

Adelaide Metro Real Time Feed Developer Information

Department of Planning, Transport and Infrastructure

People and Business Division

Customer and Information Services

METROCARD Unit

Updated 16/05/2018



Government of South Australia

Department of Planning,
Transport and Infrastructure

CONTENTS

1.	INTRODUCTION	3
1.1	PURPOSE	3
1.2	REFERENCES	3
1.3	TERMINOLOGY AND ABBREVIATIONS	3
2.	SERVICE OVERVIEW.....	4
2.1	GENERAL RULES.....	4
	AVAILABLE	4
2.2	SIRI SERVICES.....	4
2.3	ACCESS METHOD	4
2.4	LIMITS.....	4
3.	SIRI SERVICE REQUEST CRITERIA	5
3.1.1	Stop Monitoring Service.....	5
3.2	OVERVIEW OF STOP MONITORING DELIVERY STRUCTURE.....	6
3.3	USAGE.....	7
3.3.1	SIRI Stop Monitoring request/response examples	7



1. INTRODUCTION

1.1 PURPOSE

This document specifies the SIRI (Services Interface for Real-Time Information) services implementation used by Adelaide Metro to deliver real-time arrival information to customers relative to a bus stop, train or tram station.

1.2 REFERENCES

SIRI Schema & Documentation Downloads

<http://user47094.vs.easily.co.uk/siri/schema/schemas.htm>

Transmodel reference for the latest version of the SIRI standards

<http://www.transmodel-cen.eu/standards/siri>

1.3 TERMINOLOGY AND ABBREVIATIONS

The following abbreviations may be used with intent and meaning interpreted as follows:

GTFS	:	General Transit Feed Specification
SIRI	:	Service Interface for Real-time Information
JSON	:	JavaScript Object Notation



2. SERVICE OVERVIEW

2.1 GENERAL RULES

SIRI can work in different modes (Question/Response, Subscription, etc) per the SIRI specification. The Adelaide Metro Stopmonitoring implementation is based on Question/Response only.

2.2 AVAILABLE SIRI SERVICES

Stop Monitoring Service

The Stop Monitoring service provide stop-centric information about current and future vehicle arrivals at a nominated stop for arrivals within 40 minutes for display to the public.

2.3 ACCESS METHOD

The Adelaide Metro Stop Monitoring service allows access via HTTP using the GET method. Arguments are passed via querystring variables in the requesting URL. Responses are provided in JSON format.

2.4 LIMITS

The service has limits in place to share load between users. These include:

- Minimum 1 similar request per minute.
- Max 4 concurrent connections.
- Max 4 requests per second per IP
- Burst of up to 10 allowed before the limits are applied



SIRI SERVICE REQUEST CRITERIA

3.1.1 Stop Monitoring Service

The following specific criteria apply to the Stop Monitoring Service:

- Minimum, Basic and Normal Stop Monitoring Detail levels are supported.
- The PreviewInterval default value is configured in the central database. Default value will be 20 minutes.
- The MaximumStopVisit and the MinimumStopVisitPerLine parameters are used. As their interpretation in the standard still needs clarification, their usage will be exclusive.

INPUT

Mandatory Parameters:

- MonitoringRef: GTFS stop_id

Optional Parameters: (if not specified they are not considered for output generation, i.e. they are not used for query conditions or default values are used):

- LineRef: GTFS line_id for the stop
- DirectionRef: a comma separated list of the path directions to filter the results (“I” for inbound and “O” for Outbound). Default if values are not specified is “both”.
- DestinationRef: GTFS stop_code value of the destination to filter the results
- StartTime: start of time window for monitoring. (Format m/dd/yyyy+h:mi:ss+AM/PM) Default is the current time if not specified
- PreviewInterval: time window for monitoring, expressed in minutes; if not specified a 20 minutes time window is assumed.
- StopMonitoringDetailLevel: minimum, basic, normal,
- MaximumStopVisits: maximum number of visits to stops to return in the response.
- MinimumStopVisitsPerLine: minimum number of visits per line if MaximumStopVisits is specified

OUTPUT

StopMonitoringDelivery structure:

