
Okuma America Corporation

THINC-API Release Notes for Lathe

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Revision History

Date	Version	Description	Author
5/21/2007	S5015-008-00	Public release for Lathe THINC-API version 1.0.0.0	LHuynh
6/04/2007	S5015-008-01	Public release for Lathe THINC-API version 1.1.0.0	Lhuynh
08/15/2007	S5015-008-02	Public release for Lathe THINC-API version 1.2.0.0	Lhuynh
2/22/2008	S5015-008-03	Public Release 1.6.0.0 for Lathe THINC-API	Lhuynh
4/11/2008	S5015-008-04	Public Release 1.6.0.0 for Lathe THINC-API	Lhuynh
06/27/2008	S5015-008-05	Public Release 1.6.3.0 for Lathe THINC-API	Lhuynh
07/25/2008	S5015-008-06	Public Release 1.6.4.0 for Lathe THINC-API	Lhuynh
10/27/2008	S5015-008-07	Public Release 1.7.0.0 for Lathe THINC-API	Lhuynh
12/18/2008	S5015-008-08	Public Release 1.8.0.0 for Lathe THINC-API	Lhuynh
04/30/2009	S5015-008-09	Public Release 1.9.1.0 for Lathe THINC-API	Lhuynh
10/12/2009	S5015-008-10	Public Release 1.10.0.0 for Lathe THINC-API	Lhuynh
04/28/2010	S5015-008-11	Public Release 1.11.0.0 for Lathe THINC-API	Lhuynh
09/14/2010	S5015-008-12	Public Release 1.11.1.0 for Lathe THINC-API	Lhuynh
01/04/2011	S5015-008-13	Public Release 1.12.0.0 for Lathe THINC-API	Lhuynh
02/02/2011	S5015-008-14	Public Release 1.12.1.0 for Lathe THINC-API	Lhuynh
11/14/2011	S5015-008-15	Beta Release 1.14.0.0 for Lathe THINC-API	Lhuynh
01/15/2012	S5015-008-16	Beta Release 1.14.1.0 for Lathe THINC-API	Lhuynh
09/21/2012	S5015-008-17	Beta Release 1.14.2.0 for Lathe THINC-API	Lhuynh
12/04/2012	S5015-008-18	Public Release 1.15.0.0 for Lathe THINC-API	Lhuynh

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

03/06/2013	S5015-008-19	Beta Release 1.15.1.0 for Lathe THINC-API	Lhuynh
03/18/2013	S5015-008-20	Beta Release 1.15.2.0 for Lathe THINC-API	Lhuynh
09/25/2013	S5015-008-21	Public Release 1.16.0.0 for Lathe THINC-API	Lhuynh
01/15/2014	S5015-008-22	Public Release 1.17.0.0 for Lathe THINC-API	Lhuynh
04/01/2014	S5015-008-23	Public Release 1.17.1.0 for Lathe THINC-API	Lhuynh
10/08/2014	S5015-008-24	Public Release 1.17.2.0 for Lathe THINC-API	Lhuynh
10/18/2015	S5015-008-25	Public Release 1.18.0.0 for Lathe THINC-API	Lhuynh
10/18/2016	S5015-008-26	Public Release 1.19.0.0 for Lathe THINC-API	Lhuynh
12/07/2017	S5015-008-27	Public Release 1.20.0.0 for Lathe THINC-API	Lhuynh
06/14/2018	S5015-008-28	Public Release 1.21.1.0 for Lathe THINC-API	Lhuynh
03/11/2019	S5015-008-29	Public release 1.22.0.0 for Lathe THINC-API	Lhuynh
01/29/2020	S5015-008-30	Public release 1.23.0.0 for Lathe THINC-API	Lhuynh

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

Table of Contents

1.	Introduction	5
1.1	Disclaimer of Warranty	5
1.2	Purpose	5
1.3	Scope	5
1.4	Definitions, Acronyms, and Abbreviations	5
1.5	References	5
2.	About This Release	5
3.	Features	8
3.1	Command API	8
3.1.1	CATCPanel class	8
3.1.2	CViews class	9
3.2	DATA-API	9
3.2.1	CATC class	9
3.2.2	CPowers class	11
3.2.3	CUserManagement class	11
4.	Known Bugs and Limitations	11
4.1	Defect	12
4.1.1	General Defect	12
4.1.2	Firebird Database Log File	12
4.1.3	Data-API	12
4.2	Defects Fixed in this Release	13
4.2.1	Data-API	13

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

Release Notes for Lathe

1. Introduction

1.1 Disclaimer of Warranty

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1.2 Purpose

The purpose of the **Release Notes** document is to communicate major new features and changes in this release of the THINC-API for Lathe libraries. It also documents known problems and workarounds.

