OPEN ABAL

Getting Started Version 1.0c

Abstract

This document describes OPEN ABAL with an objective of helping first time users to get started with the new version of the language and the new open environment.

Jamie Marshall

ijm@amenesik.Com

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Introduction

This document describes OPEN ABAL, with the objective of helping first time users getting started with the new version of the language and the open environment.

Connection

Your new OPEN ABAL system has most probably been installed on a virtual machine, that was deployed in the cloud. Consequently, to be able to use OPEN ABAL, you must first be able to connect to the remote cloud machine.

In each of the connection examples below, the term **hostname** represents the name of your OPEN ABAL machine at **openabal.com**, **username** and **password** represent the access credentials that were provided along with **private key** and **hostname** information.

Connection using LTS

Launch your WEB Browser, Chrome, Firefox, Edge, Safari or other and navigate to the OPEN LTS endpoint specified by the URL corresponding to your machine.

https://**hostname**.openabal.com:9990/openlts/v1/master

You will be required to specify the **username** and **password** that was provided, for connection to your machine, then you will arrive at the master configuration page of your LTS Server.

Navigate to the list of users using the **User Icon** in the top menu bar and click on the **Launch icon** beside the **guest** user configuration. An LTS session will be started, and you will gain access to your OPEN ABAL machine. For information concerning the use of the LTS terminal session please refer to the corresponding section in this document relating to the LTS Session.

Connection using SSH

The contents of the private key file that was provided should be stored in a text file named “private.key”. On LINUX the **private key** file should be READ ONLY for only the USER.

```
$ chmod 0400 private.key
```

The contents of the private key file will be like the example shown below, but, with many more lines between the header and footer.

```
-----BEGIN RSA PRIVATE KEY-----
MIIEowIBAAKCAQEAmtSy2dKhdzMZslHUDXqS+xvDNJ22xiMdeIg6Cba5fgt8XYuw
7fbRyt6UC+MjBxexRMU4KBurCViVzOcSl7OxKMsoBxU5fdOCPdYo56iJ64u+iBGl
Tkq64ZCWD9P/+nggktSZkV4HJy+hM7IW8ARR29BQWea8gA1EJvNu6MEUJSKCTpOT
ktGtTsdmATeIKwW6LqHEUUNFYtuht8qNObOUBphGR1kaq4F7phiP
-----END RSA PRIVATE KEY-----
```

You can now use the **private key** to connect to your OPEN ABAL machine.

```
$ ssh -i private.key ubuntu@hostname.openabal.com
```

Once you have connected to the remote OPEN ABAL machine you should position your environment as shown below.

```
$ sudo su
$ cd /home/abal64
```

```
$ . ./ash.sh
```

When connecting through LTS, the preparation of the OPEN ABAL environment is performed automatically.

Connection using PUTTY

Connection using PUTTY, from WINDOWS, requires preparation of the **private key** file and then preparation of a PUTTY connection configuration.

Private Key Preparation

- Open the **puttygen.exe** utility under WINDOWS.
- Click on the "Load" button.
- Navigate to the directory where you saved the provided **private key** text file.
- Select "all files (*.*)"
- Select your **private key** text file from the list.
- Click on "Open" to load it.
- Click on the "Save Private Key"
- Accept to save it without a passphrase.
- Specify the name of your **private key** file
- Click save to create your converted, **PPK** format, **private key** file.
- Leave PUTTYGEN.

PUTTY Configuration

- Open putty.exe
- Enter **hostname**.**openabal.com** in the "Host Name or IP Address" field,
- Enter **hostname** in the "Saved Sessions" field.
- Leave the "port" as 22
- Leave the "connection type" as SSH,
- Click on "Save" to save and create your new configuration.
- Open the "SSH" element in the left-hand tree view.
- Click on the "Auth"
- Use the "Browse" button to browse to and select your **PPK private key** file.
- Click on "Open" to use the selected **PPK private key** file.
- Scroll back up and select "Session" from the lefthand tree view
- Click on the "Save" button to update your PUTTY configuration with the **private key**.

You can now use that newly created PUTTY session to connect to your OPEN ABAL machine.

Once you have connected to the remote OPEN ABAL machine you should position your environment as shown below.

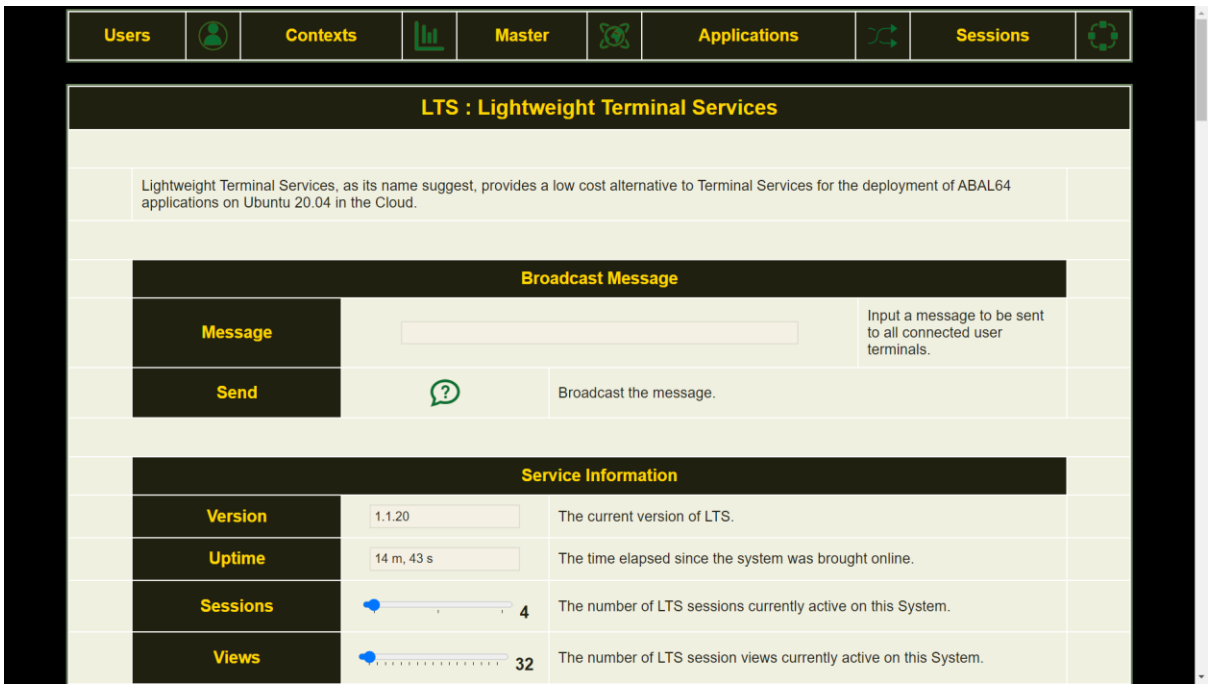
```
$ sudo su
$ cd /home/aba164
$ . ./ash.sh
```

LTS TERMINAL EMULATION

OPEN ABAL has been designed for use in conjunction with a new terminal management environment known as Lightweight Terminal System or LTS for short. This system allows connection to OPEN ABAL applications, running on industry standard LINUX machines, deployed in any of the major public and private clouds, using any industry standard web browser from all major hardware platforms and operating systems.

