TAM API

Release Notes

This document describes the evolution of the Triamec Advanced Motion application programming interface as a log of notable changes.

There is a similar document, the TAM System Explorer release notes [1], documenting changes relevant for the respective application. Most of the changes to the TAM System Explorer do also affect the API, so these are not repeated in this document.

The API is deployed in the form of different NuGet packages described in the developer manual [2].

The release notes for the Tama compiler are maintained as part of its NuGet package.

Sometimes, a regression is described using a reference to the breaking release. That version is a package version if not otherwise noted.

Deprecation Policy

When an API is changed breaking backwards compatibility, a deprecation hint is provided whenever possible during compilation, or at runtime when called from 3d-party languages like for example Python.

These deprecation attributes are maintained for at least one year, but are dropped eventually. Therefore, in order to update from a years old code base, please consider doing this in several version steps.

TAM Software 7.29.0

Introduces the Setup Assistant.

Release date: 2025-07-23

Triamec.Tam.UI 8.4.0

New
- You can now specify *Position* as a stimulus point in the Frequency Response Measurement configuration. Refer to the related [GitHub sample project](#).

TAM Software 7.28.2

Supports the new AngleSearch2 phasing method and USB for Windows apps targeting .NET 8+.

Release date: 7.5.2025

Triamec.Tam.TriaLink 7.23.0

New
- Extends USB service connection support from .NET Framework to .NET 8+ on Windows platform. The support is added by means of a new *Triamec.Tam.TriaLink.Usb* NuGet package, which the *Triamec.Tam.TriaLink* NuGet package now depends upon. You don't typically need to take a direct dependency on the new NuGet package.

Triamec.Tam.Core 19.0.0

Changes
- Moves the following types from the `Triamec.TriaLink` to the `Triamec.Tam.Registers` namespace:
  - `DeviceState, DeviceEvent, DeviceErrorIdentification`
  - `AxisState, AxisEvent, AxisErrorIdentification`
  - `TamaVirtualMachineState`

  As a consequence, you might need to add a using directive to the latter namespace in some of your source code files.

Bug
- Fix a bug where `TamTable.SendtoDevice` was running into a timeout for `FileState.Empty` when an empty table was uploaded.

Triamec.Tam.Simulation 14.0.0

New
- Adds supports for all recent .NET versions.

Triamec.Common 7.3.12

Change
- The default path for the Triamec workspace is now `/var/lib/Triamec` on Unix-like platforms.

TAM Software 7.28.1

Handle drive tables using a new API.

Release date: 26.2.2025

Triamec.Tam.Core 18.3.0

New

- Introduces `ITamNodeComposite.IndexOfChild`: the index of the specified child node.
- `TamTable:` Provides convenience in generating tables and transferring them to or from the drive.

Triamec.Tam.TriaLink 7.22.0, Triamec.Tam.EtherCAT 7.22.0

New

- Allows enumerating register composite array elements without casting.

TAM Software 7.27.0

Calculate initial gains and feed forward amplitude for the controllers in frequency response tuning.

Release date: 4.11.2024

Triamec.Tam.Core 18.2.0

New

- `TamAxis.Halt`: Reprogrammable variant of Stop.

Triamec.Common 7.3.10

New

- Improve debugger experience for evaluations requiring communication.

TAM Software 7.26.0

Load `.TAMsnap` device snapshot files into simulation.

Configure axis compensation with `AxisCompensator`.

Release date: 27.6.2024

Triamec.Tam.Core 18.1.0

New
- `Triamec.Tam.ITamDevice.Homepage`
  Gets the address where the device has its web interface exposed.
  This property was already present in the public `Triamec.Tam.TamDevice` implementation since 11.0.1. Raising the property to the interface relieves the developer of the duty of casting.
- `Triamec.Tam.Net.DeviceWebService`
  Web services provided by devices.
  The class was already introduced in 17.0.2, but is now officially documented.
  The class currently exposes the following functionalities:
    - Transfer a file to the device.
    - Get a diagnostic report.
- `Triamec.TriaLink.DeviceSnapshot`
  Low level parser to interpret `.TAMsnap` device snapshot files.

Changes
- `ITamDevice.Homepage` has been deprecated in favor of `GetHomepageAsync`.
- `TamTopology.EnableWebServerAsync` no longer needs to be called in general prior calling APIs accessing the device web server.
- `IProduct.PackageUpdater` has been deprecated in favor of `GetPackageUpdaterAsync`.

