

MET/CONNECT API Reference

Overview

The MET/CONNECT API (API) is intended to allow CMMS systems the ability to connect to MET/CAL database and retrieve results from procedure executions.

The API currently consists of the following controllers:

Controller Name	Description
AssetController (v1 - v3)	This controller handles all work order related queries for API version 1 to version 3
ResultController (v4+)	This controller handles all work order related queries for API version 4 and later
PointController	This controller handles the retrieving of all calibration data point values

Each controller is described in more detail in the sections below. Each controller has a set of endpoints for each "version" of the API.

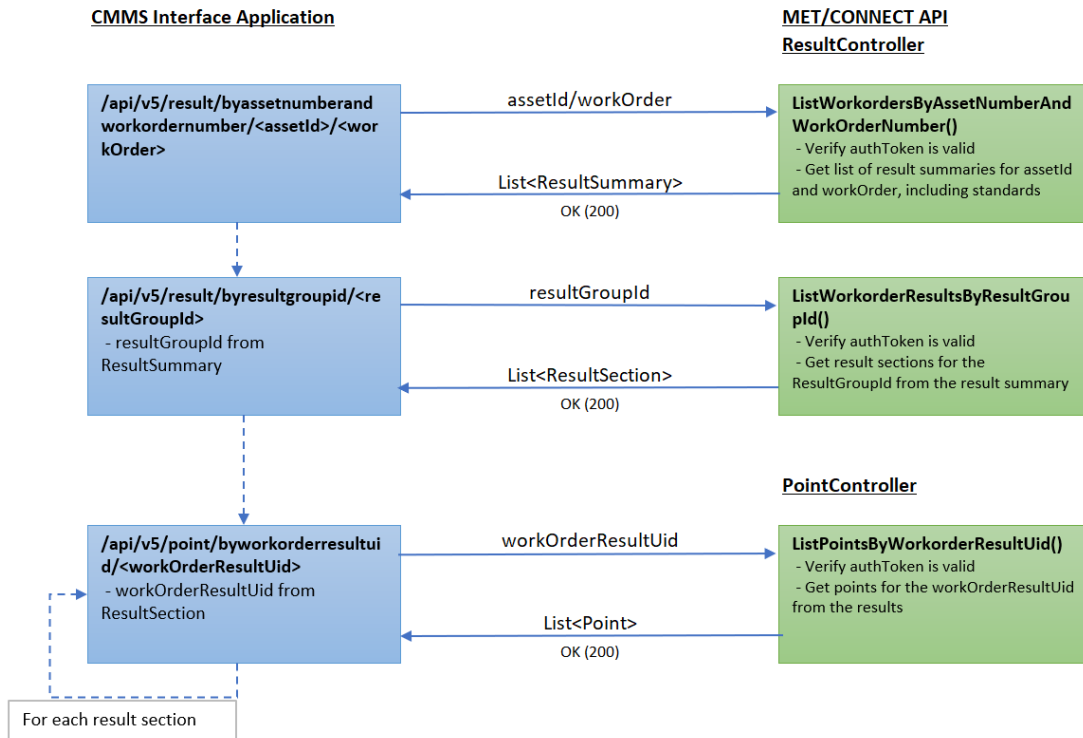
All API requests require an authorization token to be passed as the last item in the URL (v1 only) or in the request header. This token is the Serial Number that was given to the MET/CONNECT Server upon installation. A text file is created on the server's desktop by the MET/CONNECT Server installer that contains this token. This token can also be found in the web.config file for the MET/CONNECT Service and in the cReferenceNumber field in the Servers table record in the MET/CONNECT database.

API Version 5

Version 5 of the MET/CONNECT API includes the following changes with respect to version 4:

- Changed Endpoint names to be more descriptive of the endpoints purpose
- Updated response property names to be more descriptive and consistent
- Removed the standardsbyid endpoint
- Added Workorder standards to the byassetnumberandworkordernumber byassetnumber endpoints
- Added Workorder Results standards to the byresultgroupid endpoint

Flow Diagram



HTTP Headers

Request Headers

All version 5 endpoints of the MET/CONNECT API require a request header which specifies the authorization token. The authorization token is the “serial number” that was generated when the MET/TEAM API was installed.

Request Header	Value	Description
Authorization	Basic <token>	Specifies the authorization token (serial number) corresponding to the instance of the MET/CONNECT API that the request is intended for. If the token is invalid, incorrect, or missing, this results in a 401 Unauthorized response.

Response Headers

All version 5 endpoints of the MET/CONNECT API include the following response headers:

Response Header	Value	Description
-----------------	-------	-------------

HttpStatusCode	200 OK	Indicates the request was successfully processed with results
	204 No Content	Indicates the request was successful, but there were no results that met the criteria
	400 Bad Request	Indicates there was a problem with the request. Additional details are included in the “code” and “message” values in the response body.
	401 Unauthorized	Indicates there was a problem validating the authorization token. Additional details are included in the “code” and “message” values in the response body.
	403 Forbidden	Indicates there was a problem validating the MET/TEAM API licenses. Additional details are included in the “code” and “message” values in the response body.
	404 Not Found	Indicates either too few or too many parameters were passed to the endpoint, or the endpoint does not exist.
	500 Internal Server Error	Indicates there was an unexpected error processing the request. Additional details are included in the “code” and “message” values in the response body.
API-Version	MetConnect/x.x.x.x	Indicates the current version of the MET/CONNECT API

Result Controller

The Result controller handles all asset and work order related queries. Each endpoint is described in detail below.

ByAssetNumberandWorkorderNumber

Purpose:

Gets a list of results for a specific asset number and work order number

URL:

/api/v5/result/byassetnumberandworkordernumber/<assetNumber>/<workOrderNumber>

Parameters:

Name	Type	Description
<assetNumber>	string	Asset number (barcode) to use for gathering result data
<workOrderNumber>	string	Work Order number to use for gathering result data

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://metconnect.server/api/v5/result/byassetnumberandworkordernumber/ASSET01/xxx001
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultGroupId": "e454ebf8-80f1-463d-ad12-25af32823c98",
      "AssetUID": "a1bff5e6-47ed-4707-8305-458d57bf375a",
      "AssetNumber": "ASSET01",
      "WorkOrderUID": "ec979958-123e-4655-83e8-7a8feb379452",
      "WorkOrderNumber": "xxx001",
      "WorkOrderResultDateTime": "2022-10-11T18:20:25.98",
      "TechnicianUID": "0072d815-6118-41f4-affa-e13ae4b0272b",
      "TechnicianName": "Kenny Whitehead",
      "ProcedureUID": "2555ff0d-3686-4a19-8614-bc6e3caf845d",
      "ProcedureName": "Sectioned Manual Standards",

```

```

        "PromptData": "[\r\n
        \{"PromptType\":"PrePrompt\","PromptFileSpec\":"C:\ProgramData\Fluke\METCAL\湿度和湿度
        \shared\PromptFiles\preprompt_metconnect湿度
        .txt\","Fields\":[{"$type\":"Metcal.Prompts.TextField,
        Metcal.Prompts\","DataType\":"Text\","Label\":"Temperature\","Length\":20,"Instructions\":"Enter the temperature in deg
        C\","Variable\":"TEMP$\","IsMandatory\":false,"DefaultValue\":null,"Value\":"x1"}, {"$type\":"Metcal.Prompts.TextF
        ield,
        Metcal.Prompts\","DataType\":"Text\","Label\":"Humidity\","Length\":20,"Instructions\":"Enter the humidity in
        %RH\","Variable\":"RH$\","IsMandatory\":false,"DefaultValue\":"y1"}]}\r\n]",
        "ProcedureSectionOrdinal": "0000",
        "WorkOrderStandardList": [
            "Standard 1",
            "My Instrument",
            "E4419B-1",
            "5080A-1",
            "8481A-1",
            "估价单编号创建",
            "Standard 2",
            "Std3"
        ]
    }
]
}

```

PdfByAssetNumberandWorkorderNumber

Purpose:

Returns a byte array of a PDF with all results for a specific asset Id and work order

URL:

/api/v5/result/pdfbybyassetnumberandworkordernumber/<assetNumber>/<workOrderNumber>

Parameters:

Name	Type	Description
<assetNumber>	string	Asset number (barcode) to use for gathering result data
<workOrderNumber>	string	Work Order number to use for gathering result data

Response:

Type	Description
------	-------------

Byte array	Returns a byte array of a PDF with all results for a specific asset Id and work order
------------	---

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	401 Unauthorized
E120	No matching results found	500 InternalServerError

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://metconnect.server/api/v5/result/resultspdfbyworkorder/ASSET01/xxx001
```

Response:

```
%PDF-1.7
%
5 0 obj
<</Filter/FlateDecode/Length 6250>>stream
x
]M%q
HjVo-ef
|~bMûbf"
|fí/ , ^6) ?B?R?\y?z?
?:q}M&. /?6g?d?S?w? ^/?#? _^? \?
4?z?O+[_?} , , 1/ ' _? _?K?J? (SV?R??
?mL? [=Rt?mm? _?u
?U?L?*y?~q?K? [K?a?b{!I?Ē? ^?O??%?K.??mf
?' _? ) ?O?u?fK??K?R9_+c%?? }??&?W{u<"V? (?-
??@?"yk?|^? (??am??F2?u??w?J}l? {o_?P?L???V&?k? [???!du?, ?{o?e
?m?
?e?B?S??u??Mx'? ?'l??+3??Qg?g?B+q^h
?w36? }??Bw?<T?<y??A??Y?#??r?K??$?4Z?-
y\?r??Ũ??~?`9??R??S??OZ?O??@?t??F??=? (Y?j?+5?|e?9??r_?X
```

ByAssetNumber

Purpose:

Gets a list of results for a specific asset number

URL:

/api/v5/result/byassetnumber/<assetNumber>

Parameters:

Name	Type	Description
<assetNumber>	string	Asset number (barcode) to use for gathering result data

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v5/result/byassetnumber/ASSET01
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultGroupId": "e454ebf8-80f1-463d-ad12-25af32823c98",
      "AssetUID": "a1bff5e6-47ed-4707-8305-458d57bf375a",
      "AssetNumber": "ASSET01",
      "WorkOrderUID": "ec979958-123e-4655-83e8-7a8feb379452",
      "WorkOrderNumber": "xxx001",
      "WorkOrderResultDateTime": "2022-10-11T18:20:25.98",
      "TechnicianUID": "0072d815-6118-41f4-affa-e13ae4b0272b",
      "TechnicianName": "Kenny Whitehead",
    }
  ]
}
```

