# **Real-time Distributed OPF Script Note**

**Script description**

The scripts are used to solve optimal power flow (OPF) problem in a real-time distributed fashion. The main function script consists of three major blocks - problem setup including network data and online demand, centralized optimization, and distributed optimization, which are linked to different function scripts.

**Script list**

|  |  |
| --- | --- |
| Script | Usage |
| distopf.m | main function |
| network7.m | 7-bus network data |
| loadpred.m | generate online demand with perturbation |
| centralized\_controller.m | centralized OPF controller |
| distributed\_ADMM\_controller.m | distributed ADMM-based OPF controller |
| distributed\_BCD\_controller.m | distributed BCD-based OPF controller |
| network56.m | 56-bus network data |
| distributed\_homotopy\_controller.m | distributed homotopy-based OPF controller |
| distributed\_GS\_controller.m | distributed GS-based OPF controller |
| comparison.m | compare different simulation setup |
| autorunmpc.m | run a series of distopf setups |

**Script prerequisite**

* YALMIP
* Gurobi
* sum\_square.m function in CVX (optional)

**Main function setup**

#Line30 DoCentComp =

#Line328 DoOfflineDist =

#Line402 sol = distributed\_ADMM\_controller(demandnow,b0 …

**Script revision**

LA @ EPFL, Jul. 27, 2015

Contact: yuejiang.liu@epfl.ch

liuyuejiang1989@gmail.com