1.3 Scope

This document describes the Public release version 1.23.0.0 of THINC-API for Lathe.

1.4 Definitions, Acronyms, and Abbreviations

GAC – Global Assembly Cache Windows folder located in 'C:\WINDOWS\assembly'

1.5 References

None.

2. About This Release

All applications compiled with Beta Release from version 1.15.X.X must be compiled with Public Release version 1.17.0.0 or higher when it is available.

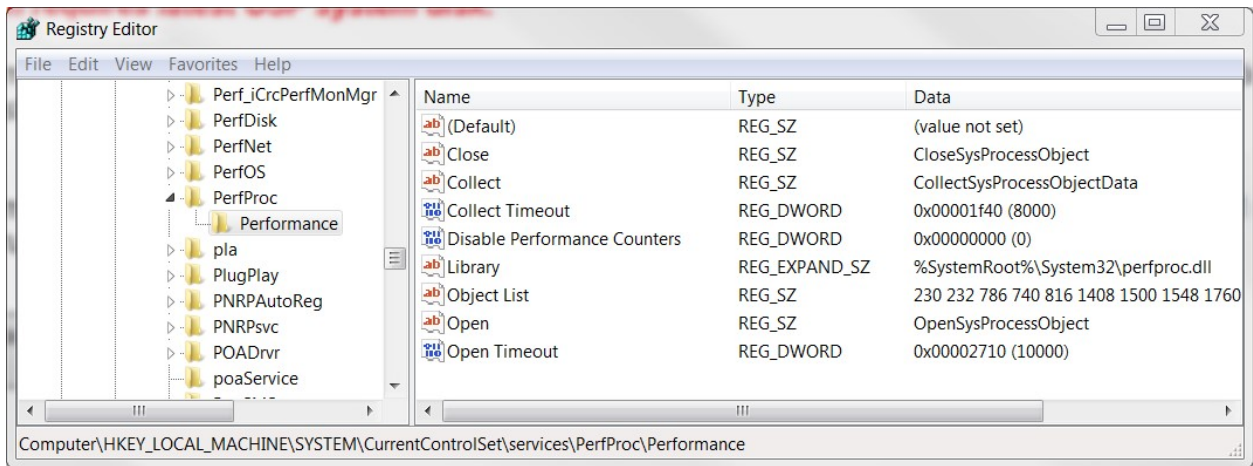
In current version of THINC-API, some of the existing functions related to ATC, Tool, TailStock, and Chuck Data from DATA-API or Command API might not function correctly on OSP-P300S (SLP) and OSP-P300L control.

Please refer to the help file for detail usage and compatibility information of each function.
This version requires latest OSP system disk.

From this release and forward, THINC API libraries will check dependency libraries during installation. THINC API will fail to install if version of dependency OCJ libraries cannot support current version of THINC API.

From this release and forward, API Notifier will delay the checking of API for an approximately of 1 minutes or so after NC is running. API Notifier service does use Windows Performance Counters service. As a result, API Notifier will not run correctly if Windows Performance Counters service is not enable. During the installation of THINC-API, Windows Performance Counters will be reset to 0 in the Windows system registry as shown below:

THINC-API Release notes	©Okuma America Corporation, 2020	Page 5 of 13
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Libraries included in this release for Lathe are compiled with .NET Framework 4.0:

Version of Okuma.CLDATAPI.dll in this release is 3.3.1.0

Version of Okuma.CLCMDAPI.dll in this release is 3.3.0.0

Version of APINotifierService.exe in this release is 1.23.0.0

Version of APINotifierStatus.exe in this release is 1.3.0.0

Version of Okuma.Flexnet.Net4.dll in this release is 1.0.0.0

Version of Okuma.Apilog2.dll in this release is 1.2.0.0

This release requires OCJ custom API version 003Y on target machine. THINC-API will verify the existing of OCJ custom API version before performing the installation.

The PLC system package listed in the table per control type is also required.

OSP	PLCS package
P100II/P200	From 110A to 110C
P200A Type1	From 120A to 130A
P200A Type2/P300	From 201B to 201G, or 300A and over

Important: All applications designed with THINC-API libraries must use THINC-API version 1.21.1.0 or higher to be able to run on Microsoft Windows 10.