MASTER CONFIGURATION PAGE

Connection to LTS, as described above, after authentication of your user credentials, will present the MASTER Configuration page, shown below.

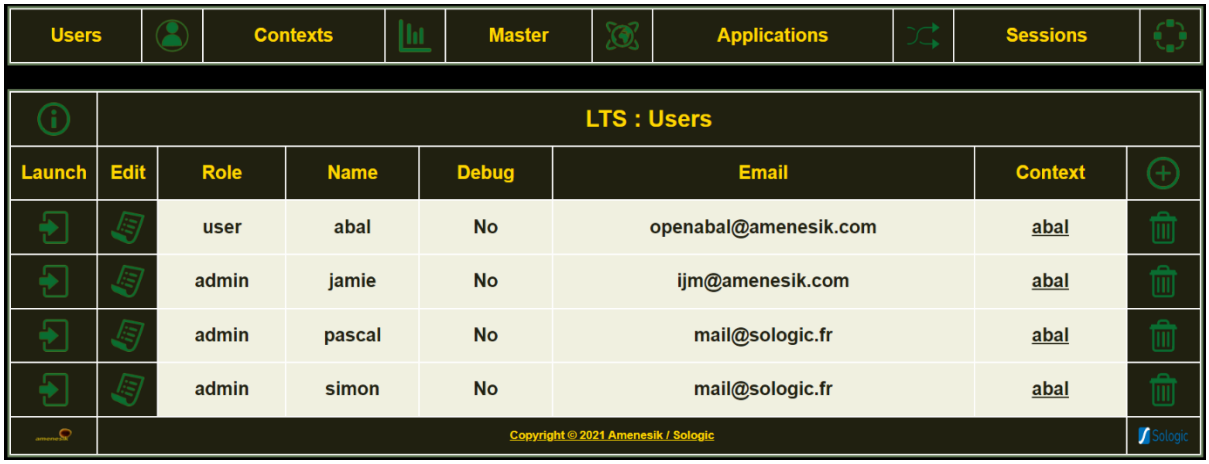


Scrolling down this page will give access to the collection of master configuration parameters for the LTS Master Session management Server and the collection of Session Slave Servers alike.

The LTS configuration and management interface has been designed to be simple, efficient, and intuitive for both initial and advanced use. Labelled image icons allow access to the various sections and operations. Popup hints may be globally activated and disactivated, by the HINT option in the master configuration, for all of the LABEL/ICON operations.

The menu bar at the top allows access to the secondary pages of the LTS configuration, from left to right, user management, context maagement, application management and session management. To access each of these sections simply click on the corresponding image icon to the right of the label.

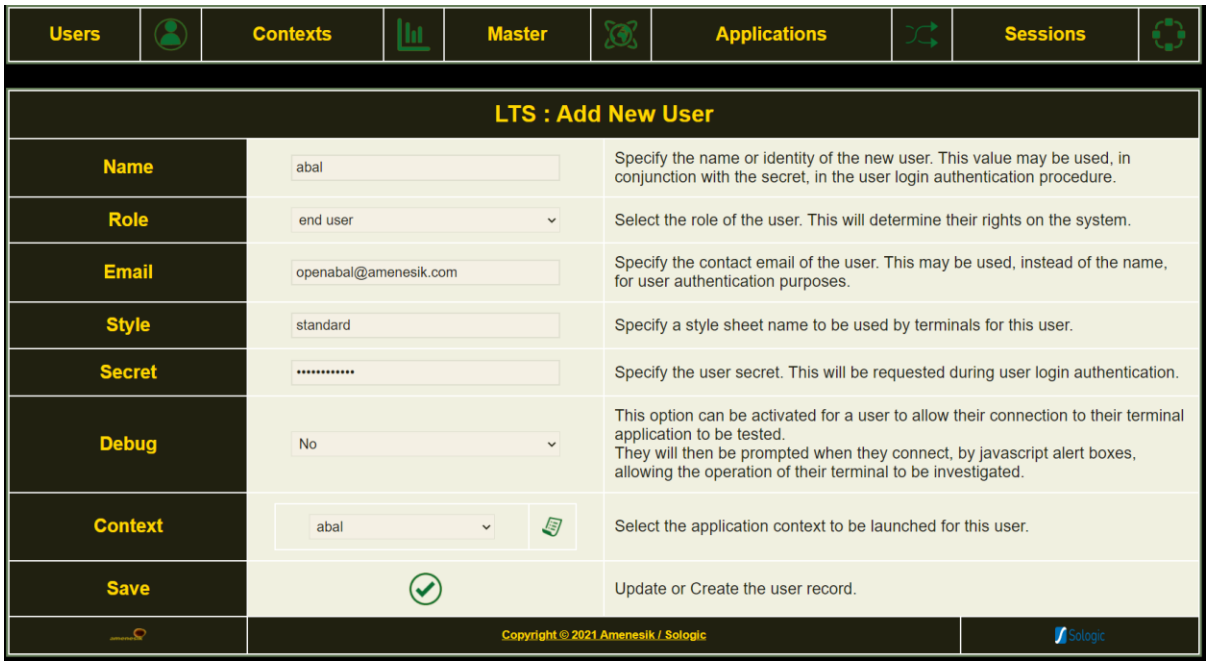
USER LIST PAGE



The **USER** list shows the collection of user contexts that have been defined for the **LTS** System. The complete **USER** configuration may be retrieved, in **JSON** format, for backup and reference purposes, by clicking on the **INFO** icon up in the top left-hand corner of the table. **NEW USER** records can be created by clicking on the "**+**" icon in the top right-hand corner of the table. User configurations can be deleted by clicking the **DELETE** icon in the right-hand column of each user record. User configurations can be inspected and modified by clicking on the **EDIT** icon in the second to left-hand column of each user record. A **TERMINAL SESSION** may be launched for a specific User configuration by clicking on the left most **LAUNCH** icon of each user record. The hyper-link on the context name in the user record allows direct access to the corresponding context record. For more information concerning a **TERMINAL SESSION**, please consult the corresponding section of this document entitled LTS TERMINAL SESSION.

USER RECORD PAGE

The following image shows the fields of the USER RECORD allowing modification and update of values and creation of new user descriptions.



Name

This field provides the unique name of the user record. It should be composed of standard ASCII alpha numeric characters and hyphen and underscore. It must not contain any space characters. The value of this field identifies the user record and will also be used, in conjunction with the value of the secret, to form the authentication credentials.