- ResponseTimeStamp: time at which the response is generated
- MonitoredStopVisit: array of structures of type “MonitoredStopVisit”

MonitoredStopVisit Structure:

- MonitoringRef: GTFS stop_code
- MonitoredVehicleJourney: “MonitoredVehicleJourney” structure

MonitoredVehicleJourney structure:

- Lineref: LineRef structure (line to which the monitored stop belongs to)
- DirectionRef: path direction for the line (“I” or “O” for inbound/outbound)

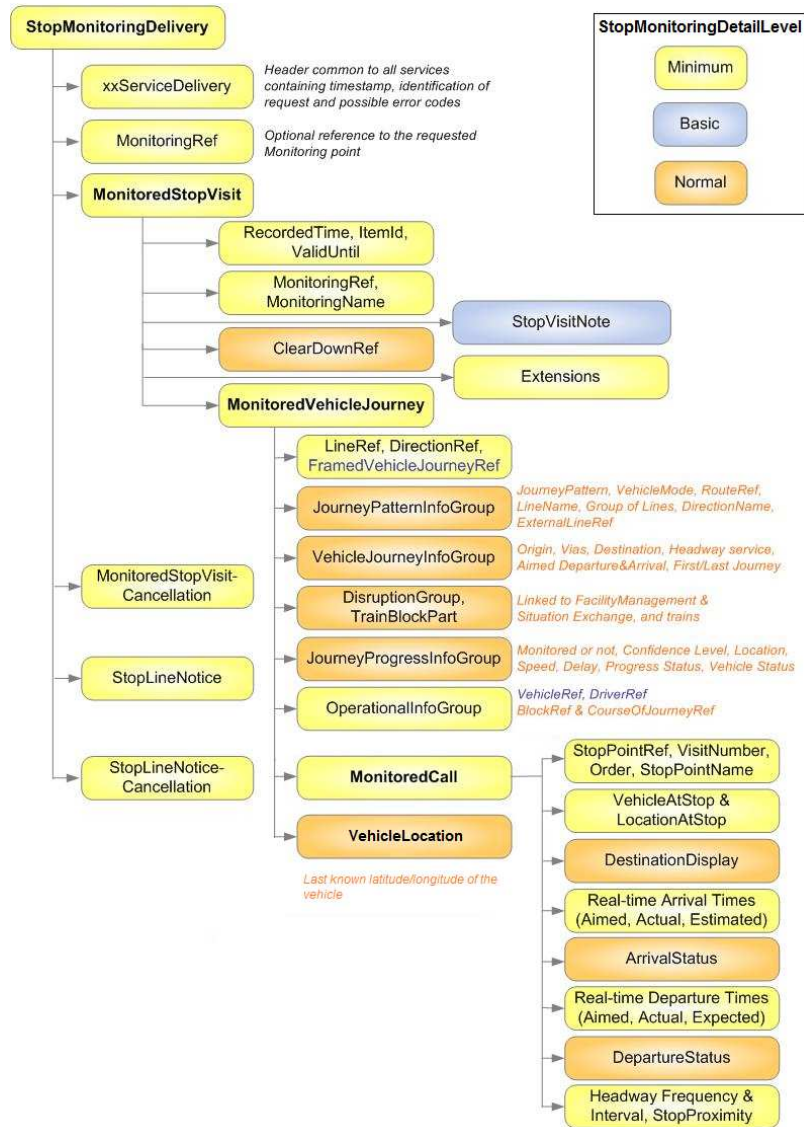


- MonitoredCall: "MonitoredCall" structure
- VehicleLocation: The last known GPS coordinates of the predicted service.

