

# Online Students' Testing System

Lecturer Hana R. Esmaeel

## Abstract

The paper is concerned with the design of a website for Online Student's Testing System (OSTS). The proposed system (OSTS) is designed and implemented using PHP, MySQL, and JavaScript and tested using WAMP server. It covers evaluation of candidates on web programming languages (HTML, PHP, JavaScript and Java). Before beginning the test, the candidate has to enter his name and ID number that will be entered to the database. Candidate is given a limited time (ten minutes) to answer the questions and after the time expiry, the answer paper is disabled automatically and answers are sent to the server then the mark and the correct answers will be displayed at the end of the test. The question will be randomly generated. OSTs provides the candidate with a certificate including his name, his ID number, his result and the date of taking the test. The purpose of providing the date is that each certificate has a limited time to be expired. Administrator has a privilege to access the database to add, modify and delete the test questions and answers by logging in using specific username and password. OSTs can be accessed from any client in the same local network that the server is connected to.

**Keyword: Certificate , Mysql , Online , php, Test, Website**

## 1 Introduction

OSTS, known as computer based testing, E-testing This kind of testing strategy can be used to test( practical knowledge, inter personal skills, intelligence, logical skills etc.) over the computer system with flexible timing Computer-based testing is used to reduce paper consumption, It reduces long term costs, gives feedback to the user on the spot like scores or grades .Provides flexibility in terms of timings and locations as being conducted over the internet. Reduces chances of human errors in terms of making mistakes, required less physical space - millions of answer sheets stored on a data disk at server which required less space than paper answer sheets [1].

## 2 Objective

OSTS make candidates take a test in an efficient manner , no time wasting for checking the paper. no need of using extra thing like paper, pen. scores are evaluated in various tests and store the results of candidates after that provided professional certificate .The system evaluate the candidate result through a fully automated system that not only saves a lot of time but also gives fast results the limitations of such systems are not suitable for every type of assessment (such as extended response questions).and are expensive to establish [3].

## 3 System design:

3.1 Software Requirements: This website was designed and implemented using the following programs:

3.1.1 Microsoft FrontPage: is a tool used to design a Web page of OSTs .

3.1.2 WampServer that contains Apache server, MySQL Database Management System and PHP.

3.1.3 HTML, an abbreviation of (Hypertext Markup Language), it is the markup language for web pages.

3.1.4 PHP is a general-purpose scripting language for server side , it is especially suited for web development and can be embedded into HTML. It generally runs on a web server, taking PHP code as its input and creating web pages as output. [9].

3.1.5 MySQL [Relational Database Management System (RDBMS)] :It uses a standard form of the well-known SQL data language. It is released under an open source license, and is available for free. It works on many operating systems, and with many languages. PHP ships with a number of functions designed to support MySQL databases [10].

3.1.6 JavaScript is a scripting language used to enable programmatic access to objects within other applications. It is primarily used in the form of client side.