```

        "ProcedureUID": "2555ff0d-3686-4a19-8614-bc6e3caf845d",
        "ProcedureName": "Sectioned Manual Standards",
        "PromptData": "[\r\n
\\{\\\\"PromptType\\":\\\\"PrePrompt\\",\\\\"PromptFileSpec\\":\\\\"C:\\\\\\\\\\\\\\\\
ProgramData\\\\\\\\\\\\\\\\Fluke\\\\\\\\\\\\\\\\METCAL\\\\\\\\\\\\\\\\温度和湿度
\\\\\\\\\\\\\\\\shared\\\\\\\\\\\\\\\\PromptFiles\\\\\\\\\\\\\\\\preprompt_metconnect湿度
.txt\\",\\\\"Fields\\":[{\\\\"$type\\":\\\\"Metcal.Prompts.TextField,
Metcal.Prompts\\",\\\\"DataType\\":\\\\"Text\\",\\\\"Label\\":\\\\"Temperatur
e\\",\\\\"Length\\":20,\\\\"Instructions\\":\\\\"Enter the temperature in deg
C\\",\\\\"Variable\\":\\\\"TEMP$\\",\\\\"IsMandatory\\":false,\\\\"DefaultVal
ue\\":null,\\\\"Value\\":\\\\"x1\\\\"},{\\\\"$type\\":\\\\"Metcal.Prompts.TextF
ield,
Metcal.Prompts\\",\\\\"DataType\\":\\\\"Text\\",\\\\"Label\\":\\\\"Humidity\\
\\",\\\\"Length\\":20,\\\\"Instructions\\":\\\\"Enter the humidity in
%RH\\",\\\\"Variable\\":\\\\"RH$\\",\\\\"IsMandatory\\":false,\\\\"DefaultVal
ue\\":\\\\"\\",\\\\"Value\\":\\\\"y1\\\\"}]]\\r\\n]",
        "ProcedureSectionOrdinal": "0000",
        "WorkOrderStandardList": [
            "Standard 1",
            "My Instrument",
            "E4419B-1",
            "5080A-1",
            "8481A-1",
            "估价单编号创建",
            "Standard 2",
            "Std3"
        ]
    }
]
}

```

ByResultGroupId

Purpose:

Gets a list of result sections by ResultGroupId

URL:

/api/v5/result/byresultgroupid/<resultGroupId>

Parameters:

Name	Type	Description
<resultGroupId>	string	Result Group Guid value from a result byassetnumberandworkordernumber or result byassetnumber response

Response:

Type	Description
string	Json text representing the response status and a list of result sections

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
<http://localhost:50524/api/v5/result/byresultgroupid/e454ebf8-80f1-463d-ad12-25af32823c98>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultGroupId": "e454ebf8-80f1-463d-ad12-25af32823c98",
      "WorkOrderResultOrdinal": 1.0,
      "AssetUID": "a1bff5e6-47ed-4707-8305-458d57bf375a",
      "AssetNumber": "ASSET01",
      "WorkOrderUID": "ec979958-123e-4655-83e8-7a8feb379452",
      "WorkOrderNumber": "xxx001",
      "WorkOrderResultDateTime": "2022-10-11T18:20:25.98",
      "TechnicianUID": "0072d815-6118-41f4-affa-e13ae4b0272b",
      "TechnicianName": "Kenny Whitehead",
      "ProcedureUID": "2555ff0d-3686-4a19-8614-bc6e3caf845d",
      "ProcedureName": "Sectioned Manual Standards",
      "WorkOrderResultUID": "4e4c86bd-35dc-4072-ae2d-9e27d6ce6fe2",
      "WorkOrderResultSection": "MET/CAL Results",
      "WorkOrderResultPassFail": "Pass",
      "ProcedureSectionOrdinal": "0000",
      "WorkOrderResultStandardList": []
    },
    {
      "ResultGroupId": "e454ebf8-80f1-463d-ad12-25af32823c98",
      "WorkOrderResultOrdinal": 2.0,
      "AssetUID": "a1bff5e6-47ed-4707-8305-458d57bf375a",
```

```

        "AssetNumber": "ASSET01",
        "WorkOrderUID": "ec979958-123e-4655-83e8-7a8feb379452",
        "WorkOrderNumber": "xxx001",
        "WorkOrderResultDateTime": "2022-10-11T18:23:47",
        "TechnicianUID": "0072d815-6118-41f4-affa-e13ae4b0272b",
        "TechnicianName": "Kenny Whitehead",
        "ProcedureUID": "2555ff0d-3686-4a19-8614-bc6e3caf845d",
        "ProcedureName": "Sectioned Manual Standards",
        "WorkOrderResultUID": "16a981bb-2ca7-4b2d-be62-ca8b0db4f0f3",
        "WorkOrderResultSection": "Standard (5080A)",
        "WorkOrderResultPassFail": "Pass",
        "ProcedureSectionOrdinal": "0001",
        "WorkOrderResultStandardList": [
            "5080A-1"
        ]
    }
}

```

Point Controller

The Point controller handles all calibration result data point related queries. Each endpoint is described in detail below.

ByWorkorderResultUid

Purpose:

Gets a list of calibration result point data for a result section

URL:

/api/v5/point/byworkorderresultuid/<workorderResultUID>

Parameters:

Name	Type	Description
<workorderResultUID>	string	Workorder Result Guid retrieved using the result byresultgroupid endpoint

Response:

Type	Description
string	Json text representing the response status and a list of point data

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v5/point/byworkorderresultuid/16a981bb-2ca7-4b2d-be62-ca8b0db4f0f3
```

Response:

```
{
  "WorkOrderResultUID": "16a981bb-2ca7-4b2d-be62-ca8b0db4f0f3",
  "PointUID": "13f928d0-1a4d-41e7-a918-a9fc4b0aa1bd",
  "PointOrdinal": 1,
  "Description": null,
  "FSC": "HEAD",
  "Remarks": "Standard 5080A Test",
  "PointPassFail": "",
  "CardinalPoint": "",
  "CardinalPointUnit": " ",
  "Dut": "",
  "DutUnit": " ",
  "Reference": "",
  "ReferenceUnit": " ",
  "FixedQuantity": "",
  "FixedQuantityUnit": " ",
  "VariableQuantity": "",
  "VariableQuantityUnit": " ",
  "Error": "",
  "ErrorUnit": " ",
  "UpperLimit": "",
  "UpperLimitUnit": " ",
  "LowerLimit": "",
  "LowerLimitUnit": " ",
  "GuardbandUpperLimit": "",
  "GuardbandUpperLimitUnit": " ",
  "GuardbandLowerLimit": "",
  "GuardbandLowerLimitUnit": " ",
  "ExpandedUncertainty": "",
  "ExpandedUncertaintyUnit": " ",
  "TestStep": "0001-006",
  "DutResolution": "",
  "DutResolutionUnit": " "
```

```

        "TUR": ""
    },
    {
        "WorkOrderResultUID": "16a981bb-2ca7-4b2d-be62-ca8b0db4f0f3",
        "PointUID": "f450a48a-0356-4cdb-a756-e2235782a100",
        "PointOrdinal": 2,
        "Description": " 2.700 V @ 200 Hz",
        "FSC": "MEMCX",
        "Remarks": null,
        "PointPassFail": "Pass",
        "CardinalPoint": "2.700",
        "CardinalPointUnit": "V",
        "Dut": "2.700",
        "DutUnit": "V",
        "Reference": "2.7000",
        "ReferenceUnit": "V",
        "FixedQuantity": "2.7000",
        "FixedQuantityUnit": "V",
        "VariableQuantity": "2.700",
        "VariableQuantityUnit": "V",
        "Error": "0.0000",
        "ErrorUnit": "V",
        "UpperLimit": "2.756",
        "UpperLimitUnit": "V",
        "LowerLimit": "2.644",
        "LowerLimitUnit": "V",
        "GuardbandUpperLimit": "",
        "GuardbandUpperLimitUnit": " ",
        "GuardbandLowerLimit": "",
        "GuardbandLowerLimitUnit": " ",
        "ExpandedUncertainty": "",
        "ExpandedUncertaintyUnit": " ",
        "TestStep": "0001-009",
        "DutResolution": "0.001",
        "DutResolutionUnit": "V",
        "TUR": "17.78"
    }
]
}

```

FullDataByWorkorderResultUid

Purpose:

Gets a list of calibration result point data for a result section. This endpoint returns all fields of the point record.

URL:

/api/v5/point/fulldatabyworkorderresultuid/<workorderResultUID>

Parameters:

Name	Type	Description
<workorderResultUID>	string	Workorder Result Guid retrieved using the result byresultgroupid endpoint

Response:

Type	Description
String	Json text representing the response status and a list of point data

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v5/point/fulldatabyworkorderresultuid/16a981bb-2ca7-4b2d-be62-ca8b0db4f0f3
```

Response:

```
"WorkOrderResultUID": "16a981bb-2ca7-4b2d-be62-ca8b0db4f0f3",
"PointUID": "f450a48a-0356-4cdb-a756-e2235782a100",
"PointOrdinal": 2,
"PointDateTime": "2022-10-11T18:23:47",
"PointLabel": "Numeric",
"PointStatusFlags": null,
"PointPassFail": "Pass",
"FSC": "MEMCX",
"PointDescription": "2.700 V @ 200 Hz",
"Remarks": null,
"OverrideRemarks": null,
"Designation": null,
"TagId": null,
"SetTime": null,
"Condition": null,
"Claim": "0",
"Accredited": false,
```

```
"Printed": false,
"DUTIsFixed": true,
"Override": false,
"Header": false,
"Dut": "2.700",
"DutUnit": "V",
"Reference": "2.7000",
"ReferenceUnit": "V",
"CardinalPoint": "2.700",
"CardinalPointUnit": "V",
"Correction": "",
"CorrectionUnit": "",
"DUTRange": "3.2",
"DUTRangeUnit": "V",
"SystemAccuracy": "",
"SystemAccuracyUnit": "",
"AmDepth": "",
"AmDepthUnit": "",
"Ampl1": "",
"Ampl1Unit": "",
"Ampl2": "",
"Ampl2Unit": "",
"CorrectionUncertainty": "",
"CorrectionUncertaintyUnit": "",
"DcOffset": "",
"DcOffsetUnit": "",
"Deviation": "0.0000",
"DeviationUnit": "V",
"DutyCycle": "",
"DutyCycleUnit": "",
"ExpectedValue": "2.7",
"ExpectedValueUnit": "V",
"Fall": "",
"FallUnit": "",
"FixedQuantity": "2.7000",
"FixedQuantityUnit": "V",
"FmDev": "",
"FmDevUnit": "",
"Freq1": "",
"Freq1Unit": "",
"Freq2": "",
"Freq2Unit": "",
"IImped": "",
"IImpedUnit": "",
"Nominal": "2.700",
"NominalUnit": "V",
"OImped1": "",
"OImped1Unit": "",
"OImped2": "",
"OImped2Unit": "",
"Per1": "",
"Per1Unit": "",
"Per2": "",
"Per2Unit": "",
"Phase": "",
"PhaseUnit": "",
"PhaseDev": "",
```