Role

This field determines the nature of the user description, and its value will be selected from the values proposed by the drop-down selection list comprising “site administrator” and “end user”. The value of a role will be checked during authentication of a login and only site administrators will be allowed access to the LTS Management console. Certain application contexts may also be limited to site administrator users too.

Email

This field provides the electronic email address identity of the user record. It may also be used in conjunction with the value of the secret to form a valid alternative authentication credential.

Style

This field is reserved for future extensions and should simply be set to the value “standard”.

Secret

This password entry field allows the value of the secret of the authorisation credential to be submitted.

Debug

This field allows debug operational mode to eb activated or inhibited. When debug mode is active, JAVASCRIPT alert message will be sent to the browser terminal session window during the session start-up and session shutdown phases allowing the progression of each to be validated.

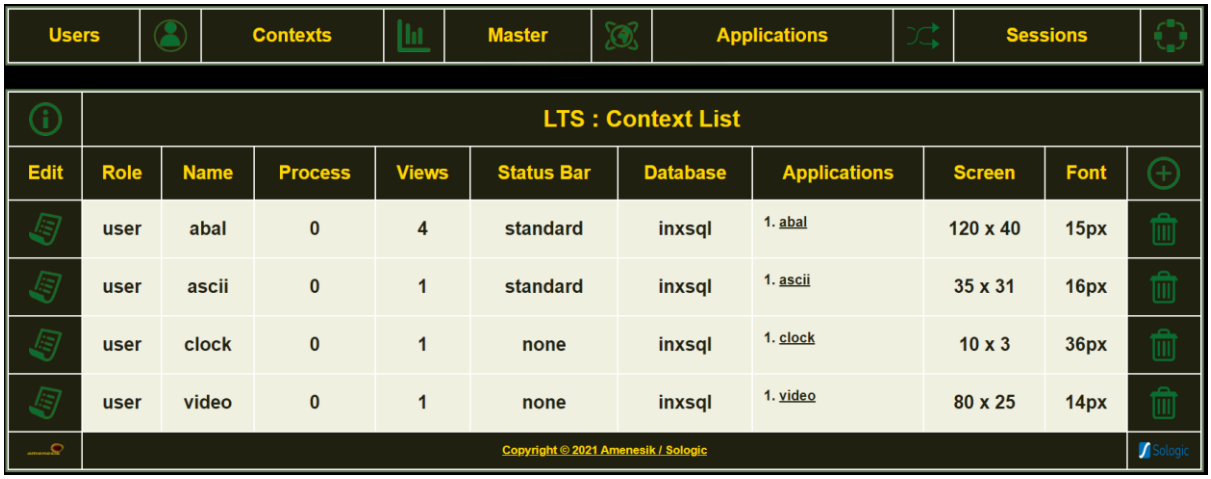
Context

This field allows an application context to be associated with this user description and presents a drop-down selection list containing the complete list of application context definition names. The value of this field determines the composition of the terminal session that will be started for this user description. The **EDIT** icon to the left of the context selection allows direct access to the select context configuration record.

Save

The SAVE icon allows modifications to the user record to be save to the LTS database. If the username exists then the corresponding database record will be updated, otherwise a new user description record will be created. This facilitates the creation of user records by copying existing records and simply changing their name.

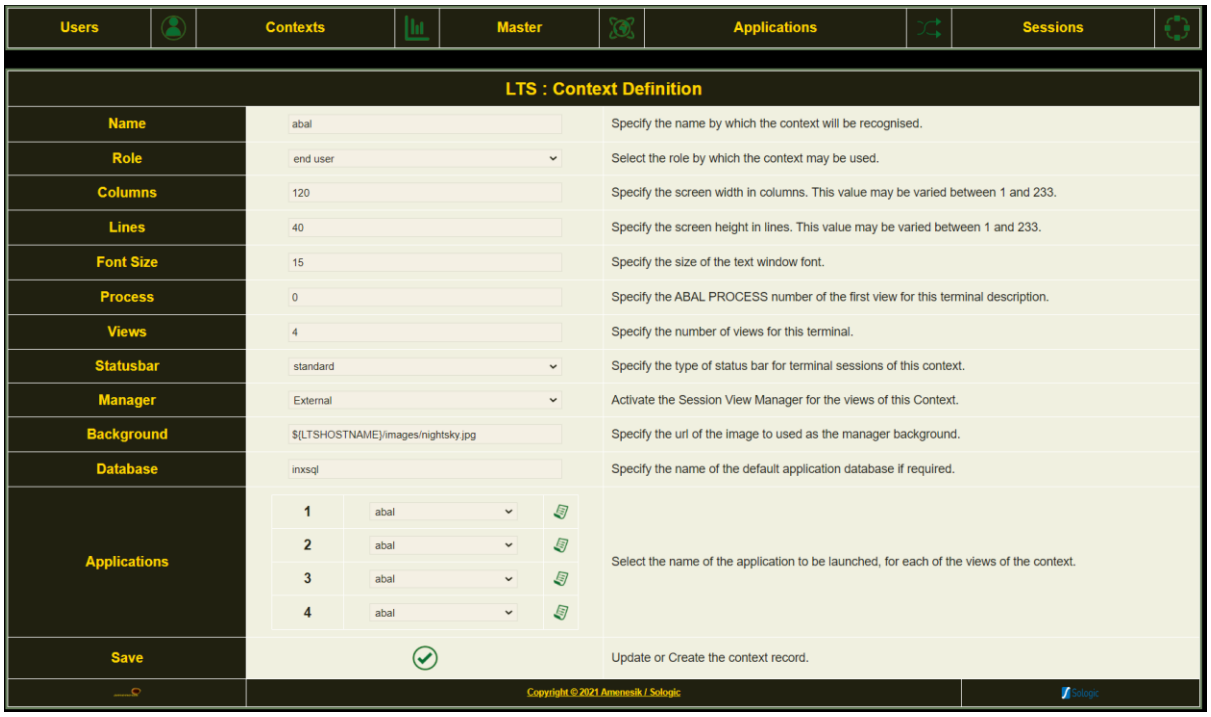
CONTEXT LIST PAGE



The **CONTEXT** list shows the collection of application contexts that have been defined for the **LTS** System. The complete **CONTEXT** configuration may be retrieved, in **JSON** format, for backup and reference purposes, by clicking on the **INFO** icon up in the top left-hand corner of the table. **NEW CONTEXT** records can be created by clicking on the "**+**" icon in the top right-hand corner of the table. Context configurations can be deleted by clicking the **DELETE** icon in the right-hand column of each context record. Context configurations can be inspected and modified by clicking on the **EDIT** icon in the second to left-hand column of each context record. The hyper-link on each of the application names in the context record allows direct access to the corresponding application record.

CONTEXT RECORD PAGE

The following image shows the fields of the CONTEXT RECORD allowing modification and update of values and creation of new context descriptions.