3.2 A diagram and two flowcharts are used in the design of OSTs as shown below

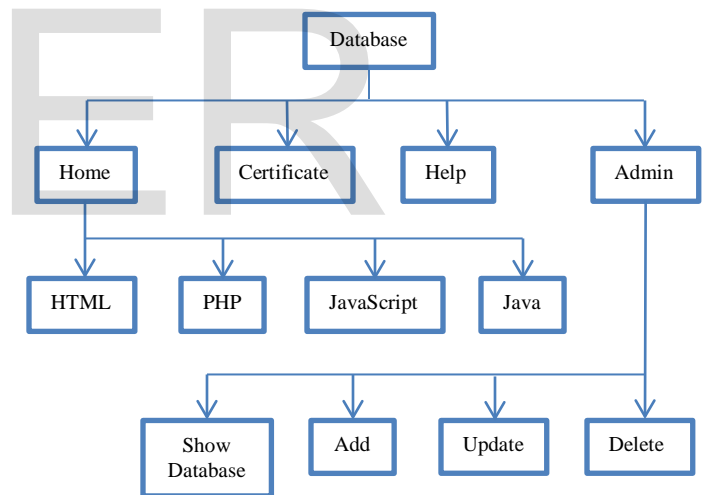


Fig. (1): system layout

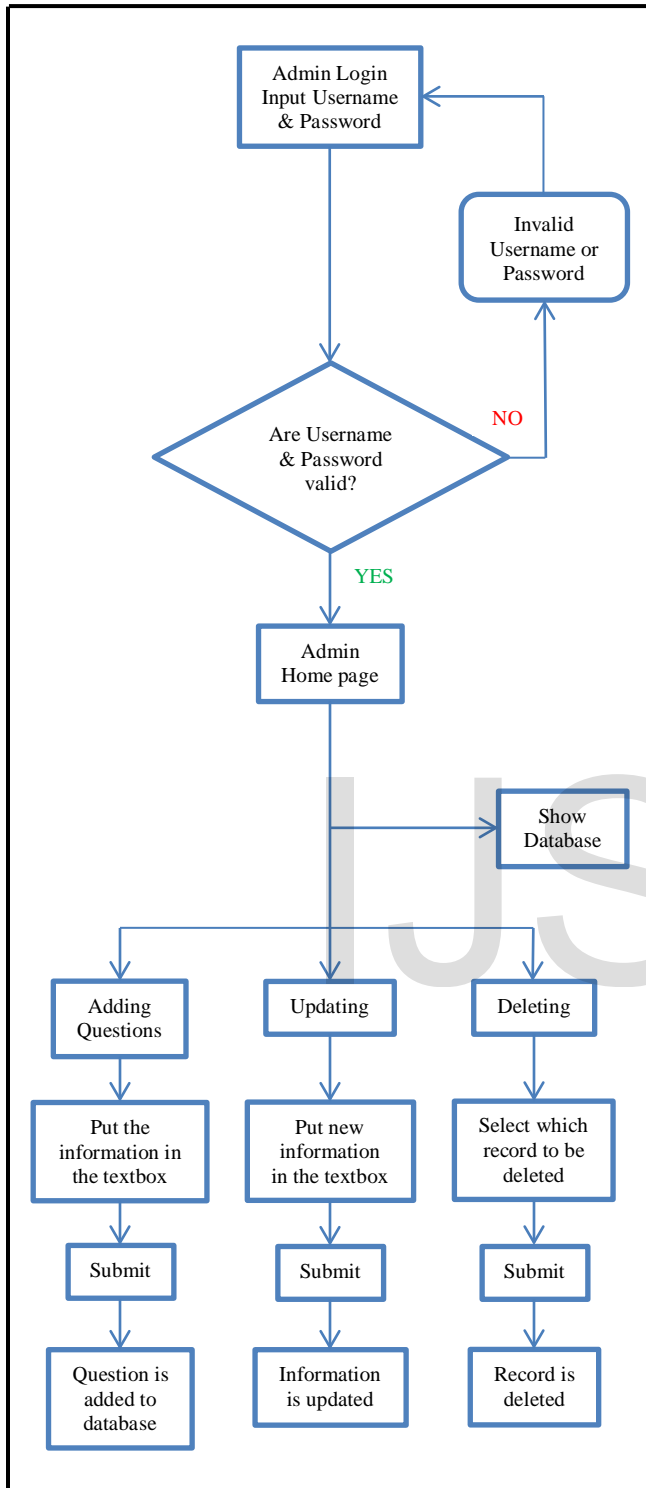


Figure (2): Admin Flowchart

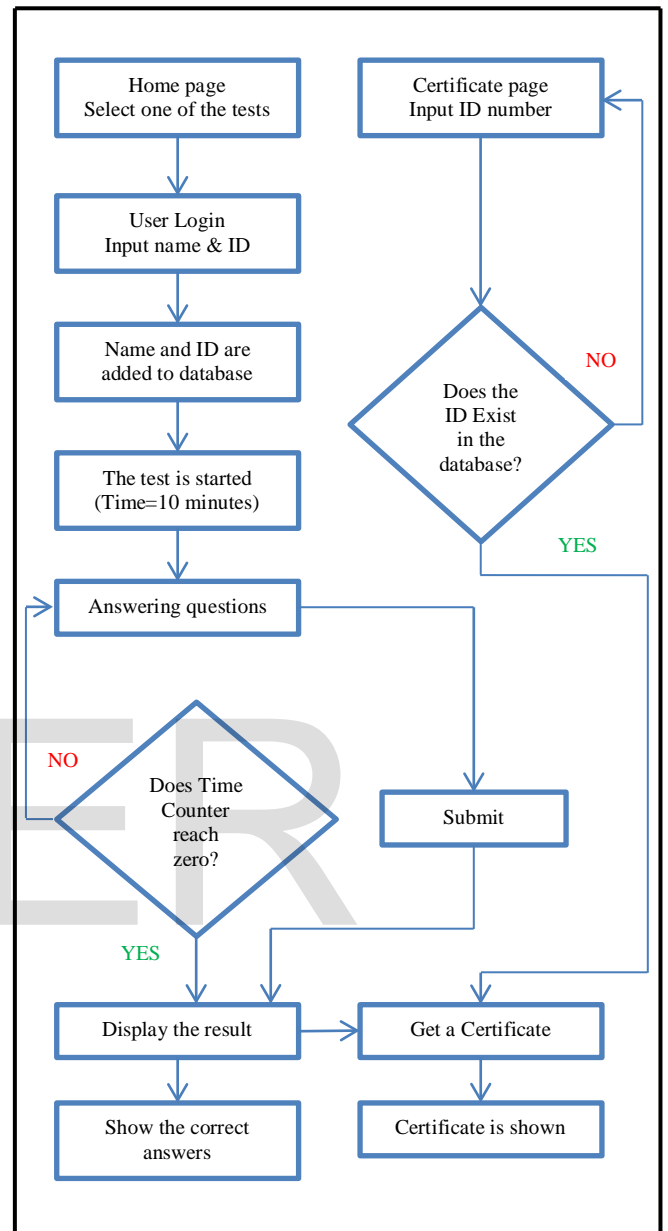


Figure (3): Test and Certificate Flowchart

**4 Database Design:** Database Design is concerned with the identification of tables that used in the system, and the relationship between these tables and their attributes.

OSTS provides questions in multiple choice forms. For each test, there are questions stored in the database. For each test, there is a database table so there are four tables:

- HTML\_table
- PHP\_table
- JavaScript\_table
- Java\_table

Each table contains eight fields as shown in figure (4) below these fields are:

- Question\_id: This contains the id of the question.
- Question: This contains the question.
- Right\_answer: This contains the correct answer for the questions.
- Answer1: This contains the first choice for the question.
- Answer2: This contains the second choice for the question.
- Answer3: This contains the third choice for the question.
- Answer4: This contains the fourth choice for the question.
- Mark: This contains the mark or score for the question.

| Field        | Type          | Collation         | Attributes | Null | Default | Extra          | Action |
|--------------|---------------|-------------------|------------|------|---------|----------------|--------|
| question_id  | int(40)       |                   | UNSIGNED   | No   | None    | auto_increment |        |
| question     | varchar(1000) | latin1_swedish_ci |            | No   | None    |                |        |
| right_answer | varchar(500)  | latin1_swedish_ci |            | No   | None    |                |        |