"PhaseDevUnit": "",
"Power": "",
"PowerUnit": "",
"PulseWidth": "",
"PulseWidthUnit": "",
"Rise": "",
"RiseUnit": "",
"RtdNomRes": "",
"RtdNomResUnit": "",
"TriggerSkew": "",
"TriggerSkewUnit": "",
"DUTInd": "2.700",
"DUTIndUnit": "V",
"DutResolution": "0.001",
"DutResolutionUnit": "V",
"VariableQuantity": "2.700",
"VariableQuantityUnit": "V",
"TUR": "17.78",
"GuardbandLowerLimit": "",
"GuardbandLowerLimitUnit": "",
"GuardbandUpperLimit": "",
"GuardbandUpperLimitUnit": "",
"Uncertainty": "",
"UncertaintyUnit": "",
"ExpandedUncertainty": "",
"ExpandedUncertaintyUnit": "",
"DominantUncertainty": "",
"DominantUncertaintyUnit": "",
"StandardUncertainty": "",
"StandardUncertaintyUnit": "",
"LowerLimit": "2.644",
"LowerLimitUnit": "V",
"UpperLimit": "2.756",
"UpperLimitUnit": "V",
"UncertaintyParameter1": "",
"UncertaintyParameter1Unit": "",
"UncertaintyParameter2": "",
"UncertaintyParameter2Unit": "",
"UncertaintyParameter3": "",
"UncertaintyParameter3Unit": "",
"UncertaintyParameter4": "",
"UncertaintyParameter4Unit": "",
"UncertaintyParameter5": "",
"UncertaintyParameter5Unit": "",
"UncertaintyParameter6": "",
"UncertaintyParameter6Unit": "",
"UncertaintyParameter7": "",
"UncertaintyParameter7Unit": "",
"UncertaintyParameter8": "",
"UncertaintyParameter8Unit": "",
"UncertaintyParameter9": "",
"UncertaintyParameter9Unit": "",
"UncertaintyParameter10": "",
"UncertaintyParameter10Unit": "",
"Modifier1": "200",
"Modifier1Unit": "Hz",
"Modifier2": "",

"Modifier2Unit": "",
"S1": "",
"S1Unit": "",
"S2": "",
"S2Unit": "",
"Tolerance": "0.0560",
"ToleranceUnit": "V",
"TolerancePositive": "0.0560",
"TolerancePositiveUnit": "V",
"ToleranceNegative": "0.0560",
"ToleranceNegativeUnit": "V",
"ReferenceTolerance": "",
"ReferenceToleranceUnit": "",
"Error": "0.0000",
"ErrorUnit": "V",
"ToleranceError": "",
"ToleranceErrorUnit": "",
"ReadingErrorPercent": "0",
"ReadingErrorPercentUnit": "%",
"ReadingErrorReferencePercent": "",
"ReadingErrorReferencePercentUnit": "",
"FullScaleErrorPercent": "",
"FullScaleErrorPercentUnit": "",
"FullScaleErrorReferencePercent": "",
"FullScaleErrorReferencePercentUnit": "",
"SetErrorPercent": "",
"SetErrorPercentUnit": "",
"SetFullScaleErrorPercent": "",
"SetFullScaleErrorPercentUnit": "",
"ToleranceErrorPercent": "0",
"ToleranceErrorPercentUnit": "%",
"MinimumDUT": "",
"MinimumDUTUnit": "",
"MaximumDUT": "",
"MaximumDUTUnit": "",
"MinimumReference": "",
"MinimumReferenceUnit": "",
"MaximumReference": "",
"MaximumReferenceUnit": "",
"DUTStandardDeviation": "",
"DUTStandardDeviationUnit": "",
"DUTRawStandardDeviation": "",
"DUTRawStandardDeviationUnit": "",
"ReferenceStandardDeviation": "",
"ReferenceStandardDeviationUnit": "",
"Reference2StandardDeviation": "",
"Reference2StandardDeviationUnit": "",
"ReferenceRawStandardDeviation": "",
"ReferenceRawStandardDeviationUnit": "",
"ReferenceRaw2StandardDeviation": "",
"ReferenceRaw2StandardDeviationUnit": "",
"SampleRate": "",
"SampleRateUnit": "",
"GuardbandMethod": null,
"UncertaintyMethod": null,
"CoverageFactor": "0",
"SystemCoverageFactor": "0",


```

    "ConfidenceLevel": null,
    "StudentsT": null,
    "Sensitivity1": null,
    "Sensitivity2": null,
    "Sensitivity3": null,
    "Sensitivity4": null,
    "Sensitivity5": null,
    "Sensitivity6": null,
    "Sensitivity7": null,
    "Sensitivity8": null,
    "Sensitivity9": null,
    "Sensitivity10": null,
    "DegreesOfFreedom1": null,
    "DegreesOfFreedom2": null,
    "DegreesOfFreedom3": null,
    "DegreesOfFreedom4": null,
    "DegreesOfFreedom5": null,
    "DegreesOfFreedom6": null,
    "DegreesOfFreedom7": null,
    "DegreesOfFreedom8": null,
    "DegreesOfFreedom9": null,
    "DegreesOfFreedom10": null,
    "EquilibrationParameters": null,
    "StudentsTFlag": false,
    "DominantFlag": false,
    "WelchSatterthwaiteFlag": false,
    "CorrectionFlag": false,
    "MeasurementFlag": true,
    "WsFlag": false,
    "ToleranceReference": "System_Actual",
    "DegFree": null,
    "Dpf": null,
    "DpfPolarity": null,
    "ModSource": null,
    "Polarity": null,
    "RtdType": null,
    "Sense": null,
    "TcType": null,
    "TestStep": "0001-009",
    "TestStep2": "0001",
    "sTur": "17.78",
    "Video": null,
    "Wave1": null,
    "Wave2": null,
    "NumberOfSamplesReference": null,
    "NumberOfSamplesDUT": "0",
    "NumberOfSamplesDiscarded": "0",
    "ChiSquared": null,
    "Noisy": false,
    "Reliable": true
  }
}

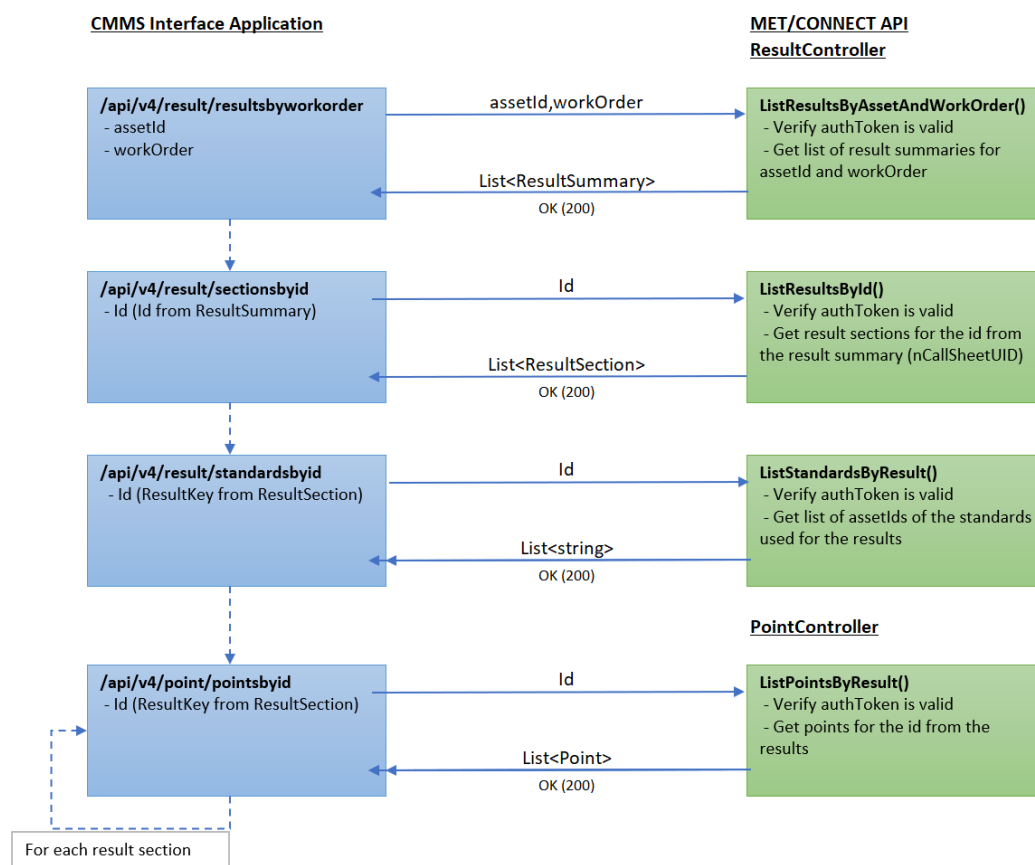
```

API Version 4

Version 4 of the MET/CONNECT API includes the following changes with respect to version 3:

- Addition of TUR to the point/pointsbyid endpoint
- Addition of point/pointsfullbyid endpoint
- Renamed “asset” controller to “result”
- Addition of result/resultspdfbyworkorder endpoint

Flow Diagram



HTTP Headers

Request Headers

All version 4 endpoints of the MET/CONNECT API require a request header which specifies the authorization token. The authorization token is the “serial number” that was generated when the MET/TEAM API was installed.