Triamec.Tam.Simulation 7.2.0

New
- `Triamec.TriaLink.Adapter.Simulation.SimulatedTriaLink.CreateFrozen`
  Initializes a new instance which doesn't execute in cycles.
- `DeviceSnapshot.WriteToSimulation` extension method.
  Import the `Triamec.TriaLink.Adapter.Simulation` namespace to use it with a simulated device of a frozen link.

Triamec.Tam.UI 8.1.1

New
- `Triamec.Tam.Modules.AxisCompensation.AxisCompensator`
  High level class containing all business logic used for the *Axis Compensation Wizard*.

TAM Software 7.25.0

Places address field at the top and offers search functionality. Updates firmware faster.

Release date: 22.12.2023

Triamec.Tam.Core 18.0.0

New
- Adds new methods `WaitForTermination(TimeSpan)` and `WaitForTerminationAsync(Time-Span)` to the `Triamec.Tam.Requests.TamRequest` class, complementing the existing API.

Change
- Changes `ITamNodeComposite.Nodes` type from `IList` to `IReadOnlyList<ItamNode>`.

Bug
- Fixes implementation of the `ITamNode.AsDepthFirst…` extension methods which didn't actually return a depth-first enumeration.

Triamec.Common 7.3.9

Bug
- Fixes a spurious `NullReferenceException` at startup in `WorkspaceConfigurationSettings`.

TAM Software 7.24.1

Required for new firmware features.

Release date: 2.11.2023

Change
- The Tama Compiler desktop icon has been moved to the project folder of the default Triamec workspace.

Triamec.Tam.Core 17.0.2

Changes
- Retires the `IRegisterComponent.Revert` method. Don't longer use shadow registers for mid-term storage. Always commit prepared shadow registers instantaneously.

Bugs
- Restores compatibility with Visual Studio 2017 which broke with 17.0.0. The defect showed up as an SQLite related error at startup.
- Changed the `Triamec.Tam.Requests.TamRequest.WaitForSuccessAsync` extension method to throw a `Triamec.Tam.TimeoutException` when the wait times out, as documented. Previously, a `System.TimeoutException` was thrown instead.

Triamec.Tam.Core 17.0.3, Triamec.Tam.TriaLink 7.19.3, Triamec.Tam.EtherCAT 7.19.3

Bug
- Adopts a changed NuGet dependency. The mismatch between library and NuGet dependencies could make firmware update impossible.

TAM Software 7.24.0

Fixes some bugs.

Release date: 4.7.2023

Triamec.Tam.UI 7.20.0

Change
- TAM API Developer Samples are now [hosted with GitHub](). They are no longer packed with the installer.

TAM Software 7.23.0

Access homing from within the axis GUI.

Release date: 15.6.2023

Triamec.Tam.Core 17.0.0

New
- Property `TamLink.LocalEndPoint : object`.
  In case of a network connection, returns an `System.Net.IPEndPoint` object which you can use to determine the right device connection in its General.Signals.Ethernet.TriaLinkConnections register. Otherwise it shows the local node number of the local Tria-Link station.

Change
- [BREAKING] Changes the type of `TamAxis.ControlSystemTreatment` to an interface.

Bug
- Makes the implementation of `IRegisterComponent.FindTaggedComponents` thread safe.

TAM Software 7.22.0

Allows to protect setup.

Release date: 1.2.2023

Discontinued
- The Tama Compiler isn't longer deployed to the MSBuild extensions path.

Triamec.Tam.Core 16.0.0

New
- System suppliers can protect setup modifications through the TAM System Explorer or other setup applications. The new `ITamDevice.Protection` provides an interface to enable setup protection and track protection status.
- `ITamRegisterList.WriteValues(params IConvertible[] values)` method. This is a more convenient way than `ITamRegisterList.Write(params TamValue32[] values)` to write several registers at once. The performance penalty due to not reusing the TamValue32 buffer should mostly be subordinate.
- Adds properties `NodesChangingEventArgs.IsRemoval` and `NodesChangedEventArgs.IsRemoval` such that handlers no longer need to implement a cumbersome test to determine whether the given nodes are removed from the collection.