| answer1      | varchar(500)  | latin1_swedish_ci |            | No   | None    |                |        |
| answer2      | varchar(500)  | latin1_swedish_ci |            | No   | None    |                |        |
| answer3      | varchar(500)  | latin1_swedish_ci |            | No   | None    |                |        |
| answer4      | varchar(500)  | latin1_swedish_ci |            | No   | None    |                |        |
| mark         | int(10)       |                   |            | No   | None    |                |        |

Fig.4 The structure of the tables used in OSTS

**Implementing the system:** Many methods in (PHP, HTML and MySQL) were written to implement OSTS as shows in the following tables:

Table (1): PHP and HTML methods

| Method              | Function   |
|---------------------|--|
| \$_POST             | Used to collect values from a form sent with method="post"   |
| date()              | Formats a timestamp to a more readable date and time   |
| \$_SESSION[]        | Used to store information about, or change settings for a user session. Session variables hold information about one single user, and are available to all pages in one application. |
| mysql_connect()     | Opens a non-persistent MySQL connection  |
| mysql_select_db()   | Sets the active MySQL database   |
| mysql_query()       | Specifies the SQL query to send  |
| mysql_fetch_array() | Returns a row from a record set as an associative array and/or a numeric array   |
| mysql_num_fields()  | Returns the number of fields in a record set   |
| mysql_fetch_field() | Returns an object containing information of a field from a record set  |
| mysql_fetch_row()   | Returns a row from a record set as a numeric array   |
| mysql_free_result() | Frees memory used by a result handle   |