Request Header	Value	Description
Authorization	Basic <token>	Specifies the authorization token (serial number) corresponding to the instance of the MET/CONNECT API that the request is intended for. If the token is invalid, incorrect, or missing, this results in a 401 Unauthorized response.

Response Headers

All version 4 endpoints of the MET/CONNECT API include the following response headers:

Response Header	Value	Description
HttpStatusCode	200 OK	Indicates the request was successfully processed with results
	204 No Content	Indicates the request was successful, but there were no results that met the criteria
	400 Bad Request	Indicates there was a problem with the request. Additional details are included in the “code” and “message” values in the response body.
	401 Unauthorized	Indicates there was a problem validating the authorization token. Additional details are included in the “code” and “message” values in the response body.
	403 Forbidden	Indicates there was a problem validating the MET/TEAM API licenses. Additional details are included in the “code” and “message” values in the response body.
	404 Not Found	Indicates either too few or too many parameters were passed to the endpoint, or the endpoint does not exist.
	500 Internal Server Error	Indicates there was an unexpected error processing the request. Additional details are included in the “code” and “message” values in the response body.
API-Version	MetConnect/x.x.x.x	Indicates the current version of the MET/CONNECT API

Result Controller

The Result controller handles all asset and work order related queries. Each endpoint is described in detail below.

ResultsByWorkOrder

Purpose:

Gets a list of results for a specific asset Id and work order.

URL:

/api/v4/result/resultsbyworkorder/<assetId>/<workOrder>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get
<workOrder>	string	Work Order number associated with the results to get

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"  
http://metconnect.server/api/v4/result/resultsbyworkorder/Fluke77-A12322/WO776545B
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "AssetKey": "b01cbeef-e538-446c-b2ae-3ee1a57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",
      "TimeStamp": "2020-07-21T22:12:32",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
      "ProcedureName": "test_unicode",
      "PromptData": null,
      "ProcedureTagOrdinal": "0000"
    }
  ]
}
```

ResultsPdfByWorkOrder

Purpose:

Returns a byte array of a PDF with all results for a specific asset Id and work order

URL:

/api/v4/result/resultspdfbyworkorder/<assetId>/<workOrder>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get
<workOrder>	string	Work Order number associated with the results to get

Response:

Type	Description
Byte array	Returns a byte array of a PDF with all results for a specific asset Id and work order

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	401 Unauthorized
E120	No matching results found	500 InternalServerError

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://metconnect.server/api/v4/result/resultspdfbyworkorder/Fluke77-A12322/WO776545B
```

Response:

```
%PDF-1.7
%
5 0 obj
<</Filter/FlateDecode/Length 6250>>stream
x
M%q
HjVo-ef
|~bMübf"
|fí/ , ^6) BR\y z
:q}M&. /6g?d?S?w_ ^ /#_ ^\
4zzO+[_?} , , 1/ ' _KJ(SVR?
mL[? =Rtmm_«ü
UU?L? *y~?q?K[?K?ab{!I?E?^?O?%?K.??mf
' _ ( ) ?O?u?fK?R9_+c%? }??&?W{u<"V? (?-
?@?"yk?|^? (??am?F2?u?w?J}l? {o_?P?L???V&?k? [???!du? , ?{o?e
m?
e?B?S?u?Mx' ? ? 'l??+3??Qg?g?B+q^h
?w36? }??Bw?<T?<y??A?Y?#??r?K??$?4Z?-
y\?r??Ü??~?`9??R??S??OZ?O??@?t??F??=? (Y?j?+5?|e?9??r_?X
```

ResultsByAsset

Purpose:

Gets a list of results for a specific asset id.

URL:

/api/v4/result/resultsbyasset/<assetId>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v4/result/resultsbyasset/ASSET01
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "AssetKey": "b01cbeef-e538-446c-b2ae-3e1a57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",
      "TimeStamp": "2020-07-21T22:12:32",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
      "ProcedureName": "test_unicode",
      "PromptData": null,
      "ProcedureTagOrdinal": "0000"
    }
  ]
}
```

```
}  
]
```

SectionsById

Purpose:

Gets a list of result sections by id

URL:

/api/v4/result/sectionsbyid/<id>

Parameters:

Name	Type	Description
<id>	string	Id value from a resultsbyworkorder or resultsbyasset response

Response:

Type	Description
string	Json text representing the response status and a list of result sections

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"  
http://localhost:50524/api/v4/result/sectionsbyid/0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e
```

Response:

```
{
```



```

"status":"ok",
"code":"",
"message":"",
"data":[
  {
    "Id":"0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
    "Ordinal":1.0,
    "AssetKey":"b01cbeef-e538-446c-b2ae-3ee1a57c7076",
    "DutAssetId":"ASSET01",
    "WorkOrderKey":"1ee11c9f-bdec-449c-a4fc-7505a344c269",
    "WorkOrder":"WO98450845",
    "TimeStamp":"2020-07-21T22:12:32",
    "UserKey":"abf8f215-1980-4e47-84da-305699ecf5d5",
    "TechnicianName":"MET CONNECT",
    "ProcedureKey":"45bd6454-f06d-4625-a503-981f93aae1a8",
    "ProcedureName":"test_unicode",
    "ResultKey":"bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
    "ResultSection":"MET/CAL Results",
    "Status":"Fail",
    "ProcedureTagOrdinal":"0000"
  }
]
}

```

StandardsById

Purpose:

Gets a list of asset ids for the standards used for a result section

URL:

/api/v4/result/standardsbyid/<id>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response

Response:

Type	Description
string	Json text representing the response status and a list of asset ids

Potential Errors:

Error Code	Description	HTTP Response
------------	-------------	---------------

E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v4/result/standardsbyid/0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data":
  [
    {
      "AssetKey": "f3ebd67b-7fe4-4767-8646-c390ec21dce9",
      "StandardAssetId": "SAMPLE-5500"
    }
  ]
}
```

Point Controller

The Point controller handles all calibration result data point related queries. Each endpoint is described in detail below.

PointsById

Purpose:

Gets a list of calibration result point data for a result section

URL:

/api/v4/point/pointsbyid/<id>

Parameters:

Name	Type	Description
------	------	-------------

id	string	ResultKey value from a sectionsbyid response
----	--------	--

Response:

Type	Description
string	Json text representing the response status and a list of point data

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v4/point/pointsbyid/bfd49b12-1bf5-4ab5-ae10-aeaa9737a904
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
      "PointKey": "1d064451-31ff-4468-a749-7a9b6234d749",
      "Ordinal": 1,
      "Description": "100.0 C",
      "FSC": "MEMCX",
      "Remarks": null,
      "Status": "Pass",
      "CardinalPoint": "100.0",
      "CardinalPointUnit": "C",
      "Dut": "100",
      "DutUnit": "C",
      "Reference": "100.00",
      "ReferenceUnit": "C",
      "Error": "0.00",
      "ErrorUnit": "C",
    }
  ]
}
```

```

    "UpperLimit": "5.00",
    "UpperLimitUnit": "C",
    "LowerLimit": "5.00",
    "LowerLimitUnit": "C",
    "GuardbandUpperLimit": "105.0",
    "GuardbandUpperLimitUnit": "C",
    "GuardbandLowerLimit": "95.0",
    "GuardbandLowerLimitUnit": "C",
    "ExpandedUncertainty": "1.36810e-001",
    "ExpandedUncertaintyUnit": "C",
    "TestStep": "0001-006",
    "FixedQuantity": "100.00",
    "FixedQuantityUnit": "C",
    "VariableQuantity": "100",
    "VariableQuantityUnit": "C",
    "DutResolution": "1",
    "DutResolutionUnit": "C",
    "TUR": "3"
  },
  {
    "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
    "PointKey": "6713870b-c1cb-4ae1-aa66-5db3936b422c",
    "Ordinal": 2,
    "Description": "1100 C",
    "FSC": "MEMCX",
    "Remarks": null,
    "Status": "Fail",
    "CardinalPoint": "1100",
    "CardinalPointUnit": "C",
    "Dut": "100",
    "DutUnit": "C",
    "Reference": "1100.0",
    "ReferenceUnit": "C",
    "Error": "-1000.0",
    "ErrorUnit": "C",
    "UpperLimit": "5.0",
    "UpperLimitUnit": "C",
    "LowerLimit": "5.0",
    "LowerLimitUnit": "C",
    "GuardbandUpperLimit": "1105",
    "GuardbandUpperLimitUnit": "C",
    "GuardbandLowerLimit": "1095",
    "GuardbandLowerLimitUnit": "C",
    "ExpandedUncertainty": "6.55348e-001",
    "ExpandedUncertaintyUnit": "C",
    "TestStep": "0002-004",
    "FixedQuantity": "1100.00",
    "FixedQuantityUnit": "C",
    "VariableQuantity": "100",
    "VariableQuantityUnit": "C",
    "DutResolution": "1",
    "DutResolutionUnit": "C",
    "TUR": "3"
  }
]
}

```

PointsFullById

Purpose:

Gets a list of calibration result point data for a result section. This endpoint returns all fields of the point record.

