnewAction scriptAction newwinAction checkSuffix

		printActionProperty mnemonicSuffix imageSuffix exitAction selectedSuffix openAction vibAction radioSuffix actionSuffix tipSuffix openurlAction popupSuffix atompropsAction closeAction currentFile uguideAction licenseAction povrayActionProperty print(Graphics) newJMenu(String) newJCheckBoxMenuItem(String, boolean) newJRadioButtonMenuItem(String) newJMenuItem(String) getParent() addHelpMenuBar(JMenuBar) addNormalMenuBar(JMenuBar) tokenize(String) getUserDirectory() atomTypeTable consoleframe getJmol(JFrame) screenSize strJvmVersion currentDir crystprop anim transform makecrystal meas mlist pg vib defaultActions preferencesDialog
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		toolbar createToolbar() createStatusBar() setBorder(Border) add(String,Component) setLayout(LayoutManager) menubar recentFiles status scriptWindow printAction saveChooser pdfAction povrayAction exportAction openChooser exportChooser fileTyper getAction(String) commands createMenubar() pluginManager getActions() say(String) splash resourceHandler Jmol(Splash,JFrame) apm control createMenu(String, boolean) guimap getMenuItem(String) menuItems createMenuItem(String, boolean) display main(String[]) getFrame() frame numWindows doClose() print() chemicalShifts saveAction jmolpopup
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	Jmol_new_2 [-] [-]	createTool(String) UserPropsFile UserAtypeFile getHistoryFile() historyFile static {} toolbarButtonGroup setRotateButton() buttonRotate createToolBarButton(String)
AtomShape [2]	AtomShape_new_1 [Shape] [-]	setColorAtom(Color) colorAtom diameter y x isClipVisible(Rectangle) static {} rectTemp isBondClipVisible(Rectangle, int, int, int, int) toString() z atom renderBonds(Graphics,DisplayControl) render(Graphics,DisplayControl) AtomShape(Atom, byte, short,Color, byte, short,Color,String) transform(DisplayControl) setStyleAtom(byte) styleAtom getRasMolRadius() setMarAtom(short) marAtom setStyleMarAtom(byte, short) strLabel setLabel(String)
	AtomShape_new_2 [-] [-]	AtomShape(Atom,DisplayControl) bondWidths setMarBond(short, int) marBonds numBonds setColorAllBonds(Color) setColorBond(Color, int) colorBonds setMarAllBonds(short)

		<div>deleteBond(int)</div> <div>setStyleMarBond(byte, short, int)</div> <div>setStyleMarAllBonds(byte, short)</div> <div>setStyleAllBonds(byte)</div> <div>styleBonds</div> <div>setStyleBond(byte, int)</div>
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