PolySpace® Release Notes

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PolySpace® Release Notes

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Contents

Summary by Version

This table provides quick access to what's new in each version. For clarification, see "About Release Notes" on page 4.

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Latest Version for C/C++ Products: V7.1 (R2009b)	Yes Details	No	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports	Printable Release Notes: PDF Current product documentation
Latest Version for Ada and Model Link Products: V5.4 (R2009b)	Yes Details	No	Includes fixes: PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports PolySpace Model Link TL Bug Reports PolySpace UML Link RH Bug Reports	Printable Release Notes: PDF Current product documentation

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
V7.0 (R2009a) for C/C++ Products	Yes Details	Yes Summary	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports	No
V5.3 (R2009a) for Ada and Model Link Products	Yes Details	No	Includes fixes: PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports PolySpace Model Link TL Bug Reports PolySpace UML Link RH Bug Reports	No
V6.0 (R2008b) for C/C++ Products	Yes Details	No	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports	No

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
V5.2 (R2008b) for Ada and Model Link Products	Yes Details	No	Includes fixes: PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports	No
V5.1 (R2008a)	Yes Details	Yes Summary	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports	No

Version (Release)	New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Previous Versions			Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports	No

About Release Notes

Use release notes when upgrading to a newer version to learn about new features and changes, and the potential impact on your existing files and practices. Release notes are also beneficial if you use or support multiple versions.

If you are not upgrading from the most recent previous version, review release notes for all interim versions, not just for the version you are installing. For example, when upgrading from V1.0 to V1.2, review the New Features and Changes, Version Compatibility Considerations, and Bug Reports for V1.1 and V1.2.

New Features and Changes

These include

- New functionality

- Changes to existing functionality

- Changes to system requirements (complete system requirements for the current version are at the MathWorks Web site)

- Any version compatibility considerations associated with each new feature or change

Version Compatibility Considerations

When a new feature or change introduces a reported incompatibility between versions, its description includes a **Compatibility Considerations** subsection that details the impact. For a list of all new features and changes that have reported compatibility impact, see the "Compatibility Summary for PolySpace Software" on page 41.

Compatibility issues that are reported after the product has been released are added to Bug Reports at the MathWorks Web site. Because bug fixes can sometimes result in incompatibilities, also review fixed bugs in Bug Reports for any compatibility impact.

Fixed Bugs and Known Problems

MathWorks Bug Reports is a user-searchable database of known problems, workarounds, and fixes. The MathWorks updates the Bug Reports database as new problems and resolutions become known, so check it as needed for the latest information.

Access Bug Reports at the MathWorks Web site using your MathWorks Account. If you are not logged in to your MathWorks Account when you link to Bug Reports, you are prompted to log in or create an account. You then can view bug fixes and known problems for R14SP2 and more recent releases.

Related Documentation at Web Site

Printable Release Notes (PDF). You can print release notes from the PDF version, located at the MathWorks Web site. The PDF version does not support links to other documents or to the Web site, such as to Bug Reports. Use the browser-based version of release notes for access to all information.

Product Documentation. At the MathWorks Web site, you can access complete product documentation for the current version and some previous versions, as noted in the summary table.

Version 7.1 (R2009b) PolySpace for C/C++ Products

This table summarizes what's new in V7.1 (R2009b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports	Printable Release Notes: PDF Current product documentation

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for C/C++ Product" on page 6
- "PolySpace® Server for C/C++ Product" on page 9

PolySpace Client for C/C++ Product

Report Generator
New Report Generator that presents PolySpace results in PDF, HTML, and other output formats.

The PolySpace Report Generator allows you to generate reports about your verification results, using the following predefined report templates:

- **Coding Rules Report** – Provides information about compliance with MISRA-C Coding Rules, as well as PolySpace configuration settings for the verification.

- **Developer Report** – Provides information useful to developers, including summary results, detailed lists of red, orange, and gray checks, and PolySpace configuration settings for the verification.

- **Developer with Green Checks Report** – Provides the same content as the Developer Report, but also includes a detailed list of green checks.

- **Quality Report** – Provides information useful to quality engineers, including summary results, statistics about the code, graphs showing distributions of checks per file, and PolySpace configuration settings for the verification.

The PolySpace Report Generator allows you to generate verification reports in the following formats:

- HTML

- PDF

- RTF

- Microsoft® Word

- XML

Note Microsoft Word format is not available on UNIX platforms. RTF format is used instead.

