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# Release Notes

Platform Symphony™  
Version 4.1

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# What's New?

## Application Scalability and Performance

### Direct data transfer

Enhancements to the Platform Symphony API allow developers to "avoid the middleman" and specify that application data to be transferred directly between a Platform Symphony service and a client to maximize the utilization of network bandwidth. Using this model, client applications pass a reference to where the application data can be found rather than passing data in-band through the Symphony Session Manager (SSM). This allows a service to retrieve the application data without placing any load on the SSM. This innovation provides much higher levels of task throughput through the SSM, delivering improved application performance.

Refer to *Direct data transfer* in the *Application Development Guide*.

### Application data compression

Depending on available network bandwidth, and the size of messages being passed to Platform Symphony services, some applications can benefit greatly by employing data compression. Typical application data sent to Platform Symphony managed services has been shown to compress up to 95%. Platform Symphony 4.1 makes it easy for developers to add session or task level compression that is employed automatically based on the configurable thresholds. Data Compression is enabled with a single API call. Application Data Compression may also be employed with the Direct Data Transfer feature described above. Data Compression is transparent to applications, and allows dramatic improvements in task throughput translating into better application response time.

Refer to *Data compression* in the *Application Development Guide*.

### Common data update

A common requirement in financial services applications is to employ common data shared between multiple service instances. A common example might be market data or yield curve data referenced repeatedly in all calculations. Making effective use of common data can improve performance dramatically by minimizing the amount of information that needs to be sent across the network with each task computation. Common data update is a new API feature introduced in Platform Symphony 4.1 that makes it easier for developers to update and maintain common data. Platform Symphony services can use a new callback mechanism to automatically obtain updated common data so that it is resident in the service and ready for use with future calculations.

Refer to *Common data update* in the *Application Development Guide*.

### Selective task output retrieval

By default, the Symphony Session Manager will send results to the client as soon as they are available where they will be cached until the client application requests them. Since the delivery of results from the session manager is not necessarily in sync with the client retrieving results, this can cause the client to run out of memory. To avoid this potential problem, Platform Symphony 4.1 introduces a new mechanism that allows the client to selectively specify the result sets that it is interested in. This ensures that the retrieved data set is smaller, helping avoid the possibility of a client running out of memory in cases where the number of results is very large.

Refer to *Selectively retrieving task results* in the *Application Development Guide*.

## System Scalability and Performance

Platform Symphony 4.1 incorporates a number of enhancements over prior releases:

- The Platform Management Console (PMC) performance for various types of management queries has been improved dramatically
- The number of concurrent downloads from the repository has been increased
- Support for up to 5000 service instances per application
- The time required for a scavenged host to relinquish itself from the cluster when a threshold is reached is less than 5 seconds

## Networking and Security

### Multi-homed hosts

Platform Symphony now supports multi-homed hosts (hosts having more than one IP address).

Refer to *Multi-homed hosts* in the *Cluster and Application Management Guide*.

### Firewall

Firewall support is now provided between client hosts and management hosts and also between management hosts and compute hosts to improve application security.

Refer to *Firewall support* in the *Cluster and Application Management Guide*.

### SSH support

The `egosh` command can now employ `ssh` as an underlying mechanism for secure communication rather than `rsh` which was the only mechanism supported in earlier releases.

Refer to *Enabling Secure shell* in the *Cluster and Application Management Guide*.

## Resource Management and Sharing

### Flexible host slots configuration

With Platform Symphony 4.1, administrators can now tailor the number of slots available for each host in a resource group. This provides administrators with greater control and flexibility when host groups are comprised of different host types with different attributes and performance characteristics.

Refer to *Defining the number of slots per host* in the *Cluster and Application Management Guide*.

### Balanced distribution of system services on management hosts

To better spread work evenly among management hosts and enhance performance, a new "Balanced slot allocation policy" is support with Platform Symphony 4.1.