URL:

/api/v4/point/pointsfullbyid/<id>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response

Response:

Type	Description
String	Json text representing the response status and a list of point data

Potential Errors:

Error Code	Description	HTTP Response
E101	Authorization token not defined or value is missing	401 Unauthorized
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v4/point/pointsfullbyid/3B9B44F6-A99D-493C-86C7-
A362B460B68A
```

Response:

```
{
  "status": "ok",
```

```
"code": "",
"message": "",
"data": [
  {
    "ResultKey": "3b9b44f6-a99d-493c-86c7-a362b460b68a",
    "PointKey": "490e44d4-47a4-44d2-94ae-60b166a7edab",
    "Ordinal": 4,
    "PointDateTime": "2021-10-13T14:20:22",
    "PointLabel": "Go-NoGo",
    "PointStatusFlags": null,
    "PointPassFailStatus": null,
    "FSC": "5700",
    "PointDescription": "1.00 V",
    "Remarks": null,
    "OverrideRemarks": null,
    "Designation": null,
    "TagId": null,
    "SetTime": null,
    "Condition": null,
    "Claim": "0",
    "Accredited": false,
    "Printed": false,
    "DUTIsFixed": true,
    "Override": false,
    "Header": false,
    "Dut": "",
    "DutUnit": "",
    "Reference": "1.000",
    "ReferenceUnit": "V",
    "CardinalPoint": "1.00",
    "CardinalPointUnit": "V",
    "Correction": "",
    "CorrectionUnit": "",
    "DUTRange": "",
    "DUTRangeUnit": "",
    "SystemAccuracy": "",
    "SystemAccuracyUnit": "",
    "AmDepth": "",
    "AmDepthUnit": "",
    "Ampl1": "",
    "Ampl1Unit": "",
    "Ampl2": "",
    "Ampl2Unit": "",
    "CorrectionUncertainty": "",
    "CorrectionUncertaintyUnit": "",
    "DcOffset": "",
    "DcOffsetUnit": "",
    "Deviation": "",
    "DeviationUnit": "",
    "DutyCycle": "",
    "DutyCycleUnit": "",
    "ExpectedValue": "1",
    "ExpectedValueUnit": "V",
    "Fall": "",
    "FallUnit": "",
    "FixedQuantity": "1.000",
    "FixedQuantityUnit": "V",
```

"FmDev": "",
"FmDevUnit": "",
"Freq1": "",
"Freq1Unit": "",
"Freq2": "",
"Freq2Unit": "",
"IImped": "",
"IImpedUnit": "",
"Nominal": "1.00",
"NominalUnit": "V",
"OImped1": "",
"OImped1Unit": "",
"OImped2": "",
"OImped2Unit": "",
"Per1": "",
"Per1Unit": "",
"Per2": "",
"Per2Unit": "",
"Phase": "",
"PhaseUnit": "",
"PhaseDev": "",
"PhaseDevUnit": "",
"Power": "",
"PowerUnit": "",
"PulseWidth": "",
"PulseWidthUnit": "",
"Rise": "",
"RiseUnit": "",
"RtdNomRes": "",
"RtdNomResUnit": "",
"TriggerSkew": "",
"TriggerSkewUnit": "",
"DUTInd": "",
"DUTIndUnit": "",
"DutResolution": "0.01",
"DutResolutionUnit": "V",
"VariableQuantity": "",
"VariableQuantityUnit": "",
"TUR": "1086.96",
"GuardbandLowerLimit": "",
"GuardbandLowerLimitUnit": "",
"GuardbandUpperLimit": "",
"GuardbandUpperLimitUnit": "",
"Uncertainty": "",
"UncertaintyUnit": "",
"ExpandedUncertainty": "",
"ExpandedUncertaintyUnit": "",
"DominantUncertainty": "",
"DominantUncertaintyUnit": "",
"StandardUncertainty": "",
"StandardUncertaintyUnit": "",
"LowerLimit": "0.99",
"LowerLimitUnit": "V",
"UpperLimit": "1.01",
"UpperLimitUnit": "V",
"UncertaintyParameter1": "",
"UncertaintyParameter1Unit": "",

"UncertaintyParameter2": "",
"UncertaintyParameter2Unit": "",
"UncertaintyParameter3": "",
"UncertaintyParameter3Unit": "",
"UncertaintyParameter4": "",
"UncertaintyParameter4Unit": "",
"UncertaintyParameter5": "",
"UncertaintyParameter5Unit": "",
"UncertaintyParameter6": "",
"UncertaintyParameter6Unit": "",
"UncertaintyParameter7": "",
"UncertaintyParameter7Unit": "",
"UncertaintyParameter8": "",
"UncertaintyParameter8Unit": "",
"UncertaintyParameter9": "",
"UncertaintyParameter9Unit": "",
"UncertaintyParameter10": "",
"UncertaintyParameter10Unit": "",
"Modifier1": "",
"Modifier1Unit": "",
"Modifier2": "",
"Modifier2Unit": "",
"S1": "",
"S1Unit": "",
"S2": "",
"S2Unit": "",
"Tolerance": "0.010",
"ToleranceUnit": "V",
"TolerancePositive": "0.010",
"TolerancePositiveUnit": "V",
"ToleranceNegative": "0.010",
"ToleranceNegativeUnit": "V",
"ReferenceTolerance": "",
"ReferenceToleranceUnit": "",
"Error": "",
"ErrorUnit": "",
"ToleranceError": "",
"ToleranceErrorUnit": "",
"ReadingErrorPercent": "",
"ReadingErrorPercentUnit": "",
"ReadingErrorReferencePercent": "",
"ReadingErrorReferencePercentUnit": "",
"FullScaleErrorPercent": "",
"FullScaleErrorPercentUnit": "",
"FullScaleErrorReferencePercent": "",
"FullScaleErrorReferencePercentUnit": "",
"SetErrorPercent": "",
"SetErrorPercentUnit": "",
"SetFullScaleErrorPercent": "",
"SetFullScaleErrorPercentUnit": "",
"ToleranceErrorPercent": "0",
"ToleranceErrorPercentUnit": "%",
"MinimumDUT": "",
"MinimumDUTUnit": "",
"MaximumDUT": "",
"MaximumDUTUnit": "",
"MinimumReference": "",


```
"MinimumReferenceUnit": "",
"MaximumReference": "",
"MaximumReferenceUnit": "",
"DUTStandardDeviation": "",
"DUTStandardDeviationUnit": "",
"DUTRawStandardDeviation": "",
"DUTRawStandardDeviationUnit": "",
"ReferenceStandardDeviation": "",
"ReferenceStandardDeviationUnit": "",
"Reference2StandardDeviation": "",
"Reference2StandardDeviationUnit": "",
"ReferenceRawStandardDeviation": "",
"ReferenceRawStandardDeviationUnit": "",
"ReferenceRaw2StandardDeviation": "",
"ReferenceRaw2StandardDeviationUnit": "",
"SampleRate": "",
"SampleRateUnit": "",
"GuardbandMethod": null,
"UncertaintyMethod": null,
"CoverageFactor": "0",
"SystemCoverageFactor": "0",
"ConfidenceLevel": null,
"StudentsT": null,
"Sensitivity1": null,
"Sensitivity2": null,
"Sensitivity3": null,
"Sensitivity4": null,
"Sensitivity5": null,
"Sensitivity6": null,
"Sensitivity7": null,
"Sensitivity8": null,
"Sensitivity9": null,
"Sensitivity10": null,
"DegreesOfFreedom1": null,
"DegreesOfFreedom2": null,
"DegreesOfFreedom3": null,
"DegreesOfFreedom4": null,
"DegreesOfFreedom5": null,
"DegreesOfFreedom6": null,
"DegreesOfFreedom7": null,
"DegreesOfFreedom8": null,
"DegreesOfFreedom9": null,
"DegreesOfFreedom10": null,
"EquilibrationParameters": null,
"StudentsTFlag": false,
"DominantFlag": false,
"WelchSatterthwaiteFlag": false,
"CorrectionFlag": false,
"MeasurementFlag": true,
"WsFlag": false,
"ToleranceReference": "System_Actual",
"DegFree": null,
"Dpf": null,
"DpfPolarity": null,
"ModSource": null,
"Polarity": null,
"RtdType": null,
```

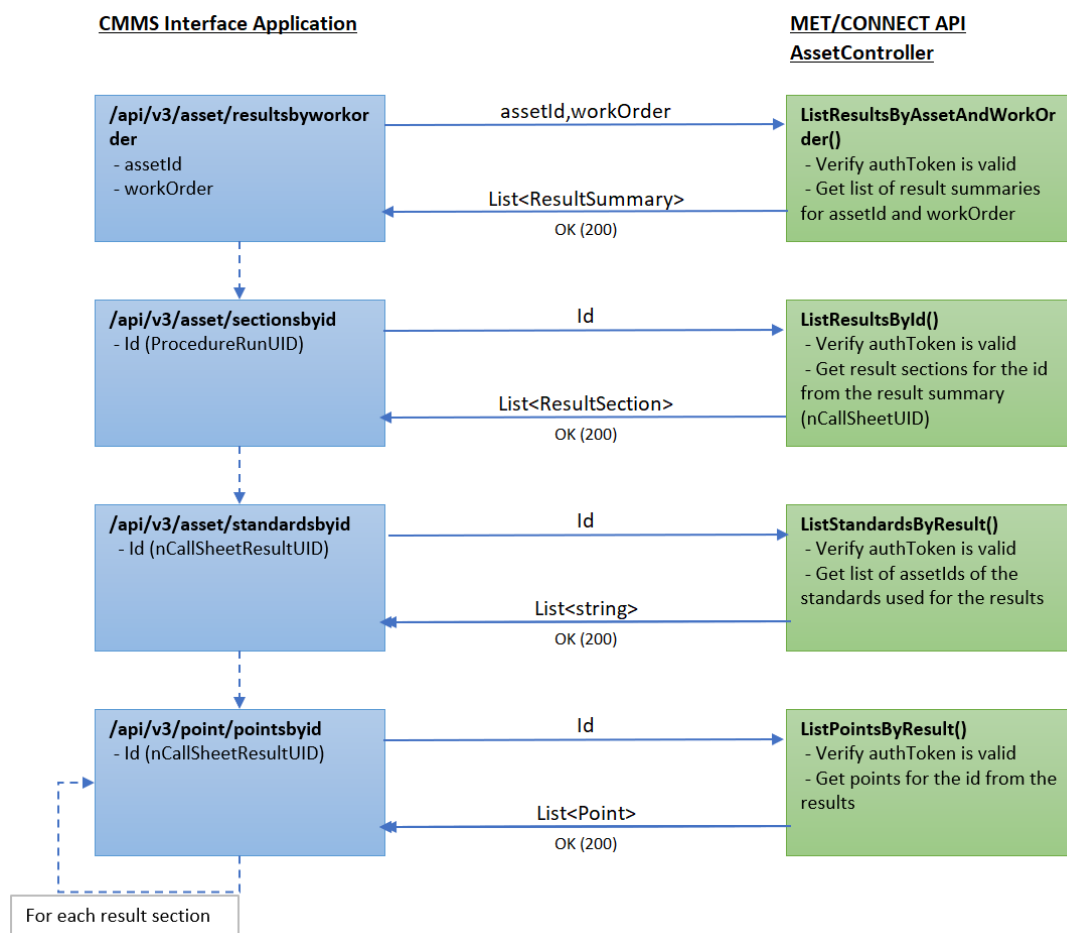
```
    "Sense": null,  
    "TcType": null,  
    "TestStep": "0004-012",  
    "TestStep2": "0004",  
    "sTur": "1086.96",  
    "Video": null,  
    "Wave1": null,  
    "Wave2": null,  
    "NumberOfSamplesReference": null,  
    "NumberOfSamplesDUT": "0",  
    "NumberOfSamplesDiscarded": "0",  
    "ChiSquared": null,  
    "Noisy": false,  
    "Reliable": true  
  }  
]  
}
```

API Version 3

Version 3 of the MET/CONNECT API includes the following changes with respect to version 2:

- Addition of DutResolution, DutResolutionUnit, FixedQuantity, FixedQuantityUnit, VariableQuantity, VariableQuantityUnit to the points/pointsbyid endpoint
- TolerancePositive, TolerancePositiveUnit, ToleranceNegative, and ToleranceNegativeUnit were replaced with UpperLimit, UpperLimitUnit, LowerLimit, and LowerLimitUnit in the points/pointsbyid endpoint

Flow Diagram



HTTP Headers

Request Headers

All version 3 endpoints of the MET/CONNECT API require a request header which specifies the authorization token. The authorization token is the “serial number” that was generated when the MET/TEAM API was installed.

Request Header	Value	Description
Authorization	Basic <token>	Specifies the authorization token (serial number) corresponding to the instance of the MET/CONNECT API that the request is intended for. If the token is invalid, incorrect, or missing, this results in a 401 Unauthorized response.

Response Headers

All version 3 endpoints of the MET/CONNECT API include the following response headers:

Response Header	Value	Description
HttpStatusCode	200 OK	Indicates the request was successfully processed with results
	204 No Content	Indicates the request was successful, but there were no results that met the criteria
	400 Bad Request	Indicates there was a problem with the request. Additional details are included in the “code” and “message” values in the response body.
	401 Unauthorized	Indicates there was a problem validating the authorization token. Additional details are included in the “code” and “message” values in the response body.
	403 Forbidden	Indicates there was a problem validating the MET/TEAM API licenses. Additional details are included in the “code” and “message” values in the response body.
	500 Internal Server Error	Indicates there was an unexpected error processing the request. Additional details are included in the “code” and “message” values in the response body.
API-Version	MetConnect/x.x.x.x	Indicates the current version of the MET/CONNECT API

Asset Controller

The Asset controller handles all asset and work order related queries. Each endpoint is described in detail below.

ResultsByWorkOrder

Purpose:

Gets a list of results for a specific asset Id and work order.

URL:

/api/v3/asset/resultsbyworkorder/<assetId>/<workOrder>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get
<workOrder>	string	Work Order number associated with the results to get

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
<http://metconnect.server/api/v3/asset/resultsbyworkorder/Fluke77-A12322/WO776545B>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "AssetKey": "b01cbeef-e538-446c-b2ae-3eela57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",
      "TimeStamp": "2020-07-21T22:12:32",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
      "ProcedureName": "test_unicode",
      "PromptData": null,
      "ProcedureTagOrdinal": "0000"
    }
  ]
}
```