Name

This field provides the unique name of the context record. It should be composed of standard ASCII alpha numeric characters and hyphen and underscore. It must not contain any space characters. The

value of this field identifies the context record associated with user descriptions and session configurations.

Role

This field determines the role of the user description required for access to sessions launched for current context definition. The value will be selected from the values proposed by the drop-down selection list comprising “site administrator” and “end user”.

Columns

The value of this field determines the width of the terminal session screen in columns. It will be used to set the value of the COLUMNS and LTSCOLUMNS environment variables and will influence the value returned by the ABAL instruction CONF (2).

Lines

The value of this field determines the height of the terminal session screen in lines. It will be used to set the value of the LINES and LTSLINES environment variables and will influence the value returned by the ABAL instruction CONF (1).

Font Size

The value of this field will be used in conjunction with the values of the COLUMNS and LINES fields in calculating the final and effective font size used for the display of the terminal session window in the browser.

Process

The value of this field will be used to set the ABALPROCESS and LTSPROCESS environment variables for the first view in the collection of views described by a context definition. It determines the number to be returned by the ABAL instruction PROCESS. Each subsequent view will be incremented from this initial number.

Views

The value of this field determines the number of views that are to be created for each terminal session launched for this application context.

Status bar

The value of this field, selected from a drop-down selection, allows activation of the “standard” status bar, or inhibition when set to “none”.

Manager

The value of this field, selected from a drop-down selection, allows activation of the manager welcome message when set to “external”, or direct launch of the application when set to “none”. The value of “internal” is not to be used and will be removed.

Background

The value of this field allows a URL to be specified as the back-drop image for the MANAGER welcome screen.

Database

The value of this field allows the name of the default database to be specified and will set the value of the INXSBASE environment variable.

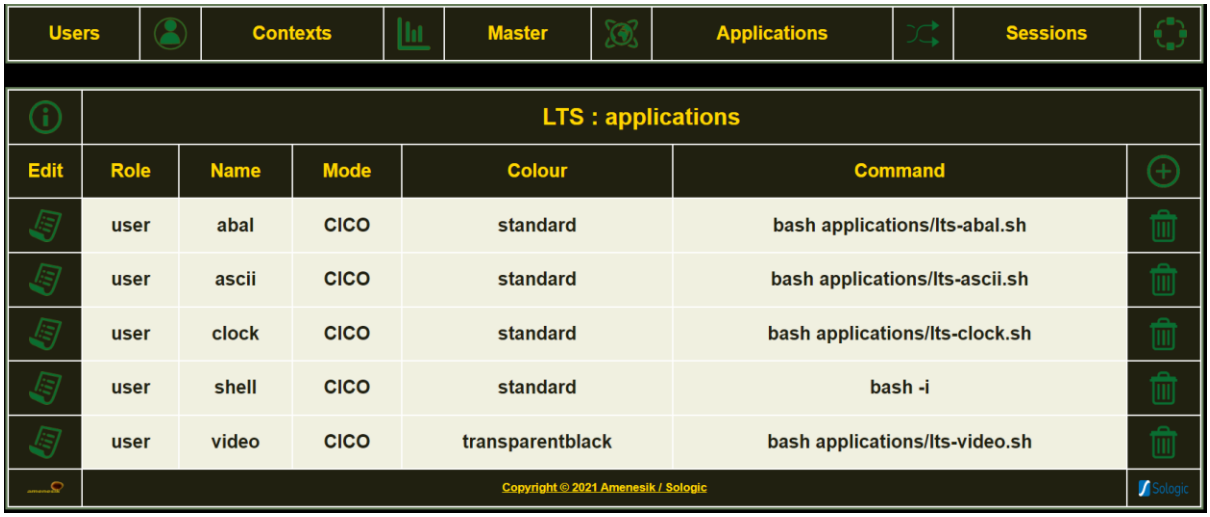
Applications

This field allows selection of the application description, from a drop-down list comprising the list of all application definitions, for the corresponding view of the context description. The EDIT icon to the right allows direct access to the corresponding application description.

Save

The SAVE icon allows modifications to the context record to be saved to the LTS database. If the context name exists then the corresponding database record will be updated, otherwise a new context description record will be created. This facilitates the creation of context records by copying existing records and simply changing their name.

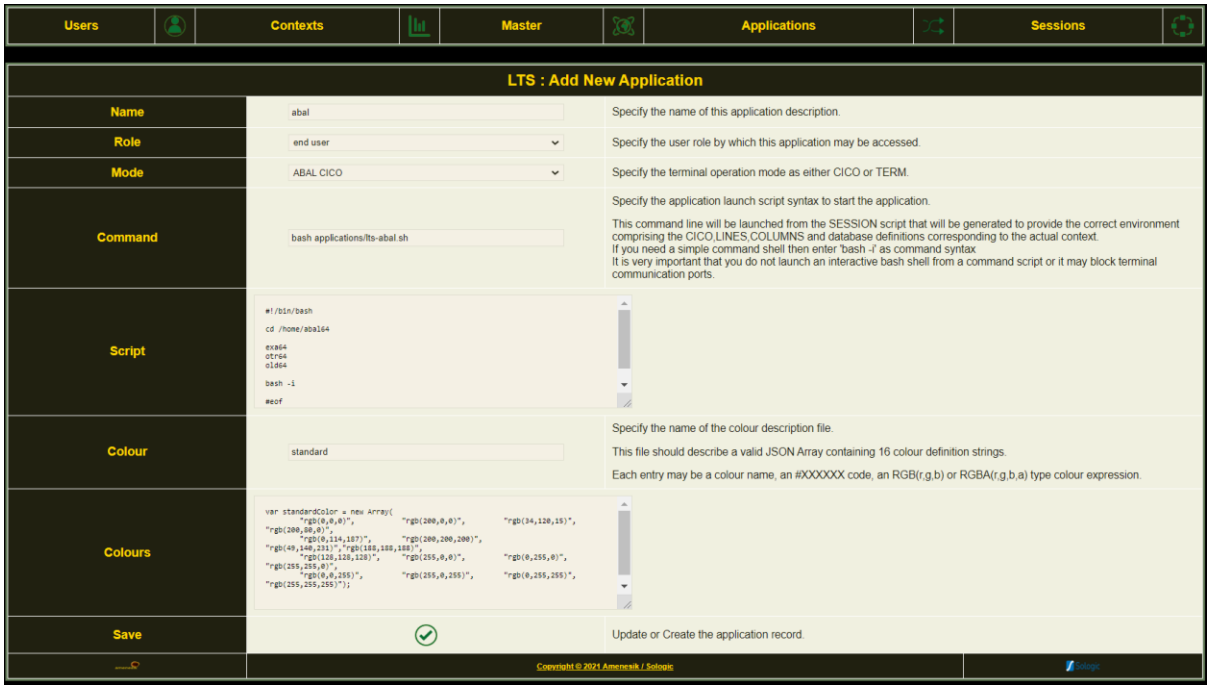
APPLICATION LIST PAGE



The **APPLICATION** list shows the collection of application descriptions that have been defined for the **LTS** System. The complete **APPLICATION** configuration may be retrieved, in **JSON** format, for backup and reference purposes, by clicking on the **INFO** icon up in the top left-hand corner of the table. **NEW APPLICATION** records can be created by clicking on the "**+**" icon in the top right-hand corner of the table. Application configurations can be deleted by clicking the **DELETE** icon in the right-hand column of each application record. Application configurations can be inspected and modified by clicking on the **EDIT** icon in the second to left-hand column of each application record.