The following functions of Okuma.CLDATAPI.dll library will not be available in OSP-P100II control machines:

Classes	Interfaces
CMachine	OnOffStateEnum GetNCStatus(NCStatusEnum enNCStatus)
CMachine	CCurrentAlarm* GetCurrentAlarm()
CIO	OnOffStateEnum GetUserTaskIOVariable(IOTypeEnum enIO, Int32 intIndex) ;

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

CIO	void SetUserTaskOutputVariable(Int32 intIndex, OnOffStateEnum enValue) ;
CIO	OnOffStateEnum GetProtectedUserTaskOutputVariable(Int32 intIndex) ;
CIO	void SetProtectedUserTaskOutputVariable(Int32 intIndex, OnOffStateEnum enValue) ;

The following functions of Okuma.CLCMDAPI.dll library will not be available in OSP-P100II control machines:

Classes	Interfaces
CATC	Sub RegisterToolPot(ByVal intPotNo As Integer, ByVal intToolNo As Integer, ByVal enSettingToolKind As SettingToolKindEnum, ByVal enSettingToolSize As SettingToolSizeEnum, ByVal enReturnMagazine As ReturnMagazineEnum)
CATC	Sub SetNextTool(ByVal intToolNo As Integer, ByVal enSettingToolKind As SettingToolKindEnum, ByVal enSettingToolSize As SettingToolSizeEnum, ByVal enReturnMagazine As ReturnMagazineEnum)
CATC	Sub SetToolInStation(ByVal intToolNo As Integer, ByVal enSettingToolKind As SettingToolKindEnum, ByVal enSettingToolSize As SettingToolSizeEnum, ByVal enReturnMagazine As ReturnMagazineEnum, ByVal enTurretStation As TurretStationEnum)
CATC	Sub UnRegisterToolPot(ByVal intPotNo As Integer)
CProgram	CancelMainProgram()
CProgram	SelectMainProgramRSide(ByVal strMainProgramFileName As String, Optional ByVal strSubProgramFileName As String = "", Optional ByVal strSystemSubstituteProgramFileName As String = "", Optional ByVal strProgramName As String = "")
CProgram	SelectMainProgramLSide(ByVal strMainProgramFileName As String, Optional ByVal strSubProgramFileName As String = "", Optional ByVal strSystemSubstituteProgramFileName As String = "", Optional ByVal strProgramName As String = "")
CTools	CalcualteToolOffset(ByVal intToolNo As Integer, ByVal enAxisIndex As OffsetAxisIndexEnum, ByVal enSubSystem As SubSystemEnum, ByVal dblValue As Double)
CTools	AddConstantToolOffset(ByVal intOffsetNo As Integer, ByVal enAxisIndex As OffsetAxisIndexEnum, ByVal enSubSystem As SubSystemEnum, ByVal enCuttingPosition As CuttingPositionEnum)
CTools	AddConstantNoseRadiusCompensation(ByVal intOffsetNo As Integer, ByVal enAxisIndex As OffsetAxisIndex2Enum, ByVal enSubSystem As SubSystemEnum, ByVal enCuttingPosition As CuttingPositionEnum)
CTools	AddConstantToolWear(ByVal intOffsetNo As Integer, ByVal enAxisIndex As OffsetAxisIndex2Enum, ByVal enSubSystem As SubSystemEnum, ByVal enCuttingPosition As CuttingPositionEnum)
CTools	SubtractConstantToolOffset(ByVal intOffsetNo As Integer, ByVal enAxisIndex As OffsetAxisIndexEnum, ByVal enSubSystem As SubSystemEnum, ByVal enCuttingPosition As CuttingPositionEnum)
CTools	SubtractConstantNoseRadiusCompensation(ByVal intOffsetNo As Integer, ByVal enAxisIndex As OffsetAxisIndex2Enum, ByVal enSubSystem As SubSystemEnum, ByVal enCuttingPosition As CuttingPositionEnum)
CTools	SubtractConstantToolWear(ByVal intOffsetNo As Integer, ByVal enAxisIndex As OffsetAxisIndex2Enum, ByVal enSubSystem As SubSystemEnum, ByVal enCuttingPosition As CuttingPositionEnum)
CProgram	SelectScheduleProgramLSide(ByVal strScheduleProgramFileName As String)
CProgram	SelectScheduleProgramRSide(ByVal strScheduleProgramFileName As String)
CMachine	Public Sub SetUserAlarm(ByVal enAlarm As UserAlarmEnum, Optional ByVal

	strAlarmMessage As String = "", Optional ByVal enUserAlarmSubSystem As UserAlarmSubSystemEnum = 0)
CMachine	Public Sub ClearUserAlarmD(ByVal enUserAlarmSubSystem As UserAlarmSubSystemEnum)

Note: User Alarm will require OKUMA.Lathe.UserAlarm license feature in order to function on OSP-P200 or newer controls if machine can support.