For more information, see "Generating Reports of Verification Results" in the *PolySpace® Products for C User's Guide* or *PolySpace Products for C++ User's Guide*.

Viewer Enhancements

Enhanced Viewer displays results with tooltips containing the values of variables, operands, function parameters, and return values.

You can see range information associated with variables and operators within the source code view.

Note The displayed range information represents a superset of dynamic values, which the software computes using static methods.

If a line of code is all the same color, selecting the line opens an Expanded Source Code window. Place your cursor over the required operator or variable in this window to view range information.

If a line of code contains different colored checks, selecting a check displays the error or warning message along with range information in the selected check view.

For more information, see "Using Range Information in the Viewer" in the *PolySpace Products for C User's Guide* or *PolySpace Products for C++ User's Guide*.

Global Data Graphs
New Graphs (similar to concurrent access graphs) available for all global data.

You can display the access sequence for any variable that is read or written in the code. The access graph displays the read and write access for the variable.

For more information, see "Displaying the Access Sequence for Variables" in the *PolySpace Products for C User's Guide* or *PolySpace Products for C++ User's Guide*.

Unit-by-unit Verification
New option to create a separate verification job for each source file in the project.

When you run a unit-by-unit verification, each source file is compiled, sent to the PolySpace Server, and verified individually.

The queue manager displays a job for the full verification group, as well as jobs for each unit (using a tree structure).

When verification is complete, you can download and view results for the entire project, or for individual units. When downloading a verification group, all the unit results are downloaded and a summary of the download status for each unit is displayed.

Note Unit by unit verification is available only for server verifications.

For more information, see "Running Verification Unit-by-Unit" in the *PolySpace Products for C Reference* or *PolySpace Products for C++ Reference*.

Operating System Support

Added support for Windows Server® 2008.

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for C/C++ Product

Operating System Support

Added support for Windows Server 2008.

For more information, see the *PolySpace Installation Guide*.

Version 5.4 (R2009b) PolySpace for Ada and Model Link Products

This table summarizes what's new in V5.4 (R2009b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Includes fixes: PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports PolySpace Model Link TL Bug Reports PolySpace UML Link RH Bug Reports	Printable Release Notes: PDF Current product documentation

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for Ada Product" on page 10
- "PolySpace® Server for Ada Product" on page 13
- "PolySpace Model Link SL Product" on page 13

PolySpace Client for Ada Product

Report Generator
New Report Generator that presents PolySpace results in PDF, HTML, and other output formats.

The PolySpace Report Generator allows you to generate reports about your verification results, using the following predefined report templates:

- **Coding Rules Report** – Provides information about compliance with MISRA-C Coding Rules, as well as PolySpace configuration settings for the verification.

- **Developer Report** – Provides information useful to developers, including summary results, detailed lists of red, orange, and gray checks, and PolySpace configuration settings for the verification.

- **Developer with Green Checks Report** – Provides the same content as the Developer Report, but also includes a detailed list of green checks.

- **Quality Report** – Provides information useful to quality engineers, including summary results, statistics about the code, graphs showing distributions of checks per file, and PolySpace configuration settings for the verification.

The PolySpace Report Generator allows you to generate verification reports in the following formats:

- HTML

- PDF

- RTF

- Microsoft Word

- XML

Note Microsoft Word format is not available on UNIX platforms. RTF format is used instead.

For more information, see "Generating Reports of Verification Results" in the *PolySpace Products for Ada User's Guide* .

Main-generator Enhancements

Enhanced main-generator that considers the scope of a procedure and variable, improving error detection at the package level.

For more information, see "Main Generator Overview" in the *PolySpace Products for Ada User's Guide* .

Global Data Graphs

New Graphs (similar to concurrent access graphs) available for all global data.

You can display the access sequence for any variable that is read or written in the code. The access graph displays the read and write access for the variable.

For more information, see "Displaying the Access Sequence for Variables" in the *PolySpace Products for Ada User's Guide* .

Unit-by-unit Verification

New option to create a separate verification job for each source file in the project.

When you run a unit-by-unit verification, each source file is compiled, sent to the PolySpace Server, and verified individually.

The queue manager displays a job for the full verification group, as well as jobs for each unit (using a tree structure).

When verification is complete, you can download and view results for the entire project, or for individual units. When downloading a verification group, all the unit results are downloaded and a summary of the download status for each unit is displayed.

Note Unit by unit verification is available only for server verifications.

For more information, see "Running Verification Unit-by-Unit" in the *PolySpace Products for Ada Reference*.

Operating System Support

Added support for Windows Server 2008.