Table (2): JavaScript methods

|                            |  |
|----------------------------|--|
| document.forms[0].submit() | Automatically submits a form   |
| Math.floor()               | Rounds a number downward to its nearest integer                                      |
| self.setInterval()         | calls a function or evaluates an expression at specified intervals (in milliseconds) |

## 5 Webpages Design and Implementation

**5.1 Home Page:** At the beginning when the student enters the website, a main page will be displayed as shown in figure (5) below

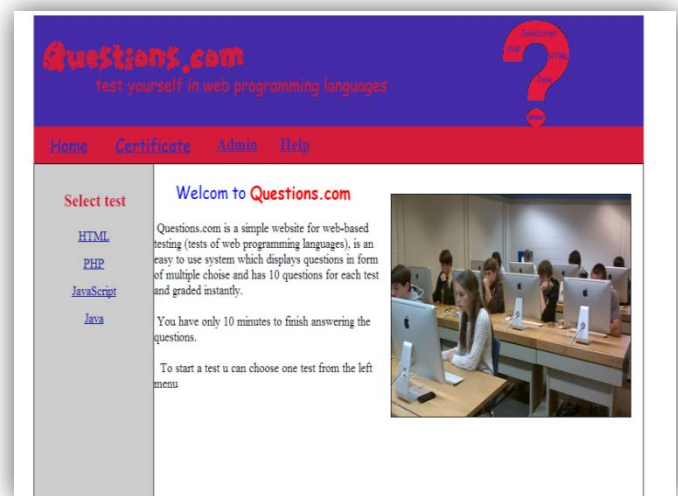


Fig 5. Home page

Now if a student selects HTML test from the left menu, a page will be displayed to request the student's name and ID number as shown in figure (6).



Fig.6 HTML test login page

Student's name and ID number will be stored in the database table and the test page will be displayed as shown in figure (7).

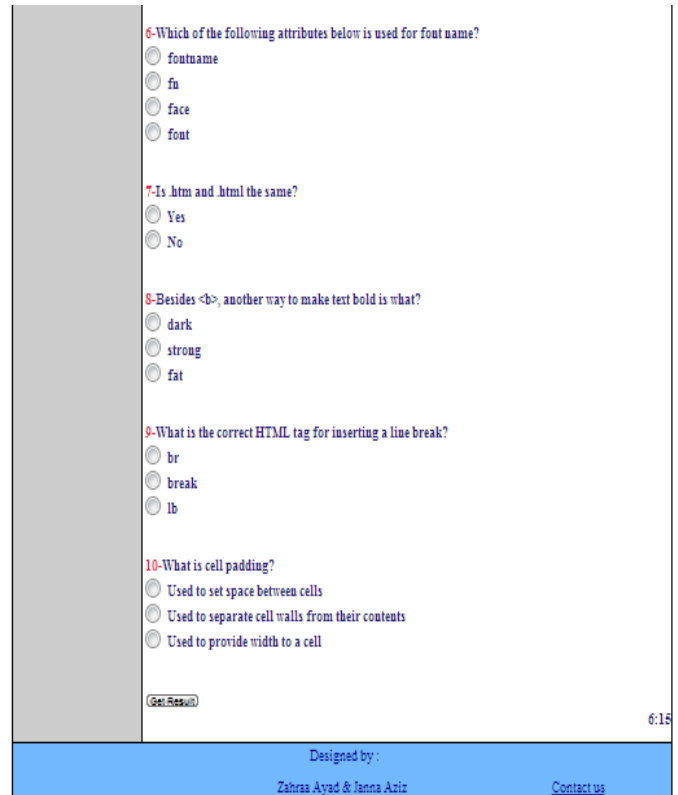
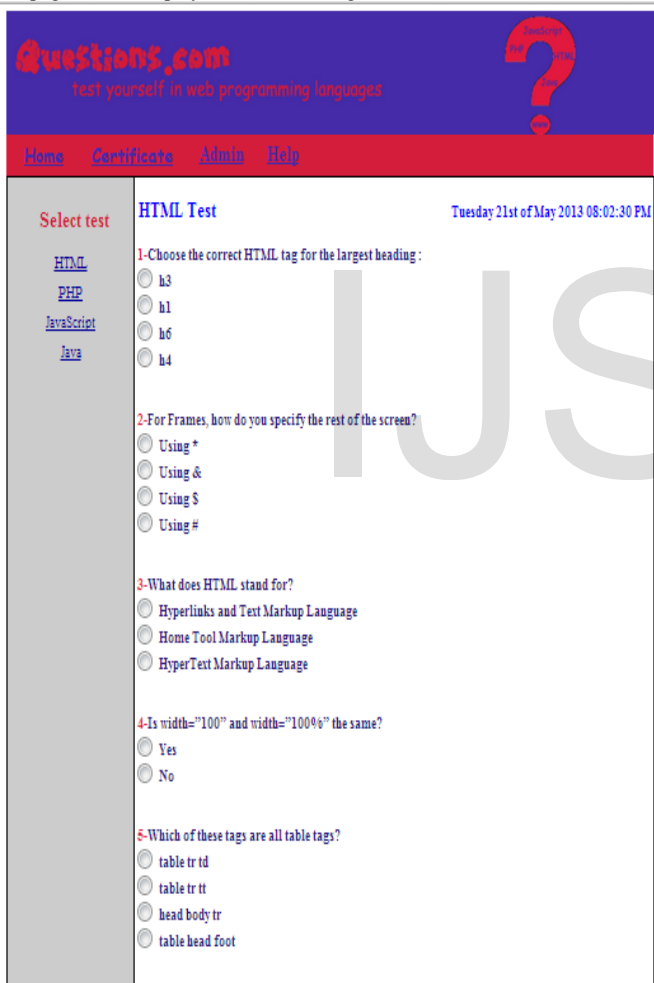


