0D Time-Dependent Problems

ODEs:

$$
\begin{aligned}
C_{11}(t, U1, ..., UN)\frac{dU1}{dt} + \cdots + C_{1N}(t, U1, ..., UN)\frac{dUN}{dt} &= \\
F_1(t, U1, ..., UN) & \\
. &= \\
. &= \\
C_{N1}(t, U1, ..., UN)\frac{dU1}{dt} + \cdots + C_{NN}(t, U1, ..., UN)\frac{dUN}{dt} &= \\
F_N(t, U1, ..., UN) &
\end{aligned}
$$

Initial conditions:

$$
\begin{aligned}
U1(t_0) &= U1_0 \\
. &= . \\
. &= . \\
UN(t_0) &= UN_0
\end{aligned}
$$