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for Ada Product

Operating System Support
Added support for Windows Server 2008.

For more information, see the *PolySpace Installation Guide*.

PolySpace Model Link SL Product

Simulink Software Support
Added support for Simulink® Version 7.4 (R2009b).

Version 7.0 (R2009a) PolySpace for C/C++ Products

This table summarizes what's new in V7.0 (R2009a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports	No

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for C/C++ Product" on page 14
- "PolySpace® Server for C/C++ Product" on page 19

PolySpace Client for C/C++ Product

JSF++ Support
Enhanced JSF C++ checker supports all checkable Joint Strike Fighter Air Vehicle C++ coding standards (JSF++:2005).

PolySpace software can now check all possible C++ programming rules defined by Lockheed Martin® for the JSF program. These coding standards are designed to improve the robustness of C++ code, and improve maintainability.

For more information, see "JSF C++ Checker", in the *PolySpace Products for C++ User's Guide*.

Back to Source Link
New "back-to-source" link in the PolySpace launcher associates compile errors, MISRA-C violations, and JSF++ violations reported in the logs directly to the source file.

For more information, see "Examining the MISRA C® Log"in the *PolySpace Products for C User's Guide* or "Examining the JSF Log", in the *PolySpace Products for C++ User's Guide*.

Eclipse Integration

New PolySpace integration with the Eclipse IDE, Version 3.3.

The PolySpace® Client™ for C/C++ product can be integrated with the Eclipse Integrated Development Environment through the PolySpace C/C++ plug-in for Eclipse IDE.

This plug-in provides PolySpace source code verification and bug detection functionality for source code developed within Eclipse IDE. Features include the following:

- A contextual menu that allows you to launch a verification of one or more files.
- Views in the Eclipse editor that allow you to set verification parameters and monitor verification progress.

For more information, see "Using PolySpace Software in the Eclipse™ IDE" in the *PolySpace Products for C User's Guide*or "Using PolySpace Software in the Eclipse IDE"in the *PolySpace Products for C++ User's Guide*.

Performance Improvements for Multi-Core Systems

Enhanced performance on multi-core architecture platforms, improving the speed of PolySpace code verification.

The time required to perform an average code verification has been reduced. On multi-core systems, you can now select the number of processes that can run simultaneously, further improving performance.

For more information, see "-max-processes" in the *PolySpace Products for C Reference*or *PolySpace Products for C++ Reference*.

Architecture Improvements

Several changes have been made to the PolySpace architecture to improve overall performance, as well as the precision of verification results.

During each verification phase (pass), the software now only analyzes those procedures that need to be analyzed. This means that starting with PASS1, if the verification cannot be more precise than that already completed in a previous pass, the procedure is not analyzed again. This improves the overall performance of the verification. It also means that some passes will finish more quickly than others, and some passes could be completely empty. This is normal behavior.

In addition, these architecture improvements result in the following changes:

- The `quick` precision option is now obsolete, and has been removed. `quick` mode has been replaced with verification PASS0. PASS0 takes somewhat longer to run, but the results are more complete. The limitations of `quick` mode, (no NTL or NTC checks, no float checks, no variable dictionary) no longer apply. Unlike `quick` mode, PASS0 also provides full navigation in the Viewer.

- The `voa` option is now obsolete, and has been removed. Value On Assignment checks are now provided by default. In general, this means that PolySpace results now contain many more VOA checks. For C applications, all possible VOA are given.

- The UOVFL (Float Underflows and Overflows) check no longer exists. Float underflows and overflows are now reported as two separate checks. This is similar to the way integers are handled.

  Note Since the single UOVFL check has been replaced by two checks, the total number of checks reported by PolySpace on a given file may be different in this release than with previous versions of the software.

- Messages have been improved for float arithmetic checks, making them similar to the messages for integers. For example, NIV checks on float variables now contain the type size (32 or 64).

- For IPT (Inspection Point) checks, there is now one check for each variable. Previously there was a single IPT check (on the keyword) for multiple variables.

- The log file has several additions, including the names of each PASS, the verification phases, and additional messages.

Compatibility Considerations. The verification results provided by PolySpace software may be different in R2009a than with previous releases of the software. Verification results are more precise, and the total number of checks reported on a given source file may be different. In general, the software now reports more checks, due to increased VOA checks, changes to the IPT check, and the single float UOVFL check being replaced by two checks (UNFL and OVFL).