ResultsByAsset

Purpose:

Gets a list of results for a specific asset id.

URL:

/api/v3/asset/resultsbyasset/<assetId>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v3/asset/resultsbyasset/ASSET01
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "AssetKey": "b01cbeef-e538-446c-b2ae-3ee1a57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",
      "TimeStamp": "2020-07-21T22:12:32",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
      "ProcedureName": "test_unicode",
      "PromptData": null,
      "ProcedureTagOrdinal": "0000"
    }
  ]
}
```

SectionsById

Purpose:

Gets a list of result sections by id

URL:

/api/v3/asset/sectionsbyid/<id>

Parameters:

Name	Type	Description
<id>	string	Id value from a resultsbyworkorder or resultsbyasset response

Response:

Type	Description
string	Json text representing the response status and a list of result sections

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:**Request:**

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v3/asset/sectionsbyid/0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "Ordinal": 1.0,

```



```

    "AssetKey": "b01cbeef-e538-446c-b2ae-3e1a57c7076",
    "DutAssetId": "ASSET01",
    "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
    "WorkOrder": "WO98450845",
    "TimeStamp": "2020-07-21T22:12:32",
    "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
    "TechnicianName": "MET CONNECT",
    "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
    "ProcedureName": "test_unicode",
    "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
    "ResultSection": "MET/CAL Results",
    "Status": "Fail",
    "ProcedureTagOrdinal": "0000"
  }
}

```

StandardsById

Purpose:

Gets a list of asset ids for the standards used for a result section

URL:

/api/v3/asset/standardsbyid/<id>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response

Response:

Type	Description
string	Json text representing the response status and a list of asset ids

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest

E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
<http://localhost:50524/api/v3/asset/standardsbyid/0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data":
  [
    {
      "AssetKey": "f3ebd67b-7fe4-4767-8646-c390ec21dce9",
      "StandardAssetId": "SAMPLE-5500"
    }
  ]
}
```

Point Controller

The Point controller handles all calibration result data point related queries. Each endpoint is described in detail below.

PointsById

Purpose:

Gets a list of calibration result point data for a result section

URL:

/api/v3/point/pointsbyid/<id>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response

Response:

Type	Description
string	Json text representing the response status and a list of point data

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:**Request:**

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v3/point/pointsbyid/bfd49b12-1bf5-4ab5-ae10-aeaa9737a904
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
      "PointKey": "1d064451-31ff-4468-a749-7a9b6234d749",
      "Ordinal": 1,
      "Description": "100.0 C",
      "FSC": "MEMCX",
      "Remarks": null,
      "Status": "Pass",
      "CardinalPoint": "100.0",
      "CardinalPointUnit": "C",
      "Dut": "100",
      "DutUnit": "C",
      "Reference": "100.00",
      "ReferenceUnit": "C",
      "Error": "0.00",
      "ErrorUnit": "C",
    }
  ]
}
```

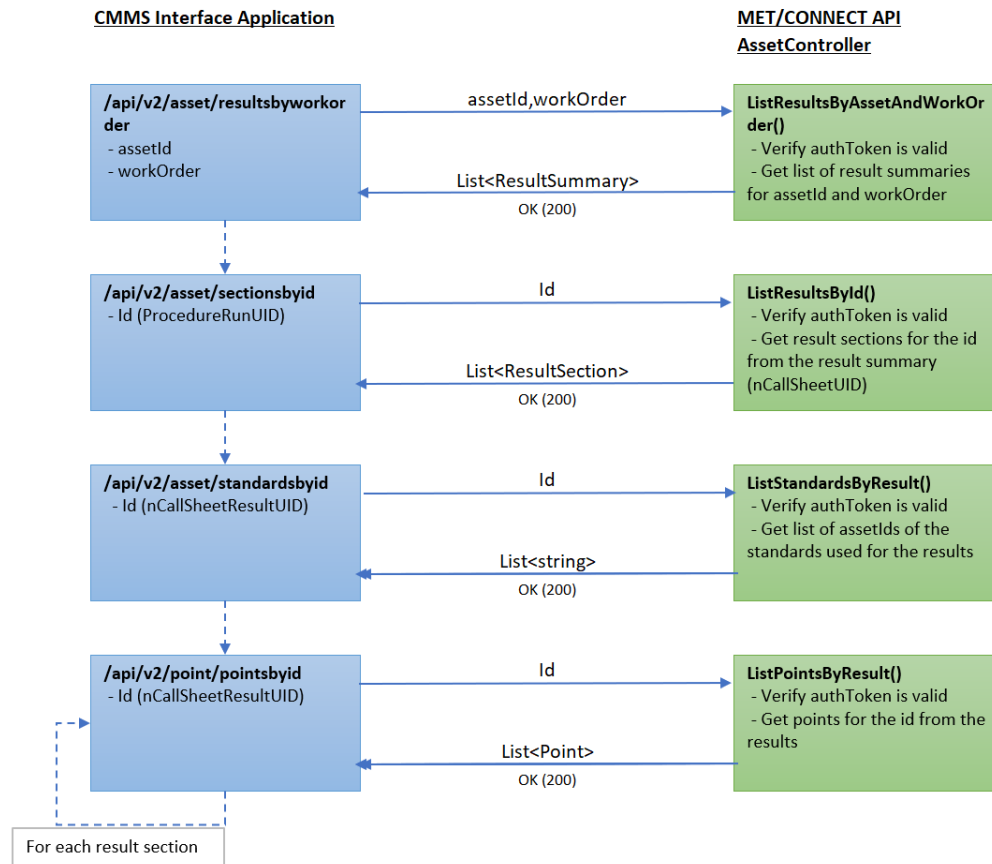
```

    "UpperLimit": "5.00",
    "UpperLimitUnit": "C",
    "LowerLimit": "5.00",
    "LowerLimitUnit": "C",
    "GuardbandUpperLimit": "105.0",
    "GuardbandUpperLimitUnit": "C",
    "GuardbandLowerLimit": "95.0",
    "GuardbandLowerLimitUnit": "C",
    "ExpandedUncertainty": "1.36810e-001",
    "ExpandedUncertaintyUnit": "C",
    "TestStep": "0001-006",
    "FixedQuantity": "100.00",
    "FixedQuantityUnit": "C",
    "VariableQuantity": "100",
    "VariableQuantityUnit": "C",
    "DutResolution": "1",
    "DutResolutionUnit": "C"
  },
  {
    "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
    "PointKey": "6713870b-c1cb-4ae1-aa66-5db3936b422c",
    "Ordinal": 2,
    "Description": "1100 C",
    "FSC": "MEMCX",
    "Remarks": null,
    "Status": "Fail",
    "CardinalPoint": "1100",
    "CardinalPointUnit": "C",
    "Dut": "100",
    "DutUnit": "C",
    "Reference": "1100.0",
    "ReferenceUnit": "C",
    "Error": "-1000.0",
    "ErrorUnit": "C",
    "UpperLimit": "5.0",
    "UpperLimitUnit": "C",
    "LowerLimit": "5.0",
    "LowerLimitUnit": "C",
    "GuardbandUpperLimit": "1105",
    "GuardbandUpperLimitUnit": "C",
    "GuardbandLowerLimit": "1095",
    "GuardbandLowerLimitUnit": "C",
    "ExpandedUncertainty": "6.55348e-001",
    "ExpandedUncertaintyUnit": "C",
    "TestStep": "0002-004",
    "FixedQuantity": "1100.00",
    "FixedQuantityUnit": "C",
    "VariableQuantity": "100",
    "VariableQuantityUnit": "C",
    "DutResolution": "1",
    "DutResolutionUnit": "C"
  }
]
}

```

API Version 2

Flow Diagram



HTTP Headers

Request Headers

All version 2 endpoints of the MET/CONNECT API require a request header which specifies the authorization token. The authorization token is the “serial number” that was generated when the MET/TEAM API was installed.

