amplivox
For everyone

Specification of "Amplivox Connect" communications

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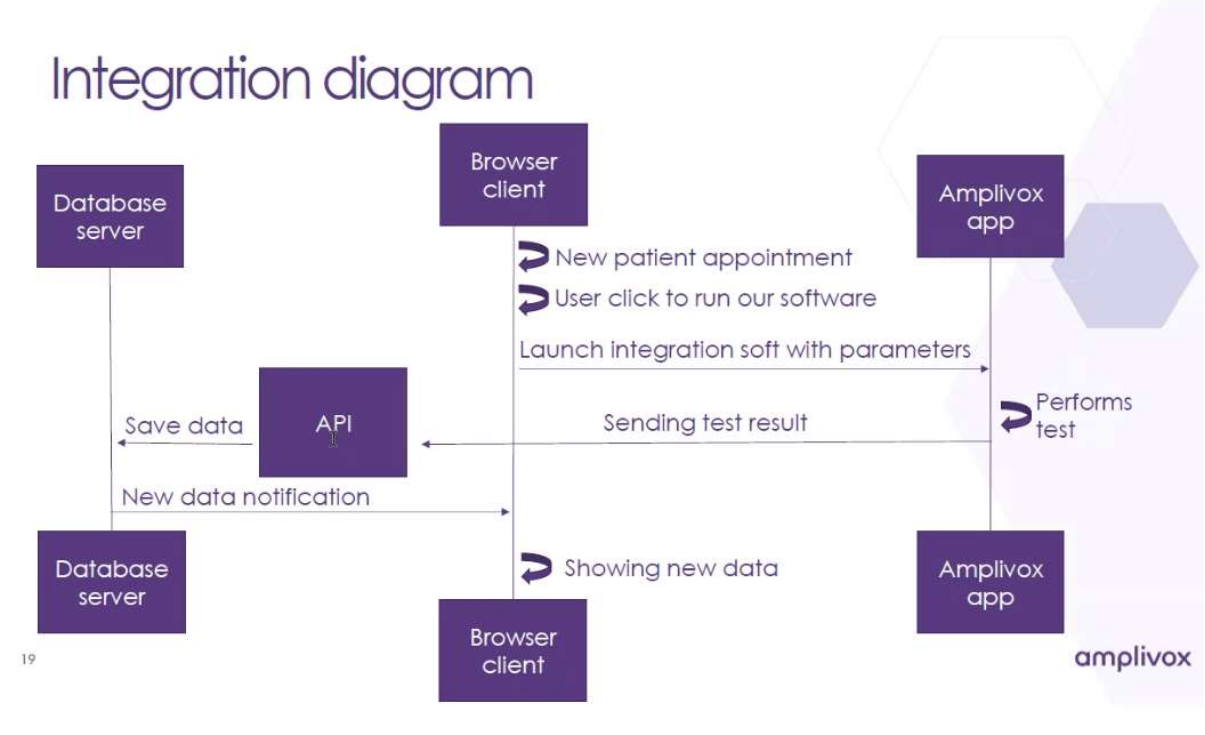
Amplivox Ltd, 3800 Parkside, Solihull Parkway, Birmingham Business Park,
Birmingham, West Midlands, B37 7YG, United Kingdom

www.amplivox.com | +44 (0)1865 880846 | hello@amplivox.com

Registered in England No. 01003695

Scope of this document:

-How to launch Amplivox OH Connect.
-How Amplivox OH Connect sends the audiometric results back.



LAUNCHING Amplivox Connect

Before starting Amplivox OH Connect on the user's computer, the installer must be run. This installer adds certain keys to the user's registry that enable the Amplivox URI Scheme. To run Amplivox OH Connect, the URI "amplivox:" must be invoked.

The user's machine will find Amplivox OH Connect and run it, passing the arguments specified in the called URI. the arguments must be separated by a '/'. Arguments should be sent in unescaped form, as they will be escaped in Amplivox OH Connect.

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URI ARGUMENTS	Description
Start	What action the Amplivox OH Connect should initiate. Currently, only one action is supported, which is the autotest
callback	URL of the callback. The application will use this address to send back the result data.
token [optional]	String to be attached to the callback as described below. The idea is that the data collected by Amplivox OH Connect should be sent back to the caller with the token attached so that it can be identified by the database software.