Fig.7 Test questions page

These ten questions displayed in random form from the database that contains twenty questions. As shown in figure (7), there is a countdown timer, appears at the right-bottom of the page, and starts with 10 minutes. If this timer reaches to zero before the student submits the answers, the answers will be submitted automatically and the result will be displayed. Figure (8) shows the result page after finishing the test.



Fig.8 Test result page

After finishing the test, the student can know the correct answers by clicking on [Show the correct answers](#). As shown in Figure (9) below:

**Select test**

[HTML](#)  
[PHP](#)  
[JavaScript](#)  
[Java](#)

**The correct answers**

- 1-Choose the correct HTML tag for the largest heading:  
 The correct answer : h1  
 Your answer : h1
- 2-For Frames, how do you specify the rest of the screen?  
 The correct answer : Using \*  
 Your answer : Using \*
- 3-What does HTML stand for?  
 The correct answer : HyperText Markup Language  
 Your answer : HyperText Markup Language
- 4-Is width="100" and width="100%" the same?  
 The correct answer : No  
 Your answer : No
- 5-Which of these tags are all table tags?  
 The correct answer : table tr td  
 Your answer : table tr td
- 6-Which of the following attributes below is used for font name?  
 The correct answer : face  
 Your answer : font
- 7-Is .htm and .html the same?  
 The correct answer : Yes  
 Your answer : Yes
- 8-Besides <b>, another way to make text bold is what?  
 The correct answer : strong  
 Your answer : dark
- 9-What is the correct HTML tag for inserting a line break?  
 The correct answer : br  
 Your answer : br
- 10-What is cell padding?  
 The correct answer : Used to separate cell walls from their contents  
 Your answer : Used to set space between cells

**Fig. 9 Test correct answers**

The student can also get a certificate by clicking on **Get a Certificate** button. Figure (10) shows the result of clicking **Get a Certificate** button.

**Select test**

[HTML](#)  
[PHP](#)  
[JavaScript](#)  
[Java](#)

**Certificate of HTML test**

|                     |                                      |
|---------------------|--------------------------------------|
| Name of Institution | University of Al-Nahrain             |
| Name of Student     | zahraa                               |
| ID                  | 334422                               |
| Test Date           | Tuesday 21st of May 2013 07:39:24 PM |
| Test Result         | 68.75%                               |

**Fig.10 Test certificate**

**5.2 Certificate Page:** When a student had already taken a test and wants to get a certificate, he can go to certificate page and chooses the test which he had and enters his ID number as shown in figure (11) then his certificate will be displayed as shown in figure (10).