3. Features

Please refer to the help file for detail information of each function.

3.1 Command API

3.1.1 CATCPanel class

Name	Description
CallTool(Int32)	<p>Transfer a tool to Setup location given pot number. Note: This function can be called with CHIP PREP MODE ON or OFF</p> <p>If it is called when CHIP PREP MODE is ON then tool is still attached in ATC table and must be stored back to the magazine pot by using StoreTool() function with CHIP PREP MODE ON only.</p> <p>A letter R (Reserved) is displayed at the pot where tool is removed from until tool is returned to its pot.</p> <p>If it is called when CHIP PREP MODE is OFF then tool will be detached from ATC table</p>
CallTool(Int32, Int32)	<p>When TOOL ID spec. is OFF, the function will transfer tool to Setup location given tool number.</p> <p>When TOOL ID spec. is ON, the function will transfer tool to Setup location given tool serial number and group number</p> <p>Note: This function can be called with CHIP PREP MODE ON or OFF</p> <p>If it is called when CHIP PREP MODE is ON then tool is still attached in ATC table and must be stored back to the magazine pot by using StoreTool() function with CHIP PREP MODE ON only.</p> <p>A letter R (Reserved) is displayed at the pot where tool is removed from until tool is returned to its pot.</p> <p>If it is called when CHIP PREP MODE is OFF then tool will be detached from ATC table</p>
ClearError	Clear error on ATC Sub panel.

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

CollectNGTools	call (collect) the NG tool that has been returned to the NG tool buffer station or magazine tool rack to the tool setup.
RestartATCOperations	Restart ATC operation [How to use] 1. turn on the magazine MID AUTO MANUAL MODE 2. execute ATC command (ATC command stops) 3. turn off the MG MID AUTO MANUAL MODE 4. execute the function RestartATCOperations
SetATCPanelChipPreparationMode	Set ATC Panel CHIP Preparation Mode
SetATCPanelMagazineManualInterruptMode	Set ATC Panel Magazine Interrupted mode
StoreAllToolInTemporaryStations	The function will transfer tools currently in the temporary stations back to its designated pot
StoreTool	For CHIP Preparation Mode ON: The function will store the tool back to its original pot number
StoreTool(Int32, Int32, SettingToolKindEnum, SettingToolSizeEnum)	When CHIP Preparation Mode is OFF or TOOL-ID Spec is OFF: The function will store the specified tool number from the Setup location to the specified pot number. If tool information is already existed in Tool DATA table (registered tool but not attached to magazine) then tool information must be matched with existing tool in the table. Tool will be attached to ATC table. If tool information is not already existed in Tool DATA table then a new tool will be created and attached to the ATC table based on tool information

3.1.2 CViews class

HomeScreen	Allow changing current screen on NC to HOME screen.
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3.2 DATA-API

3.2.1 CATC class

Name	Description
GetATCExecutingState	Get the executing state of ATC when using Command API to command an ATC operation if an error occurs during executing ATC command, the state of executing

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

	ATC is back to false
GetATCPanelChipPreparationMode	Get ATC Panel CHIP Preparation mode
GetATCPanelErrorCode	Gets error number on ATC panel
GetATCPanelIndexNumber	Get ATC panel index number
GetATCPanelMagazineManualInterruptMode	Get Manual Interrupt Mode on ATC Panel
GetATCPanelOperationMode	<p>Gets ATC panel operation mode.</p> <p>The ATC sub-control panel can be in read or write operation mode.</p> <p>The operation mode can be set by using NC Optional Parameter Bit at index 77 bit 5</p> <p>It is in write mode when the NC Optional Parameter Bit at index 77 bit 5 is set to 1</p> <p>It is in read mode when the NC Optional Parameter Bit at index 77 bit 5 is set to 0</p> <p>ATC sub panel's screen cannot be operated by operator if operation mode is in ATCSubPanelOperationModeEnum.Write mode.</p> <p>***** Machine must be restarted if ATC panel operation mode is changed. *****</p>
GetATCPanelSequenceNumber	<p>Get sequence number on ATC panel</p> <p>Note: It is not the same ATC SEQ. NO on OSP HMI screen</p>
GetATCPanelToolSetupInfo	Get tool setup information on ATC Panel
GetSettableToolAttributes	<p>Check to see if tool attributes can be supported at the specified pot number.</p> <p>Note: This function is not applicable to special NextReadyStations from pot 299-300 since they are controlled by OSP system only</p>
GetToolNo(Int32, ATCToolLocationEnum)	Get tool number given ATC tool location and location number
GetUsageStateOfSharedStation	Gets usage state of all 4 shared stations on ATC magazine