MonitoredCall structure:

- StopPointRef: GTFS stop_code of the monitored stop
- AimedArrivalTime: scheduled arrival time at the stop
- LatestExpectedArrivalTime: arrival time at the stop generated by the forecasting algorithm

3.2 OVERVIEW OF STOP MONITORING DELIVERY STRUCTURE



3.3 USAGE

3.3.1 SIRI Stop Monitoring request/response examples

Basic request

<http://realtime.adelaidemetro.com.au/sirism/SiriStopMonitoring.svc/json/SM?MonitoringRef=16281>

Basic request limited to 1 single arrival - Stop 16281

<http://realtime.adelaidemetro.com.au/sirism/SiriStopMonitoring.svc/json/SM?MonitoringRef=16281&MaximumStopVisits=1>

```
{ "StopMonitoringDelivery": { "ResponseTimestamp": "\/Date(1526444554000+0930)\/", "Status": true, "ValidUntil": "\/Date(0)\/", "MonitoredStopVisit": [ { "RecordedAtTime": "\/Date(1526444505000+0930)\/", "ItemIdentifier": "2fa53f92-782c-42d2-938c-608439bfa392", "MonitoredVehicleJourney": { "BlockRef": { "Value": "379" }, "ConfidenceLevel": 1, "DestinationAimedArrivalTime": "\/Date(1526447040000+0930)\/", "DestinationAimedArrivalTimeSpecified": true, "DestinationName": { "Value": "Port Adelaide" }, "DirectionRef": { "Value": "0" }, "DriverName": "Confidential", "DriverRef": "00000", "FramedVehicleJourneyRef": { "DataFrameRef": { "Value": "2018-05-16" }, "DatedVehicleJourneyRef": "418793", "JourneyPatternRef": { "Value": "21" }, "LineRef": { "Value": "230" }, "Monitored": true, "MonitoredCall": { "StopPointName": { "Value": "X1 King William St" }, "StopPointRef": { "Value": "16281" }, "AimedArrivalTime": "\/Date(1526444100000+0930)\/", "AimedArrivalTimeSpecified": true, "AimedDepartureTime": "\/Date(0)\/", "AimedLatestPassengerAccessTime": "\/Date(0)\/", "DestinationDisplay": { "Value": "Port Adelaide" }, "EarliestExpectedDepartureTime": "\/Date(0)\/", "ExpectedLatestPassengerAccessTime": "\/Date(0)\/", "Item": "\/Date(0)\/", "Item1": "\/Date(0)\/", "LatestExpectedArrivalTime": "\/Date(1526444787000+0930)\/", "LatestExpectedArrivalTimeSpecified": true, "ProvisionalExpectedDepartureTime": "\/Date(0)\/", "VehicleLocationAtStop": { "Items": [ "-34.923921", "138.599433" ] }, "MonitoredSpecified": true, "OperatorRef": { "Value": "5 - Adelaide Metro (Torrens Transit)" }, "OriginAimedDepartureTime": "\/Date(0)\/", "VehicleLocation": { "Items": [ "-34.928660", "138.6009" ] }, "VehicleRef": { "Value": "1002" }, "MonitoringRef": { "Value": "16281" }, "StopVisitNote": [ { "Value": "StopType=BS" } ], "ValidUntilTime": "\/Date(0)\/" }, "MonitoringRef": [ { "Value": "16281" } ], "version": "2.0" } ] }
```



Minimum stop monitoring detail level request - Stop 16490, SEAFRD line only, stop detail level minimum