A sample URI would be:

amplivox:/start/autotest/callback/https%3A%2F%2FendpointURL.com%2Fanything-youd-like/token/unique-identifier

RECEIVING DATA FROM Amplivox Connect

Amplivox Connect will send the data back to {callback} before closing, attaching both {token} if provided and the resulting test data in the POST. The data sent will be in JSON format. Below is an example of the JSON data:

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```
{
 "AudiometryTest": {
  "DateOfTest": "2022-11-03T10:30:20.3047749+01:00",
  "DeviceSettings": {
   "CalibrationDate": "2022-11-03T10:30:20.3048563+01:00",
   "PhonesType1": "dd45",
   "PhonesType2": "dd45",
   "ProductName": "PC850",
   "SerialNumber": 123,
   "InsertSelected": true
  },
  "ReadingSets": [
   {
    "AidedType": "Aided",
    "Ear": "Left",
    "Readings": [
     {
      "Db": 100.0,
      "Frequency": 1000,
      "Masked": false,
      "TurningPoints": [
       2.0,
       3.0,
       4.0
      ],
      "BsaMaskingRuleType": "Regular",
      "ReadingType": "AC"
     },
     {
      "Frequency": 1500,
      "Masked": true,
      "BsaMaskingRuleType": "Regular",
      "ReadingType": "AC"
     }
    ],
    "Domain": "Tone"
   },
   {
    "AidedType": "Unaided",
    "Ear": "Binaural",
    "Readings": [
     {
      "Intensity": 20,
      "Masked": false,
      "ScorePercent": 100,
      "ReadingType": "AC"
     }
    ],
    "Syllabication": "Multi",
    "Domain": "Speech"
   }
  ],
  "AverageNoise": 30.0,
  "Version": "1.0.0.0",
  "Source": "AutoTest",
  "IsEdited": false
 },
 "Token": "unique-identifier"
}
```

Top-level Json Object

Object	Type	Description
AudiometryTest	AudiometryTest	Audiometric test data
Token	String (Optional)	Contains token provided as "Token" parameter in start-up URI

AudiometryTest Json Object

Object	Type	Description
DateOfTest	ISO 8601 date	Date when the test was performed.
DeviceSettings	DeviceSettings (Optional)	This Json object contains data about device performing the test
ReadingSets	ReadingSet []	A collection of "ReadingSet" JsonObjects. There can be multiple sets in one "AudiometryTest" in different domains, such as speech and tone
AverageNoise	Float (Optional)	Some audiometers can collect noise data. This field stores the average noise level for all available frequencies
Version	String	Version of DLL producing the JSON It can be used in the future to distinguish new JSON objects from old ones.
Source	string	How the test was conducted. The following values are currently available: - AutoTest (Hughson-Westlake automatic test procedure) - Bekesy (Bekesy automatic test procedure) - Download (Downloaded from a connected device. This indicates that the test was performed by the device, not by the PC software controlling the device) - Manual_Entry (Entered manually into the software) - Temporary (Internal state in Amplivoxs' SW, should not be sent)
IsEdited	bool	A flag indicating that results have been modified by software

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ReadingSet Json Object

Object	Type	Description
AidedType	string	The test can be conducted with the hearing aids on or off. Indicates how the test was conducted. Available values are: • Unaided, • Aided
Ear	string	Which ear was tested. Available values are: • Left • Right • Both • None • Binaural
Readings	ToneReading[] or SpeechReading[]	A collection of "Reading" JsonObjects. Depending on "Domain" Object, these can either be SpeechReading or ToneReading.
Syllabication	String (Optional)	Indicates how may syllables the tested words had. Applies only to the speech domain: • Multi • Single
Domain	string	Indicates what type of audiology test was performed. We support two types: • Tone • Speech

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ToneReading Json Object

Object	Type	Description
Db	Float (Optional)	Sound intensity at which patient hears the tone.
Frequency	integer	The frequency of the tone being tested. Together with the Db value, it forms an XY pair on the audiogram (X - frequency, Y - intensity(decibels)).
Masked	bool	Indicates whether the tested frequency was masked (masking is playing a noise for not-tested ear so that the other ear does not hear the tested frequency)
TurningPoints	float[] (Optional)	Currently not used
BsaMaskingRuleType	string	Currently not used. Possible values: • Regular • Incorrect • Adjusted
ReadingType	string	Answers "how to interpret this point" question. Audiologists like to have various points drawn on audiograms. Property can be: • AC • ACNoResponse • BC • BCNoResponse • UThreshold • FreeField

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SpeechReading Json Object

Object	Type	Description
Intensity	integer	Intensity(decibels) of presented speech.
Masked	bool	Indicates whether the tested frequency was masked (masking is playing a noise for not-tested ear so that the other ear does not hear the tested frequency)
ScorePercent	integer	Percentage score of recognized words for intensity (decibels). Together with Intensity this plots a point on Speech audiogram (X- Intensity, Y- ScorePercent)
ReadingType	string	Answers "how to interpret this point" question. Audiologists like to have different points drawn on their audiograms. Property can be: • AC • ACNoResponse • BC • BCNoResponse • UThreshold • FreeField

DeviceSettings Json Object

Object	Type	Description
CalibrationDate	ISO 8601 date	Date of last device calibration
PhonesType1	string	String value representing for which headset model was the device calibrated
PhonesType2	string	String value representing for which headset model was the device calibrated
ProductName	string	Model name of device conducting test
SerialNumber	int	Device serial number
InsertSelected	bool	Indicates if special headset, like ip30 headset, was used to perform the test

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