
New Features in the Autodesk Civil 3D API

.NET Changes

This section covers changes to the Autodesk Civil 3D .NET API for Autodesk Civil 3D 2021.1.

2021.1

Catchments

- Added the ability to access catchment properties. This includes the following get/set properties and methods:
 - `Catchment::Area2d`
 - `Catchment::Perimeter`
 - `Catchment::DischargePoint`
 - `Catchment::Exclusionary`
 - `Catchment::RunoffCoefficient`
 - `Catchment::ReferencePipeNetworkId`
 - `Catchment::ReferencePipeNetworkStructureId`
 - `Catchment::ReferenceSurfaceId`
 - `Catchment::TimeOfConcentration`
 - `Catchment::TimeOfConcentrationMethod`
 - `Catchment::ContainingGroupId`
 - `Catchment::CurveNumber`
 - `Catchment::HydrologicalSoilGroup`
 - `Catchment::AntecedentWetness`

- Catchment::ImperviousArea
- Catchment::UnconnectedImperviousArea
- Catchment::HydrologicallyMostDistantPoint
- Catchment::HydrologicallyMostDistantLength
- Catchment::ManningsCoefficient
- Catchment::SetFlowPath (previously only GetFlowpath was available)
- Added a new CatchmentGroup class. The class includes the ability to create catchment groups, and to move catchments to/from groups. Methods include:
 - CatchmentGroup::GetCatchmentId(name)
 - CatchmentGroup::Create
 - CatchmentGroup::GetAllCatchmentIds()
 - CatchmentGroup::AddCatchmentId(id)
 - CatchmentGroup::RemoveCatchmentId(id)
 - CatchmentGroup::RemoveAllCatchments()

Feature Lines

- Feature lines can now set points in absolute/relative mode with regards to a surface. New properties and methods include:
 - FeatureLine::RelativeSurfaceId
 - FeatureLine::IsElevationRelativeToSurface
 - FeatureLine::GetPointRelativeElevation
 - FeatureLine::SetPointRelativeElevation

Profiles

- Added the ability to create, get, and manipulate offset profile parameters. A new profile property is included to retrieve the offset profile parameters: Profile::OffsetParameters.
- And a new class OffsetProfileParameters is provided. Properties and methods include:
 - OffsetProfileParameters::Stations
 - OffsetProfileParameters::ParentAlignmentId

- OffsetProfileParameters::ParentProfileId
- Added new methods to create an offset profile by slope: Profile::CreateOffsetProfileBySlope().
- Added the ability to create a static FG profile based on any kind of profile: Profile::CreateStaticFGFromProfile().

This is useful when there are limitations to perform operations on non-FG profiles.

Quantity Takeoff

- The QTOUtility class now has added methods to handle QTO Reports. Reports can be generated by first creating an XML report (detailed/summary) and provide additional transformation steps to convert the XML to other formats (such as html, csv, and txt) using the XSL templates available in Civil3D. The new methods include:
 - QTOUtility::GenerateXMLReport()
 - QTOUtility::TransformXMLReport()
 - QTOUtility::DrawXMLReport()

Section Views

- Added the ability to create and manipulate section views in a drawing.

Superelevation Views

- Added the ability to create and manipulate SuperelevationViews. Methods and properties include:
 - SuperelevationView::Create()
 - SuperelevationView::StationStart/StationEnd
 - SuperelevationView::Location()
 - SuperelevationView::GetStationAndCrossSlope
 - SuperelevationView::CreatePolyline

Surfaces

- Added the ability to select a surface and change it to a solid. These additions replicate the behavior of the SurfaceToSolids extension. The methods include:
 - TinSurface::CreateSolidsAtDepth

- TinSurface::CreateSolidsAtDepthToFile
- TinSurface::CreateSolidsAtFixedElevation
- TinSurface::CreateSolidsAtFixedElevationToFile
- TinSurface::CreateSolidsAtSurface
- TinSurface::CreateSolidsAtSurfaceToFile

2021

Pressure Networks

- Feature and command settings of the pressure network features are now included.
 - **Styles.** Feature, label, table, and band styles can be created, accessed, and modified.
 - **Labels.** Pipe, fitting, and appurtenance labels can be accessed and created in plan, profile, and section views.
 - **Properties.** Most properties of a pressure network and its objects (pressure pipes, fittings, and appurtenances) can be accessed.
 - **Pipe Runs.** Pipe runs can be accessed, created, and removed.
 - **Parts.** Part lists and part size objects are exposed in the API enabling the ability to create a pressure network with pipe, fitting, and appurtenance objects.

COM Changes

If you are using the COM API, you need to update the object version to 13.4 (from 13.3 used in Autodesk Civil 3D 2021). The objects and interfaces exposed have remained the same, but you should reference the new libraries, which are installed by default to: C:\Program Files\Common Files\Autodesk Shared\Civil Engineering 134.

Parent topic: [About the Developer's Guide](#)



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