

# Distributed Computing Toolbox Release Notes

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The “Distributed Computing Toolbox 2.0 Release Notes” on page 1-1 describe the changes introduced in the latest version of the Distributed Computing Toolbox and MATLAB Distributed Computing Engine. The following topics are discussed in these Release Notes.

- “New Features and Enhancements” on page 1-2
- “Major Bug Fixes” on page 1-5
- “Upgrading from an Earlier Release” on page 1-6
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The Distributed Computing Toolbox Release Notes also provide information about recent versions of the product, in case you are upgrading from a version that was released prior to Release 14SP2.

- “Distributed Computing Toolbox 1.0.2 Release Notes” on page 2-1
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## New Features and Enhancements

This section summarizes the new features and enhancements introduced in the Distributed Computing Toolbox 2.0.

### Third-Party Schedulers

The Distributed Computing Toolbox now supports the use of third-party schedulers as an alternative to the MathWorks job manager for running jobs and distributing tasks to the cluster.

### Parallel Jobs

The Distributed Computing Toolbox and MATLAB Distributed Computing Engine now support parallel jobs. In a parallel job, the tasks running simultaneously on separate machines are able to communicate with each other during their execution.

### Adding Tasks to Running Jobs

If you use the MathWorks job manager to run your jobs, you can now add tasks to running jobs. Typically, you would do this inside your task function. After evaluating some data derived during execution of a task, the task can create more tasks based on that data. Because that task is not complete, its job is still running. The task can access its parent job object with the `getCurrentJob` function.

## Engine Process Enhancements

### Unicast Communications Between Processes

MDCE processes can now use unicast for all their communications. See the `MDCE_DEF` file for information about setting up this configuration, or see the help for the start scripts; for example,

```
startjobmanager -help
startworker -help
```

### Remote Startup of MDCE Processes

Once the `mdce` service or daemon is running on all your cluster nodes, you can remotely stop and start worker and job manager sessions on those nodes. Use

the `-remotehost` flag on the scripts that start and stop job managers and workers. For more information, use the `-help` flag with the process start and stop scripts, for example,

```
startjobmanager -help
stopjobmanager -help
startworker -help
stopworker -help
```

### Using Mapped Drives

You can now start and stop the `mdce` service, job managers, and workers from a mapped drive location. Note that because the worker is installed as a service running under `LocalSystem` by default, it does not have access to mapped network drives.

### Monitoring Processes

You can use the `nodestatus` command to display the status of the `mdce` service and the job manager and worker processes that it maintains. You can use `nodestatus` to monitor the local host or any remote host. For example,

```
nodestatus -remotehost node_XYZ
Job manager lookup process:
    Status                                Running

Job manager:
    Name                                   OurJobManager
    Running on host                        node_XYZ
    Number of workers                      2

Worker:
    Name                                   node_XYZ_worker
    Running on host                        node_XYZ
    Status                                  Idle
    Job manager                            OurJobManager
    Connection with job manager            Connected

Worker:
    Name                                   worker2
    Running on host                        node_XYZ
    Status                                  Idle
```

Job manager	OurJobManager
Connection with job manager	Connected

Summary:

The mdce service on node\_XYZmanages the following processes:

Job manager lookup processes	1
Job managers	1
Workers	2

For a complete list of options, use the `-help` flag with `nodestatus`, for example,

`nodestatus -help`



## Major Bug Fixes

To view major bug fixes made in R14SP3+ for the Distributed Computing Toolbox and MATLAB Distributed Computing Engine, use the Bug Reports interface on the MathWorks Web site. The report is sorted by product, with fixed bugs listed first and then open bugs for each.

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**Note** If you are not already logged in to Access Login, when you link to the Bug Reports interface, you will be prompted to log in or create an Access Login account.

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If you are upgrading from a release earlier than Release 14SP2, you should also see Version 1.0.1 “Major Bug Fixes” on page 3-2.

## Upgrading from an Earlier Release

This section describes the issues involved in upgrading from the Distributed Computing Toolbox 1.0.2 to Version 2.0.

If you are upgrading from a version earlier than 1.0.2 (R14SP3), also see “Upgrading from an Earlier Release” on page 2-4.

### Upgrade Distributed Computing Products Together

When upgrading to Version 2.0, you must upgrade both the Distributed Computing Toolbox and the MATLAB Distributed Computing Engine. The toolbox and engine must be the same version to interact with each other.

### Change in ErrorIdentifier

A canceled task now returns the `ErrorIdentifier`

```
distcomp:task:Cancelled
```

In former releases, it returned

```
dce:task:cancelled
```

### Checkpoint Directory Structure

Because of a change in the structure of the checkpoint directories, the processes (e.g., the job manager) of the MATLAB Distributed Computing Engine Version 2 cannot read the checkpoint directories created by the processes of earlier versions.