Changes
- [BREAKING] The `RegisterComposite`'s `Count` and `this[int]` members now always produce the same output as when using the same members on the `Nodes` property. Previously, the TAM Software considered *non-accessible* members in these two members. This release removes this inconsistency and never gives access to registers marked as not accessible in the layout.
  As a maintainer of the register layout, you must update projects not using the ESI feature to depend on the `Triamec.Tools.Registers` NuGet to 5.0.5 or above.
- The `TamAxis.ControlTestSignalGenerator` and `ITamDrive.ControlTestSignalGenerator` methods are now obsolete. Use registers to control the test signal generator since current firmware doesn't support this method, and isn't suitable for slow frequencies due to the limits of the `frameSize` parameter.

Bug
- Fixes a defect where in some long running scenarios, an exception *Identical request tracked twice* would occur unnecessarily.

TAM Software 7.21.0

Decomposed bit fields

Release date: 22.11.2022

New

- Decomposes bit fields. A bit field register continues to have a `Read` method, but at the same time, it is a composite made of its individual fields. You can use the bit field register as well as the individual field registers like ordinary registers, that is, acquire values, access them in Tama programs, or put them in lists.
  When accessing several fields of a bit field register in one acquisition or register list, the TAM stack still transfers the bit field as single resource.

Triamec.Tam.Core 15.0.0

New

- Task-based `ITamVariable.AcquireAsync` extensions methods. Prefer these over the existing overloads taking an `AcquireFuture` argument since those will become obsolete in a future release.

Changes

- [BREAKING] Some APIs have changed their return type from a class to an interface. Except for the `RegisterComposite` class, the former classes are now obsolete:
  - `ReadOnlyCollection<T>` → `IReadOnlyList<T>`
  - `RegisterComposite` → `IRegisterComposite`
  - `TamArray<T>` → `ITamRegisterArray<T>`
  - `TamRegister<T>` → `ITamRegister<T>`
  - `TamReadonlyRegister<T>` → `ITamReadonlyRegister<T>`
- [BREAKING] The static `TamRegisterBase<T>.Read` methods are obsolete. Instead, use the new `Read<T>` extension methods upon the former `searchRoot` argument.
- [BREAKING] Removes the barely used `ITamNodeComposite` indexer taking an integer value. Use an expression like `(ITamNode)composite.Nodes[i]` instead.
- [BREAKING] The `IsArray` property is now only defined for register composites, but no longer for leaves.
- [BREAKING] `ITamNode.FindTamNode` with a leaf and a relative address now starts upward navigation from that leaf instead from its parent.
- Many members of the register classes are now hidden by default with the intent to make it easier to discover register composite members. However, for this to work within Visual Studio, check **Tools > Options > Text Editor > C# > Statement completion > Hide advanced members**.
- Renames `AxisState.Startup` to `NotReady` which better describes the state.

TAM Software 7.20.0

Usability improvements and bug fixes.

Release date: 26.8.2022

Triamec.Tam.Core 14.0.0

Change
- Addition to an internal plugin interface.

TAM Software 7.19.0

Improves usability.

Release date: 8.6.2022

Triamec.Tam.Core 13.0.0

Changes
- Don't longer pass a name when constructing a `TamTopology`. The previous overload stays accessible, but is hidden from Intellisense and documentation.
- When an instance in the topology is disposed due to surprise removal, accessing members which previously threw an `System.ObjectDisposedException` now throw an `Triamec.Tam.TimeoutException` with its InnerException set to `System.ObjectDisposedException`.

Triamec.Tam.TriaLink 7.15.0, Triamec.Tam.EtherCAT 7.15.0

Feature
- Extension method
  `TamTopology.ScanNetworkInterfaces(params string[] networkInterfaceNames) : TamAdapter[]`
  allows to get hold onto all Triamec devices attached to the specified network interface cards (NIC).
  Not passing any name results in a scan on all available NICs.

Change
- Network access is now implemented in the new TriaLink.ETH library. Ensure to update your deployment accordingly.

TAM Software 7.18.0

Improves usability.

Release date: 29.3.2022

Triamec.Tam.Core 12.0.5

Changes
- When calling one of the `Wait` methods of `TamRequest` while inside of a `ITamRequestDestination.Transition` event handler, instead of dead-locking, the request is now immediately terminated with a value `WaitedForInHandler`.
- When a request is created while `ITamDevice.StateObserverCount` is 0, the `TamRequest` is immediately set terminated. The respective `TamRequest.Termination` value has been renamed from `Unknown` to `NotObserved`.

TAM Software 7.17.1

Improves usability.