Refer to *Allocating CPU slots equally across hosts* in the *Cluster and Application Management Guide*.

## Resource reclaim based on workload and share ratio

In cases where workloads between consumers are asymmetric, Platform Symphony can be configured to take into account both the workload as well as the share ratios allowing consumers to reclaim more resources than their configured planned share ratios during busy periods.

Refer to *Adjustable share to workload for resource allocation/reclaim* in the *Cluster and Application Management Guide*.

## Upgrading

Enhancements to the Platform Symphony upgrade procedure have made it straightforward to upgrade from a Platform Symphony 4.0 cluster. The cluster configuration and historical data are retained so that reporting is unaffected following the upgrade. Existing Platform Symphony 4.0 applications can continue running even during and following the upgrade, meaning that customers can decide on their own schedule whether to take advantages of new features specific to Platform Symphony 4.1.

Refer to *Upgrading your Platform Symphony Cluster*.

## Application Management

Applications on the cluster can now be upgraded without affecting running tasks and active sessions. Changes to the application profile may also be made without affecting applications in flight providing administrators with more flexibility and avoiding the need to stop application services to facilitate an upgrade.

Refer to *Dynamic configuration update* in the *Application Development Guide*.

## Supported Platforms and Compilers

Platform Symphony now offers a native 64-bit session manager (SSM) and other SOAM daemons allowing them to take advantage of 64-bit Windows and Linux operating systems. The 64-bit SSM allows Platform Symphony to take advantage of all available physical memory on a host, avoiding the need for the SSM to page data, thereby increasing performance dramatically for large applications. It is recommended that applications with greater than 1 GB of concurrent memory usage take advantage of native 64-bit support. Concurrent memory usage can be calculated as follows:

$$\#\_of\_sessions \times (common\_data\_size + (\#\_of\_tasks \times max\_message\_size^*))$$

\**max\_message\_size* = maximum input or output message size, whichever is greater.

Other newly supported operating systems and compilers include:

- Solaris 10 x86 management host support
- Windows Server 2008 support (including the Standard, Enterprise and 64-bit HPC editions)
- AIX 5.2 (32-bit) client support for clients built using the XLC 7 and 8 compilers

For a complete list of supported platforms and compilers, refer to:

<http://www.platform.com/Products/platform-symphony/symphony-system-requirements>

# What's Changed?

## Messages and Logs

### Error messages

The following error messages have been updated to include SessionID to improve debuggability.

Message ID	Message
20079	{ "Domain <Application>: The callback to handle the event {0} in session {2} failed with the following details: {1}" }
20083	{"Domain <Application>: Cannot operate on session {1} : {0}"}
20087	{"Domain <Application>: Cannot fetch output from session {0}. Session is asynchronous. All output will be returned on the callback provided during the previous call to createSession(..)."} 
20105	{"Domain <Application>: The session {0} is no longer available within the system. It was either already closed by the client or went out of scope. Check the application code to ensure it is being used correctly."}
20106	{"Domain <System>: The session {0} can no longer be operated on. There wasn't enough memory to marshal a reply from the Middleware."}
20129	{"Domain <Application>: The requested mode of closing the session {1} is unsupported in this version of the product. The flag provided was \"{0}\". See API reference for details of supported flags for this operation."}
20153	{"Domain <Application>: The requested mode of closing the session {1} is not supported when the Direct Data Transfer feature is enabled. The flag provided was \"{0}\". See API reference for details of supported flags for this operation."}

Symfony output message "Task Failed" has changed to "Task Not Successful".

### Log for SD Port number out of range error is written to a different log file

The SD port number out of range error log is now written to the agent log file. In Symphony 4.0, the error log was written to the SD log file.

## Application development

### Java API

An issue that occurred in Symphony 4.0 where the JVM may hang if the process does not call `uninitialize()` has been resolved. Though it is strongly advised, calling `uninitialize()` is no longer mandatory before exiting the client application.