**Questions.com**  
 test yourself in web programming languages

Home Certificate Admin Help

**Select test**

Choose the test:

Enter your ID Number:

[HTML](#)  
[PHP](#)  
[JavaScript](#)  
[Java](#)

**Fig.11 Certificate page**

**5.3 Admin Page:** This page was designed for the administrator to access the database and alter the data inside it by first entering the username and password as shown in figure (12).

**Questions.com**  
 test yourself in web programming languages

Home Certificate Admin Help

**Select test**

Username:

Password:

[HTML](#)  
[PHP](#)  
[JavaScript](#)  
[Java](#)

**Fig.12 Admin login page**

The operations that can be done by an admin are: show the database, adding questions, updating an existed record and deleting a record as shown in figure (13).

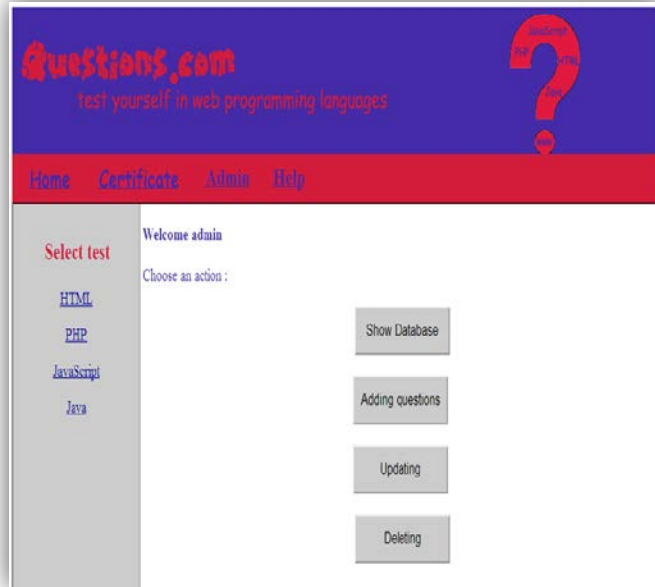


Fig.13 Admin page

**5.4 Help Page:** This page explains how to use the system and how to answer the questions as shown in figure (14).

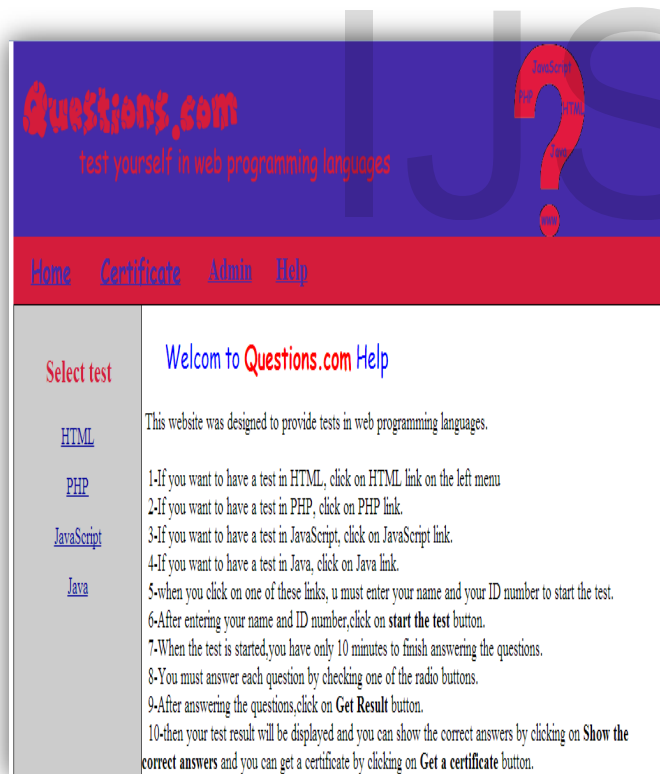


Fig.14 Help page

## 6 Conclusions

From the use of proposed system (OSTS), we come out with the following conclusions:

1. For easy work, the user must build his database using MySQL Database Management System.
2. For easy design FrontPage tool used to design user friendly interface.

3. PHP is powerful, easy programming language, and is free software.
4. WAMP server is a very powerful server that combines Windows, Apache, MySQL and PHP.
5. The question will be randomly generated.
6. OSTs provides the candidate with a certificate including his name, his ID number, his result and the date of taking the test
7. OSTs is a platform independent system which means that it can be accessed from any client in the same local network that the server is connected to.

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