APPLICATION RECORD PAGE

The following image shows the fields of the CONTEXT RECORD allowing modification and update of values and creation of new context descriptions.



Name

This field provides the unique name of the application record. It should be composed of standard ASCII alpha numeric characters and hyphen and underscore. It must not contain any space characters. The value of this field identifies the application record associated with context descriptions.

Role

This field determines the role of the user description required for access to sessions launched for current application definition. The value will be selected from the values proposed by the drop-down selection list comprising “site administrator” and “end user”.

Mode

The value of this field determines the nature of the usage of the terminal by the application view. This should be set to CICO for ABAL applications and to TERM for other LINUX applications.

Command

The value of this field should be either the BASH command and associated script path and file name to be launched containing the application launch scripting instructions, or simply “bash -i” for a standard BASH interactive SHELL.

Script

The field contains the contents of the script path and file name describe in the preceding COMMAND field. When inspecting an application record the contents of the script file will be displayed. When SAVING an application record, the contents of this field will be saved as the contents of the script file referenced in the preceding COMMAND field. *This may overwrite existing script files if application descriptions refer to identical script files.*

Colour

The value of this field will define the file name of the set of colour definitions to be used for the application description. This file name refers to a JAVASCRIPT source file containing the contents of the subsequent COLOURS field.

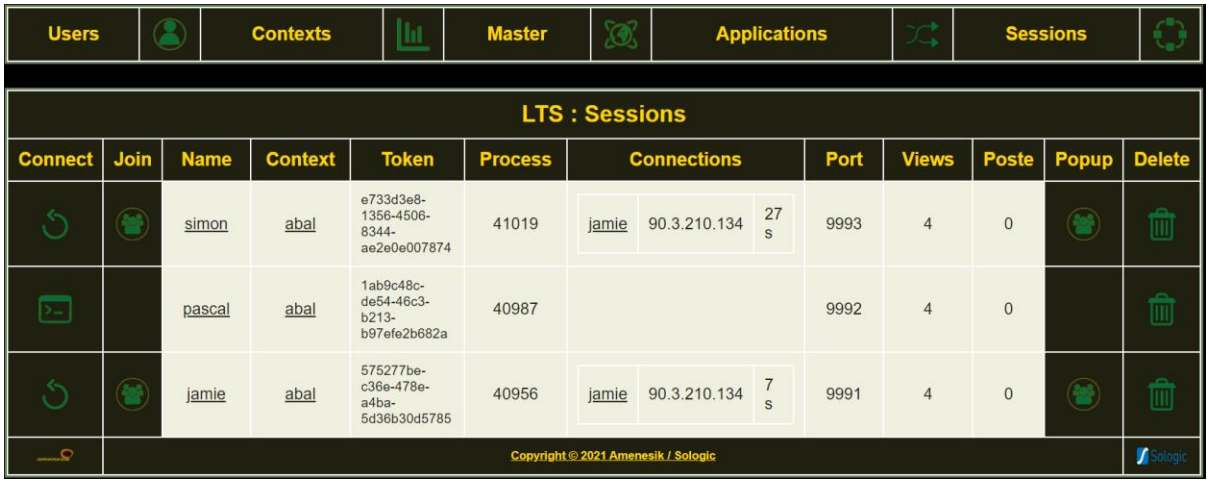
Colours

The value of this field will contain the JAVASCRIPT Array containing the description of the 16 primary colour definitions corresponding to the ABAL foreground and background PAINT instructions from 0 to 15. The contents of this field will be loaded from the JAVASCRIPT colour file named by the value of the preceding COLOUR field. The contents of this field will be SAVED to the JAVASCRIPT colour file named by the value of the preceding COLOUR field. *This may overwrite existing colour description files if application descriptions refer to identical colour files.*

Save

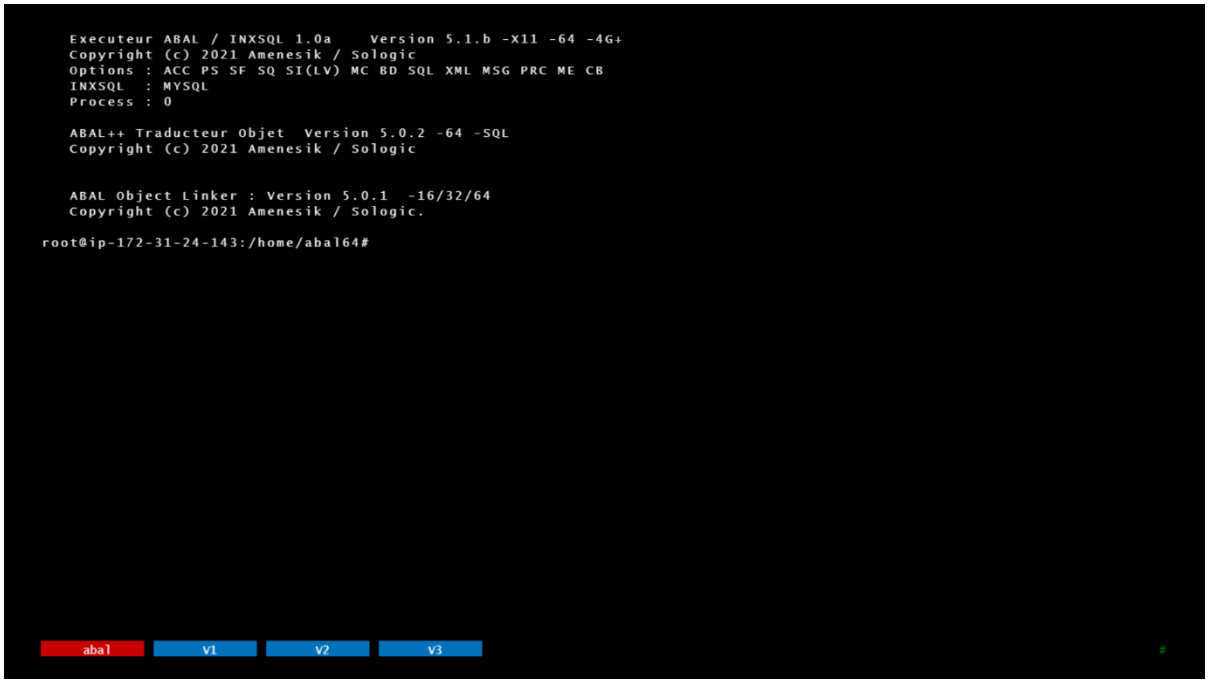
The SAVE icon allows modifications to the application record to be saved to the LTS database. If the context name exists then the corresponding database record will be updated, otherwise a new application description record will be created. This facilitates the creation of application records by copying existing records and simply changing their name.