Request Header	Value	Description
Authorization	Basic <token>	Specifies the authorization token (serial number) corresponding to the instance of the MET/CONNECT API that the request is intended for. If the token is invalid, incorrect, or missing, this results in a 401 Unauthorized response.

Response Headers

All version 2 endpoints of the MET/CONNECT API include the following response headers:

Response Header	Value	Description
HttpStatusCode	200 OK	Indicates the request was successfully processed with results
	204 No Content	Indicates the request was successful, but there were no results that met the criteria
	400 Bad Request	Indicates there was a problem with the request. Additional details are included in the “code” and “message” values in the response body.
	401 Unauthorized	Indicates there was a problem validating the authorization token. Additional details are included in the “code” and “message” values in the response body.
	403 Forbidden	Indicates there was a problem validating the MET/TEAM API licenses. Additional details are included in the “code” and “message” values in the response body.
	500 Internal Server Error	Indicates there was an unexpected error processing the request. Additional details are included in the “code” and “message” values in the response body.
API-Version	MetConnect/x.x.x.x	Indicates the current version of the MET/CONNECT API

Asset Controller

The Asset controller handles all asset and work order related queries. Each endpoint is described in detail below.

ResultsByWorkOrder

Purpose:

Gets a list of results for a specific asset Id and work order.

URL:

/api/v2/asset/resultsbyworkorder/<assetId>/<workOrder>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get
<workOrder>	string	Work Order number associated with the results to get

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:**Request:**

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://metconnect.server/api/v2/asset/resultsbyworkorder/Fluke77-A12322/WO776545B
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "AssetKey": "b01cbeef-e538-446c-b2ae-3eel1a57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",

```

```

        "TimeStamp":"2020-07-21T22:12:32",
        "UserKey":"abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName":"MET CONNECT",
        "ProcedureKey":"45bd6454-f06d-4625-a503-981f93aae1a8",
        "ProcedureName":"test_unicode",
        "PromptData":null
    }
}
]
}

```

ResultsByAsset

Purpose:

Gets a list of results for a specific asset id.

URL:

/api/v2/asset/resultsbyasset/<assetId>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v2/asset/resultsbyasset/ASSET01
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "AssetKey": "b01cbeef-e538-446c-b2ae-3ee1a57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",
      "TimeStamp": "2020-07-21T22:12:32",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
      "ProcedureName": "test_unicode",
      "PromptData": null
    }
  ]
}
```

SectionsById**Purpose:**

Gets a list of result sections by id

URL:

/api/v2/asset/sectionsbyid/<id>

Parameters:

Name	Type	Description
<id>	string	Id value from a resultsbyworkorder or resultsbyasset response

Response:

Type	Description
string	Json text representing the response status and a list of result sections

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v2/asset/sectionsbyid/0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e",
      "Ordinal": 1.0,
      "AssetKey": "b01cbeef-e538-446c-b2ae-3ee1a57c7076",
      "DutAssetId": "ASSET01",
      "WorkOrderKey": "1ee11c9f-bdec-449c-a4fc-7505a344c269",
      "WorkOrder": "WO98450845",
      "TimeStamp": "2020-07-21T22:12:32",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "45bd6454-f06d-4625-a503-981f93aae1a8",
      "ProcedureName": "test_unicode",
      "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
      "ResultSection": "MET/CAL Results",
      "Status": "Fail"
    }
  ]
}
```

StandardsById

Purpose:

Gets a list of asset ids for the standards used for a result section

URL:

/api/v2/asset/standardsbyid/<id>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response

Response:

Type	Description
string	Json text representing the response status and a list of asset ids

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError
E120	No matching results found	204 NoContent

Examples:

Request:

```
curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
http://localhost:50524/api/v2/asset/standardsbyid/0d46f17d-f04e-4272-b2e7-f4eeda4c3a0e
```

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data":
  [
```

```
{
  "AssetKey": "f3ebd67b-7fe4-4767-8646-c390ec21dce9",
  "StandardAssetId": "SAMPLE-5500"
}
```

Point Controller

The Point controller handles all calibration result data point related queries. Each endpoint is described in detail below.

PointsById

Purpose:

Gets a list of calibration result point data for a result section

URL:

/api/v2/point/pointsbyid/<id>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response

Response:

Type	Description
string	Json text representing the response status and a list of point data

Potential Errors:

Error Code	Description	HTTP Response
E100	One or more required parameters is missing	400 BadRequest
E101	Authorization token not defined or value is missing	401 Unauthorized
E102	Invalid URL	400 BadRequest
E103	API serial number not defined	401 Unauthorized
E105	Unexpected error (exception)	500 InternalServerError

E120	No matching results found	204 NoContent
------	---------------------------	---------------

Examples:

Request:

curl -i -X GET -H "Authorization: Basic 08D00719-855E-468D-9FC9-6435FB332B0D"
<http://localhost:50524/api/v2/point/pointsbyid/bfd49b12-1bf5-4ab5-ae10-aeaa9737a904>

Response:

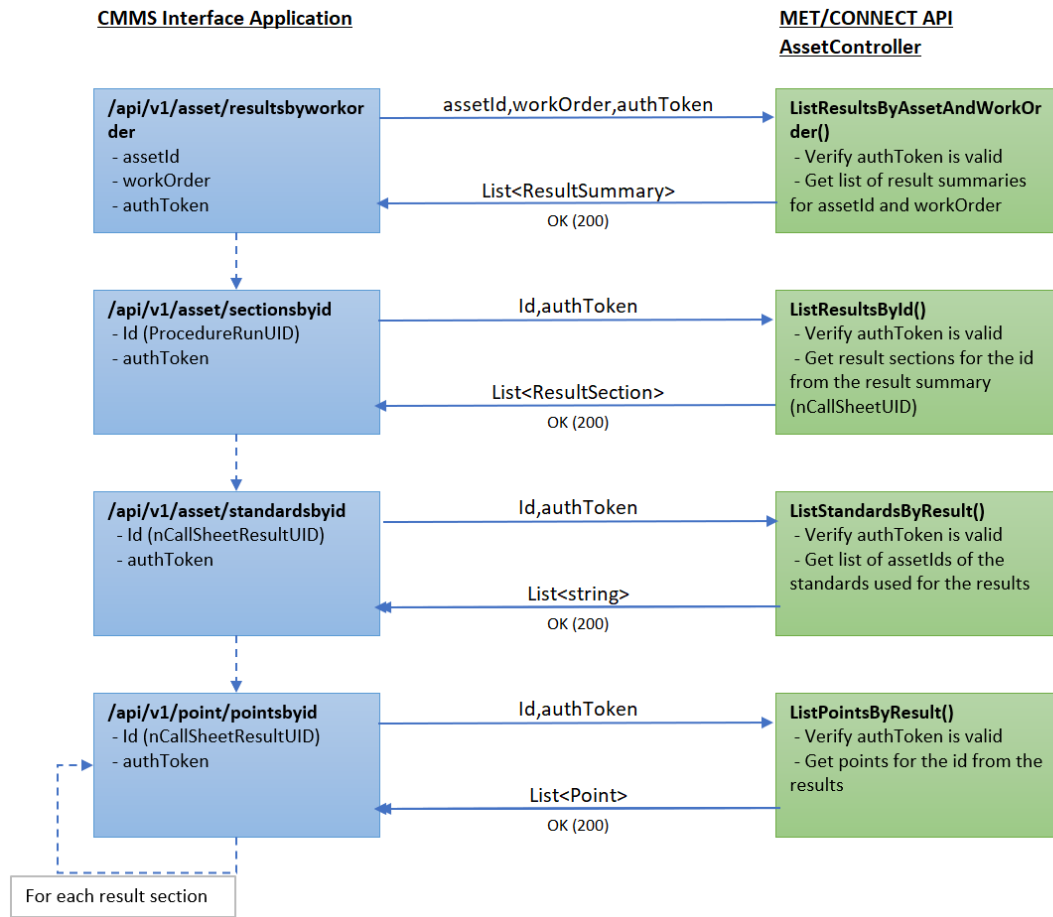
```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
      "PointKey": "1d064451-31ff-4468-a749-7a9b6234d749",
      "Ordinal": 1,
      "Description": "100.0 C",
      "FSC": "MEMCX",
      "Remarks": null,
      "Status": "Pass",
      "CardinalPoint": "100.0",
      "CardinalPointUnit": "C",
      "Dut": "100",
      "DutUnit": "C",
      "Reference": "100.00",
      "ReferenceUnit": "C",
      "Error": "0.00",
      "ErrorUnit": "C",
      "TolerancePositive": "5.00",
      "TolerancePositiveUnit": "C",
      "ToleranceNegative": "5.00",
      "ToleranceNegativeUnit": "C",
      "GuardbandUpperLimit": "105.0",
      "GuardbandUpperLimitUnit": "C",
      "GuardbandLowerLimit": "95.0",
      "GuardbandLowerLimitUnit": "C",
      "ExpandedUncertainty": "1.36810e-001",
      "ExpandedUncertaintyUnit": "C",
      "TestStep": "0001-006"
    },
    {
      "ResultKey": "bfd49b12-1bf5-4ab5-ae10-aeaa9737a904",
      "PointKey": "6713870b-c1cb-4ae1-aa66-5db3936b422c",
      "Ordinal": 2,
      "Description": "1100 C",
      "FSC": "MEMCX",
      "Remarks": null,
      "Status": "Fail",
      "CardinalPoint": "1100",

```

```
"CardinalPointUnit":"C",
"Dut":"100",
"DutUnit":"C",
"Reference":"1100.0",
"ReferenceUnit":"C",
"Error":"-1000.0",
"ErrorUnit":"C",
"TolerancePositive":"5.0",
"TolerancePositiveUnit":"C",
"ToleranceNegative":"5.0",
"ToleranceNegativeUnit":"C",
"GuardbandUpperLimit":"1105",
"GuardbandUpperLimitUnit":"C",
"GuardbandLowerLimit":"1095",
"GuardbandLowerLimitUnit":"C",
"ExpandedUncertainty":"6.55348e-001",
"ExpandedUncertaintyUnit":"C",
"TestStep":"0002-004"
}
]
}
```

API Version 1

Flow Diagram



Asset Controller

The Asset controller handles all asset and work order related queries. Each endpoint is described in detail below.