In addition, due to the float UOVFL check being split into two checks, the selectivity (number of proven checks red+green+gray / number of total checks) of a verification may change significantly for applications using many float variables. For example, an application that had 10 orange UOVFL checks with a previous release, could now have up to 20 orange UNFL and OVFL checks on the same float variables. Although this appears to be a decrease in precision, the verification itself is not less precise.

Mathematical Functions Included in Stubs

Mathematical functions are now included in the standard stubs. This means:

- An IRV (Initialized Return Value) check appears on the math function call.

- The POW check no longer appears in the Viewer.

- Math functions appear in the call graph.

- The modeling of mathematical functions is visible through the stub body, instead of being handled internally.

- By default, math functions are launched with the option `-context-sensitivity`, allowing them to distinguish their calling sites.

In addition, you can provide your own math functions instead of using the standard stub provided by PolySpace software. This allows the software to verify the body of the math function, instead of using a stub for the math function.

For example, in C90, the mathematical function `fabs()` has the prototype:

```
double fabs(double) ;
```

However, on a 16-bit target, the function may have the prototype:

```
float fabs(float);
```

In this case, you would want to verify your own `fabs()` function.

To provide your own math function:

1 Create source code for the function. For example:

```
float  fabs (float var)
{
  if (var >= 0.0f)
    return var;
  return -var;
}
```

2 Provide the function to your verification using the D compiler flag. For example:

```
polyspace-c -D __polyspace_no_fabs
```

Note There is a compiler flag for each standard ANSI C90 mathematical function. A complete list of flags is located in the file: `%POLYSPACE_C%\Verifier\cinclude\__polyspace__stdstubs.c`.

Compatibility Considerations. Since the POW check no longer appears in the Viewer, verification results may be different in R2009a than with previous releases of the software.

Character Encoding Options
New character encoding option allows you to view source files created on an operating system that uses different character encoding than your current system.

You specify the character encoding used by the operating system on which the source file was created using the **Character encoding** tab in the Preferences dialog box of the PolySpace Viewer.

For more information, see "Setting Character Encoding Preferences"in the *PolySpace Products for C User's Guide*or *PolySpace Products for C++ User's Guide*.

Automatic Orange Tester

The Automatic Orange Tester (for C), dynamically stresses unproven code (orange checks) to help you identify run-time errors.

For more information, see "Automatically Testing Orange Code" in the *PolySpace Products for C User's Guide*.

Compatibility Considerations. If you open verification results created with an older version of the product in the Automatic Orange Tester, you may get a compilation error. The version of the product used to create the instrumented source code must be the same as the one used for analysis in the Automatic Orange Tester.

To avoid this problem, re-launch the code verification with the current version of the product.

Operating System Support

Added support for Windows Server 2003, Windows Vista™, and Red Hat Enterprise Linux® Workstation v.5.

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for C/C++ Product

Performance Improvements for Multi-Core Systems

Enhanced performance on multi-core architecture platforms, improving the speed of PolySpace code verification.

The time required to perform an average code verification has been reduced. On multi-core systems, you can now select the number of processes that can run simultaneously, further improving performance.

For more information, see "-max-processes" in the *PolySpace Products for C Reference* or *PolySpace Products for C++ Reference*.

Architecture Improvements

Several changes have been made to the PolySpace architecture to improve overall performance, as well as the precision of verification results.

During each verification phase (pass), the software now only analyzes those procedures that need to be analyzed. This means that starting with PASS1, if the verification cannot be more precise than that already completed in a previous pass, the procedure is not analyzed again. This improves the overall performance of the verification. It also means that some passes will finish more quickly than others, and some passes could be completely empty. This is normal behavior.

In addition, these architecture improvements result in the following changes:

- The `quick` precision option is now obsolete, and has been removed. `quick` mode has been replaced with verification PASS0. PASS0 takes somewhat longer to run, but the results are more complete. The limitations of `quick` mode, (no NTL or NTC checks, no float checks, no variable dictionary) no longer apply. Unlike `quick` mode, PASS0 also provides full navigation in the Viewer.

- The `voa` option is now obsolete, and has been removed. Value On Assignment checks are now provided by default. In C, all possible VOA are given.

- The UOVFL (Float Underflows and Overflows) check no longer exists. Float underflows and overflows are now reported as two separate checks. This is similar to the way integers are handled.

> **Note** Since the single UOVFL check has been replaced by two checks, the total number of checks reported by PolySpace on a given file may be different in this release than with previous versions of the software.

- Messages have been improved for float arithmetic checks, making them similar to the messages for integers. For example, NIV checks on float variables now contain the type size (32 or 64).