SESSION LIST PAGE



The **SESSION** list shows the complete collection of all active **TERMINAL SESSIONS** that have been started for the **LTS** System. Active Sessions can be deleted, and all processes terminated, by clicking the **DELETE** icon in the right-hand column of the session record. The CONNECT icon in the left left-most column of each session allows the primary connection to the session to be established. The TERMINAL icon will be displayed in this column when this would be the first connection to the SESSION, whereas the RESUME icon indicates that a connection is already established and can be newly acquired subsequently releasing the previous connection. The JOIN and POPUP icons to the immediate left and right of each session record, when visible, allow a secondary collaborative connection to the existing active session. The hyper-links on usernames and context names in each of the session records allows direct access to the corresponding user and context record. For more information concerning a **TERMINAL SESSION**, please consult the following section of this document entitled LTS TERMINAL SESSION.

LTS TERMINAL SESSION



The preceding image shows a screen shot of a full screen terminal session window for an application context comprising four views each offering a standard interactive BASH shell application.

The following table describes the collection of HOT KEY sequences that can be used within the LTS Terminal Session. In all cases, they keys must be pressed together.

HOTKEY Combination	Description
CTRL SHIFT ENTER	This HOTKEY sequence will toggle the display of the LTS chat window. To make the chat window visible the CTRL SHIFT keys must be released before the ENTER. To make the chat window disappear the ENTER key must be released before the CTRL SHIFT keys.
CTRL SHIFT +	This HOTKEY sequence will change VIEW to the next VIEW when the multiple views have been configured for the session.
CTRL SHIFT -	This HOTKEY sequence will change VIEW to the previous VIEW when the multiple views have been configured for the session.
CTRL SHIFT {1 … N}	This HOTKEY sequence will change VIEW to the VIEW identified by the value of the NUMERIC DIGIT.
CTRL SHIFT L	This HOTKEY sequence will toggle the display of the Multiview buttons at the bottom of the screen.
CTRL SHIFT M	This HOTKEY sequence will toggle the CHAT WINDOW interrupt status between RED (chat interruption possible) and GREEN (chat interruption inhibited).
CTRL SHIFT K	This HOTKEY sequence will toggle the display of the SOFT KEYBOARD window which can be used to perform keyboard input on devices for which no physical keyboard is available, or for certain keys, such as function keys, which are not available using a particular web browser.
CTRL SHIFT R	Record keyboard and mouse activity on the terminal session for subsequent playback.

CTRL SHIFT S	Stop recording or playback of keyboard and mouse activity on the terminal session.
CTRL SHIFT P	Start Playback of previously recorded keyboard and mouse activity on the terminal session. Keyboard and mouse input is not inhibited and can be performed concurrently with the playback stream.
CTRL SHIFT BACKSPACE	Will close the current terminal session window with return to the calling application or LTS Master, without terminating the SESSION. The SESSION will NOT cease to exist and may be re-joined at any moment. Any remaining connections from other browsers will remain active.
CTRL SHIFT DELETE	The LTS equivalent of CTRL ALT DEL will terminate the TERMINAL SESSION. All processes will be stopped, and all connections will be terminated. The SESSION will cease to exist.
CTRL SHIFT MOUSE LEFT BUTTON DOWN, MOVE, UP	Press and hold the CTRL SHIFT keys then press the LEFT button on the MOUSE over the start of the selection, then move the MOUSE to the end of the selection and release the LEFT button. The selection will be copied to the global system CUT buffer and will be available for standard PASTE.
CTRL SHIFT MOUSE RIGHT BUTTON CLICK	Press and hold the CTRL SHIFT keys the CLICK the RIGHT button on the MOUSE and the contents of the standard CUT buffer will be pasted in via the standard input.
CTRL SHIFT F	Toggle the File Upload Window.

LTS TERMINAL SOFT KEYBOARD

When the SOFT KEYBOARD has been activated and made visible for a terminal session, it may be used with the pointing device to send keyboard events to the underlying application standard input. It may also be used when certain key sequences are inhibited by the user's device and or web browser. The CTRL, SHIFT, ALT, ALTGR keys will "light up" when first clicked to show their selection and may change the layout of the other keys on the keyboard.

LTS API

The LTS system has been design with open-ness and integration in mind and offers a full REST API allowing user, context, application, and session records to be accessed and managed from third party systems.

This section of the documentation describes this API of the LTS system allowing definition and management of users, applications, and context records from remote software agents. All requests must be accompanied by suitable authorization credentials that are present as a standard BASIC AUTHORIZATION header in the HTTP request. The API is identical to the WEB interface, the return type being determined only by the accompanying ACCEPTS header in the HTTP request. Web pages will be delivered for accept headers of "text/html" whereas JSON response messages will be returned when the term JSON or json is detected in the accept header.

USERS

User records are required by LTS for the authentication of access to the system and the identification of the appropriate terminal session description to be launched or access by connecting users.

Create User

This API allows an empty LTS user record to created and returned. It will not be stored in the database and must be updated to be recorded.

Parameter	Value	Description
URL	User/create	Creates a user record structure

Example

GET

https://lts.openabal.com:9990/openlts/v1/user/create

Returns

HTTP Status code: [200 | 400 | 403]

{ "users":[{ "name":"", "secret":"", "role":"", "email":"", "context":"", "style":""}]}

Change User

This API allows an LTS user record to retrieves. The name of the user must be specified and if it exists, the corresponding user information will be returned. If it does not exist, this API acts like the Create User API and returns an empty user structure.

Parameter	Value	Description
URL	User/change/{name}	Change a user record
{name}	Alpha numeric value	The name of the user

Example

GET

https://lts.openabal.com:9990/openlts/v1/user/change/guest

Returns

HTTP Status code: [200 | 400 | 403]

{ "users":[{ "name":"guest", "secret":"changeme", "role":"user", "email":"someone@somewhere.com", "context":"demo", "style":"standard"}]}

Update User

This API allows an LTS user record to created or updated. The name is the primary key and if present then the record will be updated, otherwise a new one will be created.

Parameter	Value	Description
URL	User/update	Update user record
Name	Alpha numeric value	The name of the user
Secret	Alpha numeric values	The authorisation credential
Email	Standard email	The user's email for login and communication
Role	[admin|user]	The role of the user as **admin** or simple **user**
Context	Alphanumeric string	The name of the context to be started at login
Debug	[yes|no]	Can be activated to debug login failures
Style	[standard]	Not used for now

Example

POST

https://lts.openabal.com:9990/openlts/v1/user/update

name=guest&secret=changeme&role=user&style=standard&context=demo&debug=no

Returns

HTTP Status code: [200 | 400 | 403]

{ "users":[{ "name":"guest", "secret":"changeme", "role":"user", "email":"someone@somewhere.com", "context":"demo", "style":"standard"}]}

List Users

This API allows an the LTS user list to be retrieved.