Notes:

The change of functions in CATC class listed above are able to support ATC magazine having more than 200 pots or Extended ATC Magazine spec PLC3 (72, 7) ON.

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

3.2.2 CPowers class

Name	Description
GetAxisEnergyUsage	Gets energy usage for the given axis, energy usage type, and system
GetAxisEnergyUsageInfo	Gets Axis Energy Usage information for the current machine configuration
GetEnergyUsageStartDateTime	Gets the start Date and Time of integral Energy Usage
GetTotalEnergyUsage	Gets total energy usage for the specified component and energy usage type

3.2.3 CUserManagement class

Name	Description
CheckUserErrorCode	Check the returned error code from LogIn/LogOut function
LogIn	<p>Perform the Log In operation given User ID and password. Note: This operation requires that the machine must be in correct screen and modes to be valid.</p> <p>Operation Mode: Auto Mode</p> <p>Panel Mode: Run Mode</p> <p>NC HMI: Home Screen</p>
LogOut	<p>Perform the Log Out operation for the current user. Note: This operation requires that the machine must be in correct screen and modes to be valid.</p> <p>Operation Mode: Auto Mode and in Actual Position page</p> <p>Panel Mode: Run Mode</p> <p>NC HMI: Home Screen</p>

4. Known Bugs and Limitations

This section identifies known and existing problems in this release and describes any work-arounds.

NOTES: Threading

All THINC-API objects must be created and called from STA threads ONLY. Threads created by Window System such as thread pool which are under MTA threads cannot be supported.

THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

4.1 Defect

4.1.1 General Defect

DATA-API library, Okuma.CLDATAPI.dll, cannot create directly under ASP.NET web application.

Solution/Work-arounds: Create and initialize DATA-API in a separate thread. All function calls must be called from objects created inside separated thread mentioned above.

DATA-API library can only support applications designed with single-threaded apartment of COM threading model. The underlying library, LDATAPI.dll, cannot be loaded during call to CMachine.Init function when an MTAThread attribute is applied to the application.

Solution/Work-arounds: None

4.1.2 Firebird Database Log File

THINC-API libraries compiled with .NET Framework 1.1 use Firebird Database engine. The log file created by Firebird database engine can be corrupted, unexpectedly.

Solution/Work-arounds: A bat file is created during the installation of THINC-API and will be executed every time Windows is first started to replace the existing log.fdb located in "D:\Program files\Okuma\LoggingService" to prevent file corruption.

New THINC-API libraries that compiled with .NET Framework 4.0 will use SQLite database for its logging service. All applications should use new version THINC-API if possible to prevent using Firebird database and to be compatible with Windows 10.

4.1.3 Data-API

4.1.3.1 MacMan.COperationHistory class

Function:

```
Int32 COperation* GetOperationHistory(Int32 intIndex) ;
ArrayList* GetOperationHistory(Int32 intFromIndex, Int32 intToIndex);
Int32 GetMaxCount() ;
Int32 GetCount() ;
```

Symptom: Failed to get correct data for Subsystem L and R side if MacMan screen is different than current setting of subsystem. It always gets the data from current MacMan screen.

Solution/Work around: None

4.1.3.2 CAxis class

Function:

```
Double GetActualPositionProgramCoord( AxisIndex1Enum enAxisIndex);
Double GetTargetPosition (AxisIndex1Enum enAxisIndex);
```

Symptom: The Z-axis position for sub system NC-AL and NC-AR does not return data correctly. It is based on the current selection of spindle in NC panel or command program G140/G141.

Solution/Work around: None

THINC-API Release notes	©Okuma America Corporation, 2020	Page 12 of 13
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THINC-API	Version: S5015-008-30
Release Notes For Lathe	Date: 01/29/2020

4.2 Defects Fixed in this Release

4.2.1 Data-API

4.2.1.1 CSpec class

Function:

```
Public Function GetControlType As ControlTypeEnum
```

Symptom: Failed to detect P300S controls on some machine models.