



# Intel® MPI Library 5.0 Update 3 for Windows\* OS Release Notes



## Overview

The Intel® MPI Library for Windows\* OS is a multi-fabric message passing library based on ANL\* MPICH3\* and OSU\* MVAPICH2\*.

The Intel® MPI Library for Windows\* OS implements the Message Passing Interface, version 3 (MPI-3) specification.

To receive technical support and updates, you need to register your Intel® Software Development Product. See section [Technical Support](#).

### Product Contents

The Intel® MPI Library Runtime Environment (RTO) contains the tools you need to run programs including SMPD services and supporting utilities, dynamic libraries, and documentation.

The Intel® MPI Library Development Kit (SDK) includes all of the Runtime Environment components plus include files and modules, interface libraries, debug libraries and test codes.

### Related Products and Services

Information on Intel® Software Development Products is available at <http://www.intel.com/software/products>.

## What's New

The Intel® MPI Library 5.0 Update 3 for Windows\* OS includes the following new features compared to the Intel® MPI Library 5.0 Update 2 (see product documentation for more details):

- Support for the rename mechanism for the file, stats.txt, to avoid overwriting
- Bug fixes

The Intel® MPI Library 5.0 Update 2 for Windows\* OS includes the following new features compared to the Intel® MPI Library 5.0 Update 1 (see product documentation for more details):

- Enhancements to statistics gathering mode
- Bug fixes

The Intel® MPI Library 5.0 Update 1 for Windows\* OS includes the following new features compared to the Intel® MPI Library 5.0 (see product documentation for more details):

### Contents

- [Overview](#)
- [What's New](#)
- [Key Features](#)
- [System Requirements](#)
- [Installation Notes](#)
- [Special Features and Known Issues](#)
- [Documentation](#)
- [Technical Support](#)
- [Copyright and Licenses](#)
- [Disclaimer and Legal Information](#)

- Directory structure update. New shortcuts have been added to always point to the most recently installed version of the Intel® MPI Library
- Bug fixes, including:
  - Resolving problem where Hydra with `-localroot` causes `pmi_proxy` to only spawn on local host.
- Collective performance improvements
- Documentation update
- Man pages copyright updated
- Added support for `-fopenmp` in `mpiicc`, `mpicpc`, and `mpiifort`
- Improved pinning under job schedulers

The Intel® MPI Library 5.0 for Windows\* OS includes the following new features compared to the Intel® MPI Library 4.1 Update 3 (see product documentation for more details):

- Support for Hydra\* process manager on Windows\* OS by default
- Added option `I_MPI_JOB_RESPECT_PROCESS_PLACEMENT` to honor process placement from job schedulers
- All IA-32 architecture support has been removed
- Added debug information without private symbols to optimized libraries. Added `.pdb` files to get call stack when an application crashes.
- Implement the MPI-3 standard including but not limited to:
  - Non-blocking collective operations
  - Fast one-sided operations
  - Large counts for messages greater than 2GB
- Allow permuted entries in machine file when running a single instance of `pmi-proxy`
- Support for mixed operating systems in the Hydra\* process manager
- Make the following changes to documentation:
  - Changed the Intel® MPI Library Getting Started Guide to Intel® MPI Library User's Guide
  - Add the Intel® MPI Library Getting Started page
  - Add the tutorial: MPI Tuner for Intel® MPI Library
- Bug fixes
- Deprecate MPD and SMPD process managers

### **32 Bit Support of Intel® MPI Library & Intel® Trace Analyzer and Collector**

Inclusion of 32-bit binaries in the Intel® MPI Library and Intel® Trace Analyzer and Collector products is being deprecated. If 32-bit support is required, we advise that you remain on Intel® MPI Library version 4.1 Updates and Intel® Trace Analyzer and Collector version 8.1 Updates, which continue to include 32-bit binaries. The Intel® MPI Library 5.0 and Intel® Trace Analyzer and Collector 9.0 releases will not include 32-bit binaries. Many developers have already migrated to 64-bit implementations of both their applications and of Intel libraries and tools. If you have concerns about this deprecation, please send us feedback by submitting an issue at the Intel® Premier Customer Support site (<http://premier.intel.com>) as soon as possible with your contact information.