- For IPT (Inspection Point) checks, there is now one check for each variable. Previously there was a single IPT check (on the keyword) for multiple variables.

- The log file has several additions, including the names of each PASS, the verification phases, and additional messages.

Compatibility Considerations. The verification results provided by PolySpace software may be different in R2009a than with previous releases of the software. Verification results are more precise, and the total number of checks reported on a given source file may be different. In general, the software now reports more checks, due to increased VOA checks, changes to the IPT check, and the single float UOVFL check being replaced by two checks (UNFL and OVFL).

In addition, due to the float UOVFL check being split into two checks, the selectivity (number of proven checks red+green+gray / number of total checks) of a verification may change significantly for applications using many float variables. For example, an application that had 10 orange UOVFL checks with a previous release, could now have up to 20 orange UNFL and OVFL checks on the same float variables. Although this appears to be a decrease in precision, the verification itself is not less precise.

Operating System Support
Added support for Windows Server 2003, Windows Vista, and Red Hat Enterprise Linux Workstation v.5.

For more information, see the *PolySpace Installation Guide*.

Version 5.3 (R2009a) PolySpace for Ada and Model Link Products

This table summarizes what's new in V5.3 (R2009a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Includes fixes: PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports PolySpace Model Link TL Bug Reports PolySpace UML Link RH Bug Reports	No

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for Ada Product" on page 22
- "PolySpace® Server for Ada Product" on page 23
- "PolySpace Model Link SL Product" on page 23
- "PolySpace UML Link RH Product" on page 24

PolySpace Client for Ada Product

Character Encoding Options
New character encoding option allows you to view source files created on an operating system that uses different character encoding than your current system.

You specify the character encoding used by the operating system on which the source file was created using the **Character encoding** tab in the Preferences dialog box of the PolySpace Viewer.

For more information, see "Setting Character Encoding Preferences" in the *PolySpace Products for Ada User's Guide*.

Operating System Support

Added support for Windows Server 2003, Windows Vista, and Red Hat Enterprise Linux Workstation v.5.

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for Ada Product

Operating System Support

Added support for Windows Server 2003, Windows Vista, and Red Hat Enterprise Linux Workstation v.5.

For more information, see the *PolySpace Installation Guide*.

PolySpace Model Link SL Product

PolySpace Menu Option in Simulink

New option in the Simulink Tools menu to launch PolySpace software directly from Simulink.

For more information, see "Starting the PolySpace Verification"in the *PolySpace Model Link Products User's Guide*.

Manual Selection of Data Range Specifications (DRS) File

You can now manually select a Data Range Specification (DRS) file within Simulink, instead of accepting the default DRS file.

For more information, see "Data Range Specification"in the *PolySpace Model Link Products User's Guide*.

Simulink Software Support

Added support for Simulink Version 7.3 (R2009a).

PolySpace UML Link RH Product

Rhapsody Support

Added support for Telelogic® Rhapsody® Version 7.2 and 7.3.

Version 6.0 (R2008b) PolySpace for C/C++ Products

This table summarizes what's new in V6.0 (R2008b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports	No.

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for C/C++ Product" on page 25
- "PolySpace® Server for C/C++ Product" on page 26

PolySpace Client for C/C++ Product

Automatic Orange Tester

Automatic Orange Tester (for C), dynamically stresses unproven code (orange checks) to identify run-time errors, and provides information to help you identify the cause of these errors.

The Automatic Orange Tester complements the results review in the Viewer module of PolySpace Client for C/C++ by automatically creating test cases for all input variables in orange code, and then dynamically testing the code to find actual runtime errors. The Automatic Orange Tester also provides detailed information on why each test-case failed. You can use this information to quickly identify the cause of the error, and determine if there is an actual bug in the code.

For more information, see "Automatically Testing Orange Code" in the *PolySpace Products for C User's Guide*.

JSF++ Support

Support for a subset of the Joint Strike Fighter Air Vehicle C++ coding standards (JSF++:2005).

PolySpace software can now check 120 of the C++ programming rules defined by Lockheed Martin for the JSF program. These coding standards are designed to improve the robustness of C++ code, and improve maintainability.

For more information, see "JSF C++ Checker", in the *PolySpace Products for C++ User's Guide*.

Operating System Support

Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for C/C++ Product

Operating System Support

Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

Version 5.2 (R2008b) PolySpace for Ada and Model Link Products

This table summarizes what's new in V5.2 (R2008b):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	No	Includes fixes: PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports	No.