## Workload

An issue when redeploying a service to a disabled application with "-s" option has been resolved. The previously saved workload would be lost. Workload is now preserved in this case.

## Application deployment

### Package deployment

The same service package (with same package name) cannot be deployed again within 10 seconds.

### deploymentTimeout

The deploymentTimeout parameter was previously defined as the maximum time to allow download but now it is defined as the maximum time, in seconds, to wait before soamdeploy checks the connection with the repository server.

## Command changes

### soamswitch

The best practice for using soamswitch has been enforced . When switching from one version of SOAM to another, first open the Symphony DE command prompt for the version you would like to switch to before running the soamswitch command.

### egoshutdown and egostartup

The duplicated egoshutdown and egostartup scripts have been removed from the \$EGO\_TOP/1.2.3u1/etc directory. The scripts remain under the \$EGO\_TOP/1.2.3u1/bin directory.

# Limitations

Category	Summary	Impact	Recovery	Avoidance	Bug Number
Installation	Cannot install Symphony on a Windows 64-bit machine with .NET Framework 1.1.	"Error 1304. Error writing to file Platform.Symphony .Soam.Net_64.dll" is displayed.	Install .NET Framework 2.0 on the Windows 64-bit machine, and re-install Symphony.	Install .NET Framework 2.0 on the Windows 64-bit machine, and re-install Symphony.	90640
Installation	Additional management host requires shared directory even if failover is not configured.	No management hosts can be added to cluster if "Failover" is not configured.	User can configure shared directory in master and go back to continue install, or user can run "egoconfig mghost".	n/a	96564
Platform Management Console	Lim/Pem logs cannot be opened after retrieval if log file name includes '.com'.  Linux log files that are retrieved via the Platform Management Console are thought to be MS-DOS applications because of their names.	Difficulty reviewing log files.	Users have to rename the file by changing its extension from .com to something like .txt before they can read it properly.	Unavoidable	78225
Platform Management Console	PMC cannot display multi-byte characters.	Use of multi-byte characters causes an invalid byte error in the PMC.	n/a	Limit text to valid characters.	106738
Reports	Sampling loader loses data when network issues cause disruption in data collection or database connection.	Data loss. There is no disruption in the file/event loader.			
Reports	Dataloader cannot load string with more than 4000 characters to the database and Dataloader will stop.	Dataloader fails to load string data and the loader stops.	Delete the records from ego.stream file, and loader will continue working.	n/a	89333

Category	Summary	Impact	Recovery	Avoidance	Bug Number
Reports	Cluster Slot Utilization report does not make sense out-of-box since it includes InternalResourceGroup in its calculation. Slots for the InternalResourceGroup are 10 per host.	10 additional slots are counted per host.			91647
Symphony	There is no command-line interface on Solaris compute hosts.			Run Symphony commands from one of the management hosts.	
Symphony	Cannot add packages under consumer /con on Windows.	Cannot deploy service to consumer named as con, nul, com1, com2, ... on Windows cluster.	n/a	Do not use Windows keywords to name consumers, such as: CON, NUL, COM1, COM2, COM3, LPT1, LPT2, LPT3, COM1 to COM9 and LPT1 to LPT9 and so on...	89698
Symphony	Solaris 8: due to OS limitations, the LD_PRELOAD environment variable must be set.	If the variable is not set, symexec client fails due to "referenced symbol not found" error.	Set variable: LD_PRELOAD=/usr/lib/libCstd.so.1	n/a	96403
Symphony	EGO cannot be started as a service by any user when a Windows OS user installs EGO not only as a service but also as an application.	EGO cannot be started as a service.	n/a	Do not install EGO as both an application and a service.	93127
Symphony	Commands cannot output version information because Symphony omits the etc directory from the PATH variable.	Commands are not recognized.	Run commands from the Symphony command prompt.	n/a	97551