### -port Flag Not Supported

The `-port` flag for the `startjobmanager` and `startworker` scripts is not supported in Version 2.0 of the MATLAB Distributed Computing Engine.

## Limitations

### **Using LSF and Macintosh Workers**

You cannot run MATLAB workers on Macintosh nodes on a cluster whose jobs are distributed by an LSF scheduler.

### **Parallel Jobs**

#### **Cluster Size Limit with Job Manager**

When running a parallel job with the MathWorks job manager, the number of labs running the job must be less than 50.

#### **Size Limits on Data Transfers Between Labs on Windows**

When running a parallel job on a Windows cluster, you might encounter a limit on the amount of data that can be transferred between labs in a single call to the `labSend`, `labReceive`, and `labBroadcast` functions. Transfers of 16 MB of data have failed when using three labs, as have transfers of 64 MB of data when using six labs.

#### **Client and Lab on Same Solaris Node**

When running a parallel job with the `mpiexec` scheduler, you cannot use the same Solaris node to run both the client MATLAB and lab.

## Known Software and Documentation Problems

To view important open bugs in R14SP3+ for Distributed Computing Toolbox and MATLAB Distributed Computing Engine, use the Bug Reports interface on the MathWorks Web site. The report is sorted by product, with fixed bugs listed first and then open bugs for each. You can select the **Status** column to list the open bugs first.

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**Note** If you are not already logged in to Access Login, when you link to the Bug Reports interface, you will be prompted to log in or create an Access Login account.

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# Distributed Computing Toolbox 1.0.2 Release Notes

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### Enhancements

This section summarizes the enhancements introduced in the Distributed Computing Toolbox 1.0.2.

#### **Rapid Simulation (RSim) Target**

The Rapid Simulation (RSim) target has been enhanced such that RSim executables do not check out a Simulink license when run by a worker executing a task created by the Distributed Computing Toolbox.

## Major Bug Fixes

To view major bug fixes made in R14SP3 for the Distributed Computing Toolbox and MATLAB Distributed Computing Engine, use the Bug Reports interface on the MathWorks Web site. The report is sorted by product, with fixed bugs listed first and then open bugs for each.

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**Note** If you are not already logged in to Access Login, when you link to the Bug Reports interface, you will be prompted to log in or create an Access Login account.

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If you are upgrading from a release earlier than Release 14SP2, you should also see Version 1.0.1 “Major Bug Fixes” on page 3-2.

### **Upgrading from an Earlier Release**

This section describes the issues involved in upgrading from the Distributed Computing Toolbox 1.0.1 to Version 1.0.2.

If you are upgrading from Version 1.0 (R14SP1+), also see “Upgrading from an Earlier Release” on page 3-3.

#### **Upgrade Distributed Computing Products Together**

When upgrading to Version 1.0.2, you must upgrade both the Distributed Computing Toolbox and the MATLAB Distributed Computing Engine. The toolbox and engine must be the same version to interact with each other.

#### **-port Flag Not Supported**

The `-port` flag for the `startjobmanager` and `startworker` scripts is not supported in Version 1.0.2 of the MATLAB Distributed Computing Engine.



# Distributed Computing Toolbox 1.0.1 Release Notes

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### Major Bug Fixes

To view major bug fixes made in R14SP3 for the Distributed Computing Toolbox and MATLAB Distributed Computing Engine, use the Bug Reports interface on the MathWorks Web site. The report is sorted by product, with fixed bugs listed first and then open bugs for each.

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**Note** If you are not already logged in to Access Login, when you link to the Bug Reports interface, you will be prompted to log in or create an Access Login account.

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## Upgrading from an Earlier Release

This section describes the issues involved in upgrading from the Distributed Computing Toolbox 1.0 to Version 1.0.1.

### **Upgrade Distributed Computing Products Together**

When upgrading from Version 1.0 to Version 1.0.1, you must upgrade both the Distributed Computing Toolbox and the MATLAB Distributed Computing Engine. The toolbox and engine must be the same version to interact with each other.

### **Upgrade License Files**

Because of feature name changes, old license files do not work with the new versions of the Distributed Computing Toolbox and the MATLAB Distributed Computing Engine. When upgrading the products to Version 1.0.1, you must use updated license files.

### **-port Flag Not Supported**

The `-port` flag for the `startjobmanager` and `startworker` scripts is not supported in Version 1.0.1 of the MATLAB Distributed Computing Engine.



# Distributed Computing Toolbox 1.0 Release Notes

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**Introduction to the Distributed Computing Toolbox . . . 3-2**

# Introduction to the Distributed Computing Toolbox

The Distributed Computing Toolbox enables you to execute independent MATLAB operations distributed on a cluster of computers.

The goal of this first release of the Distributed Computing Toolbox is to address the requirements of coarse-grain applications, which execute the same MATLAB algorithm in remote MATLAB sessions on different data sets without communication or data exchange between sessions.