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for Ada Product" on page 27
- "PolySpace® Server for Ada Product" on page 28
- "PolySpace Model Link SL Product" on page 28
- "PolySpace Model Link TL Product" on page 29
- "PolySpace UML Link RH Product" on page 29

PolySpace Client for Ada Product

Operating System Support
Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for Ada Product

Operating System Support

Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

PolySpace Model Link SL Product

Model Reference Support

Added support for Simulink Model Reference.

PolySpace Model Link™ SL software now automatically detects model references in Simulink models, allowing you to quickly track any verification issues back to the original model.

For more information, see the *PolySpace Model Link Products User's Guide*.

Stateflow Chart Support

Added support for Stateflow® Charts within Simulink models.

PolySpace Model Link SL software now supports Stateflow Charts within Simulink models, allowing you to quickly track any verification issues back to the original Stateflow chart. In addition, any Stateflow comments are now highlighted in the PolySpace source code view.

For more information, see the *PolySpace Model Link Products User's Guide*.

Simulink Software Support

Added support for Simulink Version 7.2 (R2008b).

Operating System Support

Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

PolySpace Model Link TL Product

Operating System Support

Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

PolySpace UML Link RH Product

Ada Language Support

Added support for Ada language in Rhapsody software.

For more information, see the *PolySpace UML Link™ RH User's Guide*.

Operating System Support

Added support for 64–bit Linux.

For more information, see the *PolySpace Installation Guide*.

Version 5.1 (R2008a) PolySpace Software

This table summarizes what's new in V5.1 (R2008a):

New Features and Changes	Version Compatibility Considerations	Fixed Bugs and Known Problems	Related Documentation at Web Site
Yes Details below	Yes—Details labeled as **Compatibility Considerations**, below. See also Summary.	Includes fixes: PolySpace Client for C/C++ Bug Reports PolySpace Server for C/C++ Bug Reports PolySpace Client for Ada Bug Reports PolySpace Server for Ada Bug Reports PolySpace Model Link SL Bug Reports	No.

New features and changes introduced in this version are organized by product:

- "PolySpace® Client for Ada Product" on page 31
- "PolySpace® Server for Ada Product" on page 33
- "PolySpace® Client for C/C++ Product" on page 34
- "PolySpace® Server for C/C++ Product" on page 37
- "PolySpace Model Link SL Product" on page 39
- "PolySpace Model Link TL Product" on page 39
- "PolySpace UML Link RH Product" on page 40

PolySpace Client for Ada Product

Removed Cygwin Software Dependency for Windows Platforms

Previous versions of PolySpace products used Cygwin™ emulation to run UNIX® commands on Windows® systems.

In version 5.1, the Cygwin software dependency has been removed. Removing Cygwin simplifies the PolySpace product installation process while improving the performance and robustness of the PolySpace Verification process.

Compatibility Considerations. Due to the Cygwin changes, PolySpace Client for Ada Version 5.1 is not compatible with previous versions of PolySpace products on Windows platforms. To avoid compatibility problems on Windows platforms, you must upgrade all your PolySpace client and server products at the same time.

If your PolySpace server is running on a Windows platform, the binary files used for batch commands in previous releases will not work without Cygwin software installed. In version 5.1, the software provides new .exe files for these batch commands. However, these files are now located in a different location.

Commands	Previous Location	New Location
Standard	*PolySpaceInstallDir* verifier\bin\\	*PolySpaceInstallDir* verifier\wbin\\
Remote Launcher	*PolySpace_Common* RemoteLauncher\bin\\	*PolySpace_Common* RemoteLauncher\wbin\\
Viewer	*PolySpace_Common* Viewer\bin\\	*PolySpace_Common* Viewer\wbin\\

If you wrote scripts using batch commands in previous releases, you must modify the scripts to use the new commands.

In addition, if you used Cygwin shell scripts for postprocessing or target compilation, those scripts will no longer run on version 5.1. To support scripting, the PolySpace software now includes Perl. You can access Perl in:

PolySpaceInstallDir\verifier\tools\perl\win32\bin\perl.exe

Enhanced Installer

Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

Viewer Improvements

Enhanced exploring capability in the viewer to provide more focused information.

Unnecessary information has been eliminated from the Procedural Entities (RTE) View and Call Tree View to improve usability.

Enhanced Compilation Checks

Enhanced compilation checks to stop verification only when a pointer to a task is initiated or used, rather than when it is declared.

One-Click Enhancements

Enhanced PolySpace-In-One-Click options, to allow switching between multiple projects using a browse history.

