# Quality of Protection Modeling Language: Models

ROLE-BASED ACCESS CONTROL

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QoP-ML

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# QoP-ML Model: Role-Based Access Control

## 1.1 General Information

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|---|---|
| **Model Name:** | Role-Based Access Control |
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| **Requires:** | AQoPA 0.8.2 |
| **Analysed In:** | |
| **Date:** | 2014 |

## 1.2 Model Description

Modeling RBAC in the Quality of Protection Modeling Language, we assumed the existence of an enterprise with many departments, having miscellaneous responsibilities, and thus distinct permissions and rights to the companys assets.

We took under consideration three from the available enterprise roles and examined the influence of different permissions to the overall system performance. In our analysis, we assume that all the defined applications are tunnelled by the TLS protocol. Proposed versions of the TLS protocol differ in utilized security mechanisms and cryptographic algorithms between the RBAC roles.

To create the role based access control in the Quality of Protection Modeling Language, we prepared a security model consisting of two communicating hosts: a client and a server. In addition, we prepared three asynchronous communication channels to facilitate the information exchange process. On the clients site, we modeled the main process being responsible for establishing secure connection with the server, and a subprocess capable of generating different types of network traffic based on the role received from the server. Server abstracted in Quality of Protection Modeling Language is much alike the client - it also has a main process which sets up the communication parameters, but, opposite to the client, it contains three subprocessess, thereby being able to manage clients with miscellaneous levels of authorization. Modeling the RBAC approach, we defined QoP-MLs functions, equations, channels, processes, subprocessess and hosts.