<http://realtime.adelaidemetro.com.au/sirism/SiriStopMonitoring.svc/json/SM?MonitoringRef=16490&LineRef=SEAFRD&StopMonitoringDetailLevel=minimum>

```
{
  "StopMonitoringDelivery": [
    {
      "ResponseTimestamp": "\/Date(1526444526000+0930)\/",
      "Status": true,
      "ValidUntil": "\/Date(0)\/",
      "MonitoredStopVisit": [
        {
          "RecordedAtTime": "\/Date(1526382324000+0930)\/",
          "ItemIdentifier": "38f48970-e46e-434d-9ale-afe978a5449b",
          "MonitoredVehicleJourney": {
            "DestinationAimedArrivalTime": "\/Date(0)\/",
            "DirectionRef": { "Value": "O" },
            "DriverRef": "00000",
            "LineRef": { "Value": "SEAFRD" },
            "Monitored": true,
            "MonitoredCall": {
              "StopPointName": [ { "Value": "Adelaide" } ],
              "StopPointRef": { "Value": "16490" },
              "AimedArrivalTime": "\/Date(1526444760000+0930)\/",
              "AimedArrivalTimeSpecified": true,
              "AimedDepartureTime": "\/Date(0)\/",
              "AimedLatestPassengerAccessTime": "\/Date(0)\/",
              "EarliestExpectedDepartureTime": "\/Date(0)\/",
              "ExpectedLatestPassengerAccessTime": "\/Date(0)\/",
              "Item": "\/Date(0)\/",
              "Item1": "\/Date(0)\/",
              "LatestExpectedArrivalTime": "\/Date(1526444760000+0930)\/",
              "LatestExpectedArrivalTimeSpecified": true,
              "ProvisionalExpectedDepartureTime": "\/Date(0)\/",
              "MonitoredSpecified": true,
              "OriginAimedDepartureTime": "\/Date(0)\/",
              "MonitoringRef": { "Value": "16490" },
              "ValidUntilTime": "\/Date(0)\/"
            },
            {
              "RecordedAtTime": "\/Date(1526444475000+0930)\/",
              "ItemIdentifier": "5d89882f-129d-4a46-a935-426231a9455b",
              "MonitoredVehicleJourney": {
                "DestinationAimedArrivalTime": "\/Date(0)\/",
                "DirectionRef": { "Value": "I" },
                "DriverRef": "00000",
                "LineRef": { "Value": "SEAFRD" },
                "Monitored": true,
                "MonitoredCall": {
                  "StopPointName": [ { "Value": "Adelaide" } ],
                  "StopPointRef": { "Value": "16490" },
                  "AimedArrivalTime": "\/Date(1526444580000+0930)\/",
                  "AimedArrivalTimeSpecified": true,
                  "AimedDepartureTime": "\/Date(0)\/",
                  "AimedLatestPassengerAccessTime": "\/Date(0)\/",
                  "EarliestExpectedDepartureTime": "\/Date(0)\/",
                  "ExpectedLatestPassengerAccessTime": "\/Date(0)\/",
                  "Item": "\/Date(0)\/",
                  "Item1": "\/Date(0)\/",
                  "LatestExpectedArrivalTime": "\/Date(1526445144000+0930)\/",
                  "LatestExpectedArrivalTimeSpecified": true,
                  "ProvisionalExpectedDepartureTime": "\/Date(0)\/",
                  "MonitoredSpecified": true,
                  "OriginAimedDepartureTime": "\/Date(0)\/",
                  "MonitoringRef": { "Value": "16490" },
                  "ValidUntilTime": "\/Date(0)\/"
                },
                {
                  "RecordedAtTime": "\/Date(1526382343000+0930)\/",
                  "ItemIdentifier": "a74d32fc-c926-4ae9-9b2b-31a5e6c83842",
                  "MonitoredVehicleJourney": {
                    "DestinationAimedArrivalTime": "\/Date(0)\/",
                    "DirectionRef": { "Value": "O" },
                    "DriverRef": "00000",
                    "LineRef": { "Value": "SEAFRD" },
                    "Monitored": true,
                    "MonitoredCall": {
                      "StopPointName": [ { "Value": "Adelaide" } ],
                      "StopPointRef": { "Value": "16490" },
                      "AimedArrivalTime": "\/Date(1526445660000+0930)\/",
                      "AimedArrivalTimeSpecified": true,
                      "AimedDepartureTime": "\/Date(0)\/",
                      "AimedLatestPassengerAccessTime": "\/Date(0)\/",
                      "EarliestExpectedDepartureTime": "\/Date(0)\/",
                      "ExpectedLatestPassengerAccessTime": "\/Date(0)\/",
                      "Item": "\/Date(0)\/",
                      "Item1": "\/Date(0)\/",
                      "LatestExpectedArrivalTime": "\/Date(1526445660000+0930)\/",
                      "LatestExpectedArrivalTimeSpecified": true,
                      "ProvisionalExpectedDepartureTime": "\/Date(0)\/",
                      "MonitoredSpecified": true,
                      "OriginAimedDepartureTime": "\/Date(0)\/",
                      "MonitoringRef": { "Value": "16490" },
                      "ValidUntilTime": "\/Date(0)\/"
                    }
                  ],
                  "MonitoringRef": [ { "Value": "16490" } ],
                  "version": "2.0"
                }
              ]
            }
          ]
        }
      ]
    }
  ]
}
```