Parameter	Value	Description
URL	Users	Retrieve list of users

Example

GET

https://lts.openabal.com:9990/openlts/v1/users

Returns

HTTP Status code: [200 | 400 | 403]

{ "users":[

{ "name":"guest", "secret":"changeme", "role":"user", "email":"someone@somewhere.com", "context":"demo", "style":"standard"},

{ "name":"guest2", "secret":"changeme2", "role":"user", "email":"someone2@somewhere.com", "context":"demo", "style":"standard"}

]}

Delete User

This API allows an LTS user record to deleted. The name of the user must be specified and if it exists it will be deleted.

Parameter	Value	Description
URL	User/delete/{name}	Delete a user record
{name}	Alpha numeric value	The name of the user

Example

GET

https://lts.openabal.com:9990/openlts/v1/user/delete/guest

Returns

HTTP Status code: [200 | 400 | 403]

Terminal

This API allows connection of an LTS user to their terminal session. The name of the user must be specified and if they exist and their authorisation is accepted they will be directed to their newly started terminal session.

Parameter	Value	Description
URL	terminal/{name}	Start a user terminal session
{name}	Alpha numeric value	The name of the user

Example

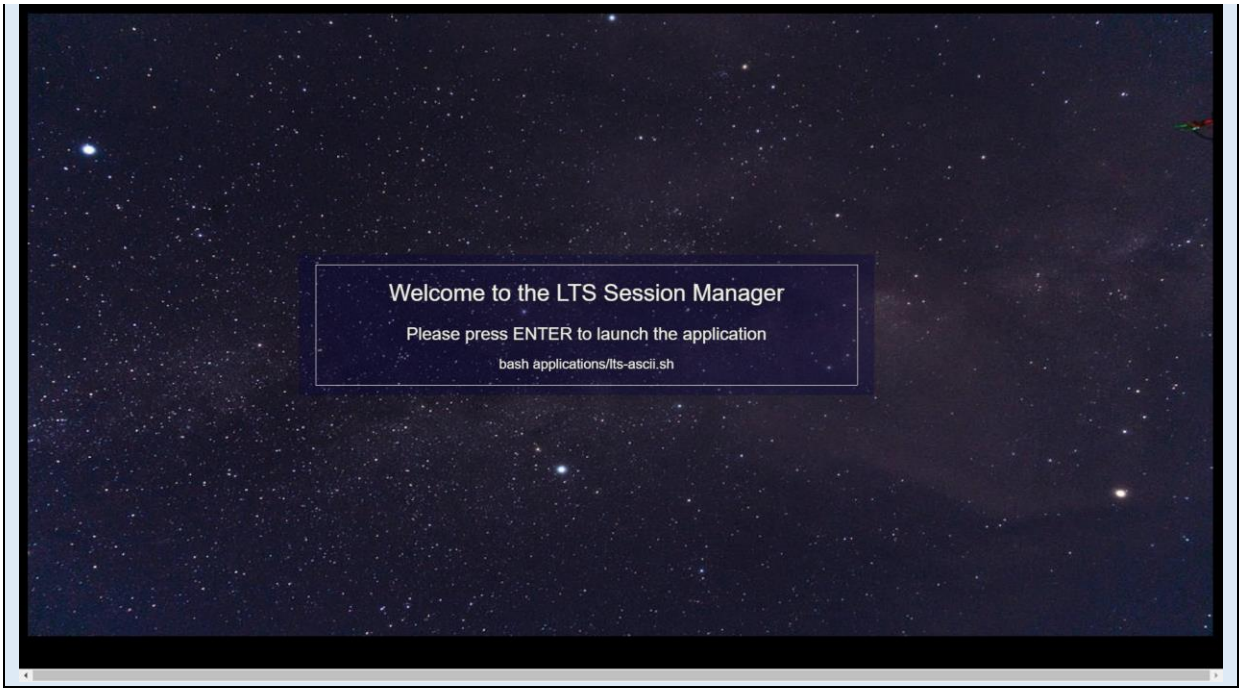
GET

https://lts.openabal.com:9990/openlts/v1/terminal/guest/credentials

Returns

HTTP Status code: [200 | 400 | 403]

Redirects USER to the Terminal Session Web page, and example of which is shown below.



CONTEXTS

Contexts are used by LTS to describe a terminal session, in terms of its views and their applications. Contexts are defined for users such that when they log in a session of the appropriate type will be initiated.

Create Context

This API allows an empty LTS context record to created and returned. It will not be stored in the database and must be updated to be recorded.

Parameter	Value	Description
URL	context/create	Creates a context record structure

Example

GET

https://lts.openabal.com:9990/openlts/v1/context/create

Returns

HTTP Status code: [200 | 400 | 403]

{ "contexts":[

{ "name":"", "role":"", "views":"","statusbar":"","manager":"", "background":"","columns":"", "lines":"", "fontsize":"","process":"","application":[]}]}

Change Context

This API allows an LTS context record to retrieved. The name of the context must be specified and if it exists, the corresponding context information will be returned. If it does not exist, this API acts like the Create Context API and returns an empty context structure.

Parameter	Value	Description

URL	context/change/{name}	Change a context record
{name}	Alpha numeric value	The name of the context

Example

GET

https://lts.openabal.com:9990/openlts/v1/context/change/demo

Returns

HTTP Status code: [200 | 400 | 403]

{ "contexts":[

{ "name":"demo", "role":"user", "views":"4","statusbar":"1","manager":"2", "background":"none","columns":"180", "lines":"49", "fontsize":"14","process":"0","application":[{"name":"demo"},{"name":"demo"},{"name":"shell"},{"name":"shell"}]}]}

Update Context

This API allows an LTS context record to created or updated. The name is the primary key and if present then the record will be updated, otherwise a new one will be created.

Parameter	Value	Description
URL	context/update	Update context record
name	Alpha numeric value	The name of the context
views	Integer value	The number of views for this context
statusbar	Integer value [1|0]	Is a status bar to be displayed
manager	[0|1|2]	Determines the view manager as *none*, *internal* or *external*. Should not be *internal*: deprecated
columns	Integer value	The width of the terminal session screen in columns
lines	Integer value	The height of the terminal session screen in lines
fontsize	Integer value	The size of the text font
background	url	The image to be used as the view manager background
application	Application array	An array containing the names of the applications of each view.