ResultsByWorkOrder

Purpose:

Gets a list of results for a specific asset Id and work order.

URL:

/api/v1/asset/resultsbyworkorder/<assetId>/<workOrder>/<authToken>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get
<workOrder>	string	Work Order number associated with the results to get
<authToken>	string	Authorization token

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Remarks:

- If the Authorization token is not valid, an error code is returned
- If there are no results that match the criteria, an error code is returned

Potential Errors:

Error Code	Description
E100	One or more required parameters are missing
E101	Authorization token invalid
E120	No matching results found

Examples:**Request:**

<http://34.211.38.110:56788/api/v1/asset/resultsbyworkorder/SAMPLE%2010/MyWorkOrder/8E33CC06-9DF3-4765-B2FE-4DC7E87CFD07>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data":
  [
    {
      "Id": "b3ed5207-6062-4533-8128-35d048bdb995",
      "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
```



```

        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "85864f6b-329c-4bc9-ad3c-e9a5ea96a4fd",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "c0a9621d-605f-4696-a64b-649870080e15",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "d8b96ad0-1658-4db1-9694-fbb683f2c34b",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    }
]
}

```

ResultsByAsset

Purpose:

Gets a list of results for a specific asset id.

URL:

/api/v1/asset/resultsbyasset/<assetId>/<authToken>

Parameters:

Name	Type	Description
<assetId>	string	Asset ID (barcode) associated with the results to get
<authToken>	string	Authorization token

Response:

Type	Description
string	Json text representing the response status and a list of result summaries

Remarks:

- If the authentication token is not valid, an error code is returned
- If there are no results that match the criteria, an error code is returned

Potential Errors:

Error Code	Description
E100	One or more required parameters are missing
E101	Authorization token invalid
E120	No matching results found

Examples:

Request:

<http://34.211.38.110:56788/api/v1/asset/resultsbyasset/SAMPLE%2010/8E33CC06-9DF3-4765-B2FE-4DC7E87CFD07>

Response:

```
{
  "status": "ok",
  "code": "",
```

```

"message": "",
"data":
[
    {
        "Id": "b3ed5207-6062-4533-8128-35d048bdb995",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "85864f6b-329c-4bc9-ad3c-e9a5ea96a4fd",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "c0a9621d-605f-4696-a64b-649870080e15",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "12ba46ad-1202-4690-a5f0-63f17de84c9c",
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "923fe931-a691-430f-9d49-31ceeabb6dc7",
        "WorkOrder": "5b7f9c87-e997-4c38-9fd5-dfac5f71daea",
        "TimeStamp": "2019-11-05T02:54:13.42",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    },
    {
        "Id": "d8b96ad0-1658-4db1-9694-fbb683f2c34b",

```

```
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure"
    }
  ]
}
```

SectionsById

Purpose:

Gets a list of result sections by id

URL:

/api/v1/asset/sectionsbyid/<id>/<authToken>

Parameters:

Name	Type	Description
<id>	string	Id value from a resultsbyworkorder or resultsbyasset response
<authToken>	string	Authorization token

Response:

Type	Description
string	Json text representing the response status and a list of result sections

Remarks:

- If the Authorization token is not valid, an error code is returned
- If the id parameter is missing, an error code is returned
- If there are no results that match the id, an error code is returned

Potential Errors:

Error Code	Description
------------	-------------

E100	One or more required parameters are missing
E101	Authorization token invalid
E120	No matching results found

Examples:

Request:

<http://34.211.38.110:56788/api/v1/asset/sectionsbyid/b3ed5207-6062-4533-8128-35d048bdb995/8E33CC06-9DF3-4765-B2FE-4DC7E87CFD07>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "Id": "b3ed5207-6062-4533-8128-35d048bdb995",
      "Ordinal": 1.0,
      "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
      "DutAssetId": "NewAsset32",
      "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
      "WorkOrder": "MyWorkOrder",
      "TimeStamp": "2019-11-05T03:04:56.85",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
      "ProcedureName": "Fluke 77 User Group Demonstration
Procedure",
      "ResultKey": "8796bc42-841f-4ead-9c06-456ef4fe0d9c",
      "ResultSection": "MET/CAL Results",
      "ResultType": null,
      "Status": "Fail"
    },
    {
      "Id": "b3ed5207-6062-4533-8128-35d048bdb995",
      "Ordinal": 2.0,
      "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
      "DutAssetId": "NewAsset32",
      "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
      "WorkOrder": "MyWorkOrder",
      "TimeStamp": "2019-11-05T03:04:56.85",
      "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
      "TechnicianName": "MET CONNECT",
      "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
      "ProcedureName": "Fluke 77 User Group Demonstration
Procedure",
      "ResultKey": "0b8189a6-252e-4c53-a48d-d71ccf42633f",
      "ResultSection": "Perform Display Test",
```

```

        "ResultType": null,
        "Status": "Fail"
    },
    {
        "Id": "b3ed5207-6062-4533-8128-35d048bdb995",
        "Ordinal": 3.0,
        "AssetKey": "84ce6e37-cda0-488d-b196-207d600207c7",
        "DutAssetId": "NewAsset32",
        "WorkOrderKey": "325421ce-f241-4540-bc00-5f61cb9230d7",
        "WorkOrder": "MyWorkOrder",
        "TimeStamp": "2019-11-05T03:04:56.85",
        "UserKey": "abf8f215-1980-4e47-84da-305699ecf5d5",
        "TechnicianName": "MET CONNECT",
        "ProcedureKey": "f2707114-09d3-4b2d-bd9a-8e61f4b84ca1",
        "ProcedureName": "Fluke 77 User Group Demonstration
Procedure",
        "ResultKey": "d52742f5-b6cb-4630-8807-a04475dd345c",
        "ResultSection": "Perform VAC Verification",
        "ResultType": null,
        "Status": "Fail"
    }
]
}

```

StandardsById

Purpose:

Gets a list of asset ids for the standards used for a result section

URL:

/api/v1/asset/standardsbyid/<id>/<authToken>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response
authToken	string	Authorization token

Response:

Type	Description
string	Json text representing the response status and a list of asset ids

Remarks:

- If the Authorization token is not valid, an error code is returned
- If the id parameter is missing, an error code is returned
- If there are no results that match the id, an error code is returned

Potential Errors:

Error Code	Description
E100	One or more required parameters are missing
E101	Authorization token invalid
E120	No matching results found

Examples:

Request:

<http://34.211.38.110:56788/api/v1/asset/standardsbyid/362D4A74-C144-4A80-BAA9-B46D890837EE/8E33CC06-9DF3-4765-B2FE-4DC7E87CFD07>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data":
  [
    {
      "AssetKey": "f3ebd67b-7fe4-4767-8646-c390ec21dce9",
      "StandardAssetId": "SAMPLE-5500"
    }
  ]
}
```

Point Controller

The Point controller handles all calibration result data point related queries. Each endpoint is described in detail below.

PointsById

Purpose:

Gets a list of calibration result point data for a result section

URL:

/api/v1/point/pointsbyid/<id>/<authToken>

Parameters:

Name	Type	Description
id	string	ResultKey value from a sectionsbyid response
authToken	string	Authorization token

Response:

Type	Description
string	Json text representing the response status and a list of point data

Remarks:

- If the Authorization token is not valid, an error code is returned
- If the id parameter is missing, an error code is returned
- If there are no results that match the id, an error code is returned

Potential Errors:

Error Code	Description
E100	One or more required parameters are missing
E101	Authorization token invalid
E120	No matching results found

Examples:

Request:

<http://34.211.38.110:56788/api/v1/point/pointsbyid/762071F1-7FAE-49B1-8BBA-9E59D55DB6A4/8E33CC06-9DF3-4765-B2FE-4DC7E87CFD07>

Response:

```
{
  "status": "ok",
  "code": "",
  "message": "",
  "data": [
    {
      "ResultKey": "762071f1-7fae-49b1-8bba-9e59d55db6a4",
```



```

        "PointKey": "d2001633-f2d3-44e3-9486-8490739ea175",
        "Ordinal": 9,
        "Description": " 2.700 V @ 100 Hz",
        "FSC": "MEMCX",
        "Remarks": null,
        "Status": "Pass",
        "CardinalPoint": "2.700",
        "CardinalPointUnit": "V",
        "Dut": "2.697",
        "DutUnit": "V",
        "Reference": "2.7000",
        "ReferenceUnit": "V",
        "Error": "-0.0030",
        "ErrorUnit": "V",
        "TolerancePositive": "0.0560",
        "TolerancePositiveUnit": "V",
        "ToleranceNegative": "0.0560",
        "ToleranceNegativeUnit": "V",
        "GuardbandUpperLimit": "",
        "GuardbandUpperLimitUnit": " ",
        "GuardbandLowerLimit": "",
        "GuardbandLowerLimitUnit": " ",
        "ExpandedUncertainty": "",
        "ExpandedUncertaintyUnit": " "
    },
    {
        "ResultKey": "762071f1-7fae-49b1-8bba-9e59d55db6a4",
        "PointKey": "a86d2631-ae30-47e0-a224-f173855ad7dc",
        "Ordinal": 10,
        "Description": " 2.700 V @ 500 Hz",
        "FSC": "MEMCX",
        "Remarks": null,
        "Status": "Pass",
        "CardinalPoint": "2.700",
        "CardinalPointUnit": "V",
        "Dut": "2.7",
        "DutUnit": "V",
        "Reference": "2.7000",
        "ReferenceUnit": "V",
        "Error": "0.0000",
        "ErrorUnit": "V",
        "TolerancePositive": "0.0560",
        "TolerancePositiveUnit": "V",
        "ToleranceNegative": "0.0560",
        "ToleranceNegativeUnit": "V",
        "GuardbandUpperLimit": "",
        "GuardbandUpperLimitUnit": " ",
        "GuardbandLowerLimit": "",
        "GuardbandLowerLimitUnit": " ",
        "ExpandedUncertainty": "",
        "ExpandedUncertaintyUnit": " "
    }
]
}

```

Error Log

Unhandled exceptions are logged to files in %TEMP%\Fluke, named
metconnect_apilog_<date>.log