Release date: 14.12.2021

Triamec.Tam.Core 12.0.3

Change
- Reduced lock contention in the `ITamRequestDestination.Transition` handler calling code. This circumvents a dead-lock scenario in user code.

TAM Software 7.17.0

Introduces new elements in the Axis Monitor.

Release date: 22.11.2021

Change
- The NuGet packages are no longer bundled with the setup, but provided with nuget.org.

Triamec.Tam.Core 12.0.2

Bug
- Fixes a regression as of 12.0.0 when acquiring only 32-bit of a 40-bit register.

Samples

Bug
- Fixes a regression in the Tama project template as of 7.16.1 where the build failed with a missing `TamaCompilerOutput` task. This was due to an erroneous setting of the `TriamecTamaCompilerPath` property in the project file.

TAM Software 7.16.1

This release contains bug fixes.

Release date: 20.9.2021

Triamec.Tam.Core 12.0.0

Bug
- Restores compatibility with Visual Studio 2015 lost in 10.1.2.

TAM Software 7.16.0

This release features handling of a new kind of data logging files, that is, dump files produced by recent firmware.

This release also improves usability and fixes some notable issues.

Release date: 15.6.2021

Triamec.Tam.UI 7.13.0

Change
- Removed the `autoComplete` parameter from configuration dialog APIs, using `true` implicitly.

Triamec.Tam.Core 11.4.0

Feature
- API in `Triamec.Tam.Acquisitions` to process `.TAMdmp` dump files produced by recent firmware: `DumpVariable`, `DumpFile` and related classes; `ITamReadonlyRegister<T>.CreateVariable(DumpSignal)`.
- `Triamec.Tam.Registers.EtherCatTimeRegisterValueConverter.DeserializeEtherCatTime` static method to convert the General.Signals.GlobalTime register to a `DateTime` value.
- It's now possible to create a register layout representation without a device:
  `LayoutManager.Instance.GetRegisterLayoutFactory(rlid: 19)`
  `                    .CreateRegisterLayout(device: null)`
  Note however, that any attempt to use functionality which needs a device results in undefined behavior.

Bug
- `ITamDevice.SetReadyToSwitchOn` now throws a `TamException` if the device is in state `NotReadyToSwitchOn`. Previously, the method returned without action in that case.

TAM Software 7.15.0

This release supports file system tables, a new firmware feature introduced with firmware release 4.11.x.

The software was backported to .NET framework 4.6.2, which should help out some customers to run applications on some older Beckhoff IPCs running Windows Enterprise 2016.

There were quite some bug fixes stemming from the analysis of crashes reported with the telemetry feature introduced with TAM SDK 7.14.1.

We decided to rename the installer from *TAM SDK* to *TAM Software*, since software development is not its main use case.

Release date: 25.3.2021

Triamec.Tam.Core 11.3.3

Change
- The `TamRequest.WaitForSuccess` and `WaitForSuccessAsync` methods are defined directly in the class. Previously, they were extension methods.

TAM SDK 7.14.1

This is the first version we deploy a component with the TAM System Explorer gathering anonymous usage and crash data. The libraries coming with the NuGet package don't have this functionality enabled, though.

Release date: 15.12.2020

Triamec.Common 7.3.1

Change
- Maintain commissioning tool of a workspace based on path instead of a version, supporting non-install scenarios.

TAM SDK 7.14.0

This release addresses an issue where not all required content of various NuGet packages was available at runtime for some project types.

Release date: 12.11.2020

Triamec.Tam.Core 11.3.0

Features

- Extension methods `TamRequest.WaitForSuccess` and `WaitForSuccessAsync` which simplifies request handling.
- `TamAxis.ControlSystemTreatment` property to control and monitor whether the control system is overridden.

Bug fix

- Allow to set up the limit torque flag for scheduled moves by means of a new `IssueMoveScheduleEntry` constructor.

Previous Releases

A textual change log of previous releases is deployed with the documentation [3].

References

[1]   "TAM System Explorer release notes", `SWNET_TamSystemExplorerReleaseNotes-7.29.0_EP001.pdf`, Triamec Motion AG, 2025
[2]   "TAM API Developer Manual", chapter 2.2: NuGet Distribution, `SWNET_TamApiDeveloperManual_EP037.pdf`, Triamec Motion AG, 2021
[3]   "TAM API 7.13.1 release notes", `SWNET_TamApiReleaseNotes-7.13.1_EP001.txt`, Triamec Motion AG, 2020

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