Example

POST

https://lts.openabal.com:9990/openlts/v1/context/update

name=guest&views=4&role=user&columns=140&lines=50&fontsize=16&statusbar=1&manager=2&background=https://www.somewhere.com/images/background.jpg&app1=demo&app2=demo&app3=shell&app4=shell

Returns

HTTP Status code: [200 | 400 | 403]

{ "contexts":[

{ "name":"demo", "role":"user", "views":"4","statusbar":"1","manager":"2",
"background":"none","columns":"180", "lines":"49",
"fontsize":"14","process":"0","application":[{"name":"demo"},{"name":"demo"},{"name":"shell"},{"name":"shell"}]}]}

List Contexts

This API allows an the LTS context list to be retrieved.

Parameter	Value	Description
URL	contexts	Retrieve list of contexts

Example

GET

https://lts.openabal.com:9990/openlts/v1/contexts

Returns

HTTP Status code: [200 | 400 | 403]

{ "contexts":[

{ "name":"ascii", "role":"user", "application":[{"name":"ascii"}], "manager":"2",
"background":"none","columns":"35", "lines":"31", "fontsize":"16","views":"1","process":"0"},

{ "name":"clock", "role":"user", "application":[{"name":"clock"}], "manager":"2",
"background":"none","columns":"10", "lines":"3", "fontsize":"36","views":"1","process":"0"},

{ "name":"demo", "role":"user", "views":"4","statusbar":"1","manager":"2",
"background":"none","columns":"180", "lines":"49",
"fontsize":"14","process":"0","application":[{"name":"demo"},{"name":"demo"},{"name":"shell"},{"name":"shell"}]}]}

Delete Context

This API allows an LTS context record to deleted. The name of the context must be specified and if it exists it will be deleted.

Parameter	Value	Description
URL	context/delete/{name}	Delete a context record
{name}	Alpha numeric value	The name of the context

Example

GET

https://lts.openabal.com:9990/openlts/v1/context/delete/demo

Returns

HTTP Status code: [200 | 400 | 403]

APPLICATIONS

Application records are used to describe the activity or application that is to be launched by the view manager of a user context when a terminal session has been launched for a user.

Create Application

This API allows an empty LTS context record to created and returned. It will not be stored in the database and must be updated to be recorded.

Parameter	Value	Description
URL	application/create	Creates an empty application record structure

Example

GET

https://lts.openabal.com:9990/openlts/v1/application/create

Returns

HTTP Status code: [200 | 400 | 403]

{ "applications":[

{ "name":"", "role":"", "command":"", "mode":"","colour":""}]}

Change Application

This API allows an LTS application record to retrieved. The name of the application must be specified and if it exists, the corresponding application information will be returned. If it does not exist, this API acts like the Create Application API and returns an empty application structure.

Parameter	Value	Description
URL	application/change/{name}	Change an application record
{name}	Alpha numeric value	The name of the application

Example

GET

https://lts.openabal.com:9990/openlts/v1/context/change/demo

Returns

HTTP Status code: [200 | 400 | 403]

{ "applications":[

{ "name":"demo", "role":"user", "command":"bash applications/lts-demo.sh", "mode":"CICO","colour":"standard"}]}

Update Application

This API allows an LTS application record to created or updated. The name is the primary key and if present then the record will be updated, otherwise a new one will be created. This API is the most

complex in that the body of the POST message should be a standard multipart/mixed messages with the application object in the first textual part and the optional script and colours described in subsequent parts. Please refer to the RFC and HTML specifications for precise information relating to the formatting of these Multipart messages, such as:

(cf. https://developer.mozilla.org/en-US/docs/Web/HTTP/Methods/POST)

Parameter	Value	Description
URL	application/update	Update application record
name	Alpha numeric value	The name of the application
mode	[CICO|TERM]	The terminal operation mode
role	[admin|user]	The role of the user as **admin** or simple **user**
colour	[standard|name]	Allows the selection of alternative colour schemes
command	[standard]	The command line syntax to be launched
script	BASH script instructions	The instructions to be launched
colours	JavaScript colour array	The definition of the application specific colours.

Example

POST

https://lts.openabal.com:9990/openlts/v1/application/update

Primary Part

name=demo&mode=CICO&role=user&colour=standard&command=bash applications/lts-demo.sh

Second Part (named script)

#!/bin/bash

Cd /home/guest

Exa64 demo

#eof

Third part (named colours)

var standardColor = new Array('rgb(0,0,0)','#800000','#008000','#808000','#000080','#800080','#008080','#808080','#404040','#FF8080','#80FF80','#FFFF80','#8080FF','#FF80FF','#80FFFF','#F4F0E4');

Returns

HTTP Status code: [200 | 400 | 403]

{ "applications":[

{ "name":"demo", "role":"user", "command":"bash applications/lts-demo.sh", "mode":"CICO","colour":"standard"}]}

List Application

This API allows an the LTS application list to be retrieved.

Parameter	Value	Description
URL	applications	Retrieve list of applications

Example

GET

https://lts.openabal.com:9990/openlts/v1/applications

Returns

HTTP Status code: [200 | 400 | 403]

{ "applications":[

{ "name":"ascii", "role":"user", "command":"bash applications/lts-ascii.sh",
"mode":"CICO","colour":"standard"},

{ "name":"clock", "role":"user", "command":"bash applications/lts-clock.sh",
"mode":"CICO","colour":"standard"},

{ "name":"shell", "role":"user", "command":"bash -i", "mode":"CICO","colour":"standard"},

{ "name":"demo", "role":"user", "command":"bash applications/lts-demo.sh",
"mode":"CICO","colour":"standard"}]}

Delete Application

This API allows an LTS application record to deleted. The name of the application must be specified and if it exists it will be deleted.

Parameter	Value	Description
URL	application/delete/{name}	Delete a application record
{name}	Alpha numeric value	The name of the application

Example

GET

https://lts.openabal.com:9990/openlts/v1/application/delete/demo

Returns

HTTP Status code: [200 | 400 | 403]

SESSIONS

Session records are used by LTS for the management of user terminal sessions when they are created, and for the management of connected users.

List Sessions

This API returns the list of active LTS terminal sessions.

Parameter	Value	Description
URL	sessions	Retrieve list of sessions

Example

GET

https://lts.openabal.com:9990/openlts/v1/sessions

Returns

HTTP Status code: [200 | 400 | 403]

{ "sessions":[

{ "user":"ascii", "context":"ascii", "token":"9cc2335e-73b9-42b8-8a99-adcc1a79258c", "port":"9991", "state":"1", "views":"2", "poste":"0", "process":"2800720", "address":

[{ "name":"guest", "value":"90.3.138.161", "stamp":"1636660537"}]}]}

Delete Session

This API allows an LTS session record to deleted. The identification token of the session must be specified and if it exists, then all connections will be terminated, all application views released, and then the session management process itself will be stopped and deleted.

Parameter	Value	Description
URL	session/delete/{token}	Delete a session record
{token}	Alpha numeric value	The identification token of the session

Example

GET

https://lts.openabal.com:9990/openlts/v1/session/delete/xxxx-xxxx-xxxx-xxxx

Returns

HTTP Status code: [200 | 400 | 403]