## Limitations

Category	Summary	Impact	Recovery	Avoidance	Bug Number
Symphony	Configuration of too many services in the application profile causes compute hosts to run out of memory. Tests have shown the maximum number of services to be approximately 290 for Linux compute hosts and 1600 for Windows compute hosts but these numbers can vary depending on individual host configuration.	SI cannot be started on affected compute host.	n/a	Remove unused services in the application profile.	122079
Symphony DE	The browsing of sample readme files using Internet Explorer 6 is not supported if the files are located on a Unix host.	The text in the readme files is not formatted.	n/a	If using Internet Explorer 6, browse the readme files in a Windows installation.	97450
Symphony DE	Session Manager does not use compute hosts that are started after the Session Manager is up and running.	Compute host is added to the blocked host list and Session Manager does not try to connect to the host again.	Disable and re-enable the application.  This shuts down the Session Manager and the blocked host list will be cleared.	Start the cluster first, wait until all the hosts are up, then submit workload.	63432
Documentation	Developer Overview zoom feature in html not available in Firefox.	There is no zoom feature when viewing the Developer Overview in Firefox.		Use Internet Explorer to view the Developer Overview.	97360

# Known Issues

## Connector for Excel upgrade

If you have Symphony 4.1 installed, it is recommended that you deploy and use the 4.1 version of the Excel Connector service.

If you want to run version 4.0 of the Excel Connector service in a 4.1 cluster, you must do one of the following:

- Copy the `com_platform_log4cxx_097_1.dll` file to the `4.1lib` directory.
- Repackage the 4.0 Excel Connector service with `com_platform_log4cxx_097_1.dll` and redploy it.

## 4.0 to 4.1 upgrade on Cell BE

When upgrading a Cell BE host from Symphony version 4.0 to 4.1, you must manually modify the `ego.shared` file to enable IBM Cell blade support. Add the following parameters to the `ego.shared` file, and restart EGO on the master host:

```
Begin HostType
TYPENAME                               # Keyword
...
LINUXCELLBE
...
End HostType

Begin HostModel
MODELNAME CPUFACTOR ARCHITECTURE # keyword
...
CELLBE           13.5 (CellBroadbandEngine)
...
End HostModel
```

## Migrating your .NET applications from a previous release of Symphony

A .NET application built using Symphony 4.0 or earlier versions will not automatically run in a Symphony 4.1 environment. This is a known issue since Symphony 3.0, caused by the .NET embedded "Publisher's Policy" infrastructure that is strictly enforced by the framework. Any published assembly with a version number that is different from your current Symphony release will be treated as incompatible by the framework. This incompatibility can be resolved in one of two ways:

1. Recompile your application using the Symphony 4.1 SDK. By recompiling, your application will automatically reference the new version of the assembly and will run without problems. This is the best option and is the strategy recommended by Microsoft for maximum compatibility.
2. Create a configuration file for your client and service to override the "Publisher's Policy". Since the Symphony 4.1 assembly is designed to be fully compatible with code using a previous version, it is safe to override the publisher's policy and allow the framework to ignore the version number difference between Symphony 4.1 and your application's dependence on a previous release of Symphony.

The override can be achieved by creating a file named `<complete executable filename>.config`. For example, if your client executable has the name "SyncClient.exe" then you would need to create a file named "SyncClient.exe.config" and place it in the same location as the executable. The .NET

framework will automatically parse the file and use it to override the "Publisher's Policy". Here is an example of the .config file contents:

```
<?xml version="1.0"?>
<configuration>
  <runtime>
    <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
      <publisherPolicy apply="no"/>
      <dependentAssembly>
        <assemblyIdentity name="Platform.Symphony.Soam.Net"
          publicKeyToken="ebe3ab0caa75a162" culture="neutral" />
        <bindingRedirect oldVersion="4.0.0.0"
          newVersion="4.1.0.0"/>
      </dependentAssembly>
    </assemblyBinding>
  </runtime>
</configuration>
```

If your service is to run in the Symphony 4.1 environment, you need to add the .config file to the service package and redeploy the package.