Operating System Support

Added support for the following operating systems:

- Solaris™ 2.10
- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for Ada Product

Removed Cygwin Software Dependency for Windows Platforms

Previous versions of PolySpace products used Cygwin emulation to run UNIX commands on Windows systems.

In version 5.1, the Cygwin software dependency has been removed. Removing Cygwin simplifies the PolySpace product installation process while improving the performance and robustness of the PolySpace Verification process.

Compatibility Considerations. Due to the Cygwin changes, PolySpace® Server™ for Ada Version 5.1 is not compatible with previous versions of PolySpace products on Windows platforms. To avoid compatibility problems on Windows platforms, you must upgrade all your PolySpace client and server products at the same time.

If your PolySpace server is running on a Windows platform, the binary files used for batch commands in previous releases will not work without Cygwin software installed. In version 5.1, the software provides new .exe files for these batch commands. However, these files are now located in a different location.

Commands	Previous Location	New Location
Standard	*PolySpaceInstallDir*\verifier\bin\	*PolySpaceInstallDir*\verifier\wbin\
Remote Launcher	*PolySpace_Common*\RemoteLauncher\bin\	*PolySpace_Common*\RemoteLauncher\wbin\
Viewer	*PolySpace_Common*\Viewer\bin\	*PolySpace_Common*\Viewer\wbin\

If you wrote scripts using batch commands in previous releases, you must modify the scripts to use the new commands.

In addition, if you used Cygwin shell scripts for postprocessing or target compilation, those scripts will no longer run on version 5.1. To support scripting, the PolySpace software now includes Perl. You can access Perl in:

PolySpaceInstallDir\verifier\tools\perl\win32\bin\perl.exe

Enhanced Installer

Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

Operating System Support

Added support for the following operating systems:

- Solaris 2.10

- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

PolySpace Client for C/C++ Product

Removed Cygwin Software Dependency for Windows Platforms

Previous versions of PolySpace products used Cygwin emulation to run UNIX commands on Windows systems.

In version 5.1, the Cygwin software dependency has been removed. Removing Cygwin simplifies the PolySpace product installation process while improving the performance and robustness of the PolySpace Verification process.

Compatibility Considerations. Due to the Cygwin changes, PolySpace Client for C/C++ Version 5.1 is not compatible with previous versions of PolySpace products on Windows platforms. To avoid compatibility problems on Windows platforms, you must upgrade all your PolySpace client and server products at the same time.

If your PolySpace server is running on a Windows platform, the binary files used for batch commands in previous releases will not work without Cygwin

software installed. In version 5.1, the software provides new .exe files for these batch commands. However, these files are now located in a different location.

Commands	Previous Location	New Location
Standard	*PolySpaceInstallDir* `verifier\bin\`	*PolySpaceInstallDir* `verifier\wbin\`
Remote Launcher	*PolySpace_Common* `RemoteLauncher\bin\`	*PolySpace_Common* `RemoteLauncher\wbin\`
Viewer	*PolySpace_Common* `Viewer\bin\`	*PolySpace_Common* `Viewer\wbin\`

If you wrote scripts using batch commands in previous releases, you must modify the scripts to use the new commands.

In addition, if you used Cygwin shell scripts for postprocessing or target compilation, those scripts will no longer run on version 5.1. To support scripting, the PolySpace software now includes Perl. You can access Perl in:

PolySpaceInstallDir`\verifier\tools\perl\win32\bin\perl.exe`

Enhanced Installer
Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

Viewer Improvements
Enhanced exploring capability in the viewer to provide more precise locations for C++ checks.

The source code view of the PolySpace viewer now displays the location of C++ checks more accurately.

One-Click Enhancements

Enhanced PolySpace-In-One-Click options, to allow switching between multiple projects using a browse history.

For more information, see "Day to Day Use " in the *PolySpace Products for C User's Guide*.

Generic Target Option for C++

New Generic Target option for C++, to allow custom target processors. The Generic Target option for C++ is similar to the previous Generic Target for C.

For more information, see "Setting Up Project for Generic Target Processors" in the *PolySpace Products for C++ User's Guide*.

Class Analyzer Enhancements for C++

Enhanced class analyzer now calls all private constructors and destructors.

Previously, the sources analyzed were generally non-inherited public or protected methods of the class. In version 5.1, the functions that are analyzed include all non-inherited constructors and destructors, and all non-inherited public or protected methods of the class.

For more information, see "PolySpace Class Analyzer" in the *PolySpace Products for C++ User's Guide*.

GNU Compiler Support for C++

New support for the GNU® compiler (GCC 3.4) for C++.