The Intel® MPI Library 4.1 Update 3 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following new features compared to the Intel® MPI Library 4.1 Update 2 (see product documentation for more details):

- Intel® Xeon™ E5 V2 and Intel® Xeon™ E7 V2 family processors additional performance tuning
- New online documentation format
- Bug fixes

The Intel® MPI Library 4.1 Update 2 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following new features compared to the Intel® MPI Library 4.1 Update 1 (see product documentation for more details):

- Intel® Xeon™ E5 V2 and Intel® Xeon™ E7 V2 family processors performance tuning
- Allow permuted entries in machine file when running a single instance of pmi-proxy
- Bug fixes

The Intel® MPI Library 4.1 Update 1 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following updates compared to the Intel® MPI Library 4.1 (see product documentation for more details):

- Intel® Xeon Phi™ offload model support
- Hydra\* (Scalable process manager) support on Windows\* OS (experimental)
- Microsoft\* Network Direct support
- Bug fixes

The Intel® MPI Library 4.1 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following updates compared to the Intel® MPI Library 4.0 Update 3 (see product documentation for more details):

- Support for the MPI-2.2 standard
- Backward compatibility with Intel MPI Library 4.0.x based applications
- New documentation in the HTML format
- Support for Intel® Composer XE 2013
- Support for clusters with different Intel® Architecture Processors
- Bug Fixes

The Intel® MPI Library 4.0 Update 3 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following updates compared to the Intel® MPI Library 4.0 Update 2 (see product documentation for more details):

- Performance and scalability improvements
  - Shared memory optimizations for platforms with Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2) and Intel® AES New Instructions (Intel® AES-NI). This functionality is available for both Intel® and non-Intel microprocessors, but it may perform additional optimizations for Intel microprocessors than it performs for non-Intel microprocessors.
  - Dynamic connection mode for shared memory
  - Accelerated RDMA memory registration cache
  - Substantially accelerated and enhanced MPI tuning utility
- Usability improvements
  - Additional integrated performance monitoring (IPM) summary format
  - Extended debugging output control
  - Enhanced processor information utility cpuinfo
  - Bug fixes
- Extended interoperability

- Intel® Composer XE 2011 Update 6 support

The Intel® MPI Library 4.0 Update 2 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following updates compared to the Intel® MPI Library 4.0 Update 1 (see product documentation for more details):

- Usability improvements
  - Secure DLL Loading mode. See more details in [Special Features and Known Issues](#)
  - Improved simple multi-purpose daemon (SMPD) and mpiexec
  - Signed Intel® MPI Library binaries
  - Improved static DAPL connections establishment in the wait mode
  - Bug fixes
- Extended interoperability
  - Intel® Composer XE 2011 Update 4 support
  - Ability to call MPI from the Coarray Fortran programs

The Intel® MPI Library 4.0 Update 1 for Windows\* OS is an update release of the Intel® MPI Library for Windows\* OS. This release includes the following updates compared to the Intel® MPI Library 4.0 (see product documentation for more details):

- Performance and scalability improvements
  - Further optimization to several collective algorithms
- Usability improvements
  - Extended process pinning control for hybrid applications through `I_MPI_PIN_DOMAIN` and `I_MPI_PIN_CELL` environment variables
  - Improved mpitune for easier application tuning
- Extended interoperability
  - Intel® Composer XE 12.0 Beta support

The Intel® MPI Library 4.0 for Windows\* OS is a new release of the Intel® MPI Library for Windows\* OS. This release includes the following new features compared to the Intel® MPI Library 3.2 Update 2 (see product documentation for more details):

- New architecture for better performance and higher scalability
  - Optimized shared memory path for industry leading latency and on multicore platforms
  - New flexible mechanism for selecting the communication fabrics (`I_MPI_FABRICS`) that complements the classic Intel MPI device selection method (`I_MPI_DEVICE`)
- Updated MPI performance tuner to extract the last ounce of performance out of your installation
  - For a certain cluster, based on the Intel® MPI Benchmarks (IMB) or a user provided benchmark
  - For a certain application run
- MPI 2.1 standard conformance
- Experimental dynamic process support
- Backward compatibility with Intel MPI Library 3.x based applications

### Example

Set the `I_MPI_FABRICS` environment variable to select a particular network fabric.





