The new GNU dialect option supports variable length arrays, anonymous structures, and other constructions allowed by GCC.

For more information, see "Dialect Issues" in the *PolySpace Products for C++ User's Guide*.

PolySpace C++ Add-in for Visual Studio

Simplified user interface for PolySpace C++ add-in for Microsoft® Visual Studio®.

The PolySpace Browser tab has been eliminated from the Visual Studio® window. To perform an analysis of a file in Visual Studio, you now simply right-click on the file and select **Start PolySpace**.

For more information, see "Using PolySpace Software in Visual Studio" in the *PolySpace Products for C++ User's Guide*.

Operating System Support

Added support for the following operating systems:

- Solaris 2.10

- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

PolySpace Server for C/C++ Product

Removed Cygwin Software Dependency for Windows Platforms

Previous versions of PolySpace products used Cygwin emulation to run UNIX commands on Windows systems.

In version 5.1, the Cygwin software dependency has been removed. Removing Cygwin simplifies the PolySpace product installation process while improving the performance and robustness of the PolySpace Verification process.

Compatibility Considerations. Due to the Cygwin changes, PolySpace Server for C/C++ Version 5.1 is not compatible with previous versions of PolySpace products on Windows platforms. To avoid compatibility problems on Windows platforms, you must upgrade all your PolySpace client and server products at the same time.

If your PolySpace server is running on a Windows platform, the binary files used for batch commands in previous releases will not work without Cygwin software installed. In version 5.1, the software provides new .exe files for these batch commands. However, these files are now located in a different location.

Commands	Previous Location	New Location
Standard	*PolySpaceInstallDir*\ verifier\bin\	*PolySpaceInstallDir*\ verifier\wbin\
Remote Launcher	*PolySpace_Common*\ RemoteLauncher\bin\	*PolySpace_Common*\ RemoteLauncher\wbin\
Viewer	*PolySpace_Common*\ Viewer\bin\	*PolySpace_Common*\ Viewer\wbin\

If you wrote scripts using batch commands in previous releases, you must modify the scripts to use the new commands.

In addition, if you used Cygwin shell scripts for postprocessing or target compilation, those scripts will no longer run on version 5.1. To support scripting, the PolySpace software now includes Perl. You can access Perl in:

PolySpaceInstallDir\verifier\tools\perl\win32\bin\perl.exe

Enhanced Installer
Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

GNU Compiler Support for C++
New support for the GNU compiler (GCC 3.4) for C++.

The new GNU dialect option supports variable length arrays, anonymous structures, and other constructions allowed by GCC.

For more information, see "Dialect Issues" in the *PolySpace Products for C++ User's Guide*.

Operating System Support
Added support for the following operating systems:

- Solaris 2.10

- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

PolySpace Model Link SL Product

Enhanced Installer
Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

Simulink Software Support
Added support for Simulink Version 7.1 (R2008a).

Operating System Support
Added support for the following operating systems:

- Solaris 2.10

- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

PolySpace Model Link TL Product

Enhanced Installer
Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

Operating System Support

Added support for the following operating systems:

- Solaris 2.10
- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

PolySpace UML Link RH Product

Enhanced Installer

Version 5.1 includes an enhanced and simplified installer for all PolySpace products. The installation process is now faster and easier to complete than in previous releases.

For more information, see the *PolySpace Installation Guide*.

Rhapsody Support

Added support for Telelogic Rhapsody Version 7.1.

C Language Support

Added support for C language in Rhapsody software.

For more information, see the *PolySpace UML Link RH User's Guide*.

Operating System Support

Added support for the following operating systems:

- Solaris 2.10
- Windows XP x64 (32-bit mode)

For more information, see the *PolySpace Installation Guide*.

Compatibility Summary for PolySpace Software

This table summarizes new features and changes that might cause incompatibilities when you upgrade from an earlier version, or when you use files on multiple versions. Details are provided in the description of the new feature or change.

Version (Release)	New Features and Changes with Version Compatibility Impact
Latest Version **V7.1 (R2009b)**	None
V7.0 (R2009a)	See the **Compatibility Considerations** subheading for this new feature or change: • "Architecture Improvements" on page 16 • "Mathematical Functions Included in Stubs" on page 17 • "Automatic Orange Tester" on page 19
V6.0 (R2008b)	None
V5.3 (R2009a)	None
V5.2 (R2008b)	None
V5.1 (R2008a)	See the **Compatibility Considerations** subheading for this new feature or change: • "Removed Cygwin Software Dependency for Windows Platforms" on page 31